

PART-2

FEASIBILITY STUDY

ANNEX 1

MICROSCOPIC DEMAND FORECAST

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MICROSCOPIC DEMAND FORECAST

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Table 1: Distribution of Affordable Payment in Sampled Household

Income(TG)	Sample	(Tg per Month)						
		0	1500	2000	3000	3500	4000	5000
18999	14		3	3	6			1
19000	60			3	7	1	1	16
41000	164	4		3	1	1	1	14
101000	63							1

Income(TG)	6000	7000	7500	8000	8500	9000	10000	12000
18999								1
19000	1	11	1	5	1	1	7	
41000	1	37		23		3	45	2
101000		7		3		2	11	3

Income(TG)	12500	13000	15000	18000	20000	25000	30000
18999							
19000	3		2				
41000	7	1	11	1	8	1	
101000	7	2	9		16	1	1

Table 2: Affordable Monthly Payment in Questionnaire

Average Household Income (Tg)	Affordable Monthly Payment (Tg)
9,500	3,107
30,000	6,667
71,000	9,177

Table 3: Household Number (2002)

ID	Aima gID	Sum ID	Aimag/Sum Name	Total	18999 and Under	19000- 40999	41000- 100999	101000 and above
1	10	2	Bayan-Undur	228	43	103	57	25
2	10	3	Burd	228	43	103	57	25
3	10	4	Bat-Ulzii	665	422	165	58	20
4	10	5	BB-Ulaan	191	63	92	36	0
5	10	6	Bayangol	173	62	66	45	0
6	10	7	Guchin-Us	145	47	27	71	0
7	10	8	Esunzuil	244	117	96	31	0
8	10	9	Ulziit	146	83	46	15	2
9	10	10	ZB Ulaan	253	97	28	111	17
10	10	11	Bogd	246	15	29	69	133
11	10	12	Nariinteel	339	129	90	98	22
12	10	13	Sant	186	23	63	94	6
13	10	14	Taragt	189	90	76	23	0
14	10	15	Tugrug	240	41	79	115	5
15	10	16	Yanga	394	45	116	225	8
16	10	17	Khairkhandula	212	35	164	13	0
17	10	18	Khujirt	970	277	336	258	99
18	10	19	Kharkhorin	3,454	39	375	3,040	0
19	10	20	Bayanteeg	51	21	28	2	0
20	13	2	Altanbulag	596	149	213	225	9
21	13	3	Eruu	538	53	70	191	225
22	13	4	Zuunburen	352	132	171	50	0
23	13	5	Khushaat	239	6	7	226	0
24	13	6	Orkhon	399	5	14	380	0
25	13	7	Sant	415	34	61	321	0
26	13	8	Khuder	325	8	14	303	0
27	13	9	Tsagaannuur	693	11	32	650	0
28	13	10	Bugant	0	0	0	0	0
29	13	11	Orkhontuul	698	33	56	609	0
30	13	12	Baruunburen	341	9	22	311	0
31	13	13	Dulaankhaan	0	0	0	0	0
32	13	14	Javkhiant	186	4	14	168	0
33	13	15	Shaamar	800	52	173	575	0
34	13	16	Tushig	311	16	50	245	0
35	13	17	Saikhan	0	0	0	0	0
36	13	18	Khutul	2,068	43	416	1,609	0
37	13	19	Zuunkharaa	4,400	33	184	4,183	0
38	13	20	Bayangol	804	7	23	774	0
39	13	21	Tunkhel	710	5	30	675	0
40	19	2	Shariin gol	1,872	85	636	744	407
41	19	3	Khongor	427	13	104	283	27
42	19	4	Orkhon	717	338	295	83	0

Remark: Selenge Areas are arranged by Total sum Centre Population

Table 4: Number of Public Organization categorized with the size

	Aimag/Sum Name	Government Office				School				Hospital				other			
		Total	Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small
10	UVURKHANGAI Aimag Total																
10	Total of Sum Centres	76	76			26	26			19	19	1		172		132	30
10	2 Bayan-Undur	4	4			1	1			1	1			7		4	3
10	3 Burd	4	4			1	1			1	1			11		9	2
10	4 Bal-Ulzii	4	4			2	2			1	1			6		6	
10	5 BB-Ulaan	4	4			1	1			1	1			3		3	
10	6 Bayangol	1	1			1	1			1	1			13		6	7
10	7 Guchin-Uus	4	4			1	1			1	1			2		2	2
10	8 Esunzuil	4	2		2	1	1			1	1			14		2	12
10	9 Ulzii	4	4			1	1			1	1			4		3	1
10	10 ZB Ulaan	4	4			3	3			1	1			8		7	1
10	11 Bogd	4	4			1	1			1	1			10		8	2
10	12 Nariinteel	4	4			1	1			1	1			9		5	4
10	13 Sant	4		4		1	1			1	1			8			8
10	14 Taragt	4	4			2	2			1	1			6		6	
10	15 Tugrug	4	4			1	1			1	1			3		3	
10	16 Yanga	10	1	1	8	3	2		1	2	1	1		19	1	15	3
10	17 Khairkhandulaan	4	4			1	1			1	1			6		4	2
10	18 Khujirt	5	1	4		1	1			1	1						
10	19 Kharkhorin	3	1	1	1	3	3			1	1			5	3	2	
10	20 Bayanteeg	3	3			1	1			1	1	1					
13	SELENGE Aimag Total																
13	Total of Sum Centres																
13	2 Altanbulag	1		1		1	1			1		1		1	1		
13	3 Eruu	1	1			1	1			1		1		1			1
13	4 Zuunburen	1	1			1	1			1		1		2		1	1
13	5 Khushaat	1		1		1		1		1		1		1			1
13	6 Orkhon	1		1		1		1		1		1		1			1
13	7 Sant	1		1		1		1		1		1		2		1	
13	8 Khuder	1		1		1		1		1		1		2	2		0
13	9 Tsagaannuur	1		1		1		1		1		1		3	1	1	1
13	10 Bugant	1		1		1		1		1		1		3	3		
13	11 Orkhontuul	1		1		1		1		1		1		2	1		1
13	12 Baruunburen	1		1		1		1		1		1		1			1
13	13 Dulaankhaan	1		1		1		1		1		1		2		1	1
13	14 Javkhiant	1		1		1		1		1		1		1			1
13	15 Shaamar	1		1		1		1		1		1		1			1
13	16 Tushig	1		1		1		1		1		1		1			1
13	17 Saikhan																
13	18 Khutul	2		2		2	1	1		1	1			4	3	1	
13	19 Zuunkharaa	2	1	1		5	5			1	1			14	5	7	2
13	20 Bayangol (Baruunharaa)	1		1		1	1			1	1			3			3
13	21 Tunkhel	1		1		1	1							1		1	
19	DARKHAN-UUL Aimag Total																
19	Total of Sum Centres																
19	2 Shariin gol	1	1			1	1			1	1			6	4	1	1
19	3 Khongor	1	1		1	1	1			1	1			41	16	12	13
19	4 Orkhon	1		1		1	1			1		1		5	3	1	1

Large: more than 15 staff

Medium: 6-15 staff

Small: less than 6 staff

Table 5: Details of Public Demand

ID	AimagID	SumID	Aimag/Sum Name	Government			School			Hospital			Others						
				Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Total			
1	10	2	Bayan-Undur	25	0	0	25	2	0	0	23	0	0	3	0	0	4	2	7
2	10	3	Burd	25	0	0	25	2	0	0	23	0	0	3	0	0	10	2	12
3	10	4	Bat-Ujzii	25	0	0	25	4	0	0	43	0	0	3	0	0	7	0	7
4	10	5	BB-Ulaan	25	0	0	25	2	0	0	23	0	0	3	0	0	3	0	3
5	10	6	Bayangol	6	0	0	6	2	0	0	23	0	0	3	0	0	7	5	12
6	10	7	Guchin-Uls	25	0	0	25	2	0	0	23	0	0	3	0	0	2	2	4
7	10	8	Zyil	12	0	2	14	2	0	0	23	0	0	3	0	0	2	9	11
8	10	9	Ulziit	25	0	0	25	2	0	0	23	0	0	3	0	0	3	1	4
9	10	10	ZB Ulaan	25	0	0	25	6	0	0	62.7	0	0	3	0	0	8	1	9
10	10	11	Bogd	25	0	0	25	2	0	0	23	0	0	3	0	0	9	2	10
11	10	12	Narinteel	25	0	0	25	2	0	0	23	0	0	3	0	0	6	3	9
12	10	13	Sant	0	21	0	21	2	0	0	23	0	0	3	0	0	0	6	6
13	10	14	Taragt	25	0	0	25	4	0	0	43	0	0	3	0	0	7	0	7
14	10	15	Tugnug	25	0	0	25	2	0	0	23	0	0	3	0	0	3	0	3
15	10	16	Yanga	6	5	7	18	4	0	1	53	2	0	5	6	17	2	25	
16	10	17	Kharkhandulaan	25	0	0	25	2	0	0	23	0	0	3	0	0	4	2	6
17	10	18	Khuzirt	6	21	0	27	2	0	0	23	0	0	3	0	0	0	0	6
18	10	19	Kharkhorin	6	5	1	12	6	0	0	63	0	0	3	17	2	0	0	19
19	10	20	Bayanteeg	18	0	0	18	2	0	0	23	2	0	5	0	0	0	0	0
20	13	2	Altanbulag	0	5	0	5	2	0	0	20	2	0	2	6	0	0	0	6
21	13	3	Eruu	6	0	0	6	2	0	0	20	2	0	2	0	0	0	0	1
22	13	4	Zaunburen	6	0	0	6	2	0	0	20	2	0	2	0	0	1	1	2
23	13	5	Khusbaat	0	5	0	5	0	1	0	10	2	0	2	0	0	0	1	1
24	13	6	Orkhon	0	5	0	5	0	1	0	10	2	0	2	0	0	0	1	1
25	13	7	Sant	0	5	0	5	0	1	0	10	2	0	2	6	0	1	6	
26	13	8	Khuder	0	5	0	5	0	1	0	10	2	0	2	11	0	0	11	
27	13	9	Tsagaannuur	0	5	0	5	0	1	0	10	2	0	2	6	1	1	8	
28	13	10	Bugant	0	5	0	5	0	1	0	10	2	0	2	17	0	0	17	
29	13	11	Orkhontuul	0	5	0	5	0	1	0	10	2	0	2	6	0	0	6	
30	13	12	Baruunburen	0	5	0	5	0	1	0	10	2	0	2	0	0	1	1	
31	13	13	Dulaankhaan	0	5	0	5	0	1	0	10	2	0	2	0	0	1	2	
32	13	14	Javkhlaant	0	5	0	5	0	1	0	10	2	0	2	0	0	1	1	
33	13	15	Shaamar	0	5	0	5	0	1	0	10	2	0	2	0	0	1	1	
34	13	16	Tushig	0	5	0	5	0	1	0	10	2	0	2	0	0	1	1	
35	13	17	Saikhan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
36	13	18	Khutul	0	11	0	11	2	1	0	33	0	0	3	17	1	0	18	
37	13	19	Zuunkharaa	6	5	0	11	10	0	0	103	0	0	3	29	8	2	38	
38	13	20	Bayangol	0	5	0	5	2	0	0	23	0	0	3	0	0	0	2	2
39	13	21	(Baruunharaa) Tunkhel	0	5	0	5	2	0	0	20	0	0	0	0	0	1	0	1
40	19	2	Sharin gol	6	0	0	6	2	0	0	23	0	0	3	23	1	1	25	
41	19	3	Khongor	6	0	1	7	2	0	0	23	0	0	3	91	13	10	115	
42	19	4	Orkhon	0	5	0	5	2	0	0	20	2	0	2	17	1	1	19	

Table 6: Number of Business Company categorized with the size

	Aimags/Sum Name	Agriculture and Stock-breeding				Fabric				Trade and Sells				Other			
		Total	Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small
10	UVURKHANGAI Aimag T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Total of Sum Centres	2	0	0	2	0	0	0	0	18	0	18	0	0	0	0	0
10	2 Bayan-Undur	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
10	3 Burd	1	0	0	1	0	0	0	0	2	0	2	0	0	0	0	0
10	4 Bat-Ulzil	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0
10	5 BB-Ulaan	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
10	6 Bayangol	0	0	0	0	2	0	2	0	3	0	1	2	0	0	0	0
10	7 Guchin-Uus	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
10	8 Esunzui	2	0	0	2	2	0	0	2	6	2	2	2	0	0	0	0
10	9 Ulziti	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0
10	10 ZB Ulaan	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0
10	11 Bogd	0	0	0	0	0	0	0	0	3	1	2	0	0	0	0	0
10	12 Narinteel	25	0	8	17	37	0	0	37	19	0	0	19	0	0	0	0
10	13 Sant	0	0	0	0	0	0	0	0	1	0	1	0	5	0	0	5
10	14 Taragt	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0
10	15 Tugrug	1	0	1	0	0	0	0	0	4	0	4	0	0	0	0	0
10	16 Yanga	0	0	0	0	2	0	0	2	12	0	6	6	5	0	0	5
10	17 Khairkhandulaan	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0
10	18 Khujirt	0	0	0	0	4	2	2	0	1	0	1	0	9	3	5	1
10	19 Kharkhorin	3	1	0	2	30	7	5	18	1	0	0	1	24	4	3	17
10	20 Bayanteeg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	SELENGE Aimag Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Total of Sum Centres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	2 Altanbulag	7	2	3	2	1	0	1	0	1	0	0	1	2	0	0	2
13	3 Eruu	14	2	7	5	0	0	0	0	0	0	0	0	0	0	0	0
13	4 Zuunburen	15	2	13	0	0	0	0	0	4	0	0	4	6	0	0	6
13	5 Khushaat	33	7	15	11	0	0	0	0	2	0	0	2	1	0	0	1
13	6 Orkhon	30	2	19	9	0	0	0	0	2	0	0	2	1	0	0	1
13	7 Sant	11	1	6	4	0	0	0	0	5	0	1	4	2	0	0	2
13	8 Khuder	11	3	3	5	2	0	1	1	2	0	0	2	1	0	1	0
13	9 Tsagaannuur	25	4	15	6	0	0	0	0	4	0	1	3	2	0	0	2
13	10 Bugant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	11 Orkhontuul	28	3	20	5	2	1	1	0	3	0	1	2	2	0	1	1
13	12 Baruunburen	17	3	12	2	0	0	0	0	2	0	0	2	1	0	0	1
13	13 Dulaankhaan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	14 Javkhiant	21	2	17	2	0	0	0	0	2	0	0	2	1	0	0	1
13	15 Shaamar	4	3	1	0	2	0	1	1	2	0	1	1	4	2	1	1
13	16 Tushig	4	2	2	0	2	0	2	0	2	0	0	2	2	0	1	1
13	17 Saikhan	13	3	4	6	4	3	1	0	8	1	2	5	5	0	2	3
13	18 Khutul	13	3	4	6	4	3	1	0	8	1	2	5	5	0	2	3
13	19 Zuunkharaa	62	9	8	45	20	8	5	7	55	21	18	16	35	0	20	15
13	20 Bayangol (Baruunharaa)	19	5	5	9	9	0	8	1	7	1	1	5	7	0	2	5
13	21 Tunkhel	0	0	0	0	2	2	0	0	5	0	0	5	16	0	0	16
19	DARKHAN-UUL Aimag To	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Total of Sum Centres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	2 Shariin gol	5	0	0	5	18	3	2	13	41	1	3	37	20	0	0	20
19	3 Khongor	19	5	11	3	21	0	0	21	14	0	0	14	11	0	0	11
19	4 Orkhon	52	1	4	47	6	1	1	4	0	0	0	0	2	0	1	1

Large : More than 15 Employees

Medium: 6-15 Employees

Small: less than 6 Employees

Table 7: Details of Business Company Demand

ID	AimsgID	SumID	Aimsg/Sum Name	Agriculture/Stock			Fabric			Trade/Sells			Others				
				Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Total	
1	10	2	Bayan-Undur	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	10	3	Burd	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	10	4	Bat-Ulzii	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	10	5	BB-Ujaan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	10	6	Bayangol	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	10	7	Guchin-Uls	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	10	8	Zyil	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	10	9	Ulzit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	10	10	ZB Ulaan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	10	11	Bogd	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	10	12	Narinteel	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	10	13	Sant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	10	14	Taragt	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	10	15	Tugrug	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	10	16	Yanga	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	10	17	Kharkhandulaan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	10	18	Khuzirt	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	10	19	Kharkhorin	2	0	0	0	0	0	0	0	0	0	0	0	0	0
19	10	20	Bayanteeg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	13	2	Altanbulag	4	3	0	0	0	0	0	0	0	0	0	0	0	0
21	13	3	Erwu	4	7	0	0	0	0	0	0	0	0	0	0	0	0
22	13	4	Zaunburen	4	13	0	0	0	0	0	0	0	0	0	0	0	0
23	13	5	Khushaat	14	15	0	0	0	0	0	0	0	0	0	0	0	0
24	13	6	Orkhon	4	19	0	0	0	0	0	0	0	0	0	0	0	0
25	13	7	Sant	2	6	0	0	0	0	0	0	0	0	0	0	0	0
26	13	8	Khuder	6	3	0	0	0	0	0	0	0	0	0	0	0	0
27	13	9	Tsagaannuur	8	15	0	0	0	0	0	0	0	0	0	0	0	0
28	13	10	Bugant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	13	11	Orkhontuul	6	20	0	0	0	0	0	0	0	0	0	0	0	0
30	13	12	Barunburen	6	12	0	0	0	0	0	0	0	0	0	0	0	0
31	13	13	Dulaankhaan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	13	14	Javkhlan	4	17	0	0	0	0	0	0	0	0	0	0	0	0
33	13	15	Shaamar	6	1	0	0	0	0	0	0	0	0	0	0	0	0
34	13	16	Tushig	4	2	0	0	0	0	0	0	0	0	0	0	0	0
35	13	17	Saikhan	6	4	0	0	0	0	0	0	0	0	0	0	0	0
36	13	18	Khutul	6	4	0	0	0	0	0	0	0	0	0	0	0	0
37	13	19	Zaunkharaa	18	8	1	0	0	0	0	0	0	0	0	0	0	0
38	13	20	Bayangol	10	5	0	0	0	0	0	0	0	0	0	0	0	0
39	13	21	Tunkhel	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	19	2	Sharin gol	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	19	3	Khongor	10	11	0	0	0	0	0	0	0	0	0	0	0	0
42	19	4	Orkhon	2	4	1	0	0	0	0	0	0	0	0	0	0	0

Table 8: Population and its Growth Rate

ID	AimagsID	SumID	Aimags/Sum Name	1997	1998	1999	2000	2001	Growth Rate	2002	2008	2013	2020
1	10	10	2 Bayan-Undur	540	439	445	448	541	1.00	541	543	544	546
2	10	3	Burd	604	607	610	620	607	1.00	608	612	616	621
3	10	4	Bat-Ulzii	1,838	1,930	1,935	1,940	1,837	1.00	1,837	1,835	1,834	1,832
4	10	5	BB-Ulaan	495	501	508	514	496	1.00	496	498	499	501
5	10	6	Bayangol	875	869	851	879	896	1.01	901	934	962	1,003
6	10	7	Guchin-Uls	471	488	483	500	472	1.00	472	474	475	477
7	10	8	Esunzui	688	713	713	981	1,003	1.04	1,043	1,320	1,606	2,113
8	10	9	Ulziit	587	589	600	620	588	1.00	588	590	591	593
9	10	10	ZB Ulaan	668	667	670	671	669	1.00	669	671	672	674
10	10	11	Bogd	964	965	973	978	965	1.00	965	967	968	970
11	10	12	Nariinteel	1,385	1,387	1,390	1,394	1,386	1.00	1,386	1,388	1,389	1,391
12	10	13	Sant	810	815	720	859	730	0.97	711	609	534	445
13	10	14	Taragt	612	617	620	650	612	1.00	612	612	612	612
14	10	15	Tugrug	621	630	635	636	623	1.00	624	627	629	633
15	10	16	Yanga	1,189	1,204	1,035	1,354	1,343	1.03	1,385	1,662	1,935	2,395
16	10	17	Khairkhandulaan	589	590	690	692	590	1.00	590	592	593	595
17	10	18	Khujirt	2,692	272	250	3,949	2,692	1.00	2,692	2,692	2,692	2,692
18	10	19	Kharkhorin	9,126	8,784	8,876	8,718	8,523	0.98	8,379	7,562	6,943	6,160
19	10	20	Bayanteeg	1,124	0	0	200	1,124	1.00	1,124	1,124	1,124	1,124
20	13	2	Altanbulag	2,544	2,637	2,931	2,870	3,206	1.04	3,334	4,219	5,133	6,755
21	13	3	Eruu	2,220	2,311	2,365	2,441	2,475	1.03	2,543	2,994	3,430	4,148
22	13	4	Zaunburen	1,985	2,171	2,193	2,094	1,998	1.00	2,001	2,021	2,038	2,061
23	13	5	Kushaat	896	850	860	1,014	940	1.01	951	1,022	1,085	1,180
24	13	6	Orkhon	1,539	1,573	1,581	1,676	1,234	0.96	1,185	927	756	568
25	13	7	Sant	1,761	1,681	1,675	1,608	1,601	0.98	1,563	1,355	1,203	1,018
26	13	8	Khuder	1,802	1,840	1,715	1,520	1,484	0.96	1,425	1,115	909	683
27	13	9	Tsagaannuur	2,830	2,960	2,970	2,948	3,073	1.02	3,137	3,550	3,935	4,545
28	13	10	Bugant	2,000	0	0	2,000	2,000	1.00	2,000	2,000	2,000	2,000
29	13	11	Orkhontuul	1,832	1,453	1,970	3,286	3,500	1.04	3,640	4,606	5,604	7,374
30	13	12	Barunburen	2,140	1,721	1,732	1,558	1,568	0.96	1,505	1,178	961	722
31	13	13	Dulaankhaan	1,000	0	0	1,000	1,000	1.00	1,000	1,000	1,000	1,000
32	13	14	Javkhlan	976	1,056	1,065	961	902	0.98	884	786	712	620
33	13	15	Shaamar	4,415	2,947	2,829	3,735	3,426	0.96	3,289	2,574	2,099	1,577
34	13	16	Tushig	1,410	1,446	1,450	1,456	1,318	0.98	1,296	1,171	1,076	957
35	13	17	Saikhan	1	0	0	0	1	1.00	1	1	1	1
36	13	18	Khutul	9,718	9,818	10,052	8,737	6,596	0.96	6,332	4,957	4,041	3,037
37	13	19	Zaunkharaa	16,044	186,339	16,734	18,433	18,778	1.04	19,529	24,711	30,064	39,562
38	13	20	Bayangol	3,518	3,220	3,095	3,666	3,580	1.00	3,596	3,691	3,773	3,890
39	13	21	Tunkhel	3,163	3,110	3,236	3,494	3,526	1.03	3,623	4,264	4,885	5,907
40	19	2	Sharin gol	7,898	7,879	7,594	8,289	7,722	0.99	7,679	7,423	7,217	6,938
41	19	3	Khongor	2,158	2,287	2,497	2,598	2,573	1.04	2,676	3,386	4,119	5,421
42	19	4	Orkhon	2,052	1,762	1,645	1,650	2,900	1.04	3,016	3,816	4,643	6,110

Table 9: Demand Density

ID	Aima gID	Sum ID	Aimag/Sum Name	Macro (2001)	Macro (2002)	Macro (2008)	Macro (2013)	Macro (2020)	Micro (2002)	Shifting Mobile Density (2002)
1	10	2	Bayan-Undur	0.04	0.04	0.05	0.07	0.09	0.14	0.02
2	10	3	Burd	0.06	0.06	0.08	0.10	0.13	0.13	0.02
3	10	4	Bat-Ulzii	0.05	0.05	0.07	0.08	0.11	0.04	0.01
4	10	5	BB-Ulaan	0.04	0.04	0.06	0.07	0.09	0.10	0.01
5	10	6	Bayangol	0.06	0.06	0.08	0.09	0.12	0.05	0.00
6	10	7	Guchin-Us	0.11	0.12	0.14	0.18	0.24	0.11	0.01
7	10	8	Esunzuil	0.08	0.08	0.08	0.08	0.08	0.06	0.00
8	10	9	Ulziit	0.05	0.06	0.07	0.09	0.12	0.08	0.00
9	10	10	ZB Ulaan	0.09	0.09	0.11	0.14	0.19	0.13	0.02
10	10	11	Bogd	0.05	0.05	0.07	0.08	0.11	0.16	0.04
11	10	12	Nariinteel	0.04	0.05	0.06	0.07	0.10	0.09	0.01
12	10	13	Sant	0.06	0.06	0.09	0.13	0.21	0.11	0.01
13	10	14	Taragt	0.07	0.07	0.09	0.11	0.15	0.09	0.00
14	10	15	Tugrug	0.06	0.06	0.07	0.09	0.12	0.12	0.01
15	10	16	Yanga	0.11	0.11	0.11	0.12	0.13	0.10	0.01
16	10	17	Khairkhandula	0.05	0.05	0.06	0.07	0.10	0.09	0.01
17	10	18	Khujirt	0.11	0.11	0.14	0.18	0.24	0.08	0.02
18	10	19	Kharkhorin	0.10	0.11	0.15	0.20	0.30	0.10	0.00
19	10	20	Bayanteeg	0.01	0.01	0.01	0.01	0.02	0.02	0.00
20	13	2	Altanbulag	0.05	0.05	0.04	0.04	0.04	0.03	0.00
21	13	3	Eruu	0.05	0.05	0.04	0.05	0.05	0.09	0.02
22	13	4	Zuunburen	0.03	0.03	0.03	0.04	0.06	0.03	0.00
23	13	5	Khushaat	0.04	0.04	0.04	0.04	0.05	0.10	0.01
24	13	6	Orkhon	0.04	0.04	0.06	0.09	0.16	0.10	0.02
25	13	7	Sant	0.05	0.05	0.06	0.08	0.13	0.07	0.01
26	13	8	Khuder	0.03	0.03	0.04	0.06	0.12	0.07	0.01
27	13	9	Tsagaannuur	0.04	0.04	0.04	0.04	0.05	0.06	0.01
28	13	10	Bugant	0.05	0.05	0.05	0.06	0.08	0.00	0.00
29	13	11	Orkhontuul	0.03	0.03	0.02	0.02	0.03	0.05	0.01
30	13	12	Baruunburen	0.07	0.07	0.09	0.14	0.25	0.07	0.01
31	13	13	Dulaankhaan	0.04	0.04	0.04	0.05	0.06	0.00	0.00
32	13	14	Javkhlant	0.05	0.05	0.05	0.08	0.12	0.08	0.01
33	13	15	Shaamar	0.05	0.05	0.07	0.10	0.19	0.05	0.00
34	13	16	Tushig	0.04	0.04	0.04	0.06	0.09	0.06	0.01
35	13	17	Saikhan	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	13	18	Khutul	0.08	0.08	0.11	0.16	0.29	0.08	0.00
37	13	19	Zuunkharaa	0.06	0.06	0.05	0.05	0.05	0.06	0.00
38	13	20	Bayangol	0.06	0.06	0.06	0.08	0.10	0.06	0.01
39	13	21	Tunkhel	0.00	0.00	0.00	0.00	0.00	0.05	0.01
40	19	2	Shariin gol	0.08	0.09	0.10	0.12	0.18	0.08	0.02
41	19	3	Khongor	0.07	0.07	0.06	0.06	0.06	0.10	0.01
42	19	4	Orkhon	0.04	0.04	0.03	0.04	0.04	0.05	0.00

ANNEX 2

SWITCHING SYSTEM

Annex 2

Switching System

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Annex 2-1 Existing Switching Systems and Space Availability

Uvurkhangai Aimag

No.	Aimag/Sum		Switching Facilities				MDF	Working Conditions		Detail Bill Function	
			Model	Type	Manuf'd	Capacity		Status	Power	Facilities	ON/OFF
1	Aimag center	---	SDE	D	1997	1,760	A	Working	Central Grid	Yes	Full
2	Bayan-Undur	P-2	Not exist	---	---	0	B	No Hardware	---	No	---
3	Burd	P-1	C-12/48	D	1991	48	B	Working	Central Grid	No	---
4	Bat-Ulzii	P-1	C-12/48	D	1991	48	B	Working	Central Grid	No	---
5	BB-Ulaan	P-4	ATC-50/200	A	Bfr. 1980	50	B	Seasonal	Sum Diesel	No	---
6	Bayangol	P-1	C-12/48	D	1990	48	B	Working	Central Grid	No	---
7	Guchin-Us	P-2	KXTD-500	D	2000	100	C	Working	Solar	Yes	Within Sum
8	Esonzuun-Zyil	P-1	ATC-50	A	Bfr. 1980	100	B	Working	Central Grid	No	---
9	Ulziit	P-2	ATC-40/80	A	Bfr. 1980	40	B	Working	Central Grid	No	---
10	ZB Ulaan	P-1	ATC-50	A	Bfr. 1980	50	B	Working	Central Grid	No	---
11	Bogd	P-2	C-12/48	D	1990	48	B	Working	Solar	No	---
12	Nariinteel	P-1	ATC-50/200	A	Bfr. 1980	50	C	Seasonal	Sum Diesel	No	---
13	Sant	P-1	ATC-50/200	A	Bfr. 1980	50	C	Working	Central Grid	No	---
14	Taragt	P-2	ATC-50/200	A	Bfr. 1980	50	B	Working	Central Grid	No	---
15	Tugrug	P-2	EM-48	D	N.K.	48	B	Working	Central Grid	No	---
16	Uyanga	P-1	ATC-50/202	A	Bfr. 1980	200	B	Working	Central Grid	No	---
17	Kharkhandulaan	P-4	ATC-50/203	A	Bfr. 1980	50	B	Seasonal	Sum Diesel	No	---
18	Khujirt	P-1	KXT-336	D	1996	262	C	Working	Central Grid	Yes	Within Sum
19	Kharkhorin	P-1	ATC-100/2000	A	Bfr. 1980	1,000	B	Working	Central Grid	No	---
20	Uurkhai in Baynteeг	P-4	National Product	A	N.K.	6	B	Paused	Solar	No	---
	Total					4,008					

Type D = Digital, A = Analogue, M = Manual. Abbr. Bfr = Before, N.K. = Not Known, Thru = Through
Note:

1. KXTD and KXT are products of Panasonic, Japan.
2. "Sum Diesl" menas that the switch power is supplied from Sum centre diesel engine which runs from November to April, with interruption of 1 to 2 hours per day, and doesn't run during summer (May to Octob)
3. Uurkhai in Baynteeг switch paused for voltage unmatching, it needs 220V, but the Solar power feeds 24V.

