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The Study for Improvement Plan of Livestock Farming System in Rural Area

Annex

March, 2006

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* The Study Area is Dornogobi, Dundgobi and Umnugobi provinces of the Govi region.



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Exchange Rate (January, 2006)		
USD 1.00	=	Yen 119.07
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ANNEX A: METEOROLOGICAL DATA

Final Report
The Study for Improvement Plan of
Livestock Farming System in Rural Area

March, 2006

ANNEX A Meteorological Data

(1) Mean Monthly Rainfall

GURVANTES

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
71	0.0	0.0	0.7	0.2	1.6	2.2	24.5	18.6	10.5	0.1	0.0	0.4	58.8
72	3.0	0.0	0.0	0.0	3.8	0.2	13.8	0.2	0.3	0.0	0.4	0.0	21.7
73	0.2	0.0	2.2	5.7	0.1	12.2	38.9	29.6	21.0	6.1	0.0	0.0	116.0
74	0.0	0.7	1.0	0.0	1.6	13.0	34.7	80.3	0.2	1.4	0.0	4.1	137.0
75	0.0	0.1	0.0	4.4	7.2	24.8	65.5	47.3	59.3	0.0	0.0	0.1	208.7
76	0.0	4.3	0.0	0.2	1.1	39.1	33.5	43.9	3.2	9.2	0.5	0.0	135.0
77	0.4	0.0	0.9	0.4	7.4	11.6	107.3	2.8	11.6	1.0	4.4	0.0	147.8
78	0.0	0.7	0.4	0.1	9.7	15.3	23.0	9.9	7.4	0.0	0.0	0.0	66.5
79	1.4	0.0	2.8	1.4	0.0	38.5	36.2	9.8	2.5	0.0	0.2	0.6	93.4
80	0.0	0.0	0.5	4.1	12.0	5.8	20.2	58.4	0.0	1.6	1.5	0.0	104.1
81	5.6	0.0	0.4	0.0	0.7	12.3	19.5	60.6	8.1	6.3	6.3	0.0	119.8
82	0.0	0.0	0.0	2.0	0.0	4.3	8.6	17.3	23.0	1.0	0.0	0.0	56.2
83	1.0	0.0	0.3	0.2	1.1	2.7	39.8	17.6	8.9	2.6	0.0	0.0	74.2
84	0.6	0.8	0.4	0.0	0.2	19.9	60.8	6.8	8.2	0.0	2.2	2.6	102.5
85	2.0	2.3	0.0	2.2	0.6	10.9	11.9	7.1	11.4	0.0	0.0	0.3	48.7
86	1.8	1.4	4.3	0.0	0.9	19.4	19.8	17.8	4.0	2.2	1.4	0.0	73.0
87	0.0	0.0	6.8	0.0	2.1	15.6	19.1	22.0	26.8	12.9	0.0	0.0	105.3
88	0.0	6.2	0.0	0.0	14.4	16.5	10.0	9.5	3.1	11.0	0.0	0.0	70.7
89	1.2	0.4	6.4	18.7	0.0	14.5	12.8	9.8	8.3	0.0	0.2	0.9	73.2
90	0.4	0.4	14.5	0.7	11.4	4.5	18.1	20.3	2.1	9.0	0.0	0.0	81.4
91	0.0	1.4	5.4	0.0	4.9	7.7	1.5	72.5	19.2	0.8	0.0	2.1	115.5
92	0.2	2.1	8.7	0.1	4.9	3.7	45.9	12.7	1.7	13.3	6.5	0.0	99.8
93	0.0	4.8	20.6	0.3	0.0	12.0	28.9	31.0	0.0	0.0	0.4	0.0	98.0
94	0.0	0.0	1.0	11.9	17.7	30.8	15.9	32.1	0.0	5.4	0.0	0.5	115.3
95	0.0	0.0	1.2	3.1	0.0	3.7	23.9	74.2	42.3	0.1	0.0	0.0	148.5
96	0.0	0.0	0.3	1.3	2.7	2.4	101.1	23.3	0.0	1.3	0.8	0.0	133.2
97	0.4	1.0	1.9	10.9	3.0	10.4	24.9	35.8	0.0	1.8	4.1	0.8	95.0
98	2.6	8.3	7.1	18.3	6.3	13.8	39.5	39.3	8.5	11.7	0.0	0.0	155.4
99	0.0	0.0	0.0	0.