No.	Aimag/Sum	No. of circuits to/from Aimag	Telephone Number	Trunk Call Service		Subscriber				Switch Equipment Room	
				O/G	I/C	Total	Public	Business	Private	Space	Condition
1	Aimag center	---	---	Yes	Yes	1,644	171	162	1,311	---	---
2	Bayan-Undur	1	2-6511	Thru operator	Thru operator	1	1	0	0	Available	Normal
3	Burd	1	2-6533	Thru operator	Thru operator	22	9	4	9	Available	Normal
4	Bat-Ulzii	1	2-6532	Thru operator	Thru operator	23	9	2	12	Available	Normal
5	BB-Ulaan	1	2-6534	Thru operator	Thru operator	0	0	0	0	Available	Normal
6	Bayangol	1	2-6510	Thru operator	Thru operator	40	14	0	26	Available	Normal
7	Guchin-Us	1	2-6512	Dialling "9"	Thru operator	38	6	1	31	Available	Normal
8	Esonzuun-Zyil	O/G=1, I/C=1	2-7508	Thru operator	Thru operator	60	8	2	50	Available	Normal
9	Ulziit	1	2-6509	Thru operator	Thru operator	4	4	0	0	Available	Normal
10	ZB Ulaan	1	2-6503	Thru operator	Thru operator	31	6	5	20	Available	Normal
11	Bogd	1	2-6513	Thru operator	Thru operator	17	9	0	8	Available	Normal
12	Nariinteel	O/G=1, I/C=1	2-6536	Thru operator	Thru operator	0	0	0	0	Available	Normal
13	Sant	1	2-6506	Thru operator	Thru operator	10	8	2	0	Available	Normal
14	Taragt	1	2-6502	Thru operator	Thru operator	21	7	0	14	Available	Normal
15	Tugrug	1	2-6505	Thru operator	Thru operator	21	6	4	11	Available	Normal
16	Uyanga	O/G=3, I/C=1	2-6501	Thru operator	Thru operator	130	13	4	113	Available	Normal
17	Kharkhandulaan	1	2-6500	Thru operator	Thru operator	0	0	0	0	Available	Normal
18	Khujirt	O/G=3, I/C=2	Note	Dialling "9"	Thru operator	218	30	11	177	Available	Normal
19	Kharkhorin	15	Note	Thru operator	Thru operator	720	39	67	614	Available	Normal
20	Uurkhai in Baynteeг	1	2-6531	Thru operator	Thru operator	0	0	0	0	Available	Normal
	Total					3,000	340	264	2,396		

4. ATC battery is old and worn-out and long time support is not possible.
5. Khujirt Telephone numbers: 2-6526 (O/G), 2-6538 (O/G), 2-6537 (Fax), 2-6507 (I/C), 2-6535 (I/C)

Selenge and Darkhan-Uul Aimag

No.	Aimag/Sum		Switching Facilities				MDF	Working Conditions		Detail Bill Function	
			Model	Type	Manuf'd	Capacity		Status	Power	Facilities	ON/OFF
11	Selenge Aimag	---	SDE	D	1997	1,888		Working	Central Grid	Yes	Full
12	Altanbulag	P-1	HICOM	D	2001	200		Working	Central Grid	No	---
13	Eruu	P-1	ATCK-100/2000	A	1979	100		Working	Central Grid	No	---
14	Zuunburen	P-1	Panasonic	D	1997	32		Working	Central Grid	No	---
15	Khushaat	P-4	ATCK-50/200	A	In 1980's	50		Working	Central Grid	No	---
16	Orkhon	P-3	C-12/48	D	1991	48		Working	Central Grid	No	---
17	Sant	P-1	ATCK-50/200	A	In 1980's	50		Working	Central Grid	No	---
18	Khuder	P-4	ATCK-50/200	A	In 1980's	50		Working	Central Grid	No	---
19	Tsagaannuur	P-1	ATCK-50/200	A	In 1980's	100		Working	Central Grid	No	---
20	Bugant	P-3	ATCK-50/200	A	In 1980's	100		Working	Central Grid	No	---
21	Orkhontuul	P-1	ATCK-50/200	A	In 1980's	50		Working	Central Grid	No	---
22	Baruunburen (Bayangol)	P-2	ATCK-50/200	A	In 1980's	100		Working	Central Grid	No	---
23	Dulaankhaan	P-4	ATCK-50/200	A	In 1980's	100		Working	Central Grid	No	---
24	Javkhiant	P-4	ATCK-50/200	A	In 1980's	50		Working	Central Grid	No	---
25	Shaamar	P-1	ATCK-50/200	A	In 1980's	100		Working	Central Grid	No	---
26	Tushig	P-4	ATCK-50/200	A	1979	50		Working	Central Grid	No	---
Homing To Darkhan-Uul EWSD											
27	Saikhan (Nomgon)	P-2	ATCK-50/200	A	In 1980's	100		Working	Central Grid	No	---
28	Khutul	P-1	ATCK-100/2000	A	In 1980's	600		Working	Central Grid	No	---
29	Zuunkharaa	P-1	HICOM	D		700		Working	Central Grid	Yes	Full
30	Bayangol	P-1	Panasonic-330	D	1996	228		Working	Central Grid	Yes	No
31	Tunkhel	P-2	ATCK-50/200	A	In 1980's	100		MT has withdrawn in 2002		---	---
	Sub-total	---	---	---	---	4,796	---	---	---	---	---
51	Darkhan-Uul		EWSD	D	1997	6,384	A	Working	Central Grid	Yes	Full
52	Shariin gol	P-2	ATCK-100/200	A	In 1980's	500		Working	Central Grid	No	---
53	Khongor	P-2	ATCK-50/200	A	In 1980's	150		Working	Central Grid	No	---
54	Orkhon	P-2	ATCK-50/200	A	In 1980's	150		Working	Sum Engine	No	---
55	Salkhit (R/D of Khongor)		---	---	---	---		MT has withdrawn in 2001		---	---
	Sub-total	---	---	---	---	7,184	---	---	---	---	---

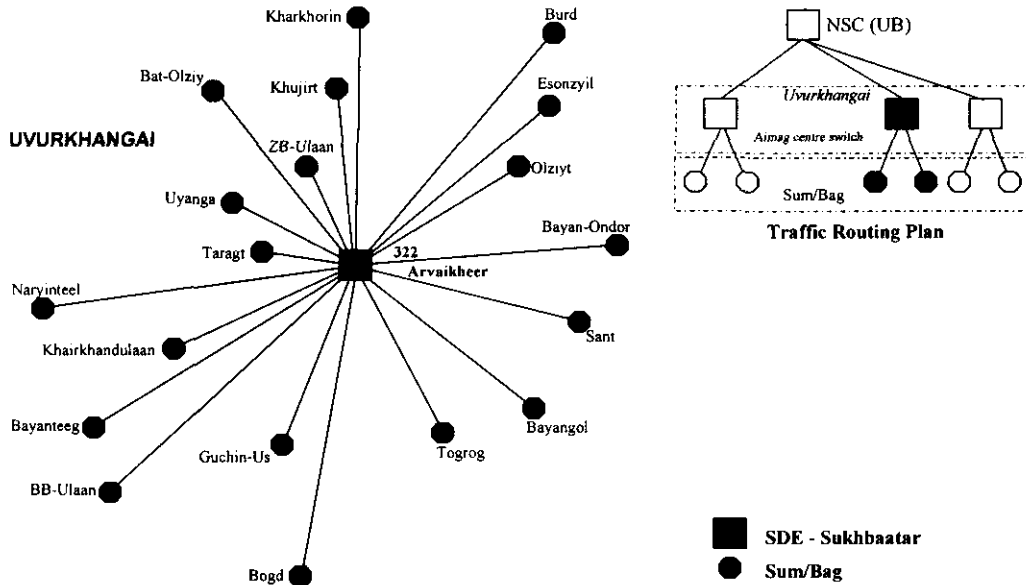
Type D = Digital, A = Analogue, M = Manual.

No.	Aimag/Sum	No. of circuits to/from Aimag	Telephone Number	Trunk Call Service		Subscriber				Switch Equipment Room	
				O/G	I/C	Total	Public	Business	Private	Space	Condition
11	Selenge Aimag	---	---	Yes	Yes	1,376	191	158	1,027	---	---
12	Altanbulag	2	2-6501	Thru operator	Thru operator	89	12	7	70	Available	Normal
13	Eruu	2	2-6504	Thru operator	Thru operator	70	10	14	46	Available	Normal
14	Zuunburen	1	2-6506	Thru operator	Thru operator	14	10	3	1	Available	Normal
15	Khushaat	R/D	---	Thru operator	Thru operator	10	8	2	0	Available	Normal
16	Orkhon	1 + R/D	2-6513	Thru operator	Thru operator	13	4	4	5	Available	Normal
17	Sant	1	2-6511	Thru operator	Thru operator	33	14	8	11	Available	Normal
18	Khuder	R/D	---	Thru operator	Thru operator	9	4	5	0	Available	Normal
19	Tsagaannuur	2	2-6507	Thru operator	Thru operator	45	15	30	0	Available	Normal
20	Bugant	R/D	---	Thru operator	Thru operator	44	22	17	5	Available	Normal
21	Orkhontuul	1	206518	Thru operator	Thru operator	31	17	8	6	Available	Normal
22	Baruunburen (Bayangol)	R/D	---	Thru operator	Thru operator	49	16	3	30	Available	Normal
23	Dulaankhaan	1	206503	Thru operator	Thru operator	5	4	1	0	Available	Normal
24	Javkhiant	1	206502	Thru operator	Thru operator	18	6	2	10	Available	Normal
25	Shaamar	2	2-6505	Thru operator	Thru operator	72	13	5	54	Available	Normal
26	Tushig	R/D	---	Thru operator	Thru operator	10	5	5	0	Available	Normal
Homing To Darkhan-Uul EWSD											
27	Saikhan (Nomgon)	1	2-6580	Thru operator	Thru operator	25	10	15	0	Available	Normal
28	Khutul	7 + R/D	2-6520	Thru operator	Thru operator	540	31	54	455	Available	Normal
29	Zuunkharaa	2 + R/D	2-6541	STD with "9"	DID	709	69	50	590	Available	Normal
30	Bayangol	2 + R/D	2-6530	Thru operator	Thru operator	167	16	25	126	Available	Normal
31	Tunkhel	as withdrawn in 2002		Via MRC	Via MRC	0	0	0	0	Available	Normal
	Sub-total	---	---	---	---	3,329	477	416	2,436	---	---
51	Darkhan-Uul		---			5,644	262	481	4,901	---	---
52	Shariin gol	10 + R/D	2-6510	Thru operator	Thru operator	361	38	27	296	Available	Normal
53	Khongor	2	2-6570	Thru operator	Thru operator	65	13	11	41	Available	Normal
54	Orkhon	2	2-6560	Thru operator	Thru operator	28	6	4	18	Available	Normal
55	Salkhit (R/D of Khongor)	MT has withdrawn in 2001		Via MRC	Via MRC	0	0	0	0	Available	Normal
	Sub-total	---	---	---	---	6,098	319	523	5,256	---	---

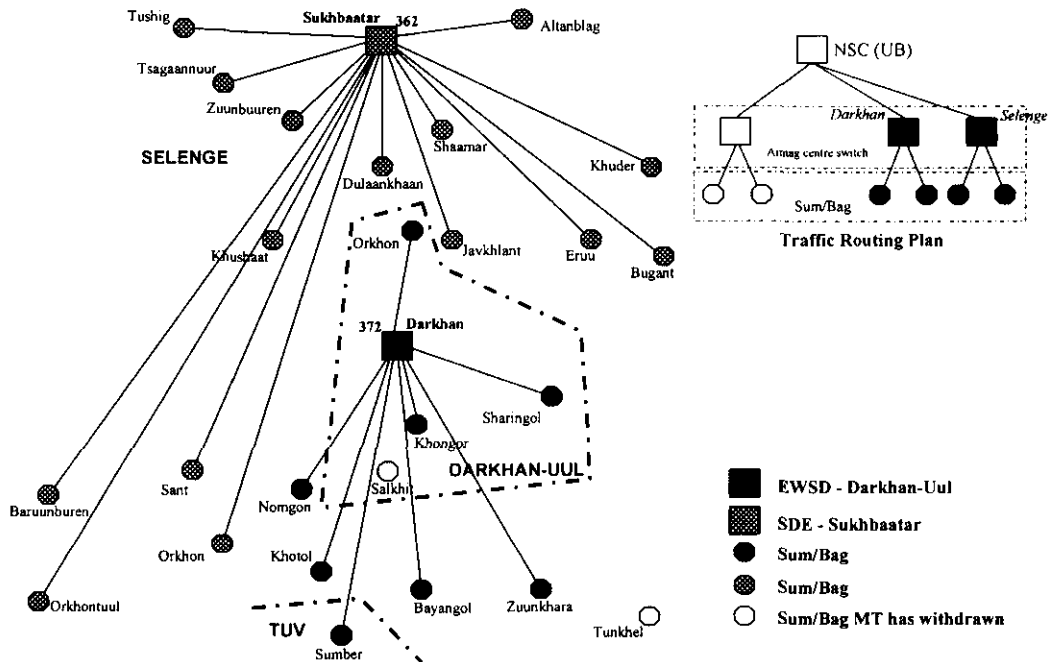
Field Survey-2

Annex 2-2 Existing Switching Network Plan

Switching Network Plan (Existing, Uvukhangai)

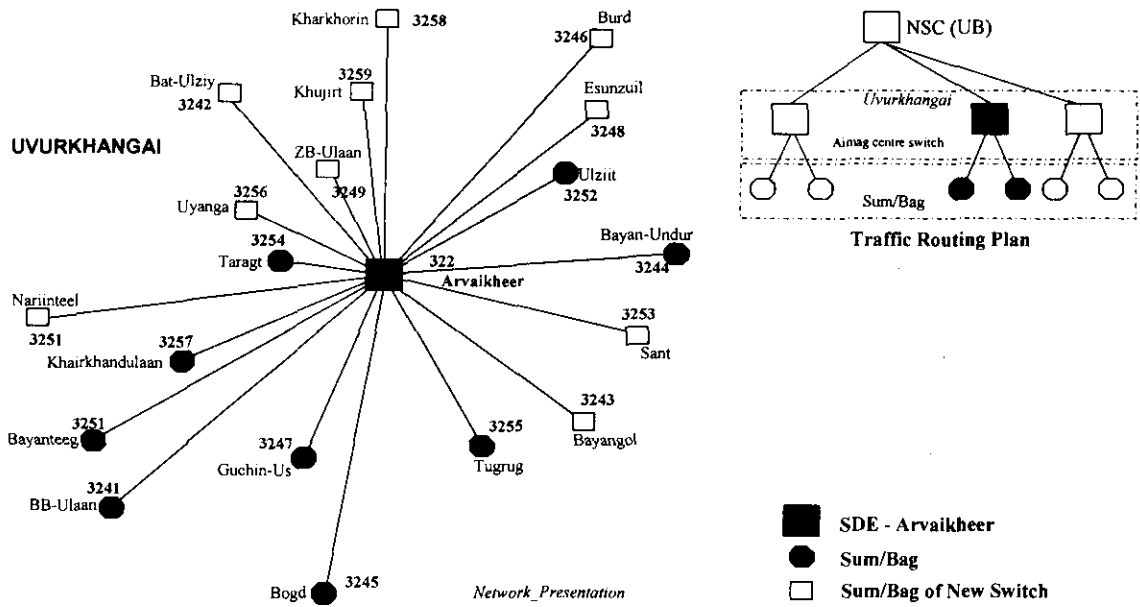


Switching Network Plan (Existing, Selenge and Darkhan-Uul)

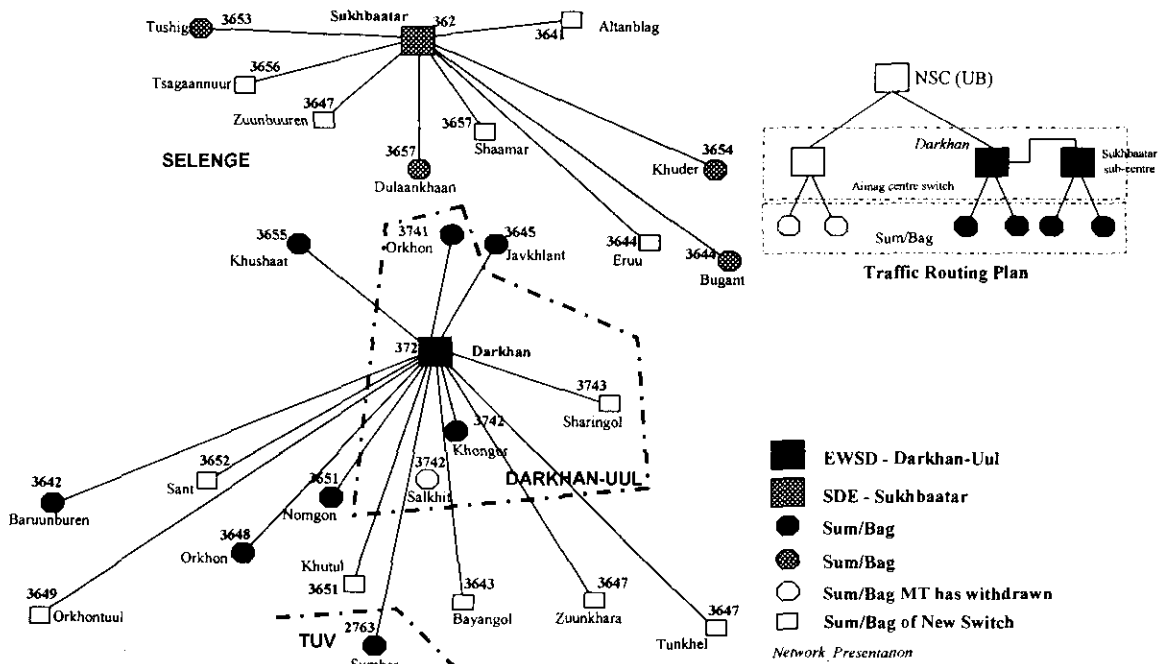


Annex 2-3 Proposed Switching Network Plan

Switching Network Plan (Proposed, Uvurkhangai)



Switching Network Plan (Proposed, Selenge and Darkhan-Uul)



Annex 2-4 Numbering Plan

Numbering Plan (Sum Centre -1)

Ar C_1	Ar C_2	Ar C_3	ArC_4	EC_1	SN_1	SN_2	SN_3
--------	--------	--------	-------	------	------	------	------

Uvurkhanga Sum Centre

3	2	4	2	2	3	4	5	Tel. No. 3242-2-345
---	---	---	---	---	---	---	---	---------------------

Uvurkhanga Sum Centre

3	2	5	8	2	3	4	5	Tel. No. 3258-2-345
---	---	---	---	---	---	---	---	---------------------

EC_1 = 2, 3 -----> Mongolia Telecom

ArC = Area Code

EC_1 = 4 -----> Mongolian Railway

EC = Exchange Code

SN = Subscriber Number

Numbering Plan (Sum Centre -2)

Ar C_1	Ar C_2	Ar C_3	ArC_4	EC_1	SN_1	SN_2	SN_3
--------	--------	--------	-------	------	------	------	------

Selenge Sum Centre

3	6	4	1	2	3	4	5	Tel. No. 3641-2-345
---	---	---	---	---	---	---	---	---------------------

Darkhan-Uul Sum Centre

3	7	4	2	2	3	4	5	Tel. No. 3742-2-345
---	---	---	---	---	---	---	---	---------------------

Darkhan-Uul Sum Centre (MRC, Zuunkharaa)

3	6	4	7	4	3	3	4	5	Tel. No. 3747-4-3345
---	---	---	---	---	---	---	---	---	----------------------

EC_1 = 2, 3 -----> Mongolia Telecom

ArC = Area Code

EC_1 = 4 -----> Mongolian Railway

EC = Exchange Code

SN = Subscriber Number

Annex 2-5 Investment Cost by Exchange

(1) Scope of Work

The scope of work of switching facilities under this Project is summarised as:

- a) Switching systems: 22 units with 6,580 line units; which include
 - i) Software,
 - ii) Hardware,
 - iii) Spare parts for 5 years,
 - iv) Installation and training services,
 - v) Maintenance assistance for one year.
- b) Three (3) units of Operation and Maintenance Centre.
- c) Trunk interface hardware of three (3) Aimag centre switches.

Regarding the power equipment essential for the equipment including switching facilities, the scope includes rectifiers, but not including battery banks, air-conditioning equipment, power receiving panels, engine-generators, and solar power system, which are calculated as power system.

(2) Cost

The basic data for cost estimate were studied based on the cost of switching systems purchased recently in Mongolia, as well as consultant analysis in other countries. The switching facilities investment cost, which does not include consultancy fee, is estimated at US\$ 2.3 Million. The consultancy fee is calculated for the whole project separate from this switching facilities.

The investment cost is estimated as follows. Annex 2 shows the detail.

Switch Facilities Cost (CIF)			(US\$ 1,000.)
Aimag	Foreign	Local	Total
Uvurkhangai	914.0	2.4	916.4
Selenge and Darkhan-Uul	1,143.4	3.0	1,146.4
Total	2,057.4	5.5	2,062.8

(3) Cost Estimation Basis

The project cost is added up based on the following basis.

- The project is implemented under the turn-key basis.
- Consultant(s) will be employed in order to forward the project smoothly.
- The cost is added up in the foreign and local currencies.

Foreign currency portion

Digital exchanges, rectifiers, measuring instruments/tools, instruction manuals, spare parts, accessories, installation materials, training cost in foreign countries.

Local currency portion

Materials locally procurable, cost counted on local workers, transportation cost in Mongolia, training cost in Mongolia.

- Project cost is of the present price.
- The cost of equipment and materials to be imported is estimated as a CIF price from Japan.

Switch Capacity and Cost by Exchange

Aimag Sum		Switch capacity		Trunks (in E1)		Switch cost (CIF)	
		Initial	Final	Initial	Final	Final	Per-line
Arvaikheer Centre Switch							
1	UVURKHANGAI						
1	1 Burd	120	200	1	1	73	612
1	2 Bat-Ulzii	120	200	1	1	73	612
1	3 Bayangol	80	200	1	1	66	828
1	4 Esunzuil	100	200	1	1	66	662
1	5 ZB Ulaan	130	200	1	1	73	565
1	6 Nariinteel	190	400	1	2	73	387
1	7 Sant	110	200	1	1	73	668
1	8 Uyanga	210	400	1	2	77	365
1	9 Khujirt	320	400	2	2	77	240
1	10 Kharkhorin	1,140	1,500	4	5	160	140
	OM Centre	---	---	---	---	72	---
	Arvaikheer Total	2,520	3,900	14	17	885	351
Sukhbaatar Sub-Centre Switch							
2	SELENGE						
2	1 Altanbulag	200	200	1	1	73	367
2	2 Eruu	300	400	2	2	77	256
2	3 Zuunburen	70	200	1	1	66	946
2	4 Tsagaannuur	250	400	1	2	77	307
2	5 Shaamar	200	400	1	2	73	367
	OM Centre	---	---	---	---	72	---
	Sukhbaatar Total	1,020	1,600	6	8	438	430
Darkhan-Uul Centre Switch							
	SELENGE						
2	1 Sant	140	200	1	1	73	525
2	2 Orkhontuul	250	400	1	2	77	307
2	4 Zuunkharaa	700	1,000	3	4	93	133
2	5 Bayangol (Baruunkharaa)	290	400	2	2	77	264
2	6 Tunkhel	230	400	1	2	77	333
2	DARKHAN-UUL						
2	7 Shariin gol	830	1,000	3	4	120	144
	OM Centre	---	---	---	---	72	---
	Darkhan Uul Total	3,040	4,200	13	18	669	220
Training		---	---	---	---	71	---
	Grand Total	6,580	9,700	33	43	2,063	314

ANNEX 3

RADIO TRANSMISSION SYSTEM

Annex 3

Radio Transmission System

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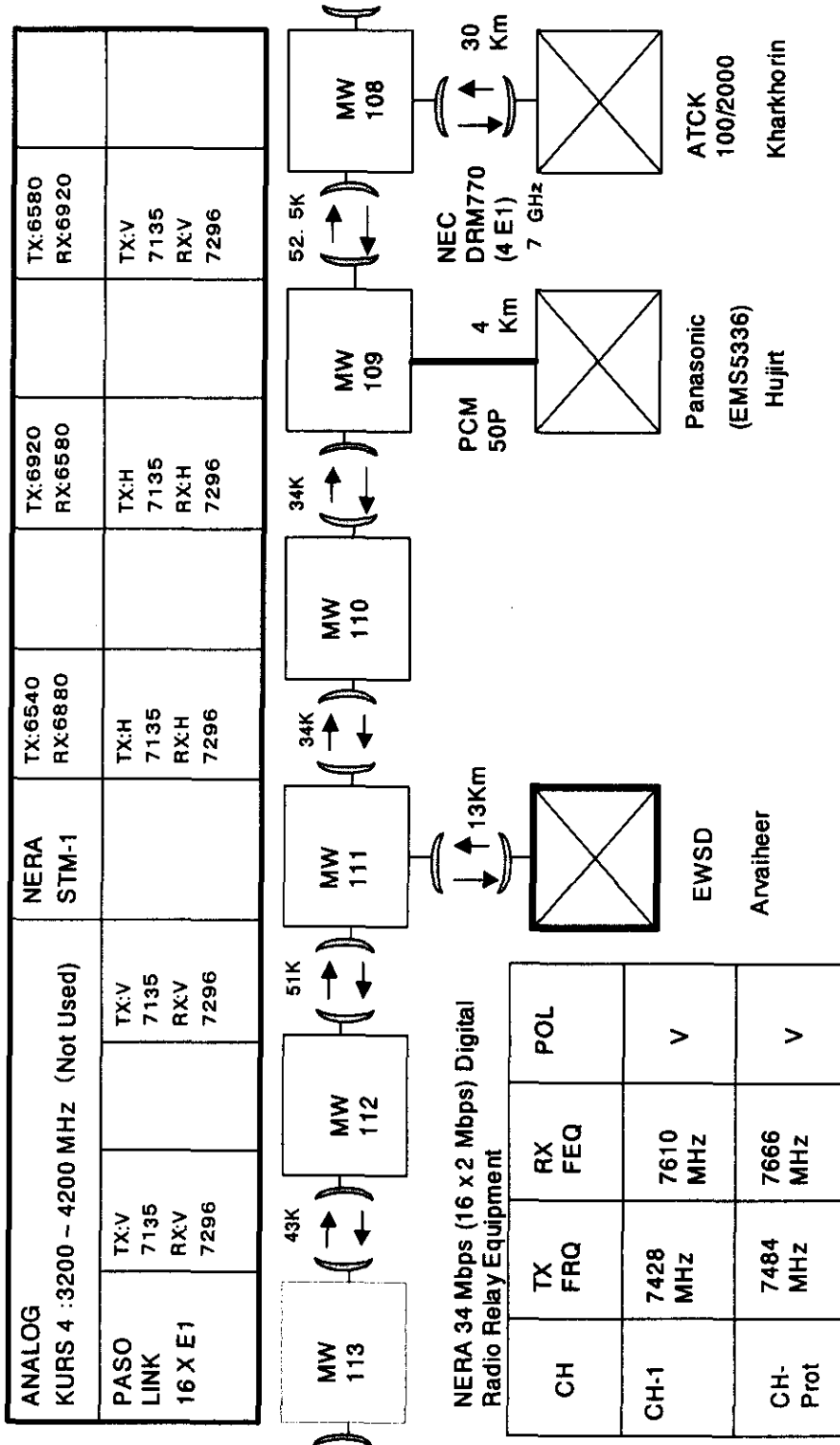


Fig 2.3.2.1-1 Uvurkhangai Existing Microwave Link Configuration

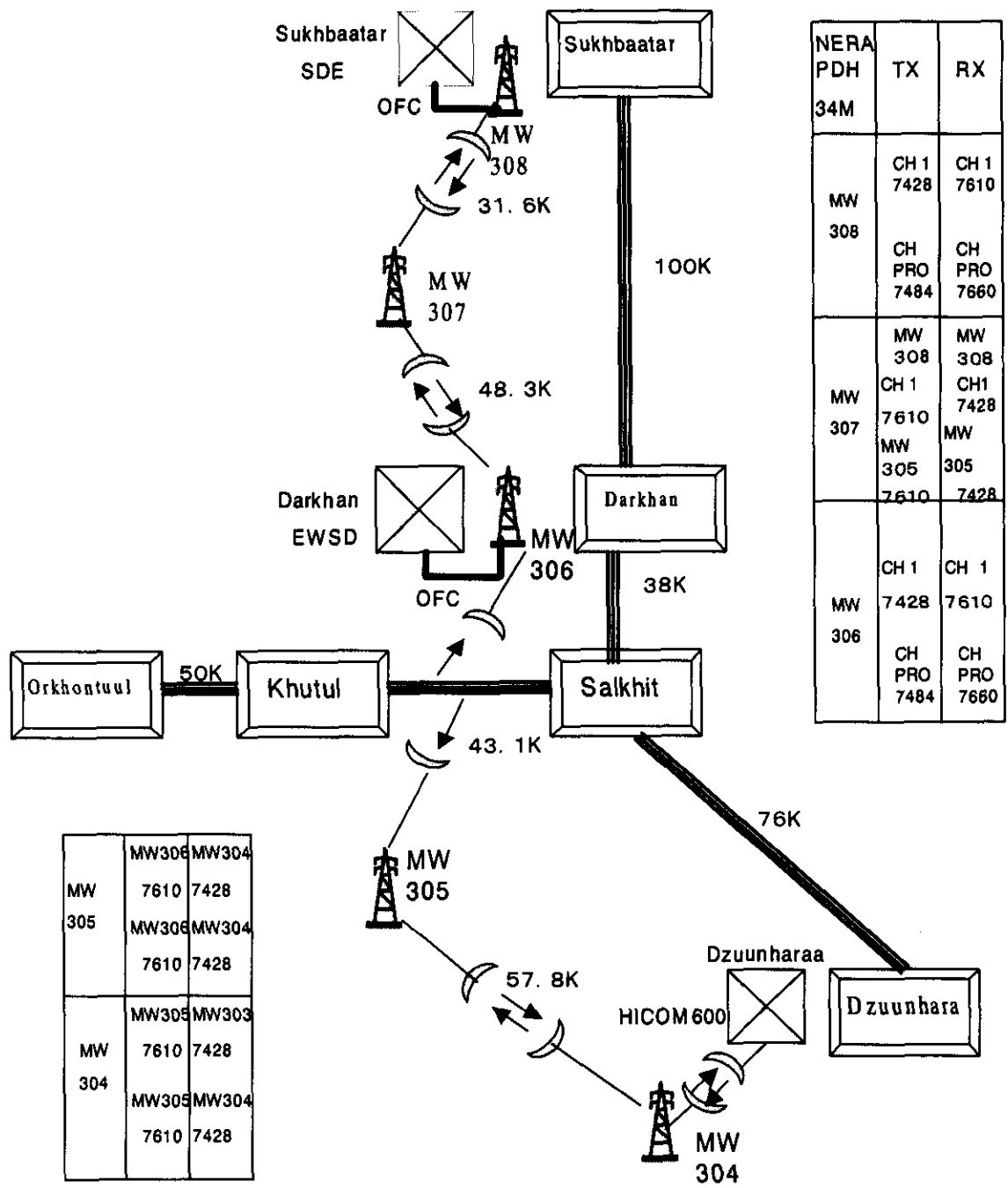
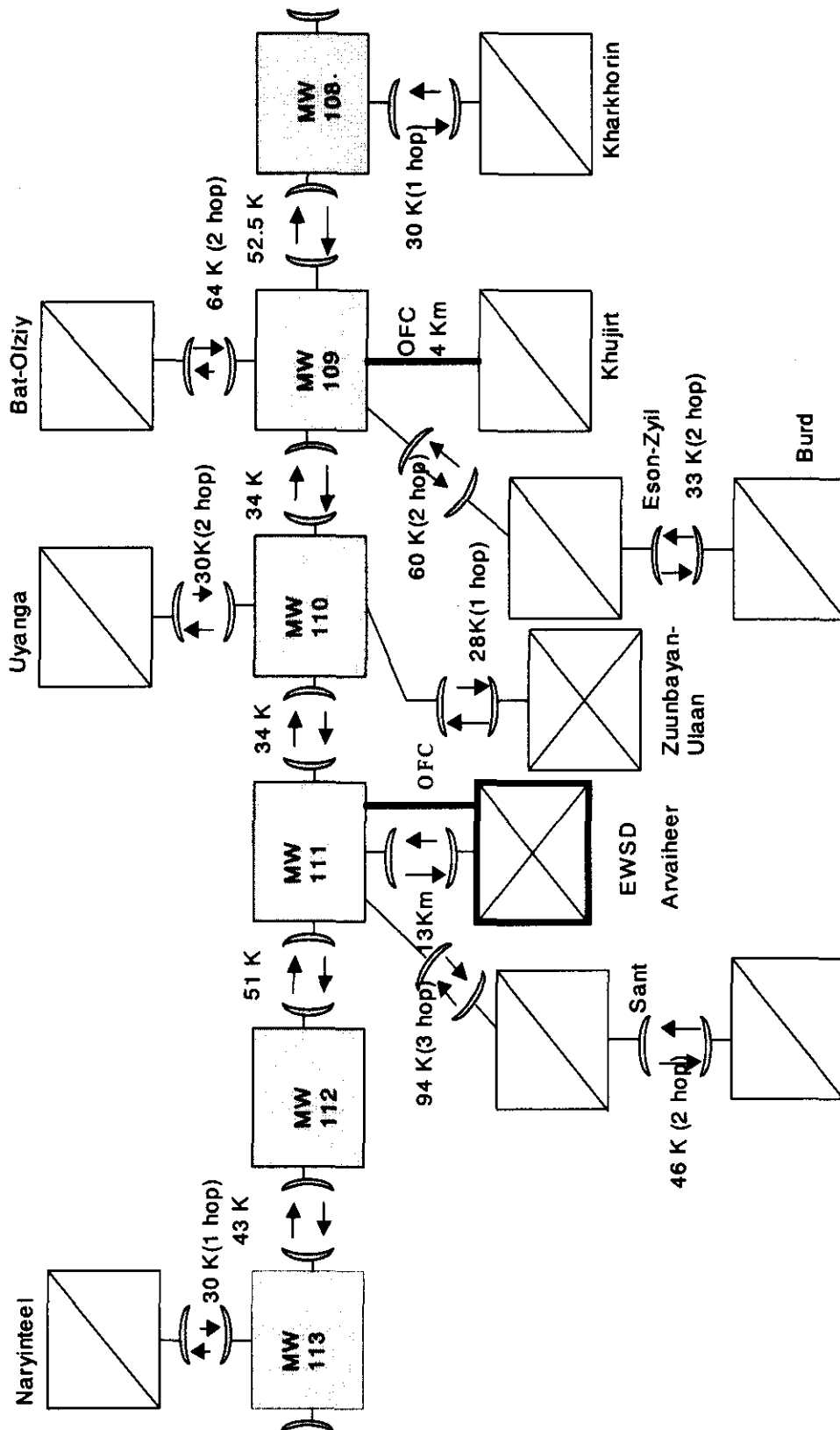


Fig 2. 3.2.1-2 Selenge and Darkhan-Uul Existing Microwave Link and MRC FOTS Configuration



Bayangol Fig.5. 3. 1-2 Proposed Network Configuration for Uvurkhangai(1)

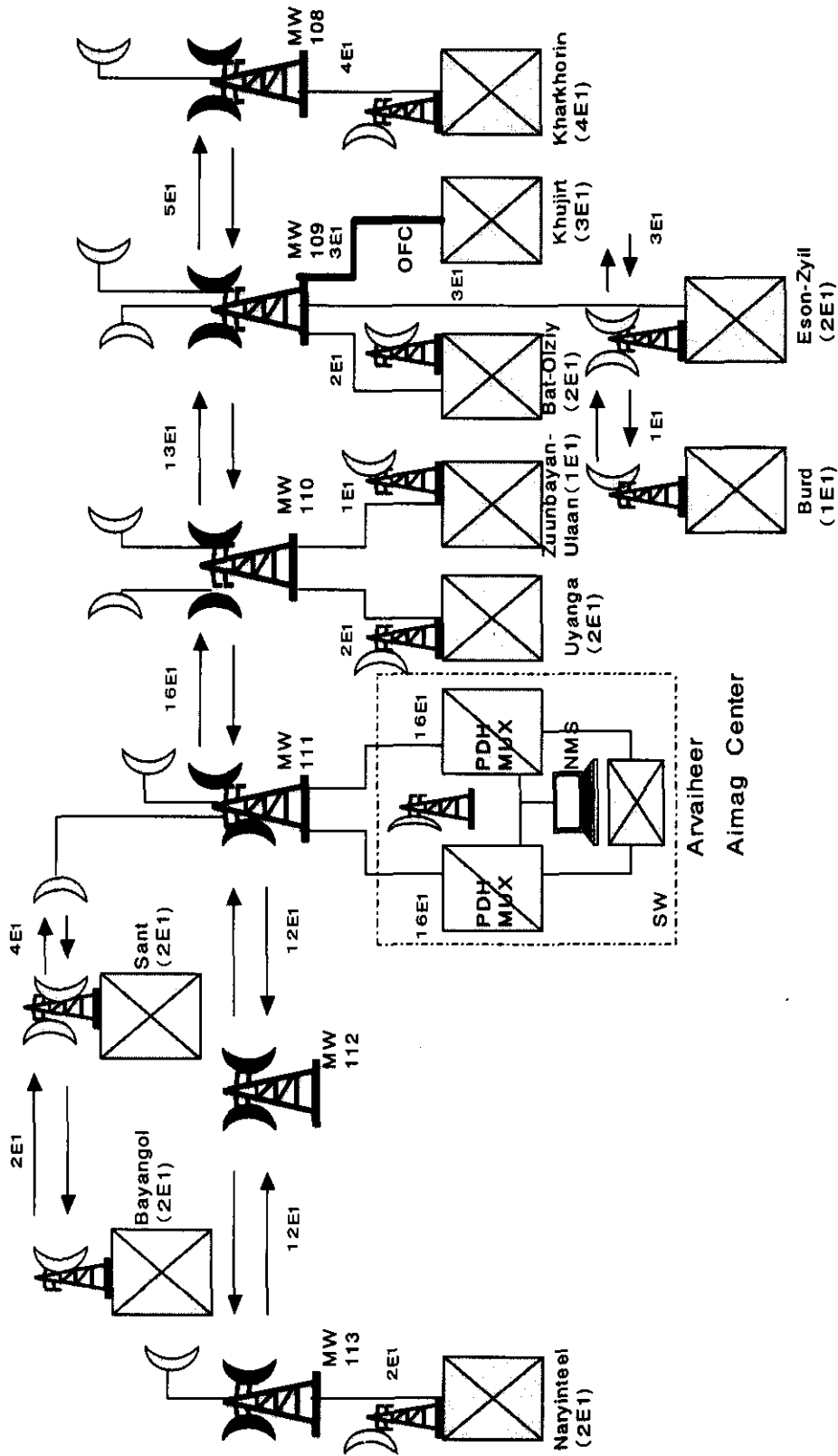


Fig.5.3.1-3 Proposed Network Configuration for Uvurkhangai(2)

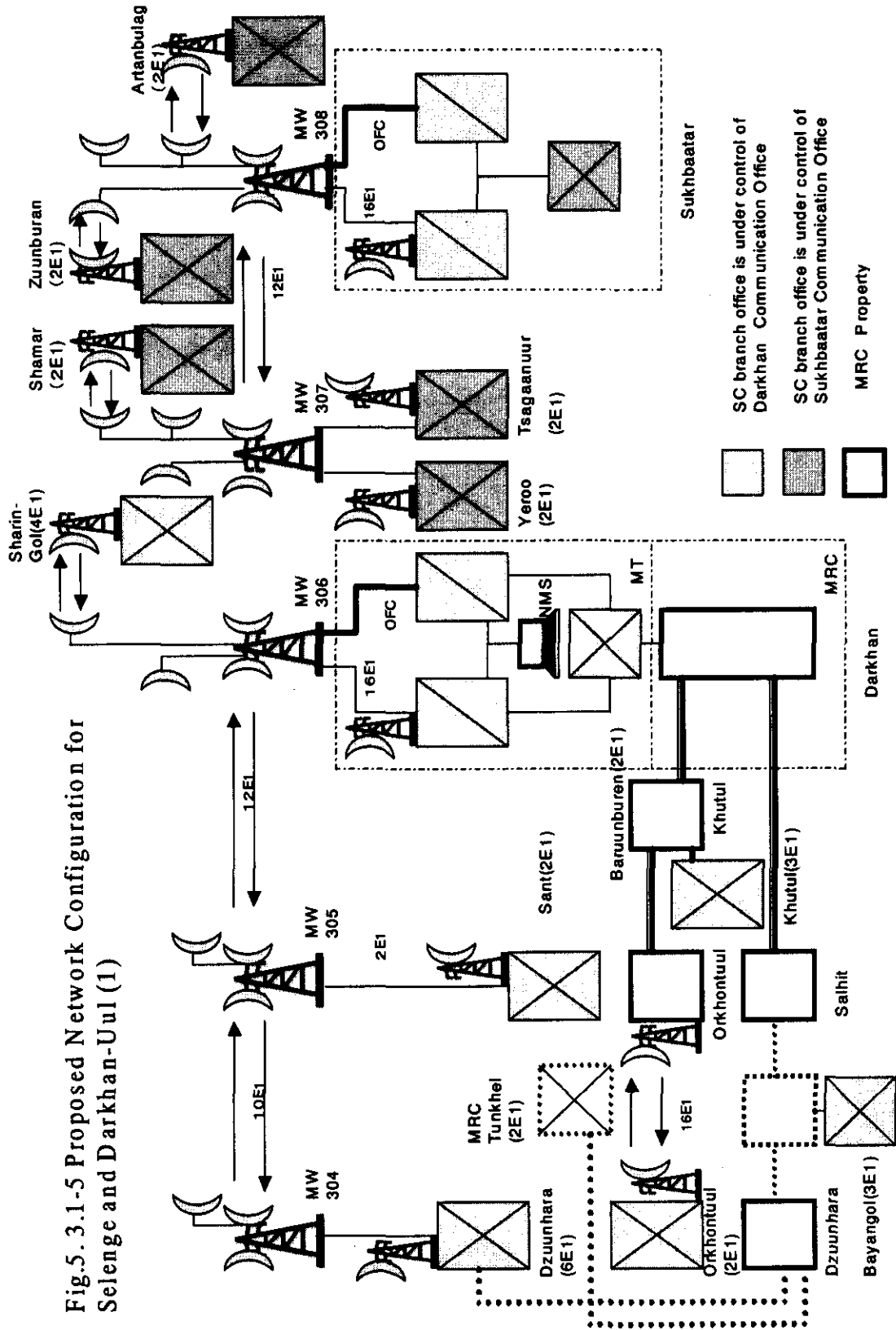


Fig.5. 3.1-5 Proposed Network Configuration for Selenge and Darkhan-Uul (1)

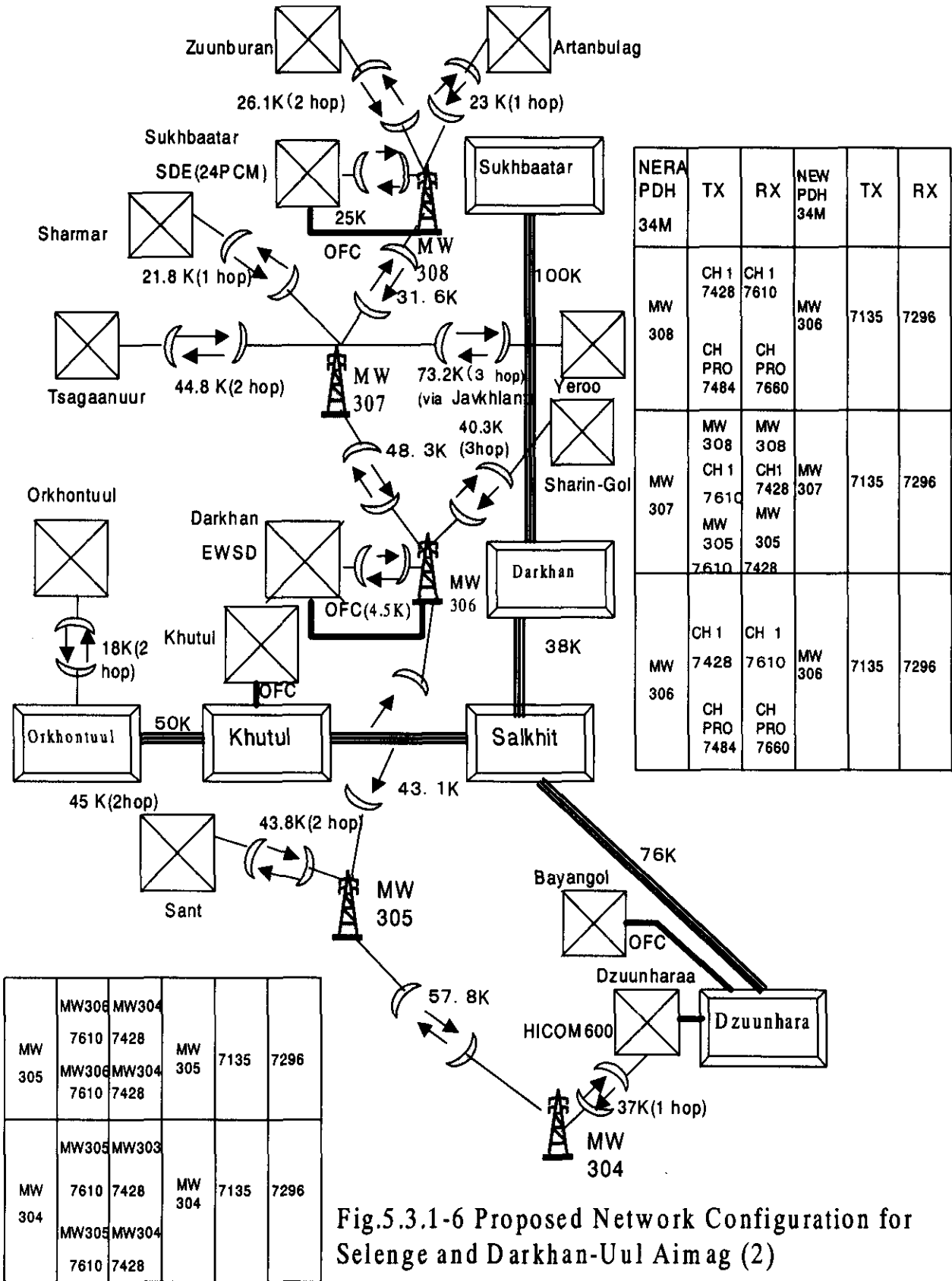


Fig.5.3.1-6 Proposed Network Configuration for Selenge and Darkhan-Uul Aimag (2)

Annex 3 Table 2.3.2-1

(1) Uvurkhangai Aimag existing microwave link

Station Number	Location	Station Type	Tower Height(m)	Longitude	Latitude	Altitude (m)	Hop Length (Km)	
108	Khashaat	Repeater	36	102° 48' 307"	47° 11' 530"	1474	52.5	51.4
109	Khujirt	Repeater	28	102° 14' 713"	46° 48' 378"	1673		34
110	Tsetsegmod	Repeater	8.13	102° 47' 255"	46° 35' 359"	2180	34	51
111	Arvaykheel	Terminal	30.63	102° 45' 185"	46° 17' 670"	2059		
112	Khairkhandul	Repeater	8.13	102° 18' 439"	45° 57' 141"	2328	43	53.9
113	Nerion teel	Repeater	8.13	101° 47' 219"	45° 49' 286"	2059		

(2) Selenge and Darkhan-Uul Aimags existing microwave link

Station Number	Location	Station Type	Tower Height	Longitude	Latitude	Altitude(m)	Hop Length (Km)	
304	Zuun Baruun Haraa	Repeater	25.1	106° 04' 630"	48° 41' 57"	1344	57.8	56.9
305	Nomgon	Repeater	44	105° 42' 599"	49° 09' 161"	1141		43.1
306	Darhan	Terminal	61.5	105° 59' 533"	49° 23' 573"	953	48.3	31.6
307	Orkhon S.A.A	Repeater	9	106° 11' 231"	49° 55' 625"	1111		
308	Sukhbaatar	Terminal	74.6	106° 12' 182"	50° 10' 850"	637		

Annex 3 Table 2.3.2-2 Technical Information of the West route microwave radio relay station in Uvurkhantai

Station Number	AC Voltage	Ground Resist	Rectifier DCPDB	Diesel Engine	Solar Battery	Road Length , Km		Rectifier Eltek	Bateery
MW 108	380 V	1.1		DGA-16,2pcs		70	55	53.48V/12A	12V/101Ah
MW 109	380 V	0.1		DGA-16,2pcs			47.3	53.44V/9A	12V/101Ah
MW 110		24	55.4/8.4 A	DGA-16,2pcs	2V/1500Ah	50.6		55.12V/7A	12V/101Ah
MW 111	380 V	4.7	24V/32A	DGA-16,2pcs			80	53.48V/10A	12V/101Ah
MW 112		4.3	24V/40A	DGA-16,3pcs		60			
MW 113		2.7	24V/40A	DGA-16,2pcs			60		

Annex 3 Table 2.3.2.1-1 Installation Report of HF IC-78 Radio Station in Uvurkhangai Aimag

No.	Sum Name	Sum Center			Bag	Bag Name	Total
		Sub Total	Governor (Car)	Hospital (Car)			
1	Bayangol	2	1	1	6	Unts,Urgundenj,Tsaqaanbulan,Hya,Tsaviin,Ih	8
2	Bayan-Undur	3	1	1	1	4 Bathaan,Uvuzuliget,Hartoim,Bumbil	7
3	Burd	3	1	1	1	4 Ulaantug,Ih barigdai,Dongji,Hushuut	7
4	Eson-Dzuil	3	1	1	1	3 Tahilgat,Dulguun,Ereen	6
5	Dzuunbayan-Ulaan	3	1	1	1	6 Emged,Tsahiurt,Tsohiot,Had,Dulguun,Devshil	9
6	Narinteel	3	1	1	1	3 Sharga,Uurhai,Undurbaishin	6
7	Ulziit	3	1	1	1	4 Sangin dalai,Ulziithairhan,Guulin,Jargalant	7
8	Sant	2	1	1	5	Tsorig,Tsahiurt,Ulaan-Ovoo,Zalaat	7
9	Taragt	3	1	1	1	6 Tuya,Arvaintal,Huremt,Ih bulang,Altan tal,	9
10	Tugrug	2	1	1	5	Bayan,Ih-Us,Mazar,Saintugrug	7
11	Uyanga	2	1	1	7	Jarga,amt,Taats,Bumbuuehei,Shuranga,Badra I, Buurulzuut,Tsetsendayn	9
12	Khairkhandulaan	3	1	1	1	5 Burhart,Dersenhonhor,Tsohio,Teel,Murui	8
13	Baruunbayan-Ulaan	3	1	1	1	3 Duhum,Huuhdiih-Us,Ulziithoshuu	6
14	Bat-Ulziit	2	1	1	4	Ulaan zam,Shartohoin-Am,Tsaqaanburgas	6
15	Bogt	3	1	1	1	6 Ulziithoshuu,Huuvur,Hovd,Gun-Us,Dalan, Yalaatai	9
16	Guchin-Uс	2	1	1	4	Huuvur,Guchingiinnuruu,Argalant	6
17	Kharkhorin	3	1	1	1	Nariinhuree,Ongotson-Uhaa,Noyhon,	8
18	Khujirt	3	1	1	1	3 Jalbaa,Shanh Orthon	6
19	Arbaiheer (AC)	2	1	1	1	Uvurmodot,Shavarturuu,Berth	2
Total		50	19	18	13	83	133

Annex 3 Table 2.3.2.1-2 Installation Report of HF IC-78 Radio Station in Selenge Aimag

No.	Sum Name	Sum Center				Bag	Bag Name	Total
		Sub Total	Governor (Car)	Hospital (Car)	Telecom Office			
1	Altanburag	3	1	1	1	2	Tsuh, Khyaraan	5
2	Eruu	3	1	1	1	8	Khandgait, Bugant, Bugant-1, Eruu, Khandgait-1, Uyanga, Bridao, Ikshivertei	11
3	Khuder	3	1	1	1	3	Hazai, Tarvagatal, Bayntsagaan	6
4	Dzuunburen	3	1	1	1	2	Bilchir, Mangirt	5
5	Tsagaannuur	3	1	1	1	4	Orgikh, Tireg	7
6	Tushing	3	1	1	1	2	Khargorhi, Arnuga	5
7	Sant	3	1	1	1			3
8	Baruunburen	2	1	1	1	2	Iven, Burgaltai	5
9	Orkhon	3	1	1	1	1	Belendalai	4
10	Orkhontuul	2	1	1	1	1	Shar-Us, Khongor-Ovoo	4
11	Shaamar	2	1	1		2	Orkhindii, Dulaan Khaan	5
12	Khushaat	3	1	1	1	1	Arsuuj	4
13	Javkhiant	3	1	1	1	2	Ulaanchuluu, Huitnii gol	5
14	Sukhbaatar(AC)	2	1	1				2
	Total	38	14	14	12	30		71

Annex 3 Table 2.3.2.1-3 Installation Report of HF IC-78 Radio Station in Darkhan-Uul Aimag

No.	Sum Name	Sum Center				Bag	Bag Name	Total
		Sub Total	Governor (Car)	Hospital (Car)	Telecom Office			
1	Mandal	3	1	1	1	4	Shirkhnetseg, Bayansuudal, Kherkh, Tunkhel	7
2	Saikhan(Homgon)	3	1	1		2	Salkhit, Khaliart	5
3	Hongor	3	1	1	1	3	Bag No.2, Salhit, Shiir	6
4	Orkhon	3	1	1	1	1	Enkhtal	4
5	Bayangol	3	1	1	1	2	Kharaa, Gonir	5
6	Sumber	3	1	1	1	1	Javkhiant	4
7	Sharin Gol	3	1	1	1	1	Sanjit	4
8	Darkhan(AC)	2		1	1			2
	Total	23	7	8	7	14		37

Annex 3

Table 5.3.1.4-1 Cost Estimation for Point-To-Point Digital Microwave Radio Relay Systems for Uvurkhangai Aimag

No.	Items	Unit	Site														Total Quantity	FOB Unit Price (US \$)	Total Price (US \$)						
			ARVHR	KHRH	HJURT	BT-OZY	BUFD	ESNZL	ZB-UJN	UYNGA	SANT	BYANGL	NARYTL	MW 108	MW 109	MW 110				MW 111	MW 112	MW 113			
1	Digital Microwave Radio System																								
7G, 1+0,34 MB (16xE1) MUX for Terminal Station (ODU/IDU)	SET	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	12425	12,425		
1.2	7G, 1+0,34 MB (4xE1) MUX for Terminal Station (ODU/IDU)	SET	0	1	0	1	1	0	1	1	0	1	1	0	0	0	0	0	0	0	7	11375	79,825		
1.3	7G, 1+0,34 MB (4xE1) Back to Back MUX for Terminal Station (ODU/IDU)	SET	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	4	11375	45,500		
1.4	7G,1+0,34 MB(16xE1) Back to back MUX for Manned Repeater Station (ODU/IDU)	SET	0	0	0	0	0	0	0	0	0	0	0	2	4	4	4	2	2	18	12425	223,850			
1.5	7G,1+0,34 MB(4xE1) Back to Back for Unmanned Repeater Station (ODU/IDU)	SET	0	0	0	2	2	2	0	2	4	2	0	0	0	0	0	0	0	0	14	11375	159,250		
2	IF Cable and Connector																								
2.1	IF Cable(8D-FB 100m) and Accessory	SET	1	1	0	3	3	4	1	3	6	3	1	2	4	4	3	2	2	43	375	16,125			
3	NMS																								
3.1	Network Management System for Digital Microwave Link	SET	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	40000	40,000		
4	Antenna																								
4.1	7GHz 1.8M High Performance Antenna (Single Polarized XWith Radome)	SET	1	1	0	3	3	4	1	3	6	3	1	2	4	4	3	2	2	43	4500	193,500			
5	DC POWER SUPPLY																								
5.1	Rectifier & Battery System with 24 hours of Battery Reserve	SET	1	1	0	1	1	2	1	1	2	1	1	2	4	4	3	2	2	29	11000	319,000			
6	Installation Materials																								
6.1	Installation Materials for Microwave System, DC Power	SET	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	20000	320,000			
7	Steel Pole																								
7.1	30 m	SET	1	1	0	2	2	2	1	3	3	2	1	0	0	0	0	0	0	18	12000	216,000			
8	Solar and Wind Hybrid system																								
8.1	For Repeater station (Window power 400W, Solar power 80 W, Battery DC 12V 255AH)	SET	0	0	0	0	1	1	0	1	2	1	0	0	0	0	0	0	0	6	3700	22,200			
9	Shelter																								
9.1	Shelter for Relay station(3500X2000X2500mm)	SET	0	0	0	0	1	1	0	1	2	1	0	0	0	0	0	0	0	6	35000	210,000			
Sub Total																									1,777,650

Annex 3

Table 5.3.1.4-2 Cost Estimation for Point-to-Point Digital Microwave Radio Relay System for Selenge and Darkhan-Uul

No.	Items	Unit	Site														Total Quantity	FOB Unit Price (US \$)	Total Price (US \$)					
			SKHBTR	ZNHARA	SAANT	BAYNGL	ORION-TUL	HAUTUL	ERLUJ	TSGNNR	SHMR	SHRNGL	ZNBRR	ALTNBG	TUNKHEL	DRBNH				MW 304	MW 305	MW 306	MW 307	MW 308
1	Digital Microwave Radio System																							
1.1	7G, 1+0.34 MB (16xET) MUX for Terminal Station (ODU/IDU)	SET	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	12425	24,850
1.2	7G, 1+0.34 MB(4xET) Back to Back MUX for Unmanned Repeater Station (ODU/IDU)	SET	0	0	1	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	8	11375	91,000
1.3	7G, 1+0.34 MB (16xET) Back to Back MUX for Manned Repeater Station (ODU/IDU)	SET	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	5	4	4	17	12425	211,225
1.4	7G, 1+0.34 MB(4xET) Back to Back MUX for Unmanned Repeater Station (ODU/IDU)	SET	0	0	2	0	2	0	4	2	0	4	2	0	0	0	0	0	0	0	0	16	11375	182,000
2	IF Cable and Connector																							
2.1	IF Cable(8D-FB 100m) and Accessory	SET	1	0	3	0	4	0	5	3	1	5	3	1	0	1	2	3	3	4	4	43	375	16,125
3	NMS																							
3.1	Network Management System for Digital Microwave Link	SET	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	40000	40,000
4	Antenna																							
4.1	7GHz 1.8M High Performance Antenna (Single Polarized XWith Radome)	SET	1	0	3	0	4	0	5	3	1	5	3	1	0	1	2	3	3	4	4	43	4500	193,500
5	DC POWER SUPPLY																							
5.1	Rectifier & Battery System with 24 hours of Battery Reserve	SET	1	0	1	0	2	0	3	1	1	1	1	0	1	2	3	3	4	4	4	29	11000	319,000
6	Installation Materials																							
6.1	Installation Materials for Microwave System, DC Power	SET	1	0	1	0	2	0	2	1	1	1	1	0	1	1	1	1	1	1	1	17	20000	340,000
7	Steel Pole																							
7.1	30 m	SET	1	0	2	0	3	0	3	2	1	3	2	1	0	1	0	0	0	0	0	19	12000	228,000
8	Solar and Wind Hybrid system																							
8.1	For Repeater station (Window power 400W, Solar power 80 W, Battery DC 12V 255AH-)	SET	0	0	1	0	1	0	1	1	0	2	1	0	0	0	0	0	0	0	0	7	3700	25,900
9	Shelter																							
9.1	Shelter for Relay station(3500X2000X2500mm)	SET	0	0	1	0	1	0	1	1	0	2	1	0	0	0	0	0	0	0	0	7	35000	245,000
	Sub Total																							1,916,600

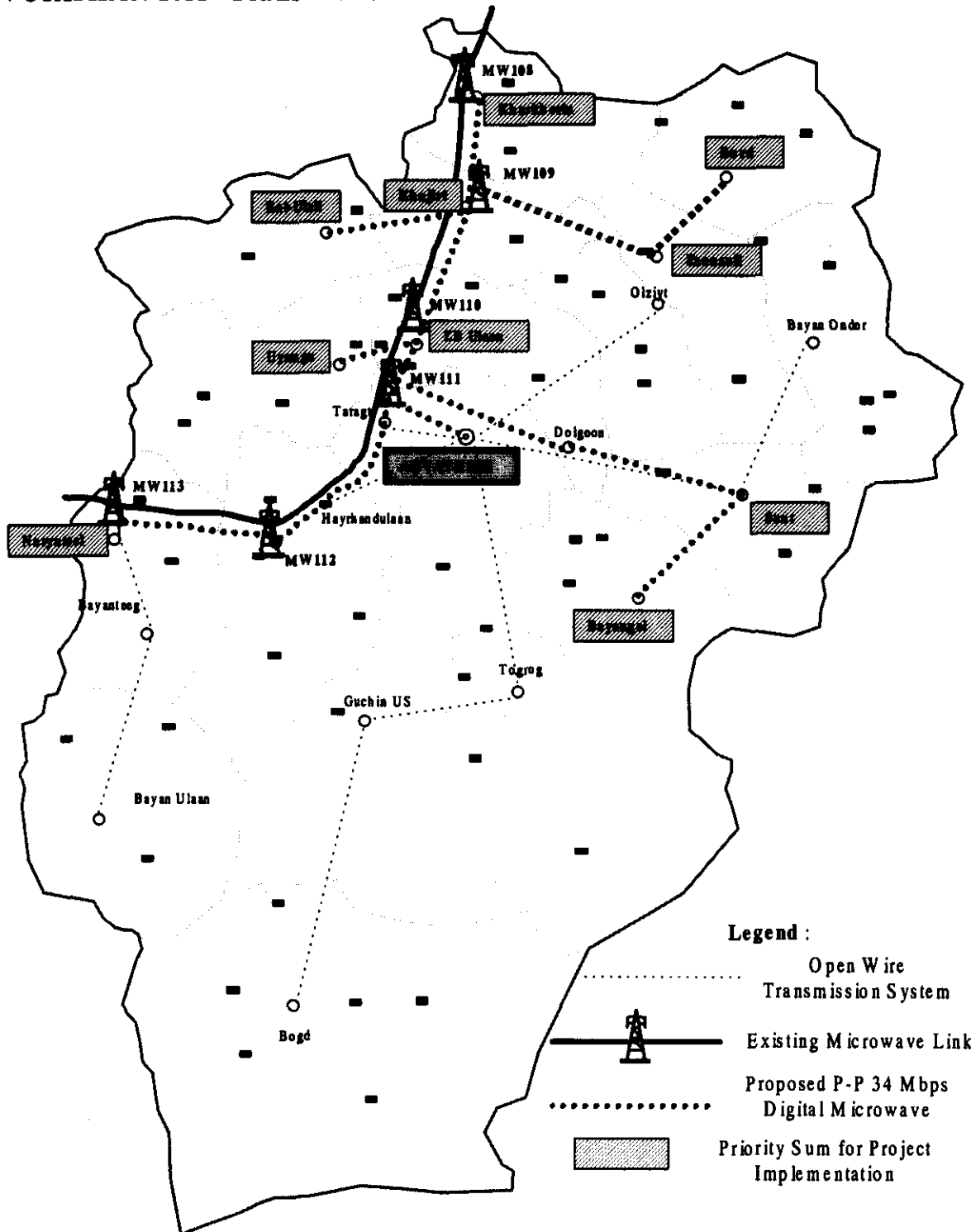
Annex 3

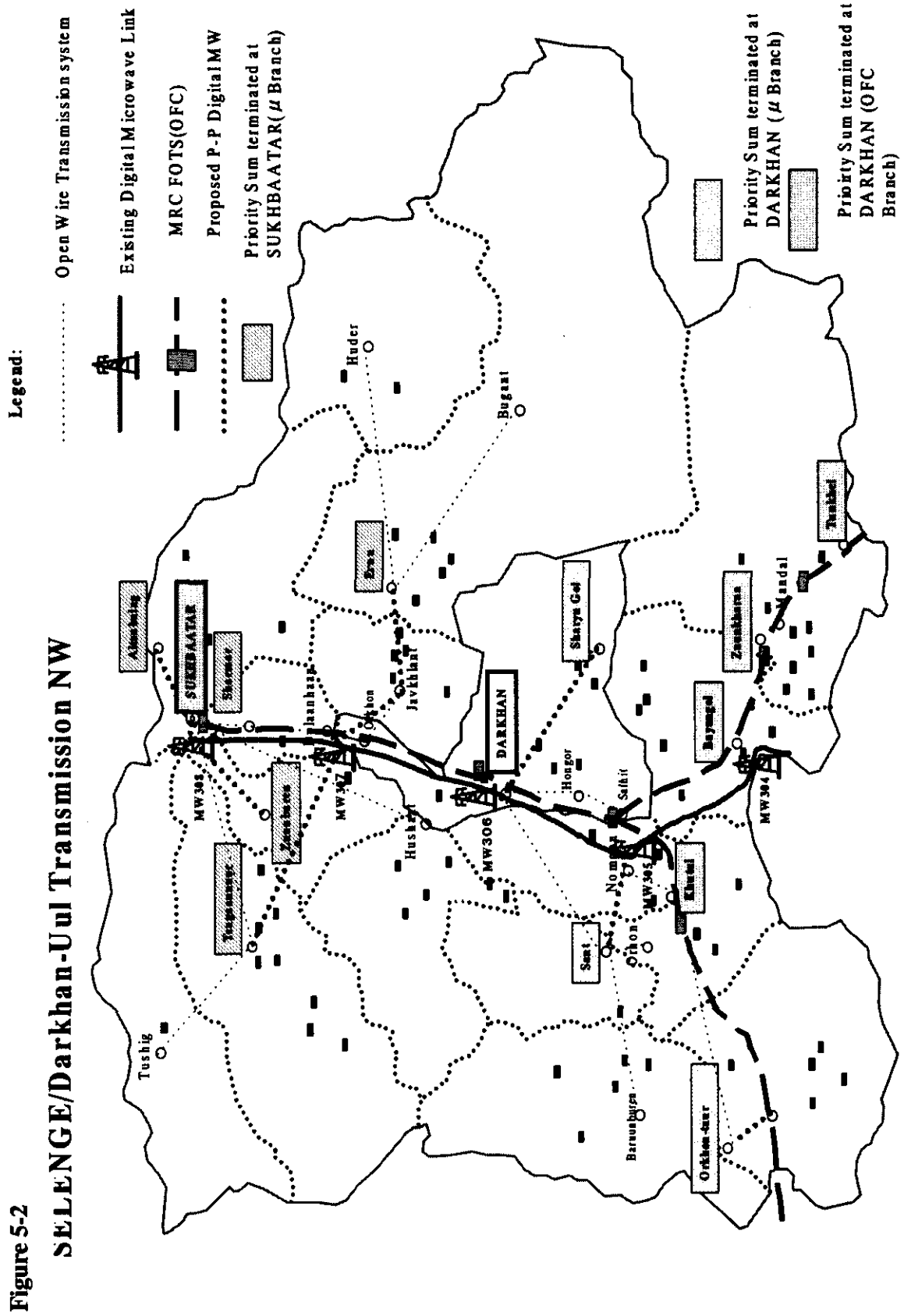
Table 5.4.2.6-1 Cost Estimation for Point-to-Multipoint/PHS-WLL Subscriber Access System

No.	Items	Unit	Site				Total Quantity	FOB Unit Price (US \$)	Total Price (US \$)
			KHRHN	ZNHARA	HUTUL	SHRNGI			
1	WAC								
1.1	Wireless Access Controller(300 subscribers DC-48V operation)	SET	1	1	1	1	4	45000	180,000
2	WCS								
2.1	Wireless Cell Station (200 mW Outdoor Type with Antenna)	SET	6	6	3	5	20	9000	180,000
3	NMS								
3.1	Network Management System for PHS-WLL	SET	1	1	1	1	4	15000	60,000
4	WSU								
4.1	Wireless Subscriber Unit (10 mW Outdoor Type with Antenna)	SET	600	600	300	500	2000	330	660,000
5	DC POWER SUPPLY								
5.1	Rectifier & Battery System with 24 hours of Battery Reserve	SET	6	6	3	5	20	11000	220,000
6	Installation Materials								
6.1	Installation Materials for PHS-WLL System, DC Power Supply	SET	1	1	1	1	4	10000	40,000
7	Steel Pole for CS/SU Antenna								
7.1	30 m Pole	SET	6	6	3	5	20	10000	200000
7.2	8 m Pole	SET	600	600	300	500	2000	500	1,000,000
Sub Total									2,540,000

Figure 5-1

UVURKHANGAI Transmission NW





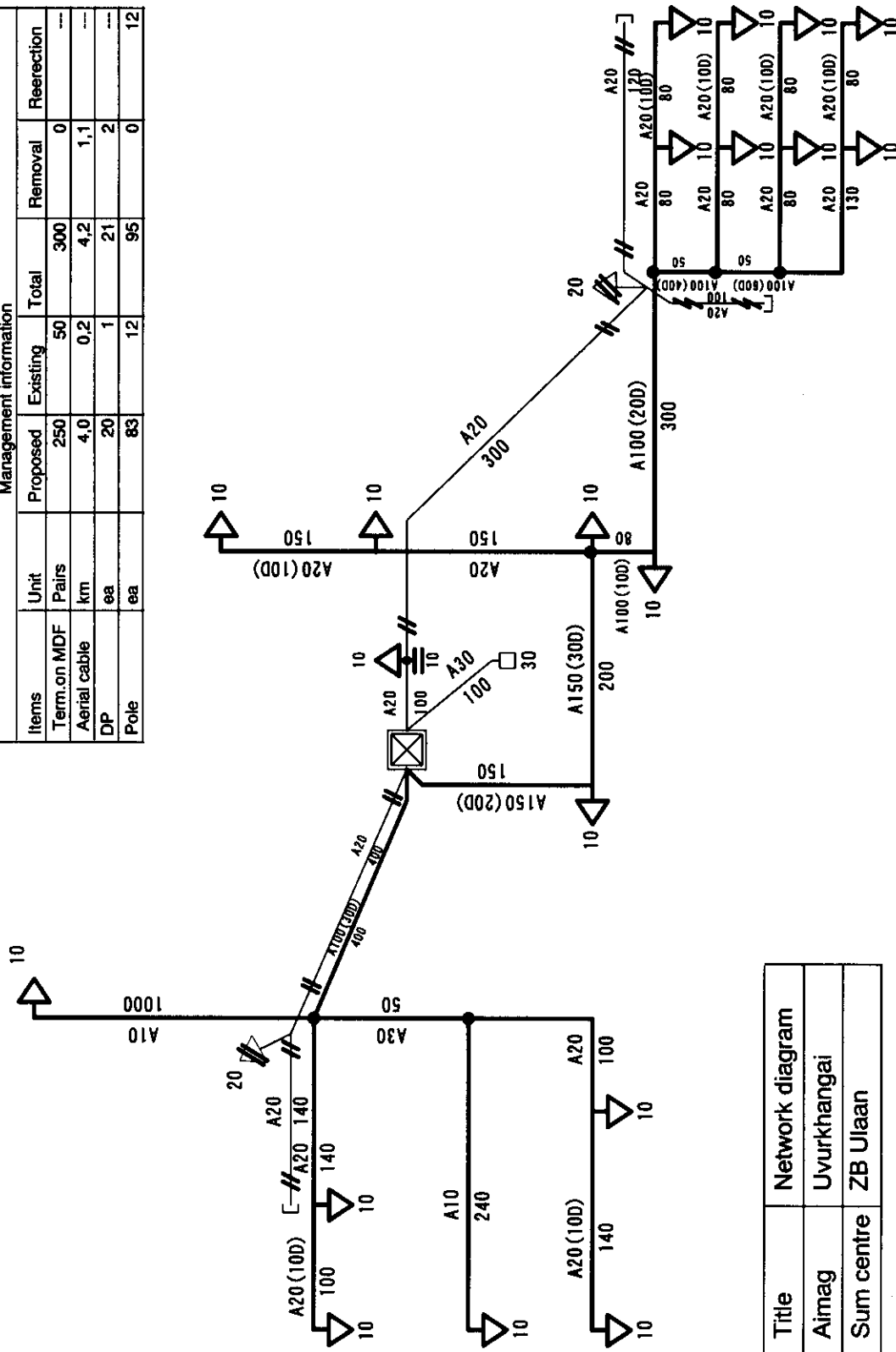
ANNEX 4

WIRED ACCESS NETWORK SYSTEM

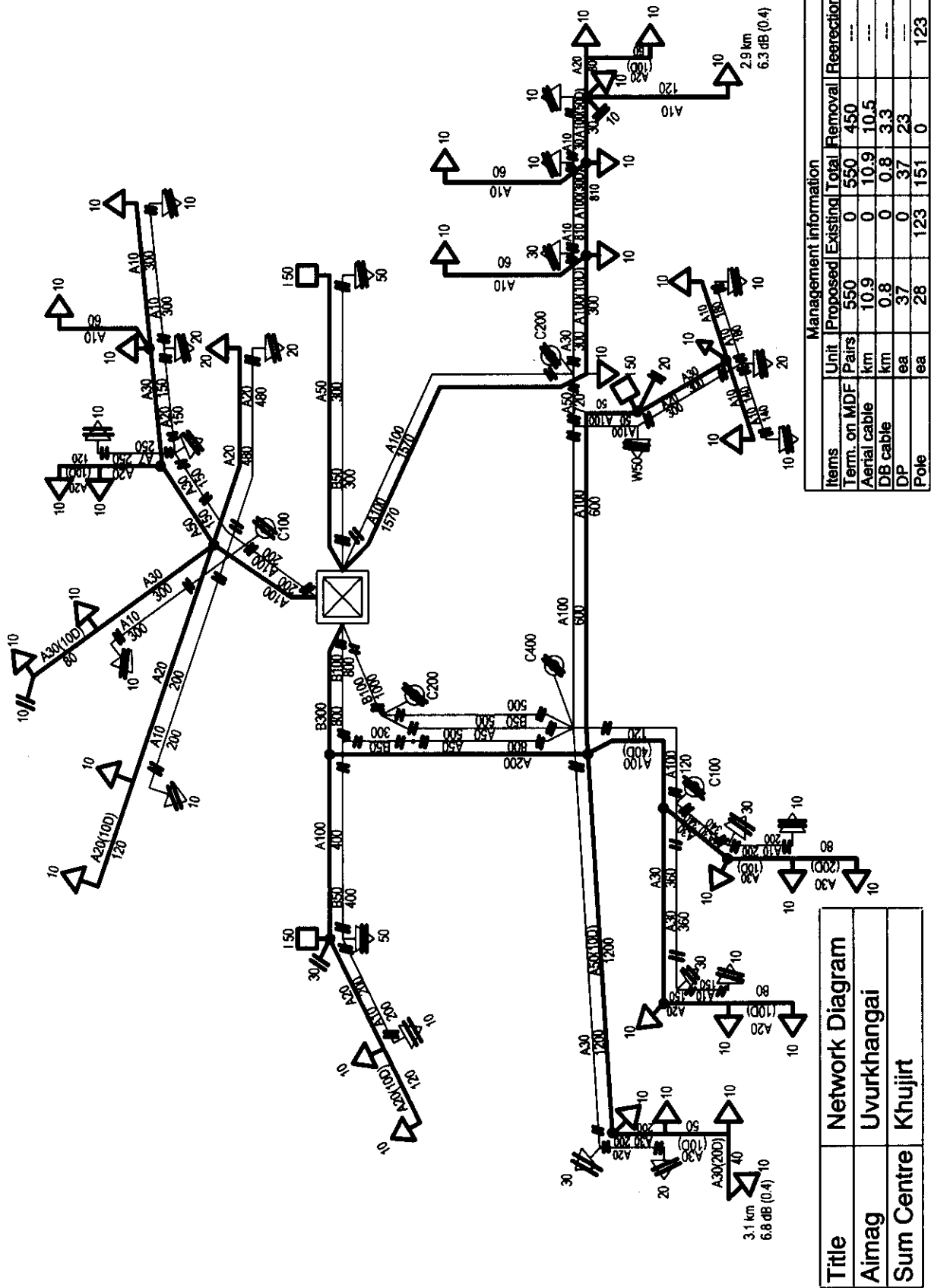
Annex 4
Wired Access Network System
Facility Plan

4.1	Burd Sum centre	2
4.2	ZB Ulaan Sum centre	3
4.3	Khujirt Sum centre	4
4.4	Zuunburen Sum centre	5
4.5	Sant Sum centre	6
4.6	Shaamar Sum centre	7

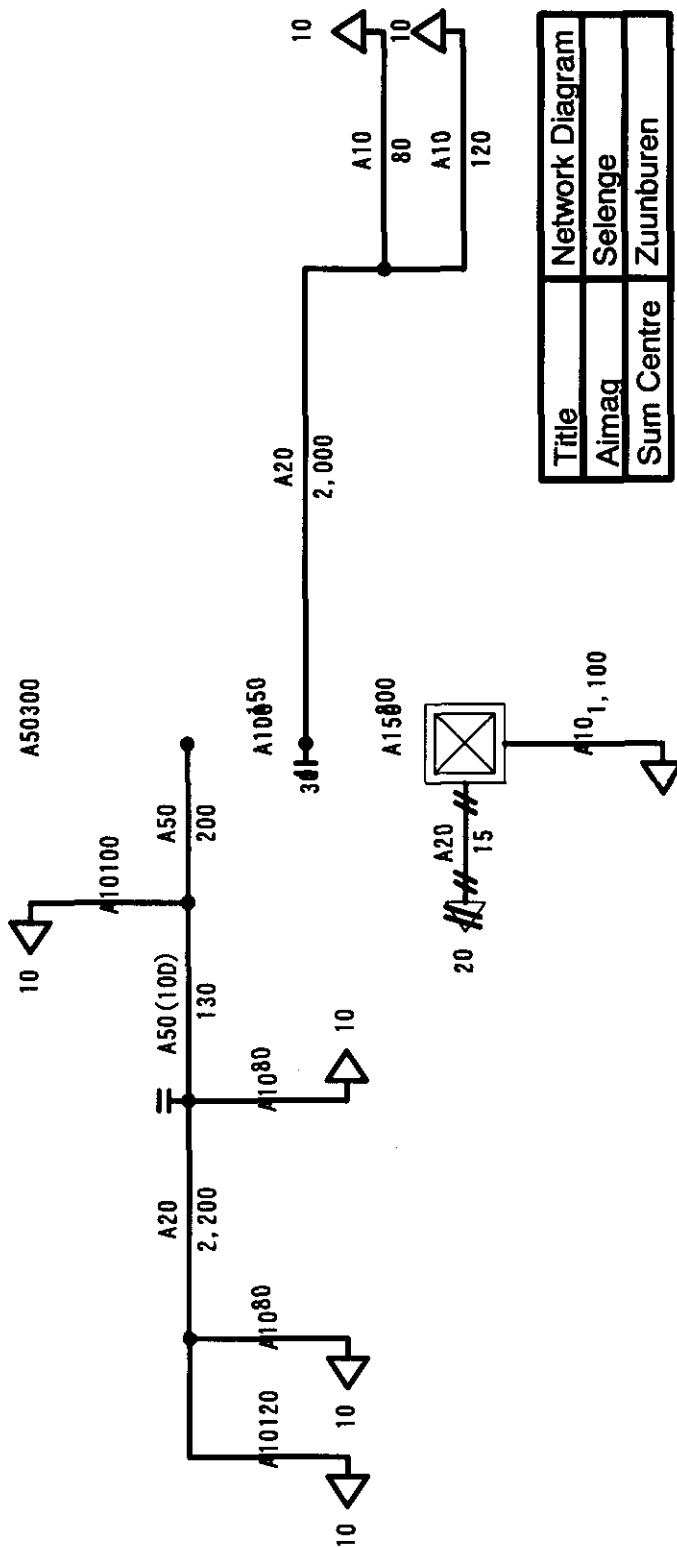
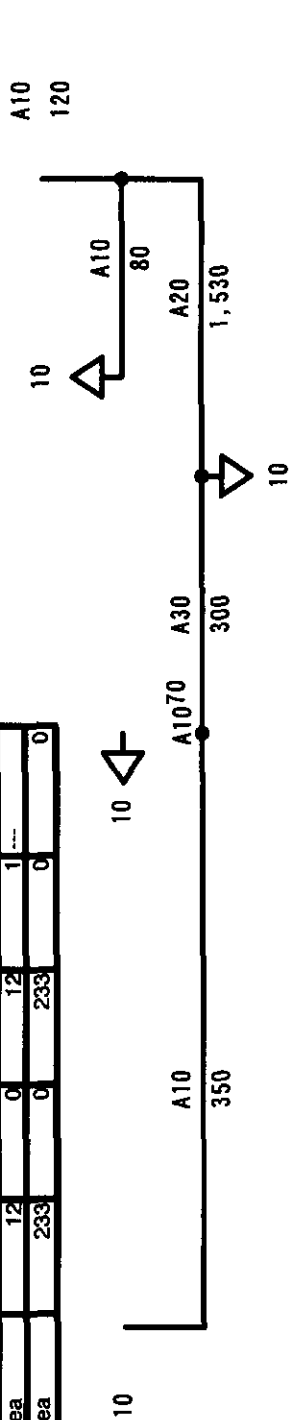
Management information						
Items	Unit	Proposed	Existing	Total	Removal	Reerection
Term.on MDF	Pairs	250	50	300	0	---
Aerial cable	km	4,0	0,2	4,2	1,1	---
DP	ea	20	1	21	2	---
Pole	ea	83	12	95	0	12



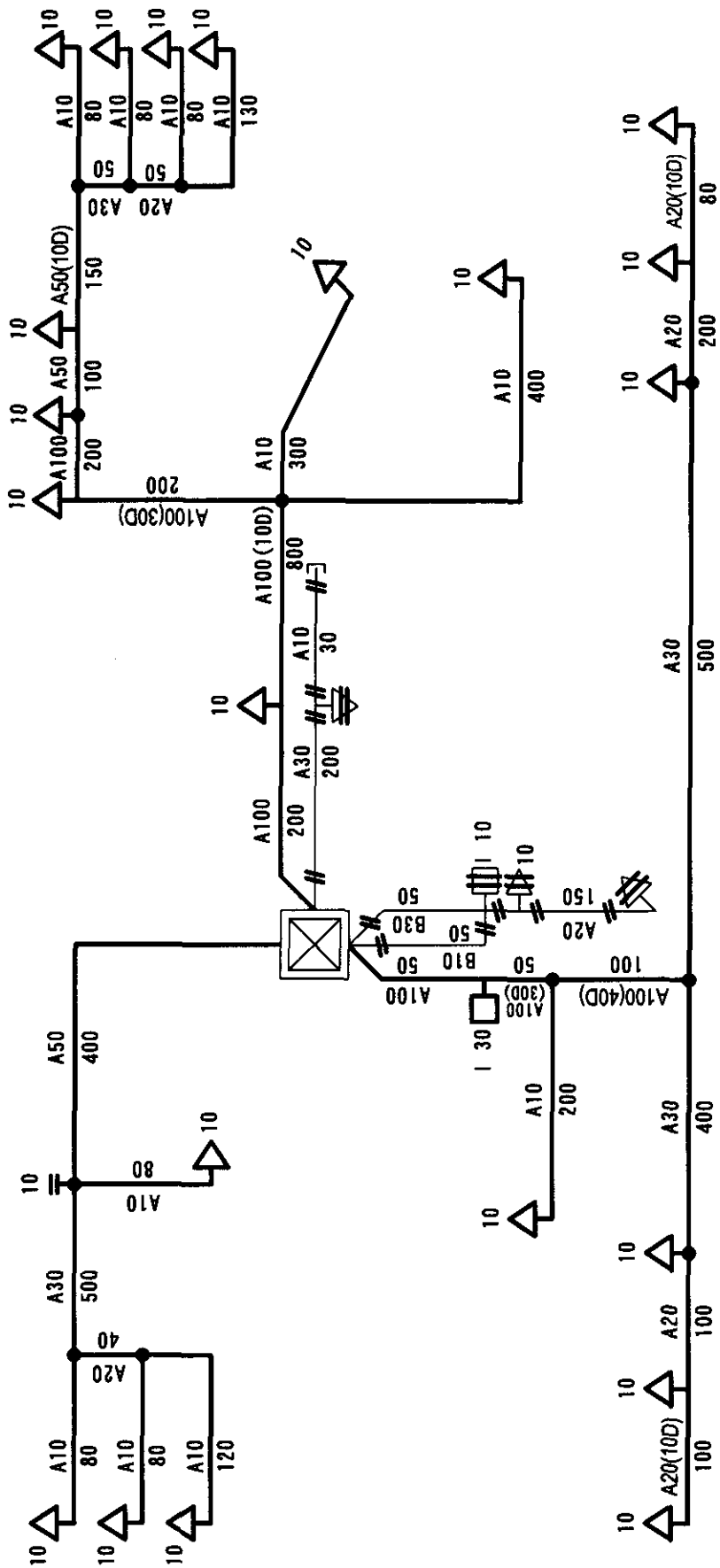
Title	Network diagram
Aimag	Uvurkhangai
Sum centre	ZB Ulaan



Management information						
Items	Unit	Proposed	Existing	Total	Removal	Reerection
Term. on MDF	Pairs	160	0	160	20	---
Aerial cable	km	9.2	0	9.2	0.015	---
DP	ea	12	0	12	1	---
Pole	ea	233	0	233	0	0

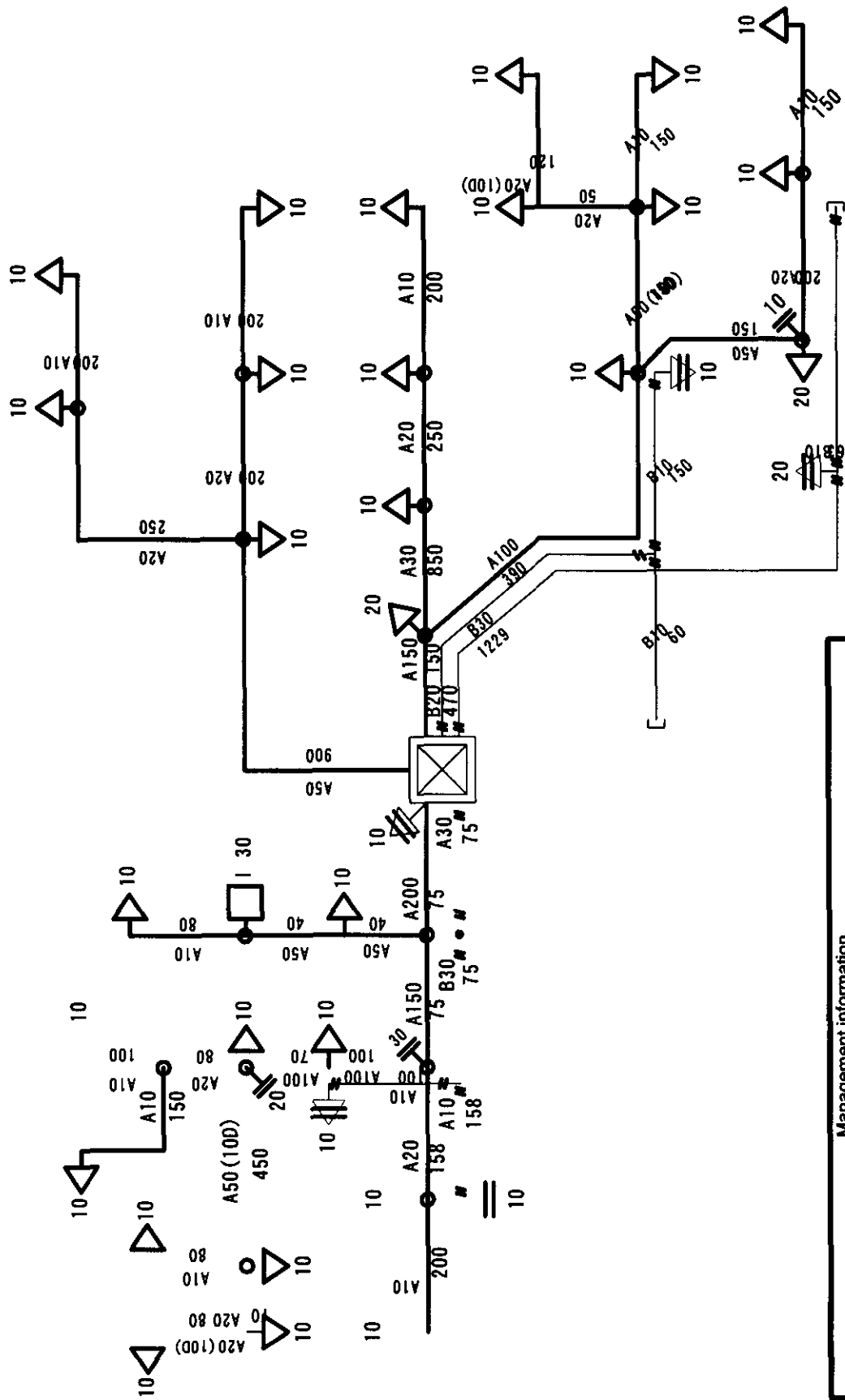


Title	Network Diagram
Aimag	Selenge
Sum Centre	Zuunburen



Management information						
Items	Unit	Proposed	Existing	Total	Removal	Reerection
Term. on MDF	Pairs	250	0	250	70	...
Aerial cable	km	5.7	0	5.7	0.4	...
DB cable	km	0	0	0	0.1	...
DP	ea	22	0	22	4	...
Pole	ea	136	5	141	0	5

Title	Network Diagram
Aimag	Selenge
Sum Centre	Sant



Title	Network Drawing
Aimag	Selenge
Sum Centre	Shaamar

Management information						
Items	Unit	Proposed	Existing	Total	Removal	Reerection
Term. on MDF	Pairs	400	0	400	80	---
Aerial cable	km	6.3	0	6.3	0.2	---
DB cable	km	0	0	0	2.3	---
DP	ea	30	0	30	5	---
Pole	ea	152	3	155	0	3

ANNEX 5

POWER SYSTEM AND SUPPLY

ANNEX 5

MICROSCOPIC DEMAND FORECAST

Annex 5-1: Power Supply Plans 5-2
Annex 5-2: Power Supply Types 5-5
Annex 5-3: Typical Power Supply Systems 5-6
Annex 5-4: Power Supply Plan and Cost Calculation..... 5-7

Annex 5-1 Power Supply Plans

1. The table is descriptive of the current situations of power supply to telecom offices at Sum centres that are covered under the Feasibility Study.
2. Source of the current situations of power supply is mainly Mongolian Telecommunication Company.
 Power supply source:
 C: Central Energy System, W: Western Energy System, E: Eastern Energy System, S: Import from China,
 A-DG: Aimag diesel generating station, S-DG: Sum diesel generating station
3. Renewable energy potentials as surveyed under the Master Plan Study for Rural Power Supply by Renewable Energy in Mongolia (JICA, September 2000) are also indicated in the table, for reference, at the "Renewable Energy" column for applicable Sums. Classification of the potentials is as follows:
 - i) PV (annual average horizontal solar irradiation)
 - A: beyond 5.0kWh/m²/day, B: 4.5-5.0kWh/m²/day, C: 4.0-4.4kWh/m²/day
 - ii) Wind (average wind speed at a height of 10m above ground level in July and August:
 - A: 4.7m/s or more, B: 3.8-4.6mm/s, C: 2.9-3.7m/s
4. Current and proposed power supply types are as indicated in the relevant figures contained in the Feasibility Study Report.

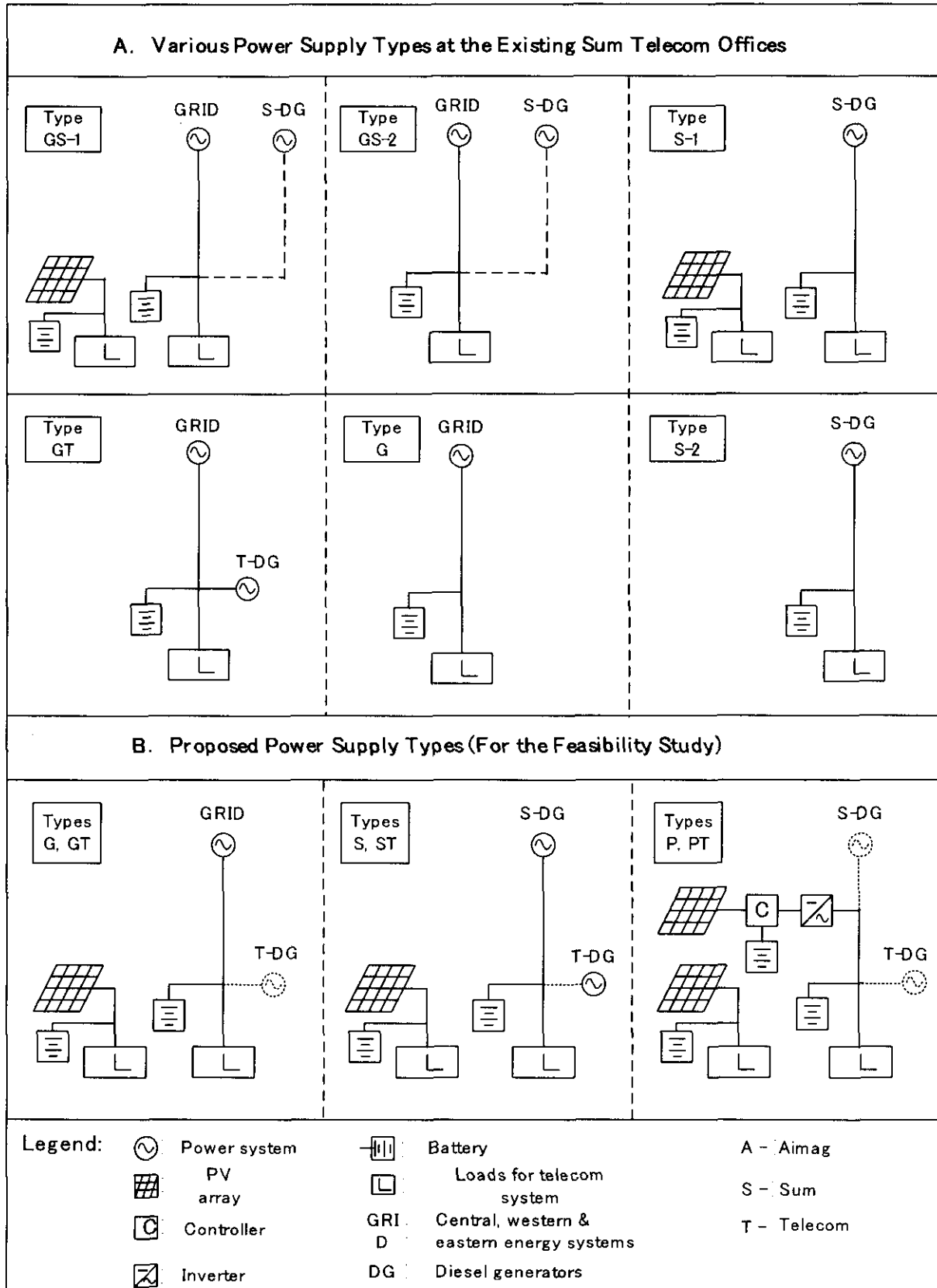
Annex 5-1 Power Supply Plans

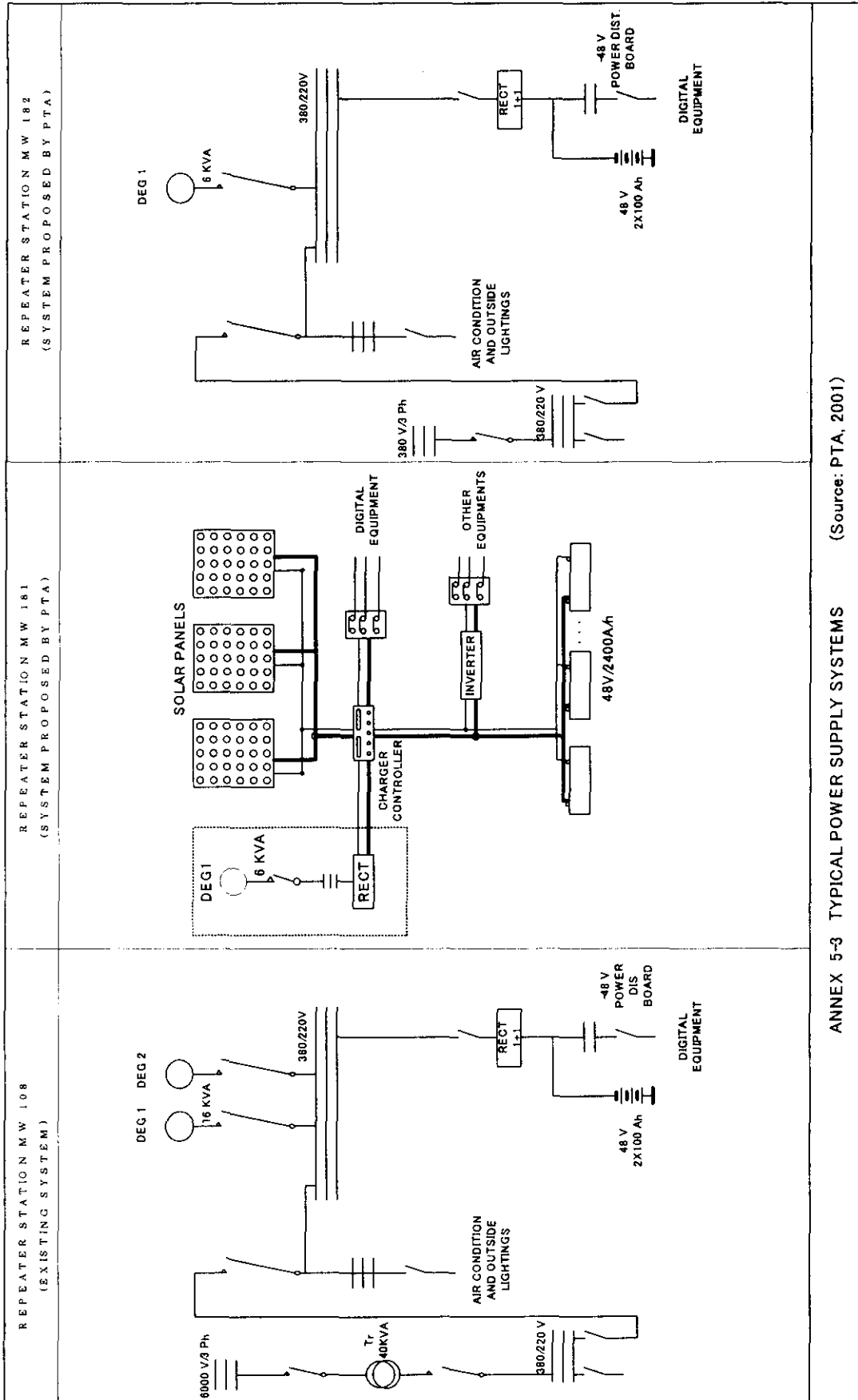
No	Aimags	Sum		Power Supply from Grids (C,W,E,S)	Power Supply from Aimag DG (y or n)	Power Supply from Sum DG		Stand-alone Power Supply		Renewable Energy Class		Current Power Supply Type	Proposed Power Supply System		
		No.	Name			(y or n)	No. x kW	(y or n)	Capacity	PV	Wind		Main	Sub	Type
1	Darkhan-uu	1	Aimag center	C	n	n		y	DG-100kW			-	-	-	
		2	Sharin gol	C	n	n		n				G	C	T-DG	GT
		3	Khongor	C	n	n		n				G	C	-	G
		4	Orkhon	C	n	n		n				G	C	-	G
		5	Salkhit	C	n	n		n				G	C	-	G
2	Selenge	1	Aimag center	C	n	n		y	DG-60kW			-	-	-	
		2	Altanbulag	C	n	n		n				G	C	T-DG	GT
		3	Eruu	C	n	n		n				G	C	-	G
		4	Zuunburen	C	n	n		n				G	C	-	G
		5	Khushaat	C	n	n		n				G	C	-	G
		6	Orkhon	C	n	n		n				G	C	-	G
		7	Sant	C	n	n		n				G	C	-	G
		8	Khuder	C	n	n		n				G	C	-	G
		9	Tsagaannuur	C	n	n		n				G	C	T-DG	GT
		10	Bugant	C	n	n		n				G	C	-	G
		11	Orkhontuul	C	n	n		n				G	C	-	G
		12	Baruunburen	C	n	n		n				G	C	-	G
		13	Dulaankhaan	C	n	n		n				G	C	-	G
		14	Javkhalant	C	n	n		n				G	C	-	G
		15	Shaamar	C	n	n		n				G	C	T-DG	GT
		16	Tushig	C	n	n		n				G	C	-	G
17	Saikhan	C	n	n		n				G	C	-	G		
18	Khutul	C	n	n		n				G	C	T-DG	GT		
19	Zuunkharaa	C	n	n		n				G	C	T-DG	GT		
20	Bayangol (Baruunkharaa)	C	n	n		n				G	C	T-DG	GT		
21	Tunkhel	C	n	n		n				G	C	-	G		

No	Aimag	Sum		Power Supply from Grids (C,W,E,S)	Power Supply from Aimag DG (y or n)	Power Supply from Sum DG		Stand-alone Power Supply			Renewable Energy Class		Current Power Supply Type	Proposed Power Supply System		
		No.	Name			(y or n)	No. x kW	(y or n)	Capacity	PV	Wind	Main		Sub	Type	
3	Uvurkhangai	1	Aimag center	C	n	y	1 x 60 kW	y	DG-16kW			-	-	-	-	-
		2	Bayanundur	C	n	y	1 x 60kW (Japan: 2000)	n				GS-2	C	-	-	G
		3	Burd	C	n	n		n				G	C	-	-	G
		4	Batulzii	C	n	n		n				G	C	-	-	G
		5	BB Ulaan		n	y	3 x 60kW (Japan: 2000)	n		B		S-2	PV	S-DG	-	P
		6	Bayangol	C	n	n		n				G	C	-	-	G
		7	Guchin-Uls		n	y	3 x 60kW (Japan: 2000)	y	PV-0.8kW	B	B	S-1	PV	S-DG	-	P
		8	Esumzuil	C	n	n		n				G	C	-	-	G
		9	Uziit	C	n	n		n				G	C	-	-	G
		10	ZB Ulaan	C	n	n		n				G	C	-	-	G
		11	Bogd		n	y	3 x 100kW (Japan: 1999)	y	PV-0.4kW	B		S-1	PV	S-DG	-	P
		12	Nariinteel	C	n	y	3 x 60kW (Japan: 2000)	n		B		GS-2	C	S-DG	-	(GS-2)
		13	Sant	C	n	y	1 x 60kW (Russia)	n				GS-2	C	S-DG	-	(GS-2)
		14	Taragt	C	n	n		n				G	C	-	-	G
		15	Tugrug	C	n	y	2 x 60kW (Japan: 2001)	y	PV-0.8kW			GS-1	C	-	-	G
		16	Uyanga	C	n	n		n				G	C	T-DG	-	GT
		17	Khairhandulaan		n	y	3 x 60kW (Japan: 2000)	n		B		S-2	PV	S-DG	-	P
		18	Khujirt	C	n	n		n	DG-24kW			GT	C	T-DG	-	GT
		19	Kharkhorin	C	n	n		n	DG-16kW			GT	C	T-DG	-	GT
		20	Bayanteeg		n	y	3 x 60kW (Russia)	y	PV-0.6kW			S-1	PV	S-DG	-	P

Total No. 46

Annex 5-2 Power Supply Types





ANNEX 5-3 TYPICAL POWER SUPPLY SYSTEMS (Source: PTA, 2001)

Annex 5-4 Power Supply Plan and Cost Calculation

---- Contents ----

- (1) Power Supply Plan and Cost Calculation for Switching Facilities**
- (2) Power Supply Plan and Cost Calculation for Transmission Facilities**
- (3) Summary of Power Supply Cost**
 - 1) Typical Unit Cost Adopted for Cost Calculation**
 - 2) Power Supply Cost for Switching Facilities**
 - 3) Power Supply Cost by the Aimag and by the Cost Item**

(1) Power Supply Plan and Cost Calculation for Switching Facilities

Aimag No.	Sum	SW capacity (Adjst. Final)	Calculation of PV System (when applied)							PV System (Y or N)	Cost Calculation Data			Cost (US\$1,000)		
			Load (A)	Voltage (V)	P(kW)	EI (kWh/d)	K	Ha (kWh/m ² /d)	Pac (kW)		Bc (kWh)	Power Dist.	T-DG (kW)		Air Cond	
1	Aimag center															
2	Bayan-Undur															
3	Burd	200	48	0.48	11.5	0.62	4.4	4.2	37.1	G	N	-	200	A		5.5
4	Bar-Ulzii	200	48	0.48	11.5	0.62	4.4	4.2	37.1	G	N	-	200	A		5.5
5	BB-Ulaan															
6	Bayangol	200	48	0.48	11.5	0.62	4.4	4.2	37.1	G	N	-	200	A		5.5
7	Guchin-Uus															
8	Esunzuul	200	48	0.48	11.5	0.62	4.4	4.2	37.1	G	N	-	200	A		5.5
9	Ulziit															
10	ZB Ulaan	200	48	0.48	11.5	0.62	4.4	4.2	37.1	G	N	-	200	A		5.5
11	Bogd															
12	Nariinteel	200	48	0.48	11.5	0.62	4.4	4.2	37.1	GS-2	N	-	200	A		5.5
13	Sant	200	48	0.48	11.5	0.62	4.4	4.2	37.1	GS-2	N	-	200	A		5.5
14	Taragt															
15	Tugrug															
16	Uyanga	400	48	0.60	14.4	0.62	4.4	5.3	46.4	GT	N	1.2	400	A		10.6
17	Kharkhandulaan															
18	Khuzirt	400	48	0.60	14.4	0.62	4.4	5.3	46.4	GT	N	1.2	400	A		10.6
19	Kharkhorin	1,700	48	1.36	32.6	0.62	4.4	12.0	105.0	GT	N	2.7	1,700	B		39.3
20	Bayanteeg															
	Total	3,900										5.1	3,900			99.0

Uurkhangai

(1) Power Supply Plan and Cost Calculation for Switching Facilities

Aimag No.	Sum	SW capacity (Adjust. Final)	Calculation of PV System (when applied)						PV System (Y or N)	Cost Calculation Data		Cost (US\$1,000)							
			Load (A)	Voltage (V)	P(kW)	El (kWh/d)	K	Ha (kWh/m ² /d)		Pac (kW)	Bc (kWh)		T-DG (kW)	Power Dist.	Air Cond.				
1	Aimag center																		
2	Altanbulag	200	10.0	48	0.48	11.5	0.62	4.4	4.2	37.1	N	1.0	200	A					6.3
3	Eruu	400	12.5	49	0.61	14.6	0.62	4.4	5.4	47.0	N	-	400	A					9.5
4	Zuunburen	200	10.0	50	0.50	12.0	0.62	4.4	4.4	38.7	N	-	200	A					5.5
5	Khushaat																		
6	Orkhon																		
7	Sant	200	10.0	53	0.53	12.7	0.62	4.4	4.7	40.9	N	-	200	A					5.5
8	Khuder																		
9	Tsagaannuur	400	12.5	55	0.69	16.6	0.62	4.4	6.1	53.5	N	1.4	400	A					10.7
10	Bugant																		
11	Orkhontuul	400	12.5	57	0.71	17.0	0.62	4.4	6.2	54.8	N	-	400	A					9.5
12	Baruunburen																		
13	Dulaankhaan																		
14	Javkhlant																		
15	Sheamar	400	12.5	61	0.76	18.2	0.62	4.4	6.7	58.6	N	1.5	400	A					10.8
16	Tushig																		
17	Saikhan																		
18	Khutul	800	17.4	48	0.84	20.2	0.62	4.4	7.4	65.1	N	1.7	800	B					20.1
19	Zuunkharaa (Mandal)	1,800	29.6	48	1.42	34.1	0.62	4.4	12.5	109.9	N	2.8	1,800	B					41.4
20	Bayangol (Baruunharaa)	400	12.5	48	0.60	14.4	0.62	4.4	5.3	46.4	N	1.2	400	A					10.6
21	Tunkhel	200	10.0	48	0.48	11.5	0.62	4.4	4.2	37.1	N	-	200	A					5.5
	Total	5,400										9.6	5,400						135.4
1	Aimag center																		
2	Sharin gol	1,100	21.0	48	1.01	24.2	0.62	4.4	8.9	78.0	N	2.0	1,100	B					26.4
3	Khongor																		
4	Orkhon																		
5	Salkhit																		
	Total	1,100										2.0	1,100						26.4
	Grand Total											16.7	10,400						260.8

(2) Power Supply Plan and Cost Calculation for Transmission Facilities

Aimag	No	Sum	Power Consumption (kW)		Calculation of PV System (when applied)					Power Supply Type	PV System (Y or N)	Cost Calculation Data			Cost (US\$1,000)
			Radio	WLL	P(kW)	Ej (kWh/d)	K	Ha (kWh/m ² /d)	Pac (kW)			Bc (kWh)	T-DG (kW)	Power Dist.	
	1	Aimag center													
	2	Bayan-Undur													
	3	Burd	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	G	N	0	-	0
	4	Bat-Ulzii	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	G	N	0	-	0
	5	BB-Ulaan													
	6	Bayangol	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	G	N	0	-	0
	7	Guchin-Uс													
	8	Esunzul	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	G	N	0	-	0
	9	Uлziit													
	10	ZB Ulaan	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	G	N	0	-	0
	11	Bogd													
	12	Nariinteel	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	GS-2	N	0	-	0
	13	Sant	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	GS-2	N	0	-	0
	14	Taragt													
	15	Tugrug													
	16	Uyanga	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	GT	N	1.1	-	0.9
	17	Kharkhandulaan													
	18	Khuzirt	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	GT	N	1.1	-	0.9
	19	Kharkhorin	0.7	1	1.70	40.8	0.62	4.4	15.0	131.5	GT	N	2.6	-	2.2
	20	Bayanteeg													
		Total											4.8		4.0

(2) Power Supply Plan and Cost Calculation for Transmission Facilities

Aimag	No.	Sum	Power Consumption (kW)		Calculation of PV System (when applied)						Power Supply Type	PV System (Y or N)	Cost Calculation Data			Cost (US\$,1,000)	
			Radio	WLL	P(kW)	El (kWh/d)	K	Ha (kWh/m ² /d)	Pac (kW)	Bc (kWh)			T-DG (kW)	Power Dist.	Air Cond.		
	1	Aimag center															
	2	Altanbulag	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	GT	N	1.1	-	-	0.9	
	3	Eruu	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	G	N	0	-	-	0	
	4	Zuunburen	0.7	1	1.70	40.8	0.62	4.4	15.0	131.5	G	N	0	-	-	0	
	5	Khushaat															
	6	Orkhon															
	7	Sant	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	G	N	0	-	-	0	
	8	Khuder															
	9	Tsagaannuur	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	GT	N	1.1	-	-	0.9	
	10	Bugant															
	11	Orkhontuul															
	12	Baruunburen															
	13	Dulaankhaan															
	14	Javkhiant															
	15	Shaamar	0.7	0	0.70	16.8	0.62	4.4	6.2	54.1	GT	N	1.1	-	-	0.9	
	16	Tushig															
	17	Saikhan															
	18	Khutul	0.0	1	1.00	24.0	0.62	4.4	8.8	77.3	GT	N	1.5	-	-	1.3	
	19	Zuunkharaa (Mandal)	0.7	1	1.70	40.8	0.62	4.4	15.0	131.5	GT	N	2.6	-	-	2.2	
	20	Bayangol (Baruunharaa)															
	21	Tunkhel															
		Total											7.4	-	-	6.2	
	1	Aimag center															
	2	Shariin gol	0.7	1	1.70	40.8	0.62	4.4	15.0	131.5	GT	N	2.6	-	-	2.2	
	3	Khongor															
	4	Orkton															
	5	Salkhit															
		Total											2.6	-	-	2.2	
		Grand Total											14.8	0		12.4	

(3) Summary of Power Supply Cost

1) Typical Unit Cost Adopted for Cost Calculation

Cat.	Equipment Description	PV (\$/kW)	Battery (\$/kWh)	DEG (\$/kW)	Power Dist. (\$/line)	Air Conditioning		
						A type (\$)	B type (\$)	
Foreign	Equipment Supply	6,600	190	700	10.0	1200	2000	
	Wiring Materials & Accessories	330	4	21	5.0	24	40	
	Ocean Transportation	198	6	21	0.4	36	60	
	Spare Parts Supply	198	6	35	0.3	36	60	
	Installation & Commissioning	198	6	35	2.0	36	60	
Total		7,524	211	812	17.7	1,332	2,220	
Local	Wiring Materials & Accessories	132	-	7	1.0	0	0	
	Local Transportation	132	4	14	0.2	24	40	
	Installation & Commissioning	132	4	21	1.5	24	40	
	Total		396	8	42	2.7	48	80
	Grand Total		7,920	219	854	20.4	1,380	2,300
	Foreign (%)	0.95	0.97	0.95	0.87	0.97	0.97	
	Local	0.05	0.03	0.05	0.13	0.03	0.03	
	% of Spare Parts Supply	0.03	0.03	0.04	0.01	0.03	0.03	

3) Power Supply Cost by the Aimag and by the Cost Items (US\$1,000)

Cat.	Aimag	Uvur -khangai	Selenge	Darkhan -uul	Total
Foreign	Switching Facilities	87.0	119.0	23.2	229.2
	Transmission Facilities	3.8	5.4	2.1	11.3
	Total	90.8	124.4	25.3	240.6
Local	Switching Facilities	11.1	15.2	3.0	29.2
	Transmission Facilities	0.2	0.3	0.1	0.6
	Total	11.3	15.5	3.1	29.8
	Grand Total	102.1	139.9	28.4	270.4
	Foreign (%)	89%	89%	89%	89%
	Local	11%	11%	11%	11%
	% of Spare Parts Supply	3%	3%	3%	3%

2) Power Supply Cost for Switching Facilities (US\$1,000)

Aimag	Uvur	Selenge	Darkhan	Total	Ratio
	4.4	8.2	1.7	14.3	0.05
	79.6	110.2	22.4	212.2	0.81
	12.4	12.4	0	24.8	0.10
	2.3	4.6	2.3	9.2	0.03
Foreign	0.879	0.048	0.705	0.097	0.029
Local	0.112	0.003	0.105	0.003	0.001

ANNEX 6

IT SYSTEM

Annex 6 IT SYSTEM

Annex 6.1 Questionnaire Survey 6-2

Annex 6.2 Microscopic Demand Forecast of Internet 6-32

Annex 6.3 Microscopic Traffic Forecast of Internet..... 6-34

Annex 6.1 Questionnaire Survey

Aiming the grasp of Sum inhabitant's interest in IT and to forecast the IT demand more accurately than that of macro, the questionnaire survey was executed in September 2002 at two Aimags, i.e., Uvurkhangai Aimag and Selenge Aimag including Darkhan-Uul, where selected as priority area in this master plan.

(Method of Survey)

In the survey, two types of survey were executed. One is the survey to organizations in the Sums and the other one is the survey to individuals or households. The forms of questionnaires are attached hereafter.

Organization's survey

The organization's survey was conducted of 20 organizations at each Sum or 200 organizations in total. The composition of these organizations was as follows:

Name of Sum	Public Organization	School	Hospital	Private Firm	Total
Uvurkhangai					
Bayangol	14	1	1	4	20
Esonzuil	15	1	1	3	20
Sant	16	1	1	2	20
Uyanga	15	1	1	3	20
Kharkhorin	3	2	1	14	20
Sub-total	63	6	5	26	100
Selenge					
Khongor	11	1	1	7	20
Altanbulag	12	1	1	6	20
Eruu	8	1	1	10	20
Zuunburen	10	1	1	8	20
Zuunkharaa	11	1	1	7	20
Sub-total	52	5	5	38	100
Total	115	11	10	64	200

Individual's survey

The individual's survey was conducted of 30 persons in each Sum or 300 in total who sampled out at random. Collection of the answers was executed by a method of catching-up the oral reply of respondent by the surveyor.

1. Form of Questionnaire

(1) Public Organizations

Questionnaire (related to IT)

Sum Name:

	Name of Organization	No. of Staffs	No. of Telephone Liens	No. of PC	Internet Connection		Remarks
					at Present	Plan*	
1					(hrs/month)		
2					(hrs/month)		
3					(hrs/month)		
4					(hrs/month)		
5					(hrs/month)		
6					(hrs/month)		
7					(hrs/month)		
8					(hrs/month)		
9					(hrs/month)		
10					(hrs/month)		
11					(hrs/month)		
12					(hrs/month)		
13					(hrs/month)		
14					(hrs/month)		
15					(hrs/month)		

* Please state any plan and/or any desire, if they have.

(2) School and Hospital

Questionnaire (related to IT)

Sum Name: _____

	2. School & Hospital	Name of School (Type of School**)	No. of Staffs (Teachers***)	No. of Student	No. of Telephone Liens	No. of PC	Internet Connection		Remarks
							at Present	Plan*	
1	()	()	()				(hrs/month)		
2	()	()	()				(hrs/month)		
3	()	()	()				(hrs/month)		

* Please state any plan and/or any desire, if they have.

** Type of School: Elementary, Junior-high, High, 8-years, 10-years, University or Other special

*** No. of Teachers: Number of teachers should be re-stated from the total number of the staffs.

	Name of Hospital (Type of Hospital**)	No. of Staffs (Doctors***)	No. of Beds	No. of Telephone Liens	No. of PC	Internet Connection		Remarks
						at Present	Plan*	
1	()	()				(hrs/month)		
2	()	()				(hrs/month)		
3	()	()				(hrs/month)		

* Please state any plan and/or any desire, if they have.

** Type of Hospital: Hospital, Diagnosis-treatment centre or Other special

*** No. of Doctors: Number of doctors should be re-stated from the total number of the staffs.

(3) Private Firms

Questionnaire (related to IT)

Sum Name: _____

	Name of Firm/Company	No. of Staffs	No. of Telephone Liens	No. of PC	Internet Connection		Remarks
					at Present	Plan*	
1					(hrs/month)		
2					(hrs/month)		
3					(hrs/month)		
4					(hrs/month)		
5					(hrs/month)		
6					(hrs/month)		
7					(hrs/month)		
8					(hrs/month)		
9					(hrs/month)		
10					(hrs/month)		
11					(hrs/month)		
12					(hrs/month)		
13					(hrs/month)		
14					(hrs/month)		
15					(hrs/month)		

* Please state any plan and/or any desire, if they have.

(4) Individual

Questionnaire (related to IT)**You and Your Family**

1. Age: _____ Sex: Male, Female
2. Occupation: Public employee, Company employee, Self-employed, Farm worker, Student, Other
3. Number of your family: _____
4. Your address: Aimag; _____, Sum; _____, in Sum centre or Bug; _____

Personal Computer (PC)

5. Do you have PC? Yes (_____ set), No How about your family? Yes (_____ set), No
6. Do you use PC? Yes (at home, at office/school), No
7. If "No" in Item 5, but do you want to own your PC? Yes, No

Internet

8. Do you know Internet? Yes, No
9. Are you using Internet? Yes (about _____ hours/months), No
10. If "Yes" in Item 9, from where you use Internet? from Home, from Office/school, from Café
11. Have you your own account (Internet address)? Yes, No How about your family? Yes, No
12. If "No" in Item 9, but do you want to use Internet? Yes, No

Internet Café

Mongolia Telecom has a plan to open Internet Café in Sum centre. In the Internet Café you can access Internet (e-mail send/reception, web and homepage access), enjoy computer games and use photocopy machine and facsimile.

13. Have you heard the name "Internet Café" before? Yes, No
14. Have you used Internet Café before? Yes (about _____ hours/months), No
15. If "yes" in Item 14, where you use(d) the Café? City name: _____
16. Do you want to use Internet Café if it opens in your Sum center? Yes, No

Do you have any comment about Information and Communication in Mongolia.

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Thanks for your cooperation to this investigation.

2. Results of Questionnaire Survey

Summary of Organization's Survey at Uvurkhangai (100 Organizations in 5 Sums)

Aimag: Uvurkhangai All

Sum: Uvurkhangai All

1. Public Organization

* : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization	47	1.9	21	26	6	41	0 "Yes" total
			1.2		1.0		hrs/month *
2 6 - 15 staff's organization	12	9.3	7	5	4	8	0 "Yes" total
			2.1		2.0		hrs/month *
3 16 or more staff's organization	4	21.3	3	1	3	1	0 "Yes" total
			4.0		2.3		hrs/month *
Total	63	4.6	31	32	13	50	0 "Yes" total
			1.7		1.6		hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *		No. of Students *		Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *				If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school	0	0.0		0.0		0	0	0	0	0 "Yes" total
		0.0								hrs/month *
2 10-years junior high school	5	56.2		837.6		5	0	5	0	1 "Yes" total
		38.6				1.6		6.6		5.0 hrs/month *
3 University or other school	1	55.0		250.0		1	0	1	0	0 "Yes" total
		30.0				1.0		8.0		hrs/month *
Total	6	56.0		739.7		6	0	6	0	1 "Yes" total
		37.2				1.5		6.8		5.0 hrs/month *

Type of Hospital	No. of Hospital	No. of Staffs *		No. of Beds *	Possessing of Tel.		Possessing of PC		Internet Connection at Present	
		Doctors *			If "Yes" *	None	If "Yes" *	None		
1 Sum hospital	4	27.3		19.5		4	0	1	3	0 "Yes" total
		7.8				1.3		1.0		hrs/month *
2 Inter-sum general hospital	1	98.0		75.0		1	0	0	1	0 "Yes" total
		20.0				4.0				hrs/month *
Total	5	41.4		30.6		5	0	1	4	0 "Yes" total
		10.2				1.8		1.0		hrs/month *

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	10	3.2	7	3	2	8	0 "Yes" total
			1.4		1.5		hrs/month *
2 6 - 15 staff's firm	10	10.0	8	2	2	8	0 "Yes" total
			1.4		1.0		hrs/month *
3 16 or more staff's firm	6	39.5	5	1	3	3	0 "Yes" total
			3.2		2.7		hrs/month *
Total	26	14.2	20	6	7	19	0 "Yes" total
			1.9		1.9		hrs/month *

Almag: UvurkhangaI

Sum: Bayangol

1. Public Organization

* : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization	10	1.7	7 1.1	3	2 1.0	8	0 "Yes" total hrs/month *
2 6 - 15 staff's organization	3	9.0	2 1.0	1	0 0.0	3	0 "Yes" total hrs/month *
3 16 or more staff's organization	1	22.0	1 6.0	0	1 1.0	0	0 "Yes" total hrs/month *
Total	14	4.7	10 1.6	4	3 1.0	11	0 "Yes" total hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *		No. of Students *		Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *				If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school										"Yes" total hrs/month *
2 10-years junior high school	1	45.0 30.0		650.0		1 1.0	0	1 8.0	0	1 "Yes" total 5.0 hrs/month *
3 University or other school										"Yes" total hrs/month *
Total	1	45.0 30.0		650.0		1 1.0	0	1 8.0	0	1 "Yes" total 5.0 hrs/month *

Type of Hospital	No. of Hospital	No. of Staffs *		No. of Beds *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Doctors *			If "Yes" *	None	If "Yes" *	None	
1 Sum hospital	1	23.0 3.0		13.0		1 1.0	0	0 1	0 "Yes" total hrs/month *
2 Inter-sum general hospital									"Yes" total hrs/month *
Total	1	23.0 3.0		13.0		1 1.0	0	0 1	0 "Yes" total hrs/month *

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	1	5.0	0	1	0	1	0 "Yes" total hrs/month *
2 6 - 15 staff's firm	3	10.3	1 1.0	2	0	3	0 "Yes" total hrs/month *
3 16 or more staff's firm							"Yes" total hrs/month *
Total	4	9.0	1 1.0	3	0	4	0 "Yes" total hrs/month *

Aimag: Uvurkhantai

Sum: Esonzui

1. Public Organization

* : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization	12	1.7	4 1.3	8	2 1.0	10	0 "Yes" total hrs/month *
2 6 - 15 staff's organization	2	10.0	1 1.0	1	0	2	0 "Yes" total hrs/month *
3 16 or more staff's organization	1	18.0	1 2.0	0	1 1.0	0	0 "Yes" total hrs/month *
Total	15	3.9	6 1.3	9	3 1.0	12	0 "Yes" total hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *		No. of Students *		Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *				If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school										"Yes" total hrs/month *
2 10-years junior high school	1	51.0 31.0	605.0	1 2.0	0	1 10.0	0	0	0 "Yes" total hrs/month *	
3 University or other school									"Yes" total hrs/month *	
Total	1	51.0 31.0	605.0	1 2.0	0	1 10.0	0	0	0 "Yes" total hrs/month *	

Type of Hospital	No. of Hospital	No. of Staffs *		No. of Beds *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Doctors *			If "Yes" *	None	If "Yes" *	None	
1 Sum hospital	1	25.0 8.0	15.0	1 1.0	0	0	1	0 "Yes" total hrs/month *	
2 Inter-sum general hospital								"Yes" total hrs/month *	
Total	1	25.0 8.0	15.0	1 1.0	0	0	1	0 "Yes" total hrs/month *	

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	2	2.0	1 1.0	1	0	2	0 "Yes" total hrs/month *
2 6 - 15 staff's firm	1	9.0	1 1.0	0	0	1	0 "Yes" total hrs/month *
3 16 or more staff's firm							"Yes" total hrs/month *
Total	3	4.3	2 1.0	1	0	3	0 "Yes" total hrs/month *

Aimag: Uvurkhantai

Sum: Sant

1. Public Organization

* : Average figure

	Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
				If "Yes" *	None	If "Yes" *	None	
1	5 or less staff's organization	13	1.9	3	10	1	12	0 "Yes" total
				1.0		1.0		hrs/month *
2	6 - 15 staff's organization	3	11.0	1	2	2	1	0 "Yes" total
				2.0		1.0		hrs/month *
3	16 or more staff's organization							"Yes" total
								hrs/month *
Total		16	3.6	4	12	3	13	0 "Yes" total
				1.3		1.0		hrs/month *

2. School & Hospital

	Type of School	No. of School	No. of Staffs *		No. of Students *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			Teachers *			If "Yes" *	None	If "Yes" *	None	
1	8-years junior high school									"Yes" total
										hrs/month *
2	10-years junior high school	1	57.0		690.0	1	0	1	0	0 "Yes" total
			36.0			1.0		9.0		hrs/month *
3	University or other school									"Yes" total
										hrs/month *
Total		1	57.0		690.0	1	0	1	0	0 "Yes" total
			36.0			1.0		9.0		hrs/month *

	Type of Hospital	No. of Hospital	No. of Staffs *		No. of Beds *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			Doctors *			If "Yes" *	None	If "Yes" *	None	
1	Sum hospital	1	23.0		15.0	1	0	0	1	0 "Yes" total
			7.0			1.0				hrs/month *
2	Inter-sum general hospital									"Yes" total
										hrs/month *
Total		1	23.0		15.0	1	0	0	1	0 "Yes" total
			7.0			1.0				hrs/month *

3. Private Firm

	Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
				If "Yes" *	None	If "Yes" *	None	
1	5 or less staff's firm	1	2.0	0	1	0	1	0 "Yes" total
								hrs/month *
2	6 - 15 staff's firm							"Yes" total
								hrs/month *
3	16 or more staff's firm	1	20.0	1	0	0	1	0 "Yes" total
				1.0				hrs/month *
Total		2	11.0	1	1	0	2	0 "Yes" total
				1.0				hrs/month *

Aimags: Uvurkhanga

Sum: Uyanga

1. Public Organization

* : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization	12	2.4	7 1.3	5	1 1.0	11	0 "Yes" total hrs/month *
2 6 - 15 staff's organization	3	8.0	2 3.0	1	1 2.0	2	0 "Yes" total hrs/month *
3 16 or more staff's organization							"Yes" total hrs/month *
Total	15	3.5	9 1.7	6	2 1.5	13	0 "Yes" total hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *		No. of Students *		Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *				If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school										"Yes" total hrs/month *
2 10-years junior high school	1	65.0 42.0		943.0	1 2.0	0	1 4.0	0	0 "Yes" total hrs/month *	
3 University or other school									"Yes" total hrs/month *	
Total	1	65.0 42.0		943.0	1 2.0	0	1 4.0	0	0 "Yes" total hrs/month *	

Type of Hospital	No. of Hospital	No. of Staffs *		No. of Beds *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Doctors *			If "Yes" *	None	If "Yes" *	None	
1 Sum hospital	1	38.0 13.0		35.0	1 2.0	0	1 1.0	0	0 "Yes" total hrs/month *
2 Inter-sum general hospital									"Yes" total hrs/month *
Total	1	38.0 13.0		35.0	1 2.0	0	1 1.0	0	0 "Yes" total hrs/month *

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	3	3.7	3 1.7	0	0	3	0 "Yes" total hrs/month *
2 6 - 15 staff's firm							"Yes" total hrs/month *
3 16 or more staff's firm							"Yes" total hrs/month *
Total	3	3.7	3 1.7	0	0	3	0 "Yes" total hrs/month *

Aimags: Uvurkhanga

Sum: Kharkhorin

1. Public Organization

* : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization							"Yes" total hrs/month *
2 6 - 15 staffs organization	1	7.0	1 4.0	0	1 4.0	0	"Yes" total hrs/month *
3 16 or more staff's organization	2	22.5	1 4.0	1	1 5.0	1	0 "Yes" total hrs/month *
Total	3	17.3	2 4.0	1	2 4.5	1	0 "Yes" total hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *	No. of Students *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *		If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school								"Yes" total hrs/month *
2 10-years junior high school	1	63.0 54.0	1300.0	1 2.0	0	1 2.0	0	"Yes" total hrs/month *
3 University or other school	1	55.0 30.0	250.0	1 1.0	0	1 8.0	0	"Yes" total hrs/month *
Total	2	59.0 42.0	775.0	2 1.5	0	2 5.0	0	"Yes" total hrs/month *

Type of Hospital	No. of Hospital	No. of Staffs *	No. of Beds *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Doctors *		If "Yes" *	None	If "Yes" *	None	
1 Sum hospital								"Yes" total hrs/month *
2 Inter-sum general hospital	1	98.0 20.0	75.0	1 4.0	0	0 1	1	0 "Yes" total hrs/month *
Total	1	98.0 20.0	75.0	1 4.0	0	0 1	1	0 "Yes" total hrs/month *

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	3	3.3	3 1.3	0	2 1.5	1	0 "Yes" total hrs/month *
2 6 - 15 staff's firm	6	10.0	6 1.5	0	2 1.0	4	0 "Yes" total hrs/month *
3 16 or more staff's firm	5	43.4	4 3.8	1	3 2.7	2	0 "Yes" total hrs/month *
Total	14	20.5	13 2.2	1	7 1.9	7	0 "Yes" total hrs/month *

Summary of Organization's Survey at Selenge (100 Organizations in 5 Sums)

Aimags: **Selenge & Darkhan-Uul**

Sum: **Selenge&Dar All**

1. Public Organization

* : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization	29	3.0	20 1.1	9	6 1.0	23	0 "Yes" total hrs/month *
2 6 - 15 staff's organization	13	9.4	13 2.2	0	6 1.5	7	0 "Yes" total hrs/month *
3 16 or more staff's organization	10	41.1	9 5.2	1	6 2.7	4	0 "Yes" total hrs/month *
Total	52	11.9	42 2.3	10	18 1.7	34	0 "Yes" total hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *		No. of Students *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *	Doctors *		If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school	0	0.0 0.0		0.0	0	0	0	0	0 "Yes" total hrs/month *
2 10-years junior high school	5	52.0 38.2		917.4	5 1.2	0	5 6.2	0	1 "Yes" total 2.0 hrs/month *
3 University or other school	0	0.0 0.0		0.0	0	0	0	0	0 "Yes" total hrs/month *
Total	5	52.0 38.2		917.4	5 1.2	0	5 6.2	0	1 "Yes" total 2.0 hrs/month *

Type of Hospital	No. of Hospital	No. of Staffs *		No. of Beds *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Doctors *	Doctors *		If "Yes" *	None	If "Yes" *	None	
1 Sum hospital	4	19.0 5.5		11.3	4 1.3	0	0	4	0 "Yes" total hrs/month *
2 Inter-sum general hospital	1	150.0 28.0		90.0	1 7.0	0	1 1.0	0	0 "Yes" total hrs/month *
Total	5	45.2 10.0		27.0	5 2.4	0	1 1.0	4	0 "Yes" total hrs/month *

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	16	3.9	9 1.2	7	2 1.5	14	0 "Yes" total hrs/month *
2 6 - 15 staff's firm	11	10.6	5 1.2	6	1 1.0	10	0 "Yes" total hrs/month *
3 16 or more staff's firm	11	101.0	9 3.6	2	5 4.0	6	0 "Yes" total hrs/month *
Total	38	34.0	23 2.1	15	8 3.0	30	0 "Yes" total hrs/month *

Aimag: Selenge & Darkhan-Uul

Sum: Khongor

1. Public Organization

* : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization	7	2.6	6	1	2	5	0 "Yes" total
			1.0		1.0		hrs/month *
2 6 - 15 staff's organization	2	7.5	2	0	0	2	0 "Yes" total
			1.0				hrs/month *
3 16 or more staff's organization	2	24.5	2	0	1	1	0 "Yes" total
			2.5		3.0		hrs/month *
Total	11	7.5	10	1	3	8	0 "Yes" total
			1.3		1.7		hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *	No. of Students *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *		If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school								"Yes" total
								hrs/month *
2 10-years junior high school	1	51.0	720.0	1	0	1	0	0 "Yes" total
		33.0		1.0		11.0		hrs/month *
3 University or other school								"Yes" total
								hrs/month *
Total	1	51.0	720.0	1	0	1	0	0 "Yes" total
		33.0		1.0		11.0		hrs/month *

Type of Hospital	No. of Hospital	No. of Staffs *	No. of Beds *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Doctors *		If "Yes" *	None	If "Yes" *	None	
1 Sum hospital	1	22.0	10.0	1	0	0	1	0 "Yes" total
		6.0		2.0				hrs/month *
2 Inter-sum general hospital								"Yes" total
								hrs/month *
Total	1	22.0	10.0	1	0	0	1	0 "Yes" total
		6.0		2.0				hrs/month *

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	3	4.3	3	0	0	3	0 "Yes" total
			1.0				hrs/month *
2 6 - 15 staff's firm	2	11.0	1	1	0	2	0 "Yes" total
			1.0				hrs/month *
3 16 or more staff's firm	2	95.0	2	0	1	1	0 "Yes" total
			2.0		2.0		hrs/month *
Total	7	32.1	6	1	1	6	0 "Yes" total
			1.3		2.0		hrs/month *

Aimag: Selenge & Darkhan-Uul Sum: Altanbulag

1. Public Organization

* : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization	8	3.4	3 1.0	5	3 1.0	5	0 "Yes" total hrs/month *
2 6 - 15 staff's organization	2	12.5	2 3.0	0	1 3.0	1	0 "Yes" total hrs/month *
3 16 or more staff's organization	2	40.0	1 1.0	1	0 1.0	2	0 "Yes" total hrs/month *
Total	12	11.0	6 1.7	6	4 1.5	8	0 "Yes" total hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *		Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *	Students *	If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school								"Yes" total hrs/month *
2 10-years junior high school	1	51.0 43.0	950.0	1 1.0	0	1 2.0	0	0 "Yes" total hrs/month *
3 University or other school								"Yes" total hrs/month *
Total	1	51.0 43.0	950.0	1 1.0	0	1 2.0	0	0 "Yes" total hrs/month *

Type of Hospital	No. of Hospital	No. of Staffs *		Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Doctors *	Beds *	If "Yes" *	None	If "Yes" *	None	
1 Sum hospital	1	16.0 5.0	10.0	1 1.0	0	0 1	1	0 "Yes" total hrs/month *
2 Inter-sum general hospital								"Yes" total hrs/month *
Total	1	16.0 5.0	10.0	1 1.0	0	0 1	1	0 "Yes" total hrs/month *

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	1	5.0	0	1	0	1	0 "Yes" total hrs/month *
2 6 - 15 staff's firm	2	12.5	0	2	0	2	0 "Yes" total hrs/month *
3 16 or more staff's firm	3	44.7	2 1.0	1	1 1.0	2	0 "Yes" total hrs/month *
Total	6	27.3	2 1.0	4	1 1.0	5	0 "Yes" total hrs/month *

Aimag: Selenge & Darkhan-Uul Sum: Eruu

1. Public Organization

* : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization	4	3.0	4	0	0	4	0 "Yes" total
			1.0				hrs/month *
2 6 - 15 staff's organization	3	10.0	3	0	0	3	0 "Yes" total
			1.3				hrs/month *
3 16 or more staff's organization	1	24.0	1	0	1	0	0 "Yes" total
			5.0		3.0		hrs/month *
Total	8	8.3	8	0	1	7	0 "Yes" total
			1.6		3.0		hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *		No. of Students *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *			If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school									"Yes" total
									hrs/month *
2 10-years junior high school	1	54.0		940.0	1	0	1	0	0 "Yes" total
		41.0			1.0		2.0		hrs/month *
3 University or other school									"Yes" total
									hrs/month *
Total	1	54.0		940.0	1	0	1	0	0 "Yes" total
		41.0			1.0		2.0		hrs/month *

Type of Hospital	No. of Hospital	No. of Staffs *		No. of Beds *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Doctors *			If "Yes" *	None	If "Yes" *	None	
1 Sum hospital	1	22.0		15.0	1	0	0	1	0 "Yes" total
		5.0			1.0				hrs/month *
2 Inter-sum general hospital									"Yes" total
									hrs/month *
Total	1	22.0		15.0	1	0	0	1	0 "Yes" total
		5.0			1.0				hrs/month *

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	4	4.3	3	1	0	4	0 "Yes" total
			1.0				hrs/month *
2 6 - 15 staff's firm	4	10.5	2	2	0	4	0 "Yes" total
			1.0				hrs/month *
3 16 or more staff's firm	2	41.5	2	0	1	1	0 "Yes" total
			1.0		1.0		hrs/month *
Total	10	14.2	7	3	1	9	0 "Yes" total
			1.0		1.0		hrs/month *

Aimag: Selenge & Darkhan-Uul Sum: Zuunburen

1. Public Organization * : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization	9	2.7	6 1.2	3	0	9	0 "Yes" total hrs/month *
2 6 - 15 staff's organization	1	8.0	1 4.0	0	1 2.0	0	0 "Yes" total hrs/month *
3 16 or more staff's organization							"Yes" total hrs/month *
Total	10	3.2	7 1.6	3	1 2.0	9	0 "Yes" total hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *		Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *	Students *	If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school								"Yes" total hrs/month *
2 10-years junior high school	1	42.0 23.0	509.0	1 1.0	0	1 5.0	0	0 "Yes" total hrs/month *
3 University or other school								"Yes" total hrs/month *
Total	1	42.0 23.0	509.0	1 1.0	0	1 5.0	0	0 "Yes" total hrs/month *

Type of Hospital	No. of Hospital	No. of Staffs *		Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Doctors *	Beds *	If "Yes" *	None	If "Yes" *	None	
1 Sum hospital	1	16.0 6.0	10.0	1 1.0	0	0	1	0 "Yes" total hrs/month *
2 Inter-sum general hospital								"Yes" total hrs/month *
Total	1	16.0 6.0	10.0	1 1.0	0	0	1	0 "Yes" total hrs/month *

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	6	3.3	1 1.0	5	0	6	0 "Yes" total hrs/month *
2 6 - 15 staff's firm	1	11.0	0	1	0	1	0 "Yes" total hrs/month *
3 16 or more staff's firm	1	16.0	0	1	0	1	0 "Yes" total hrs/month *
Total	8	5.9	1 1.0	7	0	8	0 "Yes" total hrs/month *

Aimag: Selenge & Darkhan-Uul

Sum: Zuunkharaa

1. Public Organization

* : Average figure

Size of Organization by number of staffs	No. of Organization	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's organization	1	5.0	1	0	1	0	0 "Yes" total
			1.0		1.0		hrs/month *
2 6 - 15 staff's organization	5	8.8	5	0	4	1	0 "Yes" total
			2.4		1.0		hrs/month *
3 16 or more staff's organization	5	51.6	5	0	4	1	"Yes" total
			7.2		2.5		hrs/month *
Total	11	27.9	11	0	9	2	0 "Yes" total
			4.5		1.7		hrs/month *

2. School & Hospital

Type of School	No. of School	No. of Staffs *	No. of Students *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Teachers *		If "Yes" *	None	If "Yes" *	None	
1 8-years junior high school								"Yes" total
								hrs/month *
2 10-years junior high school	1	62.0	1468.0	1	0	1	0	1 "Yes" total
		51.0		2.0		11.0		2.0 hrs/month *
3 University or other school								"Yes" total
								hrs/month *
Total	1	62.0	1468.0	1	0	1	0	1 "Yes" total
		51.0		2.0		11.0		2.0 hrs/month *

Type of Hospital	No. of Hospital	No. of Staffs *	No. of Beds *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
		Doctors *		If "Yes" *	None	If "Yes" *	None	
1 Sum hospital								"Yes" total
								hrs/month *
2 Inter-sum general hospital	1	150.0	90.0	1	0	1	0	"Yes" total
		28.0		7.0		1.0		hrs/month *
Total	1	150.0	90.0	1	0	1	0	0 "Yes" total
		28.0		7.0		1.0		hrs/month *

3. Private Firm

Size of Firm/Company by number of staffs	No. of Firms	No. of Staffs *	Possessing of Tel.		Possessing of PC		Internet Connection at Present
			If "Yes" *	None	If "Yes" *	None	
1 5 or less staff's firm	2	4.0	2	0	2	0	0 "Yes" total
			2.0		1.5		hrs/month *
2 6 - 15 staff's firm	2	8.5	2	0	1	1	0 "Yes" total
			1.5		1.0		hrs/month *
3 16 or more staff's firm	3	229.3	3	0	2	1	0 "Yes" total
			8.0		8.0		hrs/month *
Total	7	101.9	7	0	5	2	0 "Yes" total
			4.4		4.0		hrs/month *

Summary of Individual's Survey at Uvurkhangai (150 Individuals in 5 Sums)

		Aimag: Uvurkhangai							Sum: Bayangol		
You and Your Family		Under 20	21-30	31-40	41-50	51-60	Over 60	Total			
1. Age & Sex											
Male		3	7	4	1			15			
Female		4	4	5	2			15			
2. Occupation											
	Public	14	2	4	4			30			
	Company	2	3	4	5	6	7	over			
	Self-employed	2	2	13	6	5	1	4.33			
3. Family members											
	in Sum Centre	26	4					30			
4. Living location											
Personal Computer (PC)											
5. Having PC											
	1 set		2 sets	3 sets	No			Yes/No ratio			
	Him/her-self				30			0			
	Family				30			0			
6. Using PC											
	at Home		Yes	at Office or school	No			Yes/No ratio			
	at present	4		26				4			
7. Intention to own PC											
	(no PC owner at present)		Yes	No				Yes/No ratio			
			20	5				20			
Internet											
8. Knowing Internet											
	Yes		21	9				Yes/No ratio			
								21			
9. Using Internet											
	less than 10 hours/M		Yes	more than 10-20 hours/M	No			Yes/No ratio			
	1			20				4			
10. Use Internet from:											
	Home		Office/school	Café				Total			
		1	1		29			1			
11. Having Internet address											
	Yes		No	Yes, but family	No, family too			Yes total			
		0	30	0	30			0			
12. Intention to use Internet											
	(no Internet user at present)		Yes	No				Yes/No ratio			
			24	3				24			
Internet Café											
13. Knowing Internet café											
	Yes	No						Yes/No ratio			
		23	7					23			
14. Using Internet café											
	less than 10 hours/M		Yes	more than 10-20 hours/M	No			Yes/No ratio			
	1			20				1			
15. The café's location											
	UB	the Aimag	Other					1			
	Yes	No						26			
		26	4					26			
16. Intention to use Internet café											
	Yes	No						Yes/No ratio			
		26	4					26			

		Aimag: Uvurkhangai							Sum: Uvurkhangai Ali		
You and Your Family		Under 20	21-30	31-40	41-50	51-60	Over 60	Total			
1. Age & Sex											
Male		8	29	20	5	2		64			
Female		3	20	31	26	6	0	86			
2. Occupation											
	Public	68	17	29	10	2	24	150			
	Company	2	3	4	5	6	7	over			
	Self-employed	7	17	52	38	28	7	4.55			
3. Family members											
	in Sum Centre	142	8					150			
4. Living location											
Personal Computer (PC)											
5. Having PC											
	1 set		2 sets	3 sets	No			Yes/No ratio			
	Him/her-self	3	0	0	147			3			
	Family	3	0	0	147			3			
6. Using PC											
	at Home		Yes	at Office or school	No			Yes/No ratio			
	at present	3	26	0	119			29			
7. Intention to own PC											
	(no PC owner at present)		Yes	No				Yes/No ratio			
			98	32				98			
Internet											
8. Knowing Internet											
	Yes		103	47				Yes/No ratio			
								103			
9. Using Internet											
	less than 10 hours/M		Yes	more than 10-20 hours/M	No			Yes/No ratio			
	1			0	149			1			
10. Use Internet from:											
	Home		Office/school	Café				Total			
		0	1	0				1			
11. Having Internet address											
	Yes	No	Yes, but family	No, family too				Yes total			
		0	150	0	150			0			
12. Intention to use Internet											
	(no Internet user at present)		Yes	No				Yes/No ratio			
			117	25				117			
Internet Café											
13. Knowing Internet café											
	Yes	No						Yes/No ratio			
		104	46					104			
14. Using Internet café											
	less than 10 hours/M		Yes	more than 10-20 hours/M	No			Yes/No ratio			
	6			0	141			6			
15. The café's location											
	UB	the Aimag	Other					6			
	Yes	No						3			
		126	24					126			
16. Intention to use Internet café											
	Yes	No						Yes/No ratio			
		126	24					126			

You and Your Family		Aimag: Uvurkhangai							Sum: Sant			
1. Age & Sex		Under 20	21-30	31-40	41-50	51-60	Over 60	Total				
Male		1	4	3	2			10				
Female		5	8	6	1			20				
2. Occupation		Public	Company	Self-employed	Farm	Student	Other					
1		20	1	4	2	3		30				
2		2	3	4	5	6	7 over	Mean				
2		4	8	11	8	1		5.00				
4. Living location		in Sum Centre										
28		2						30				
Personal Computer (PC)		Yes		No				Yes/No ratio				
5. Having PC		1 set	2 sets	3 sets								
Him/her-self		1			29			1	29			
Family		1			29			1	29			
6. Using PC		Yes		No				Yes/No ratio				
		at Home	at Office or school	at Both								
1		5			23			5	23			
7. Intention to own PC		Yes		No				Yes/No				
(no PC owner at present)		Yes	21	4				21	4			
Internet		Yes		No				Yes/No				
8. Knowing internet		Yes	25	5				25	5			
9. Using internet		Yes		No				Yes/No ratio				
		less than 10 hours/M	between 10-20 hours/M	more than 20 hours/M								
0		30						0	30			
10. Use internet from:		Home	Official/school	Café				Total				
0		30						0				
11. Having internet address		Yes	No	No, family too				Yes total				
0		30						0				
12. Intention to use internet (no internet user at present)		Yes	No	Yes	No	Yes	No	Yes/No				
22		8						22	8			
Internet Café		Yes		No				Yes/No				
13. Knowing internet café		Yes	No	Yes	No	Yes	No	Yes/No				
16		14						16	14			
14. Using internet café		Yes		No				Yes/No ratio				
		less than 10 hours/M	between 10-20 hours/M	more than 20 hours/M								
0		29						0	29			
15. The café's location		UB	the Aimag	Other				Total				
Yes	No	Yes	No	Yes	No	Yes	No	Yes/No				
23	7							23	7			
16. Intention to use internet café		Yes	No	Yes	No	Yes	No	Yes/No				
28	2							28	2			

You and Your Family		Aimag: Uvurkhangai							Sum: Esontzui			
1. Age & Sex		Under 20	21-30	31-40	41-50	51-60	Over 60	Total				
Male		1	10	8	2			21				
Female		1	2	4	2			9				
2. Occupation		Public	Company	Self-employed	Farm	Student	Other					
14		2	4	4	6			30				
2		3	4	5	6	6	2	4.80				
2		4	8	8	6	2						
4. Living location		in Sum Centre										
28		2						30				
Personal Computer (PC)		Yes		No				Yes/No ratio				
5. Having PC		1 set	2 sets	3 sets								
Him/her-self					30			0	30			
Family					30			0	30			
6. Using PC		Yes		No				Yes/No ratio				
		at Home	at Office or school	at Both								
6					24			6	24			
7. Intention to own PC		Yes		No				Yes/No				
(no PC owner at present)		Yes	21	7				21	7			
Internet		Yes		No				Yes/No				
8. Knowing internet		Yes	18	12				18	12			
9. Using internet		Yes		No				Yes/No ratio				
		less than 10 hours/M	between 10-20 hours/M	more than 20 hours/M								
0		30						0	30			
10. Use internet from:		Home	Official/school	Café				Total				
0		30						0				
11. Having internet address		Yes	No	Yes but family too				Yes total				
0		30						0				
12. Intention to use internet (no internet user at present)		Yes	No	Yes	No	Yes	No	Yes/No				
22		8						22	8			
Internet Café		Yes		No				Yes/No				
13. Knowing internet café		Yes	No	Yes	No	Yes	No	Yes/No				
16		14						16	14			
14. Using internet café		Yes		No				Yes/No ratio				
		less than 10 hours/M	between 10-20 hours/M	more than 20 hours/M								
0		29						0	29			
15. The café's location		UB	the Aimag	Other				Total				
Yes	No	Yes	No	Yes	No	Yes	No	Yes/No				
23	7							23	7			
16. Intention to use internet café		Yes	No	Yes	No	Yes	No	Yes/No				
23	7							23	7			

You and Your Family		Aimag: Uvurkhangai						Sum: Kharkhorin					
1. Age & Sex		Under 20	21-30	31-40	41-50	51-60	Over 60	Total	Male		Female		Total
		1	2	5	2	1		10	2	5	2	1	10
2. Occupation		3	4	8	7	1		20	Public	Company	Self-employed	Student	Other
3. Family members		15	10	10	5	6	7 over	30	5	3	4	5	5
4. Living location		2	4	9	10	4	1	4.40	1	5	14	3	2
Personal Computer (PC)		in Sum Centre		in Bug				30					30
5. Having PC		Yes		2 sets		3 sets		No				Yes/No ratio	
		1 set	2 sets									1 29	
6. Using PC		Him/her-self		Family								Yes/No ratio	
		1	1									1 29	
7. Intention to own PC		at Home		at Office or school		at Both		No				Yes/No ratio	
		1	6									6 24	
Internet		(no PC owner at present)		Yes		No						Yes/No ratio	
		1	21	5								15 11	
8. Knowing Internet		Yes		No								Yes/No ratio	
		20	10	10								19 11	
9. Using Internet		Yes		between 10-20 hours/M		more than 20 hours/M		No				Yes/No ratio	
		less than 10 hours/M	10-20 hours/M	20 hours/M		30						0 30	
10. Use Internet from:		Home		Office/school		Café		Total				0	
		Yes	No	Yes but family too				Yes total				Yes/No ratio	
		0	30	0		30		0				0	
12. Intention to use Internet		(no Internet user at present)		Yes		No						Yes/No ratio	
		24	5	24		5		24 5					
Internet Café		Yes		No								Yes/No ratio	
		20	10	10				20 10					
14. Using Internet café		Yes		between 10-20 hours/M		more than 20 hours/M		No				Yes/No ratio	
		less than 10 hours/M	10-20 hours/M	20 hours/M		24						4 24	
15. The café's location		UB		the Aimag		Other							
		2	1										
16. Intention to use Internet café		Yes		No								Yes/No ratio	
		24	6	24		6		24 6				25 5	

You and Your Family		Aimag: Uvurkhangai						Sum: Uyanga					
1. Age & Sex		Under 20	21-30	31-40	41-50	51-60	Over 60	Total	Male		Female		Total
		1	3	3	3	1		8	1	3	3	1	8
2. Occupation		3	6	9	4			22	Public	Company	Self-employed	Student	Other
3. Family members		15	2	7	5	6	7 over	30	15	2	4	4	22
4. Living location		2	4	9	10	4	1	4.43	1	2	3	4	1
Personal Computer (PC)		in Sum Centre		in Bug				30					30
5. Having PC		Yes		2 sets		3 sets		No				Yes/No ratio	
		1 set	2 sets									1 29	
6. Using PC		Him/her-self		Family								Yes/No ratio	
		1	1									1 29	
7. Intention to own PC		at Home		at Office or school		at Both		No				Yes/No ratio	
		1	6									7 22	
Internet		(no PC owner at present)		Yes		No						Yes/No ratio	
		1	21	5								21 5	
8. Knowing Internet		Yes		No								Yes/No ratio	
		20	10	10				20 10					
9. Using Internet		Yes		between 10-20 hours/M		more than 20 hours/M		No				Yes/No ratio	
		less than 10 hours/M	10-20 hours/M	20 hours/M		30						0 30	
10. Use Internet from:		Home		Office/school		Café		Total				0	
		Yes	No	Yes but family too				Yes total				Yes/No ratio	
		0	30	0		30		0				0	
12. Intention to use Internet		(no Internet user at present)		Yes		No						Yes/No ratio	
		24	5	24		5		24 5					
Internet Café		Yes		No								Yes/No ratio	
		20	10	10				20 10					
14. Using Internet café		Yes		between 10-20 hours/M		more than 20 hours/M		No				Yes/No ratio	
		less than 10 hours/M	10-20 hours/M	20 hours/M		24						4 24	
15. The café's location		UB		the Aimag		Other							
		2	1										
16. Intention to use Internet café		Yes		No								Yes/No ratio	
		24	6	24		6		24 6				24 6	

Summary of Individual's Survey at Selenge (150 Individuals in 5 Sums)

		Aimag: Selenge & Darkhan-Uul							Sum: Khongor	
You and Your Family		Under 20	21-30	31-40	41-50	51-60	Over 60	Total		
1. Age & Sex		Male	Female	Public	Company	Self-employed	Farm	Student	Other	
2. Occupation		1	2	3	4	5	6	7	over	Mean
3. Family members		2	3	4	5	6	7	over	2	4.50
4. Living location		in Sum Centre								
Personal Computer (PC)		in Bug								
5. Having PC		1								
		Yes		No		Yes/No ratio				
6. Using PC		1 set	2 sets	3 sets	No		Yes/No ratio			
7. Intention to own PC		at Home		at Office or school		at Both				
Internet		7								
8. Knowing Internet		Yes								
9. Using Internet		less than 10 hours/M		between 10-20 hours/M		more than 20 hours/M				
10. Use Internet from:		Home		Office/school		Café				
11. Having Internet address		Yes		No		Yes, but family too				
12. Intention to use Internet		(no Internet user at present)								
Internet Café		Yes								
13. Knowing Internet café		Yes								
14. Using Internet café		less than 10 hours/M		between 10-20 hours/M		more than 20 hours/M				
15. The café's location		UB		the Aimag		Other				
16. Intention to use Internet café		Yes		No		Yes/No ratio				

		Aimag: Selenge & Darkhan-Uul							Sum: Selenge & Dar All	
You and Your Family		Under 20	21-30	31-40	41-50	51-60	Over 60	Total		
1. Age & Sex		Male	Female	Public	Company	Self-employed	Farm	Student	Other	
2. Occupation		1	2	3	4	5	6	7	over	Mean
3. Family members		3	4	30	42	40	17	12	12	4.52
4. Living location		in Sum Centre								
Personal Computer (PC)		145								
5. Having PC		5								
		Yes		No		Yes/No ratio				
6. Using PC		1 set	2 sets	3 sets	No		Yes/No ratio			
7. Intention to own PC		at Home		at Office or school		at Both				
Internet		0								
8. Knowing Internet		Yes								
9. Using Internet		less than 10 hours/M		between 10-20 hours/M		more than 20 hours/M				
10. Use Internet from:		Home		Office/school		Café				
11. Having Internet address		Yes		No		Yes, but family too				
12. Intention to use Internet		(no Internet user at present)								
Internet Café		Yes								
13. Knowing Internet café		Yes								
14. Using Internet café		less than 10 hours/M		between 10-20 hours/M		more than 20 hours/M				
15. The café's location		UB		the Aimag		Other				
16. Intention to use Internet café		Yes		No		Yes/No ratio				

You and Your Family		Aimag: Selenge & Darkhan-Uul							Sum: Eruu		
		Under 20	21-30	31-40	41-50	51-60	Over 60	Total	Yes	No	
1. Age & Sex		Male		1	5	5	5	2	13		
		Female			6	6	6		17		
2. Occupation		Public		3	Company	Self-employed	Farm	Student	Other		
		10	4	13	1						
3. Family members		1	2	3	4	5	12	4	4		
4. Living location		in Sum Centre		28	2						
Personal Computer (PC)		Yes		1 set	2 sets	3 sets	No			Yes/No ratio	
5. Having PC		Him/her-self		1			29			1	29
		Family		1			29			1	29
6. Using PC		at Home		5	at Office or school	at Both	No			Yes/No ratio	
		(no PC owner at present)				1	24			6	24
7. Intention to own PC		Yes		5	Yes	19	7			Yes/No ratio	
		(no PC owner at present)								19	7
Internet		Yes		16	14					Yes/No ratio	
8. Knowing Internet		Yes		16	14					Yes/No ratio	
9. Using Internet		less than 10 hours/M		Yes	between 10-20 hours/M	more than 20 hours/M	No			Yes/No ratio	
		1		29	29					1	29
10. Use internet from:		Home		1	Office/school	Café				Total	
		Yes		1	1	1				1	
11. Having Internet address		Yes		No	Yes, but family too	No				Yes total	
		1		29	1	29				1	
12. Intention to use Internet		(no internet user at present)		Yes	No	Yes	No			Yes/No ratio	
				24	3					24	3
Internet Café		Yes		No	Yes	No				Yes/No ratio	
13. Knowing internet café		Yes		No	Yes	No				Yes/No ratio	
		21		9						21	9
14. Using Internet café		less than 10 hours/M		Yes	between 10-20 hours/M	more than 20 hours/M	No			Yes/No ratio	
		2		28	28					2	28
15. The café's location		UB		the Aimag	Other						
		2		1							
16. Intention to use internet café		Yes		No	Yes	No				Yes/No ratio	
		28		2						28	2

You and Your Family		Aimag: Selenge & Darkhan-Uul							Sum: Altanbulag		
		Under 20	21-30	31-40	41-50	51-60	Over 60	Total	Yes	No	
1. Age & Sex		Male		2	7	7	1	2	12		
		Female		6	8	3	1		18		
2. Occupation		Public		6	Company	Self-employed	Farm	Student	Other		
		11	6	7	1						
3. Family members		1	2	3	4	5	6	7	2		
4. Living location		in Sum Centre		30	0						
Personal Computer (PC)		Yes		1 set	2 sets	3 sets	No			Yes/No ratio	
5. Having PC		Him/her-self					30			0	30
		Family					30			0	30
6. Using PC		at Home		5	at Office or school	at Both	No			Yes/No ratio	
		(no PC owner at present)				23	25			5	25
7. Intention to own PC		Yes		23	6					Yes/No ratio	
		(no PC owner at present)								23	6
Internet		Yes		11	19					Yes/No ratio	
8. Knowing Internet		Yes		11	19					Yes/No ratio	
9. Using Internet		less than 10 hours/M		Yes	between 10-20 hours/M	more than 20 hours/M	No			Yes/No ratio	
		1		29	29					1	29
10. Use internet from:		Home		1	Office/school	Café				Total	
		Yes		1	1	1				1	
11. Having Internet address		Yes		No	Yes, but family too	No				Yes total	
		0		30	0	30				0	
12. Intention to use Internet		(no internet user at present)		Yes	No	Yes	No			Yes/No ratio	
				22	6					22	6
Internet Café		Yes		No	Yes	No				Yes/No ratio	
13. Knowing internet café		Yes		No	Yes	No				Yes/No ratio	
		14		16						14	16
14. Using Internet café		less than 10 hours/M		Yes	between 10-20 hours/M	more than 20 hours/M	No			Yes/No ratio	
		1		29	29					1	29
15. The café's location		UB		the Aimag	Other						
		1									
16. Intention to use internet café		Yes		No	Yes	No				Yes/No ratio	
		25		5						25	5

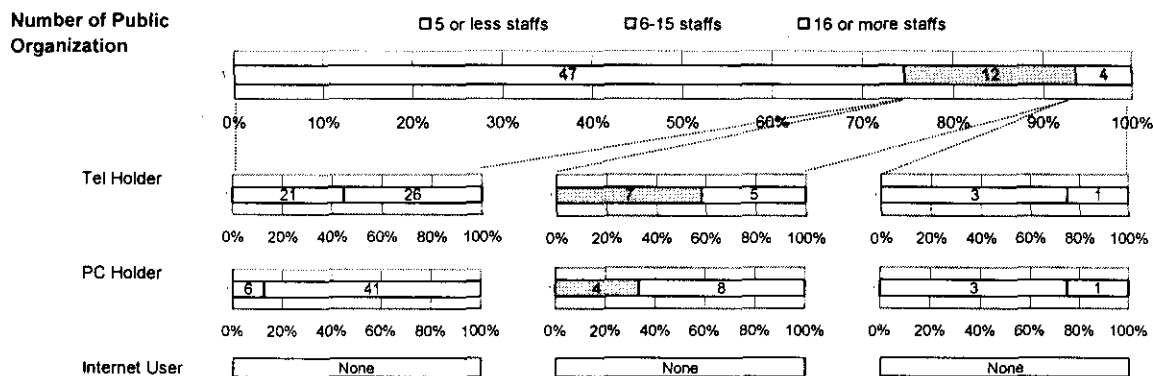
		Aimag: Selenge & Darkhan-Uul										Sum: Zuunkharaa		
You and Your Family		Under 20	21-30	31-40	41-50	51-60	Over 60	Total						
1. Age & Sex		Male	1	1	4	2	1	9						
		Female	7	12	2			21						
2. Occupation		Public	Company	Self-employed	Farm	Student	Other							
3. Family members		1	2	3	4	5	6	7	over	Mean				
4. Living location		1	1	8	7	7	2	2	4.25					
		in Sum Centre		in Bug										
		30		0										
Personal Computer (PC)														
5. Having PC		Yes		2 sets		3 sets		No		Yes/No ratio				
		1 set						30		0 30				
6. Using PC		Yes		at Office or school		at Both		No		Yes/No ratio				
		at Home		10		1		19		11 19				
7. Intention to own PC		(no PC owner at present)		Yes		No		2		Yes/No ratio				
				25		2				25 2				
Internet														
8. Knowing Internet		Yes		No		10		Yes/No ratio		20 10				
9. Using Internet		less than 10 hours/M		between 10-20 hours/M		more than 20 hours/M		No		Yes/No ratio				
		3		3		27		3 27						
10. Use Internet from:		Home		Office/school		Café		Total		3				
11. Having internet address		Yes		No		Yes, but family too		No		Yes total				
		0		30		0		30		0				
12. Intention to use Internet		(no internet user at present)		Yes		No		24		Yes/No ratio				
				24		2				24 2				
Internet Café														
13. Knowing Internet café		Yes		No		20		10		Yes/No ratio				
		20		10						20 10				
14. Using Internet café		less than 10 hours/M		between 10-20 hours/M		more than 20 hours/M		No		Yes/No ratio				
		3		3		27		3 27						
15. The café's location		UB		the Aimag		Other		Total		3 27				
		2		1										
16. Intention to use Internet café		Yes		No		28		2		Yes/No ratio				
		28		2						28 2				

		Aimag: Selenge & Darkhan-Uul										Sum: Zuunburen		
You and Your Family		Under 20	21-30	31-40	41-50	51-60	Over 60	Total						
1. Age & Sex		Male	8	1	1	1	10							
		Female	5	9	3	3	20							
2. Occupation		Public	Company	Self-employed	Farm	Student	Other							
3. Family members		1	2	3	4	5	6	7	over	Mean				
4. Living location		1	2	3	4	5	6	4	4	4.37				
		in Sum Centre		in Bug										
		28		2										
Personal Computer (PC)														
5. Having PC		Yes		2 sets		3 sets		No		Yes/No ratio				
		1 set						30		0 30				
6. Using PC		Yes		at Office or school		at Both		No		Yes/No ratio				
		at Home		5		25		No		5 25				
7. Intention to own PC		(no PC owner at present)		Yes		No		7		Yes/No ratio				
				21		7				21 7				
Internet														
8. Knowing Internet		Yes		No		21		9		Yes/No ratio				
		21		9						21 9				
9. Using Internet		less than 10 hours/M		between 10-20 hours/M		more than 20 hours/M		No		Yes/No ratio				
		1		1		28		1 28						
10. Use Internet from:		Home		Office/school		Café		Total		1				
11. Having internet address		Yes		No		Yes, but family too		No		Yes total				
		0		30		0		30		0				
12. Intention to use Internet		(no internet user at present)		Yes		No		23		Yes/No ratio				
				23		7				23 7				
Internet Café														
13. Knowing Internet café		Yes		No		23		7		Yes/No ratio				
		23		7						23 7				
14. Using Internet café		less than 10 hours/M		between 10-20 hours/M		more than 20 hours/M		No		Yes/No ratio				
		1		1		26		1 26						
15. The café's location		UB		the Aimag		Other		Total		1 26				
		1		1										
16. Intention to use Internet café		Yes		No		27		3		Yes/No ratio				
		27		3						27 3				

3. Analysis of the Results of Questionnaire Survey

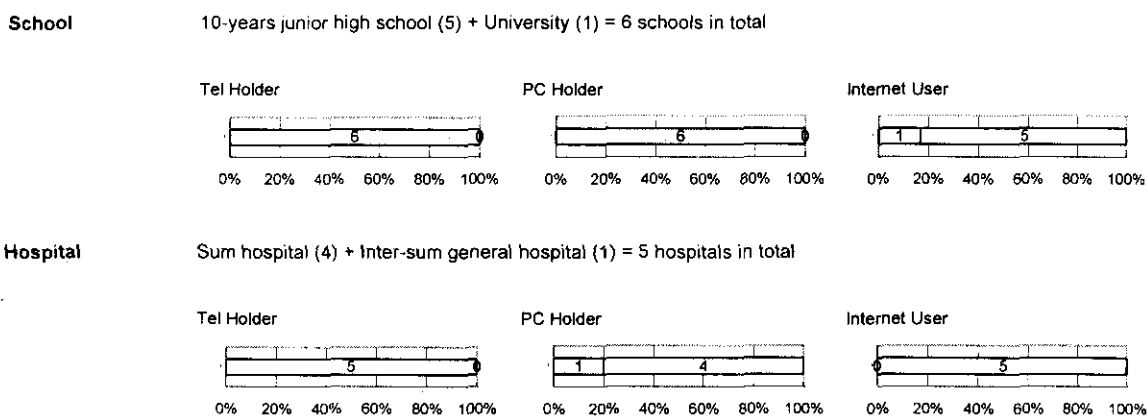
Uvurkhangai (100 Organizations in 5 Sums)

(1) Public organization



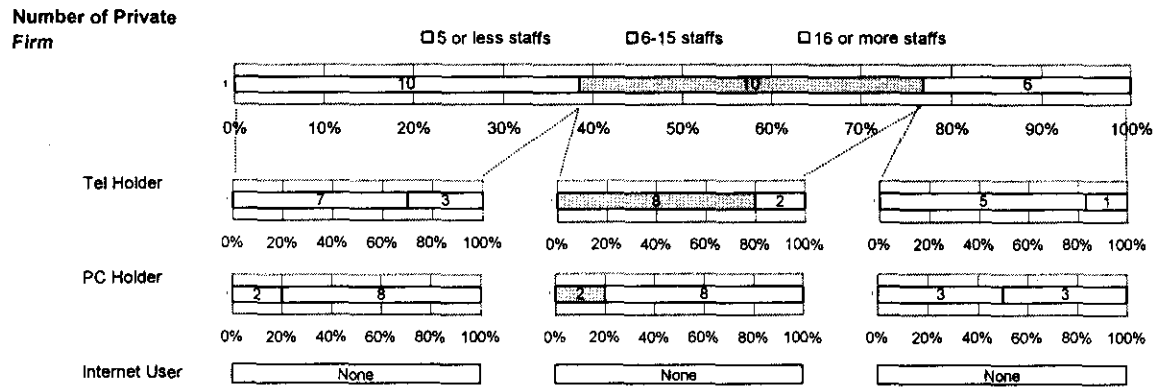
- Approx. 75 % of organizations belong to small-size group (5 or less staffs).
- A half of them holds telephone, but only 13 % of them have PC.
- In large-size group, 75 % have telephone and PC. And 4.0 telephone lines and 2.3 sets of PC are the average of their possession among them.
- No public organization in 5 Sums of Uvurkhangai uses Internet.

(2) School and hospital



- All the schools have telephone and PC. And their possessions of these apparatuses are 1.5 lines and 6.8 sets in average respectively.
- A 10-years junior high school in Bayangol Sum uses Internet around 5 hours per month. But no other organization or firm uses Internet in the 5 Sums.
- All hospitals have telephone, but only 20 % of hospitals have PC.
- No hospital is Internet user.

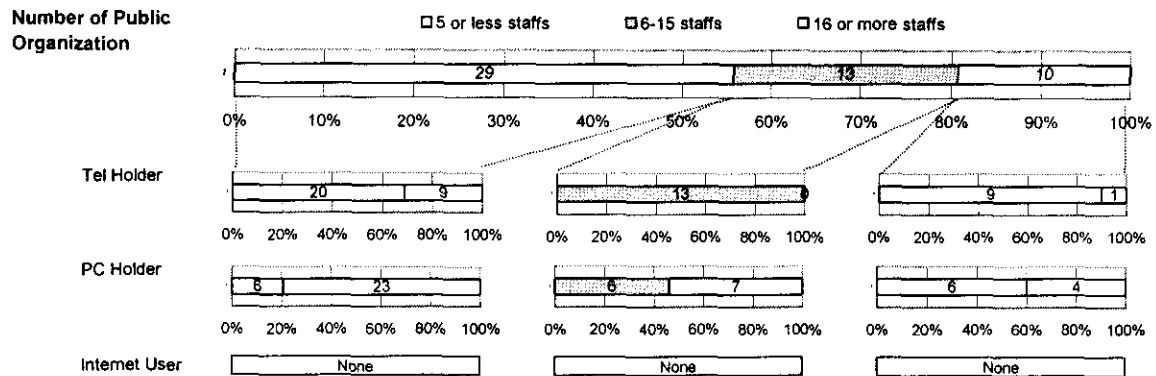
(3) Private firm



- 70 to 80 % of firms have telephone not related to their staff's sizes.
- However PC penetration is low if comparing with the public organizations.
- No private firm uses Internet.

Selenge (100 Organizations in 5 Sums)

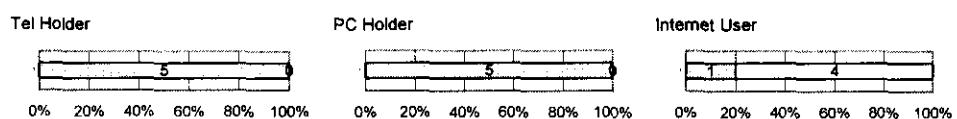
(1) Public organization



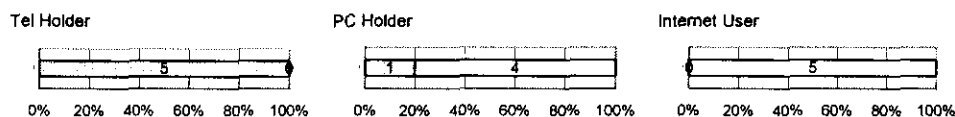
- Approx. 56 % of organizations belong to small-size group (5 or less staffs).
- 81 % of organizations hold telephone, but only 35 % of them have PC, in total.
- In large-size group, 90 % or 60 % have telephone or PC. And 5.2 telephone lines and 2.7 sets of PC are the average of their possession among them.
- No public organization in 5 Sums of Selenge uses Internet.

(2) School and hospital

School 10-years junior high school : 5 schools in total

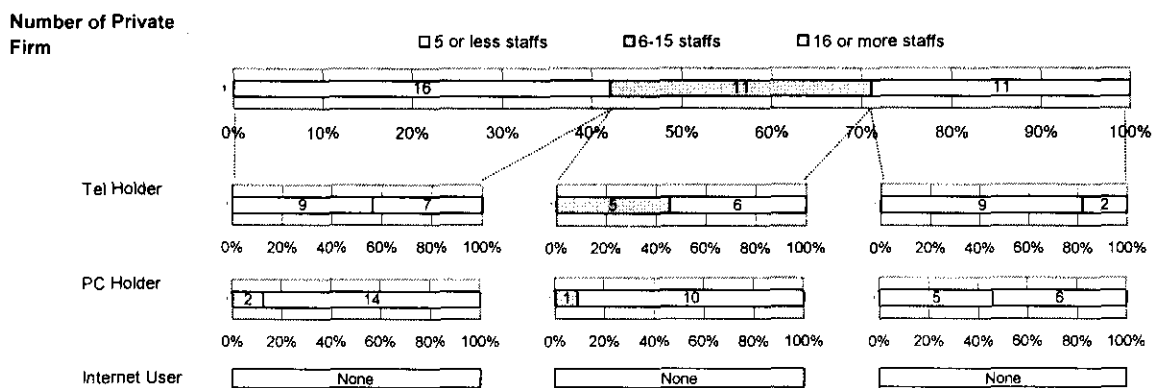


Hospital Sum hospital (4) + Inter-sum general hospital (1) = 5 hospitals in total



- All the schools have telephone and PC. And their possessions of these apparatuses are 1.2 lines and 6.2 sets in average respectively.
- A 10-years junior high school in Zuunkharaa Sum uses Internet around 2 hours per month. But no other organization or firm uses Internet in the 5 Sums.
- All hospitals have telephone, but only 20 % of hospitals have PC.
- No hospital is Internet user.

(3) Private firm

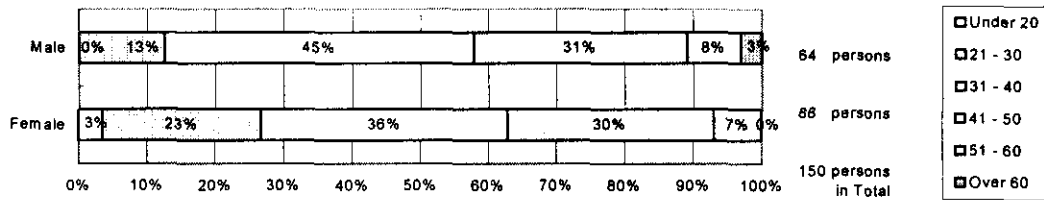


- Approx. 60 % of firms have telephone throughout the 38 firms.
- However PC penetration is low even the large-sized firm group.
- No private firm uses Internet.

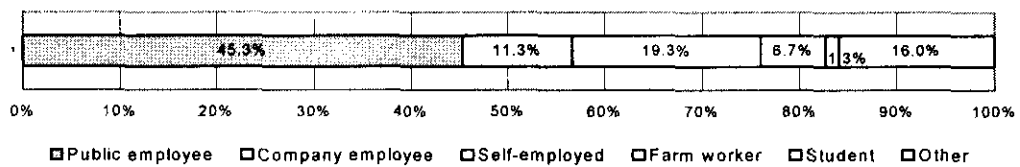
Uvurkhangai (150 Individuals in 5 Sums)

(1) Profile of respondent

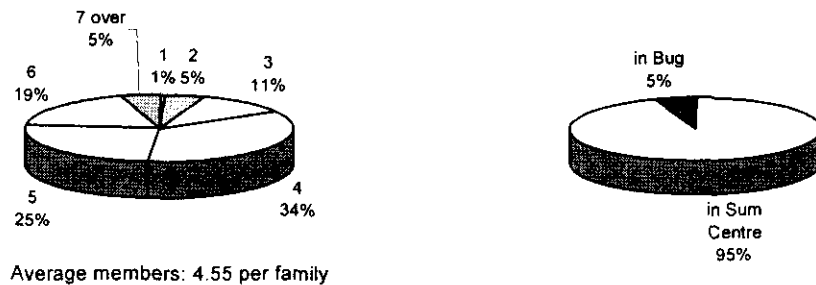
a) Age's distribution



b) Occupation's distribution

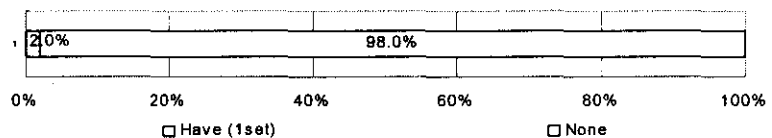


c) Family member's and living location's distributions

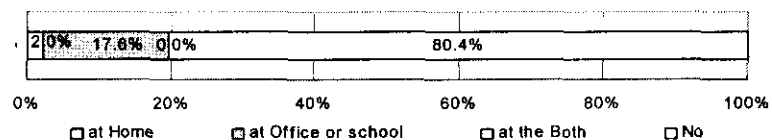


(2) Answer on PC

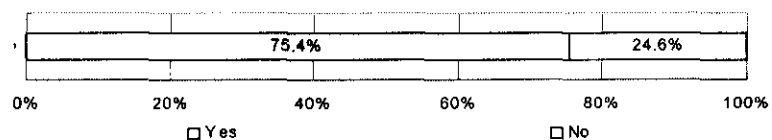
a) Possessing of PC in the family



b) Experience of PC operation

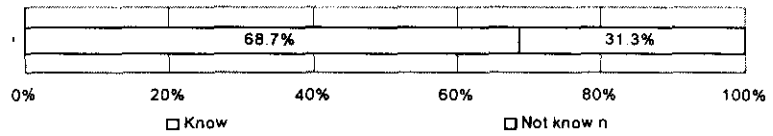


c) Intention to own PC (case of no PC owner)

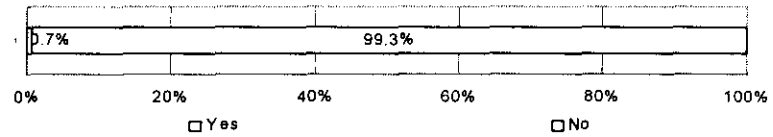


(3) Answer on Internet

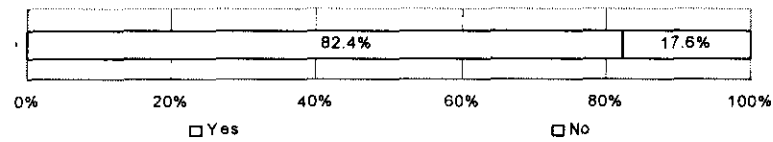
a) Recognising of Internet



b) Experience of Internet operation

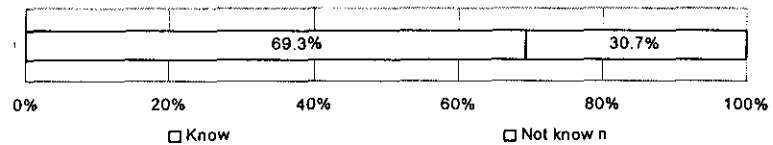


c) Intention to use Internet

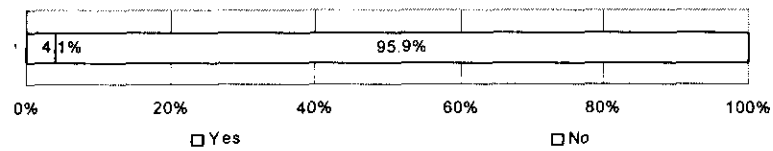


(4) Answer on Internet café

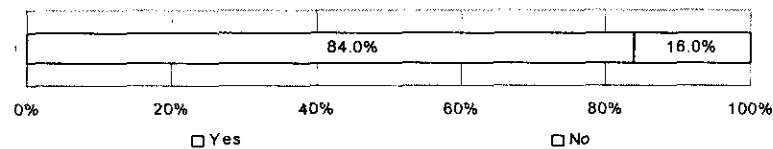
a) Recognising of Internet café



b) Experience of Internet café use



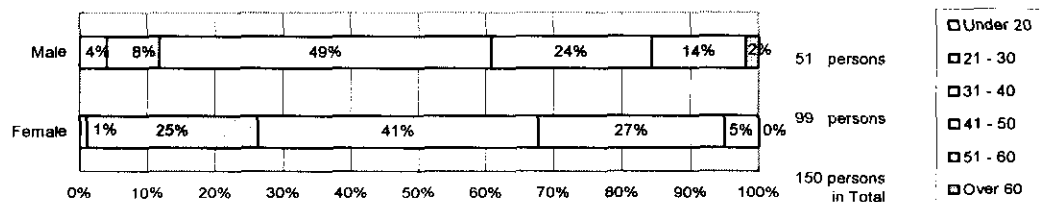
c) Intention to use Internet café



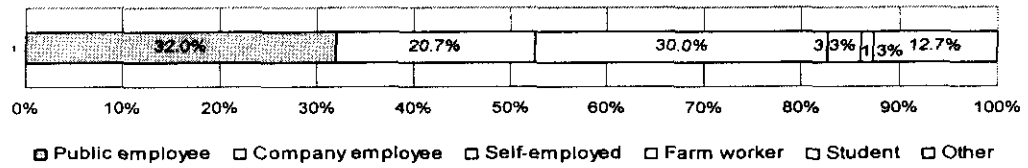
Selenge (150 Individuals in 5 Sums)

(1) Profile of respondent

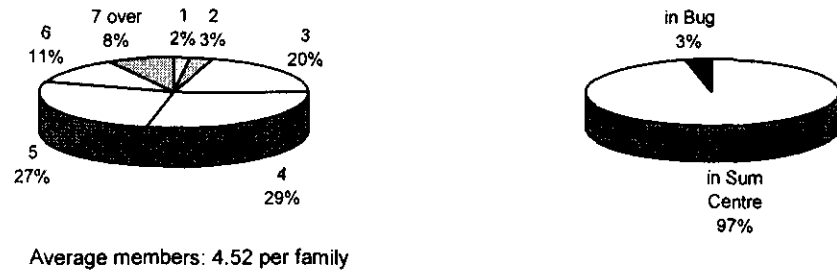
a) Age's distribution



b) Occupation's distribution

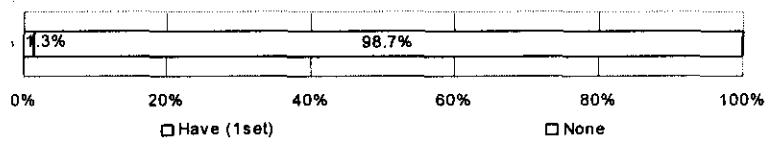


c) Family member's and living location's distributions

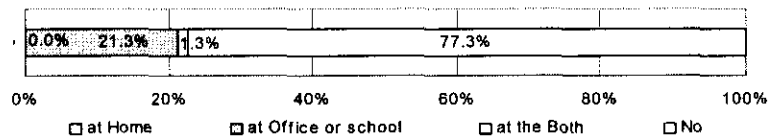


(2) Answer on PC

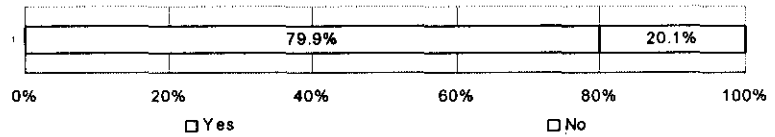
a) Possessing of PC in the family



b) Experience of PC operation

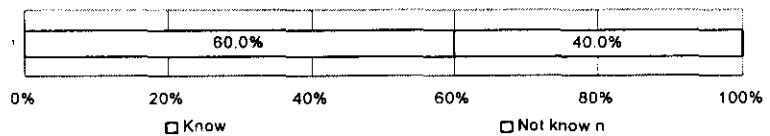


c) Intention to own PC (case of no PC owner)

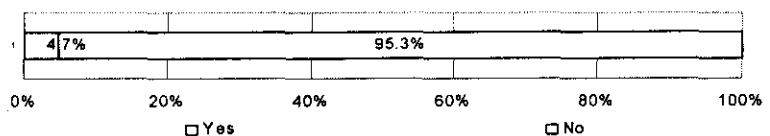


(3) Answer on Internet

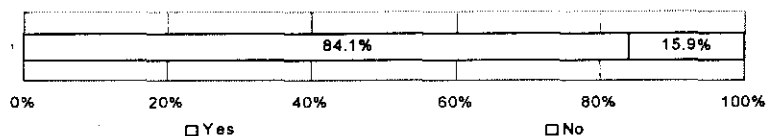
a) Recognising of Internet



b) Experience of Internet operation

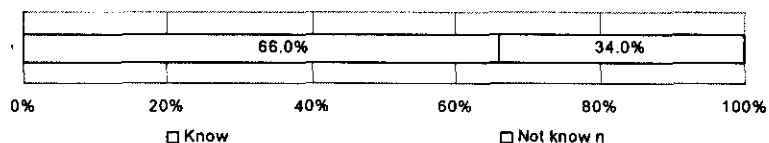


c) Intention to use Internet

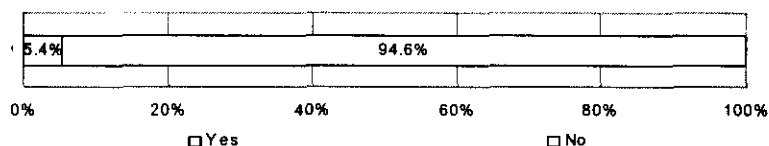


(4) Answer on Internet café

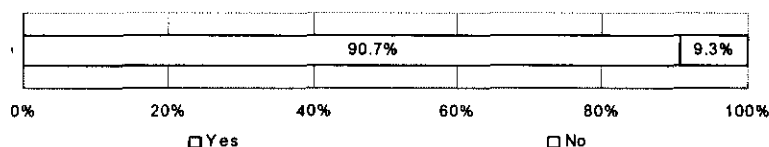
a) Recognising of Internet café



b) Experience of Internet café use



c) Intention to use Internet café



- Profiles of the respondents at Uvurkhangai and Selenge are not so much different. Approx. 96 % of them live in Sum centre. And the average of household is 4.5 persons per family.
- Characteristics of their answers such interest in and intention to use PC or Internet between age groups are not different.
- Almost all families (98 %) have not their own PC.
- Persons who have experience of PC are around 20 %. PC usage ratio in Selenge is a little high than Uvurkhangai. Approx 70 % of them in Selenge are public employees and use PC at their offices, other PC users are company employee, self-employed or student.
- Even they don't have or don't touch PC, around 78 % of respondents want to own their PCs.
- Only 1 person has Internet address, 8 persons access Internet or 14 persons use Internet café (most cases are at Ulaanbaatar) among the 300 respondents, and around 83 % of them intend to access Internet from his/her PC if they can.
- Especially 84 % of Uvurkhangai or 91 % of Selenge peoples want to use Internet café when the café opens in Sum.

Annex 6.2 Microscopic Demand Forecast of Internet

(1) Uvurkhangai

Microscopic Demand Forecast of Internet

	Population (2000) (Total)	Population (2000) (Except Rural)	Population (2000) (Rural)	Population Weight (Except Rural)	Population Weight (Rural)	Population (2020) (Except Rural)	Population (2020) (Rural)	HH (2020) (Except Rural)	HH (2020) (Rural)	Number of Sub. (2008) (Sum & Other)	GRDP Adjust:		Number of Sub. For (Organization)
											Number of Sub. (2013) (Sum & Other)	Number of Sub. (2020) (Sum & Other)	
1	3,901	528	3,373	0.00463	0.02956	639	4,085	152.2	972.5	22	38	34	20
2	5,713	1,880	3,833	0.01648	0.03359	2,277	4,642	542.1	1,105.2	29	51	58	15
3	4,775	684	4,091	0.00599	0.03586	828	4,954	197.2	1,179.5	25	44	42	21
4	3,737	946	2,791	0.00829	0.02446	1,146	3,380	272.8	804.7	23	40	36	22
5	5,431	842	4,589	0.00738	0.04022	1,020	5,557	242.8	1,323.1	26	46	48	18
6	4,335	1,213	3,122	0.01063	0.02736	1,469	3,781	349.7	900.2	24	42	42	18
7	4,328	859	3,469	0.00753	0.03040	1,040	4,201	247.7	1,000.2	24	42	40	20
8	7,549	1,354	6,195	0.01187	0.05430	1,640	7,502	390.4	1,786.2	48	84	68	52
9	7,814	3,949	3,865	0.03461	0.03387	4,782	4,680	1,138.6	1,114.4	46	81	90	26
10	13,814	8,689	5,125	0.07615	0.04492	10,522	6,206	2,505.3	1,477.7	96	167	172	67
						25,363	48,987	6,039	11,664	363	635	629	279
							74,350		17,702				908

(2) Selenge

Microscopic Demand Forecast of Internet

DARKHAN-UUL													
	Population (2000) (Total)	Population (2000) (Except Rural)	Population (2000) (Rural)	Population Weight (Except Rural)	Population Weight (Rural)	Population (2020) (Except Rural)	Population (2020) (Rural)	HH (2020) (Except Rural)	HH (2020) (Rural)	Number of Sub. (2008) (Sum & Other)	Number of Sub. (2013) (Sum & Other)	Number of Sub. (2020) (Sum & Other)	GRDP Adjust: Number of Sub. For (Organization)
1	8,619	7,790	829	0.09239	0.00983	11,449	1,218	2,726.0	290.1	91	159	133	95
						11,449	1,218	2,726	290	91	159	133	95
							12,668		3,016				228

SELENGE													
	Population (2000) (Total)	Population (2000) (Except Rural)	Population (2000) (Rural)	Population Weight (Except Rural)	Population Weight (Rural)	Population (2020) (Except Rural)	Population (2020) (Rural)	HH (2020) (Except Rural)	HH (2020) (Rural)	Number of Sub. (2008) (Sum & Other)	Number of Sub. (2013) (Sum & Other)	Number of Sub. (2020) (Sum & Other)	GRDP Adjust: Number of Sub. For (Organization)
1	3,512	2,870	642	0.02810	0.00629	3,667	820	873.1	195.3	33	57	57	25
2	5,766	2,365	3,401	0.02316	0.03330	3,022	4,346	719.5	1,034.7	39	68	72	25
3	2,524	1,950	574	0.01909	0.00562	2,492	733	593.3	174.6	31	54	40	37
4	2,050	1,590	460	0.01557	0.00450	2,032	588	483.7	139.9	22	39	32	23
5	4,163	3,107	1,056	0.03042	0.01034	3,970	1,349	945.3	321.3	41	71	65	37
6	3,918	2,743	1,175	0.02686	0.01151	3,505	1,501	834.5	357.5	40	70	59	41
7	4,457	3,789	668	0.03710	0.00654	4,842	854	1,152.7	203.2	35	62	73	15
8	2,954	2,954	0	0.02893	0.00000	3,775	0	898.7	0.0	41	73	53	51
9	22,403	22,043	360	0.21585	0.00353	28,166	460	6,706.2	109.5	236	414	396	195
10	5,444	3,755	1,689	0.03677	0.01654	4,798	2,158	1,142.4	513.8	52	91	82	48
11	1,000	200	800	0.00196	0.00783	256	1,022	60.8	243.4	15	26	11	26
						60,523	13,832	14,410	3,293	585	1,024	940	523
							74,355		17,704				1,463

Annex 6.3 Microscopic Traffic Forecast of Internet

(1) Uvurkhangai

UVURKHANGAI		Estimated Data Speed (kbps)			Required Capacity (Mbps)	
		(2008) (Sum & Other)	(2013) (Sum & Other)	(2020) (Sum & Other)	Minimum (2020)	Recommend (2020)
1	Burd	25	812	3,356	4	10
2	Bat-Ulzii	34	1,101	4,551	4	10
3	Bayangol	29	946	3,909	4	10
4	Esonzuil	27	871	3,602	4	10
5	ZB Ulaan	30	994	4,110	4	10
6	Nariinteel	28	911	3,765	4	10
7	Sant	27	899	3,717	4	10
8	Uyanga	55	1,810	7,483	4	10
9	Khuzirt	53	1,747	7,223	4	10
10	Kharkhorin	110	3,603	14,895	4	16
		417	13,696	56,613		

(2) Selenge

DARKHAN-UUL		Estimated Data Speed (kbps)			Required Capacity (Mbps)	
		(2008) (Sum & Other)	(2013) (Sum & Other)	(2020) (Sum & Other)	Minimum (2020)	Recommend (2020)
2	Shariin gol	105	3,435	14,200	4	16
		105	3,435	14,200		

SELENGE		Estimated Data Speed (kbps)			Required Capacity (Mbps)	
		(2008) (Sum & Other)	(2013) (Sum & Other)	(2020) (Sum & Other)	Minimum (2020)	Recommend (2020)
2	Altanbulag	38	1,234	5,103	4	10
3	Eruu	45	1,469	6,074	4	10
4	Zuunburen	35	1,159	4,792	4	10
7	Sant	25	836	3,455	4	10
9	Tsagaannuur	47	1,535	6,344	4	10
11	Orkhontuul	46	1,513	6,255	4	10
15	Shaamar	41	1,334	5,514	4	10
18	Khutul	48	1,563	6,461	4	10
19	Zuunkharaa	271	8,912	36,839	32	32
20	Bayangol (Baruunharaa)	60	1,960	8,101	4	10
21	Tunkhel	17	553	2,288	2	10
		672	22,070	91,226		

ANNEX 7

FINANCIAL CALCULATION DATA

Annex 7

FINANCIAL CALCULATION DATA

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Annex 7-1 Cash Flow Projection and FIRROI for Base Case of Feasibility Study

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Source of Funds																	
Funds from Operations		1,015	1,022	843	877	910	1,022	1,000	1,034	1,146	1,234	1,286	1,355	1,450	1,546	1,605	17,454
Net profit		815	822	843	877	910	922	1,000	1,034	1,146	1,234	1,286	1,355	1,450	1,546	1,605	16,854
Depreciation		-134	-127	-106	-72	-39	-27	51	85	197	285	346	406	501	597	656	2,619
Subsidies Required		849	848	848	848	848	848	848	848	848	848	848	848	848	848	848	14,235
		200	200	0	100	0	100	0	0	0	0	0	0	0	0	0	600
Use of Funds																	
Working Capital		148.7	28.7	7.6	5.8	4.7	4.5	4.4	4.4	8.8	9.9	10.0	10.1	10.1	10.1	10.1	14,514
Capital Investment		148.7	28.7	7.6	5.8	4.7	4.5	4.4	4.4	8.8	9.9	10.0	10.1	10.1	10.1	10.1	279
Net Cash Flow for the Year																	
Cumulative Cash Flow		-14,235	866	835	971	906	1,018	986	1,030	1,136	1,225	1,286	1,345	1,440	1,535	1,595	2,940
		-14,235	-12,376	-11,541	-10,569	-9,664	-8,646	-7,651	-6,621	-5,485	-4,260	-2,975	-1,630	-190	1,345	2,940	14,235

FIRROI: 2005-2020 2.197%

Annex 7-2 Projected Income Statement for Base Case

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Revenues	1,190.8	1,189.5	1,202.9	1,237.4	1,268.6	1,299.1	1,329.7	1,360.3	1,429.7	1,494.4	1,559.5	1,624.8	1,690.1	1,755.5	1,821.0	21,453.4
Telephone Services	647.2	641.6	650.7	671.6	689.1	706.3	723.6	740.9	784.6	823.5	862.9	902.2	941.6	980.9	1,020.3	11,787.1
Distributed Int'l Settlement	155.4	155.2	155.2	155.6	156.3	157.1	158.0	158.1	162.6	166.3	170.0	173.8	177.7	181.7	185.8	2,469.8
Distributed Access Charge	292.1	296.5	300.6	313.2	325.8	338.0	350.0	361.9	383.1	404.2	425.4	446.5	467.7	488.9	510.0	5,703.9
Internet	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	1,219.5
Others	14.7	15.0	15.2	15.6	16.0	16.4	16.8	17.2	18.1	19.1	20.0	20.9	21.8	22.7	23.6	273.1
Operating Costs	1,325.1	1,316.7	1,309.4	1,309.2	1,307.1	1,326.0	1,278.7	1,275.0	1,232.8	1,208.9	1,213.7	1,218.7	1,189.2	1,159.0	1,164.7	18,834.3
Personnel Costs	22.5	23.4	24.3	25.3	26.3	27.3	28.4	29.6	30.8	32.0	33.3	34.6	36.0	37.4	38.9	450.0
Portion of BB Rental to PTA	200.3	192.6	185.5	181.9	178.7	175.6	151.3	145.3	98.8	70.3	70.3	70.3	35.6	0.0	0.0	1,756.5
Satellite Charge	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	14,235.0
Depreciation(New Assets)	153.3	151.7	150.6	153.0	153.2	174.0	150.0	151.1	154.3	157.6	161.1	164.8	168.6	172.6	176.8	2,392.8
Others	-134.3	-127.1	-105.5	-71.8	-38.6	-26.3	51.0	85.3	196.8	285.5	345.8	406.1	500.9	596.5	656.3	2,619.1
Profit	200	200	0	100	0	100	0	0	0	0	0	0	0	0	0	600
Required Subsidies	68	73	-106	28	-39	73	51	85	197	286	346	406	501	597	656	3,219
Surplus for the Year	68	139	32	60	22	95	146	231	428	713	1,069	1,465	1,966	2,563	3,219	
Accumulated Surplus																

Annex 7-3 Subscriber Development Plan

Year	F/S Area		Composition Ratio	National (Lines)
	New	Aggregate		
2006	2,667	6,496	3.31%	196,300
2007	102	6,598	3.18%	207,350
2008	96	6,694	3.06%	218,400
2009	182	6,876	3.01%	228,755
2010	184	7,060	2.95%	239,110
2011	178	7,238	2.90%	249,465
2012	177	7,415	2.85%	259,820
2013	178	7,593	2.81%	270,175
2014	402	7,995	2.81%	284,505
2015	403	8,398	2.81%	298,835
2016	402	8,800	2.81%	313,165
2017	402	9,202	2.81%	327,495
2018	403	9,605	2.81%	341,825
2019	402	10,007	2.81%	356,155
2020	403	10,410	2.81%	370,489

Annex 7-4 Revenues and Operations/Maintenance Costs

(1) Revenues

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Line Rental	112.6	114.4	116.0	121.6	124.9	128.0	131.1	134.3	144.2	151.4	158.7	165.9	173.2	180.5	187.7
Call Charges	518.8	526.7	534.1	548.6	563.2	577.3	591.4	605.5	637.6	669.7	701.8	733.9	765.9	798.0	830.1
Installation Fee	15.9	0.6	0.6	1.4	1.1	1.1	1.1	1.1	2.8	2.4	2.4	2.4	2.4	2.4	2.4
Lease Line	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
Int'l Settlement-net	155.4	155.2	155.2	155.6	156.3	157.1	158.0	159.1	162.6	166.3	170.0	173.8	177.7	181.7	185.8
Access Charge	292.1	296.5	300.6	313.2	325.8	338.0	350.0	361.9	383.1	404.2	425.4	446.5	467.7	488.9	510.0
Internet	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3
Other	14.7	15.0	15.2	15.6	16.0	16.4	16.8	17.2	18.1	19.1	20.0	20.9	21.8	22.7	23.6
Total-Revenues	1,190.8	1,189.5	1,202.9	1,237.4	1,268.6	1,299.1	1,329.7	1,360.3	1,429.7	1,494.4	1,559.5	1,624.8	1,690.1	1,755.5	1,821.0
Revenue/Sub	0.183	0.180	0.180	0.180	0.180	0.179	0.179	0.179	0.179	0.178	0.177	0.177	0.176	0.175	0.175

(2) Operations/Maintenance Costs

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Personnel Cost	22.5	23.4	24.3	25.3	26.3	27.3	28.4	29.6	30.8	32.0	33.3	34.6	36.0	37.4	38.9
Utility, Fuel	58.0	60.1	62.3	63.9	65.6	67.3	69.2	71.2	74.4	77.8	81.3	84.9	88.7	92.7	96.9
Repair	0.0	0.0	0.0	2.5	2.5	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
BB Rental to PTA	200.3	192.6	185.5	181.9	178.7	175.6	151.3	145.3	98.8	70.3	70.3	70.3	35.6	0.0	0.0
VSAT Charge	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
Other Circuit	34.1	32.8	31.6	31.0	30.4	29.9	29.4	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
Depreciation (New)	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0
Depreciation (MT)	28.5	27.4	26.4	25.9	25.4	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adm. Cost	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
Others	32.7	31.4	30.3	29.7	29.2	28.7	28.2	27.8	27.8	27.8	27.8	27.8	27.8	27.8	27.8
Total	1,325.1	1,316.7	1,308.4	1,309.2	1,307.1	1,326.0	1,278.7	1,275.0	1,232.8	1,208.9	1,213.7	1,216.7	1,189.2	1,159.0	1,164.7
	0.204	0.200	0.196	0.190	0.185	0.183	0.172	0.168	0.154	0.144	0.138	0.132	0.124	0.116	0.112

Annex 7-5 Cash Flow Projection and FIRROI for FSR-1 (Revenue + 10%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Source of Funds																	US\$'000
Funds from Operations		1,034	941	963	1,001	1,037	1,052	1,133	1,170	1,288	1,384	1,451	1,518	1,619	1,721	1,787	19,099
Net profit		934	941	963	1,001	1,037	1,052	1,133	1,170	1,288	1,384	1,451	1,518	1,619	1,721	1,787	18,998
Depreciation		-15	-8	14	52	88	103	184	221	340	435	502	568	670	772	838	4,784
Subsidies Required		949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	14,235
		100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
Use of Funds																	
Working Capital	14,235	163.5	31.5	8.3	6.4	5.2	4.9	4.9	4.9	10.8	10.9	11.0	11.1	11.1	11.1	11.1	14,542
Capital Investment	14,235	163.5	31.5	8.3	6.4	5.2	4.9	4.9	4.9	10.8	10.8	11.0	11.1	11.1	11.1	11.1	307
Net Cash Flow for the Year	-14,235	870	909	954	995	1,032	1,047	1,128	1,166	1,278	1,373	1,440	1,507	1,608	1,710	1,776	4,558
Cumulative Cash Flow	-14,235	-13,365	-12,455	-11,501	-10,506	-9,474	-8,427	-7,299	-6,134	-4,856	-3,483	-2,043	-536	1,071	2,781	4,558	

FIRROI: 2005-2020 3.249%

Annex 7-6 Projected Income Statement for FSR-1 (Revenue + 10%)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Revenues	1,308.9	1,308.5	1,323.2	1,361.1	1,395.5	1,429.0	1,462.6	1,486.4	1,572.6	1,643.8	1,715.5	1,787.3	1,859.1	1,931.1	2,003.1	23,598.7
Telephone Services	712.0	705.8	715.8	738.8	758.1	777.0	786.0	814.9	863.0	905.9	949.2	992.5	1035.7	1078.0	1,122.3	12,865.8
Distributed Infr Settlement	170.9	170.7	170.7	171.2	171.9	172.8	173.8	175.0	178.9	182.9	187.0	191.2	195.5	199.9	204.4	2,716.8
Distributed Access Charge	321.3	326.1	330.6	344.6	358.4	371.8	385.0	398.1	421.4	444.6	467.9	491.2	514.5	537.8	561.0	6,274.2
Internet	88.43	88.43	88.43	88.43	88.43	88.43	88.43	88.43	88.43	88.43	88.43	88.43	88.43	88.43	88.43	1,341.5
Others	16.2	16.5	16.7	17.2	17.6	18.1	18.5	18.9	20.0	21.0	22.0	23.0	24.0	25.0	26.0	300.4
Operating Costs	1,325.1	1,316.7	1,309.4	1,309.2	1,307.1	1,326.0	1,278.7	1,275.0	1,232.8	1,208.9	1,213.7	1,218.7	1,189.2	1,158.0	1,164.7	18,834.3
Personnel Costs	22.5	23.4	24.3	25.3	26.3	27.3	28.4	29.6	30.8	32.0	33.3	34.6	36.0	37.4	38.9	450.0
Portion of BB Rental to PTA	200.3	182.6	185.5	181.9	178.7	175.6	151.3	145.3	98.8	70.3	70.3	70.3	35.6	0.0	0.0	1,756.5
Satellite Charge																
Depreciation(New Assets)	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	14,235.0
Others	153.3	151.7	150.6	153.0	153.2	174.0	150.0	151.1	154.3	157.6	181.1	164.8	168.6	172.6	176.8	2,392.8
Profit	-15.2	-8.2	13.8	51.9	88.3	103.0	183.9	221.4	339.8	434.9	501.8	568.6	669.9	772.1	838.4	4,764.4
Required Subsidies	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
Surplus for the Year	85	-8	14	52	88	103	184	221	340	435	502	569	670	772	838	4,864
Accumulated Surplus	85	77	90	142	231	334	518	739	1,079	1,514	2,015	2,584	3,254	4,026	4,864	

US\$'000

Annex 7-7 Cash Flow Projection and FIRROI for FSR-2 (Revenue - 10%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Source of Funds																	US\$'000
Funds from Operations		986	1,003	1,022	953	764	992	967	898	1,003	1,085	1,138	1,193	1,281	1,370	1,423	16,109
Net profit		896	703	722	753	764	792	867	898	1,003	1,085	1,138	1,193	1,281	1,370	1,423	14,709
Dpreciation		-253	-246	-227	-196	-185	-157	-82	-51	54	136	190	244	332	421	474	474
Subsidies Required		949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	14,235
		300	300	300	200	0	200	100	0	0	0	0	0	0	0	0	1,400
Use of Funds																	
Working Capital	14,235	133.8	25.8	6.8	5.2	4.3	4.0	4.0	4.0	8.8	8.9	9.0	9.1	9.1	9.1	9.1	14,486
Capital Investment	14,235	133.8	25.8	6.8	5.2	4.3	4.0	4.0	4.0	8.8	8.9	9.0	9.1	9.1	9.1	9.1	251
Net Cash Flow for the Year	-14,235	862	977	1,015	948	779	988	963	894	994	1,076	1,130	1,184	1,272	1,361	1,414	1,623
Cumulative Cash Flow	-14,235	-13,373	-12,396	-11,381	-10,432	-9,653	-8,665	-7,702	-6,808	-5,814	-4,737	-3,608	-2,424	-1,152	209	1,623	

FIRROI: 2005-2020 1.281%

Annex 7-8 Projected Income Statement for FSR-2 (Revenue -10%)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Revenues	1,071.7	1,070.6	1,082.6	1,113.6	1,141.7	1,189.2	1,196.7	1,224.3	1,286.7	1,345.0	1,409.6	1,462.3	1,521.1	1,580.0	1,638.9	19,308.0
Telephone Services	582.5	577.5	585.6	604.4	620.2	635.7	651.2	666.8	706.1	741.2	776.6	812.0	847.4	882.8	918.2	10,608.4
Distributed Infr Settlement	139.9	139.6	139.7	140.1	140.7	141.3	142.2	143.2	146.4	149.7	153.0	156.5	160.0	163.6	167.2	2,222.8
Distributed Access Charge	282.9	268.8	270.5	281.9	293.2	304.2	315.0	325.7	344.7	363.8	382.6	401.9	420.9	440.0	459.0	5,133.5
Internet	73.17	73.17	73.17	73.17	73.17	73.17	73.17	73.17	73.17	73.17	73.17	73.17	73.17	73.17	73.17	1,097.6
Others	13.3	13.5	13.7	14.0	14.4	14.8	15.1	15.5	16.3	17.1	18.0	18.8	19.6	20.4	21.3	245.8
Operating Costs	1,325.1	1,316.7	1,309.4	1,309.2	1,307.1	1,326.0	1,278.7	1,275.0	1,232.8	1,208.9	1,213.7	1,218.7	1,189.2	1,159.0	1,164.7	18,894.3
Personnel Costs	22.5	23.4	24.3	25.3	26.3	27.3	28.4	29.6	30.8	32.0	33.3	34.6	36.0	37.4	38.9	450.0
Portion of BB Rental to PTA	200.3	192.6	185.5	181.9	178.7	175.6	151.3	145.3	98.8	70.3	70.3	70.3	35.6	0.0	0.0	1,756.5
Satellite Charge																
Depreciation(New Assets)	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	14,235.0
Others	153.3	151.7	150.6	153.0	153.2	174.0	150.0	151.1	154.3	157.6	161.1	164.8	188.6	172.6	176.8	2,392.8
Profit	-253.4	-246.1	-226.8	-195.6	-185.4	-156.8	-82.0	-50.7	53.9	136.0	189.9	243.6	331.9	421.0	474.2	473.7
Required Subsidies	300	300	300	200	0	200	100	0	0	0	0	0	0	0	0	1,400
Surplus for the Year	47	54	73	4	-155	43	18	-51	54	136	190	244	332	421	474	1,874
Accumulated Surplus	47	101	174	178	13	56	74	23	77	213	403	647	978	1,399	1,874	

US\$'000

Annex 7-9 Cash Flow Projection and FIRROI for FSO-1 (OM Cost + 10%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Source of Funds																	US\$ '000
Funds from Operations		977	985	1,006	841	975	894	967	1,002	1,117	1,208	1,268	1,328	1,426	1,525	1,584	17,194
Net profit		777	785	806	841	875	884	967	1,002	1,117	1,208	1,268	1,328	1,426	1,525	1,584	16,394
Dpreciation		-172	-184	-143	-108	-74	-65	18	53	188	259	318	378	477	576	635	2,159
Subsidies Required		949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	14,235
		200	200	200	0	100	100	0	0	0	0	0	0	0	0	0	800
Use of Funds																	
Working Capital	14,235	148.7	28.7	7.6	5.8	4.7	4.5	4.4	4.4	9.8	9.9	10.0	10.1	10.1	10.1	10.1	14,514
Capital Investment	14,235	148.7	28.7	7.6	5.8	4.7	4.5	4.4	4.4	9.8	9.9	10.0	10.1	10.1	10.1	10.1	279
Net Cash Flow for the Year	-14,235	828	956	989	835	970	990	963	997	1,108	1,199	1,258	1,318	1,416	1,514	1,574	2,680
Cumulative Cash Flow	-14,235	-13,407	-12,450	-11,451	-10,616	-9,646	-8,666	-7,709	-6,706	-5,599	-4,400	-3,142	-1,824	-408	1,107	2,680	

FIRROI: 2005-2020 2.017%

Annex 7-10 Projected Income Statement for FSO -1 (OM Cost + 10%)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Revenues	1,190.8	1,189.5	1,202.9	1,237.4	1,268.6	1,299.1	1,329.7	1,360.3	1,428.7	1,494.4	1,559.5	1,624.8	1,690.1	1,755.5	1,821.0	21,453.4
Telephone Services	647.2	641.6	650.7	671.6	689.1	706.3	723.6	740.9	784.6	823.5	862.9	902.2	941.6	980.9	1,020.3	11,787.1
Distributed Infr Settlement	155.4	155.2	155.2	155.6	156.3	157.1	158.0	159.1	162.6	166.3	170.0	173.8	177.7	181.7	185.8	2,469.8
Distributed Access Charge	292.1	296.5	300.6	313.2	325.8	338.0	350.0	361.9	383.1	404.2	425.4	446.5	467.7	488.9	510.0	5,703.9
Internet	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	1,219.5
Others	14.7	15.0	15.2	15.6	16.0	16.4	16.8	17.2	18.1	19.1	20.0	20.9	21.8	22.7	23.6	273.1
Operating Costs	1,362.7	1,353.4	1,345.4	1,345.2	1,343.0	1,353.7	1,311.7	1,307.6	1,261.2	1,234.9	1,240.2	1,245.7	1,213.2	1,180.0	1,166.2	19,294.2
Personnel Costs	24.7	25.7	26.7	27.8	28.9	30.1	31.3	32.5	33.8	35.2	36.6	38.1	39.6	41.2	42.8	495.0
Portion of BB Rental to PTA	220.3	211.8	204.0	200.1	196.6	193.1	166.5	159.8	108.7	77.3	77.3	77.3	39.2	0.0	0.0	1,932.1
Satellite Charge																
Depreciation(New Assets)	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	14,235.0
Others	188.7	186.9	185.7	188.3	168.5	191.4	185.0	186.2	169.7	173.4	177.3	181.3	185.5	189.9	194.4	2,632.1
Profit	-171.9	-163.9	-142.5	-107.8	-74.4	-84.6	18.0	52.7	168.5	259.5	319.4	379.1	476.9	575.5	634.8	2,159.1
Required Subsidies	200	200	200	0	100	100	0	0	0	0	0	0	0	0	0	800
Surplus for the Year	28	36	57	-108	26	35	18	53	168	259	319	379	477	576	635	2,959
Accumulated Surplus	28	64	122	14	39	75	93	146	314	574	893	1,272	1,749	2,324	2,959	

US\$'000

Annex 7-11 Cash Flow Projection and FIRROI for FSO-2 (OM Cost -10%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Source of Funds																	
Funds from Operators		952	959	979	913	946	960	1,033	1,067	1,174	1,260	1,321	1,382	1,474	1,567	1,627	17,614
Net profit		852	859	879	913	946	960	1,033	1,067	1,174	1,260	1,321	1,382	1,474	1,567	1,627	17,314
Dpreciation		-87	-90	-70	-36	-3	11	84	118	225	311	372	433	525	618	678	3,079
Subsidies Required		949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	14,235
		100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	300
Use of Funds																	
Working Capital	14,235	148.7	28.7	7.6	5.8	4.7	4.5	4.4	4.4	9.8	9.9	10.0	10.1	10.1	10.1	10.1	14,514
Capital Investment		148.7	28.7	7.6	5.8	4.7	4.5	4.4	4.4	9.8	9.9	10.0	10.1	10.1	10.1	10.1	279
Net Cash Flow for the Year	-14,235	804	930	971	907	942	955	1,028	1,063	1,164	1,251	1,311	1,372	1,464	1,556	1,617	3,100
Cumulative Cash Flow	-14,235	-13,431	-12,501	-11,530	-10,623	-9,681	-8,726	-7,698	-6,635	-5,471	-4,220	-2,909	-1,537	-73	1,483	3,100	

FIRROI: 2005-2020 2.294%

Annex 7-12 Projected Income Statement for FSO --2 (OM Cost -10%)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Revenues	1,190.8	1,189.5	1,202.8	1,237.4	1,288.6	1,299.1	1,329.7	1,360.3	1,429.7	1,494.4	1,559.5	1,624.8	1,690.1	1,755.5	1,821.0	21,453.4
Telephone Services	647.2	641.6	650.7	671.6	688.1	706.3	723.6	740.9	784.6	823.5	862.9	902.2	941.6	980.9	1,020.3	11,787.1
Distributed Int'l Settlement	155.4	155.2	155.2	156.6	156.3	157.1	158.0	159.1	162.6	166.3	170.0	173.8	177.7	181.7	185.8	2,469.8
Distributed Access Charge	292.1	296.5	300.6	313.2	325.8	338.0	350.0	361.9	383.1	404.2	425.4	446.5	467.7	488.9	510.0	5,703.9
Internet	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	1,219.5
Others	14.7	15.0	15.2	15.6	16.0	16.4	16.8	17.2	18.1	18.1	20.0	20.9	21.8	22.7	23.6	273.1
Operating Costs	1,287.5	1,279.9	1,273.4	1,273.2	1,271.3	1,288.3	1,245.8	1,242.4	1,204.5	1,183.0	1,187.2	1,191.7	1,165.2	1,138.0	1,143.1	18,374.4
Personnel Costs	20.2	21.0	21.9	22.6	23.7	24.6	25.6	26.6	27.7	28.8	29.9	31.1	32.4	33.7	35.0	405.0
Portion of BB Rental to PTA	180.2	173.3	168.9	163.7	160.8	158.0	136.2	130.8	88.9	63.3	63.3	63.3	32.1	0.0	0.0	1,580.8
Satellite Charge																
Depreciation(New Assets)	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	949.0	14,235.0
Others	138.0	136.6	135.5	137.7	137.8	156.6	135.0	136.0	138.9	141.9	145.0	148.3	151.7	155.3	159.1	2,153.5
Profit	-96.7	-90.4	-70.4	-35.8	-2.7	10.8	83.9	117.9	225.2	311.4	372.3	433.1	524.9	617.5	677.9	3,079.0
Required Subsidies	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	300
Surplus for the Year	3	10	30	-36	-3	11	84	118	225	311	372	433	525	618	678	3,379
Accumulated Surplus	3	13	42	7	4	15	99	217	442	753	1,128	1,558	2,084	2,701	3,379	

US\$'000

Annex 7-13 Cash Flow Projection and FIRROI for FSI-1 (Investment -15%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Source of Funds																	
Funds from Operations		815	822	843	877	910	922	1,000	1,034	1,146	1,234	1,285	1,355	1,450	1,546	1,605	16,854
Net profit		815	822	843	877	910	922	1,000	1,034	1,146	1,234	1,285	1,355	1,450	1,546	1,605	16,854
Dpreciation		8	15	36	71	104	115	193	228	339	428	488	548	643	738	799	4,754
Subsidies Required		807	807	807	807	807	807	807	807	807	807	807	807	807	807	807	12,100
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of Funds																	
Working Capital	12,100	148.7	28.7	7.6	5.8	4.7	4.5	4.4	4.4	9.8	9.9	10.0	10.1	10.1	10.1	10.1	12,379
Capital Investment	12,100	148.7	28.7	7.6	5.8	4.7	4.5	4.4	4.4	9.8	9.9	10.0	10.1	10.1	10.1	10.1	279
																	12,100
Net Cash Flow for the Year	-12,100	666	793	835	871	906	918	996	1,030	1,136	1,225	1,285	1,345	1,440	1,535	1,595	4,476
Cumulative Cash Flow	-12,100	-11,434	-10,641	-9,806	-8,934	-8,028	-7,111	-6,115	-5,085	-3,949	-2,725	-1,440	-95	1,345	2,980	4,476	

FIRROI: 2005-2020 3.665%

Annex 7-14 Projected Income Statement for FSI-1 (Investment -15%)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Revenues	1,190.8	1,189.5	1,202.9	1,237.4	1,268.6	1,299.1	1,329.7	1,360.3	1,429.7	1,494.4	1,559.5	1,624.8	1,690.1	1,755.5	1,821.0	21,453.4
Telephone Services	647.2	641.6	650.7	671.6	689.1	706.3	723.6	740.9	784.6	823.5	862.9	902.2	941.6	980.9	1,020.3	11,787.1
Distributed Intl Settlement	155.4	155.2	155.2	155.6	156.3	157.1	158.0	158.1	162.6	166.3	170.0	173.8	177.7	181.7	185.8	2,469.8
Distributed Access Charge	292.1	296.5	300.6	313.2	325.8	338.0	350.0	361.9	383.1	404.2	425.4	446.5	467.7	488.9	510.0	5,703.9
Internet	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	1,219.5
Others	14.7	15.0	15.2	15.6	16.0	16.4	16.8	17.2	18.1	19.1	20.0	20.9	21.8	22.7	23.6	273.1
Operating Costs	1,182.7	1,174.3	1,167.0	1,166.9	1,164.8	1,163.6	1,136.4	1,132.6	1,090.5	1,066.6	1,071.4	1,076.3	1,046.9	1,016.7	1,022.3	16,699.1
Personnel Costs	22.5	23.4	24.3	25.3	26.3	27.3	28.4	29.6	30.8	32.0	33.3	34.6	36.0	37.4	38.9	450.0
Portion of BB Rental to PTA	200.3	192.6	185.5	181.9	178.7	175.6	151.3	145.3	98.8	70.3	70.3	70.3	35.6	0.0	0.0	1,756.5
Satellite Charge																
Depreciation(New Assets)	806.7	806.7	806.7	806.7	806.7	806.7	806.7	806.7	806.7	806.7	806.7	806.7	806.7	806.7	806.7	12,099.8
Others	153.3	151.7	150.6	153.0	153.2	174.0	150.0	151.1	154.3	157.6	161.1	164.8	168.6	172.6	176.8	2,392.8
Profit	8.0	15.2	35.9	70.5	103.8	115.5	193.3	227.7	339.2	427.8	488.2	548.4	643.2	738.9	798.7	4,754.3
Required Subsidies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Surplus for the Year	8	15	36	71	104	115	193	228	339	428	488	548	643	738	799	4,754
Accumulated Surplus	8	23	59	130	233	349	542	770	1,109	1,537	2,025	2,574	3,217	3,966	4,754	

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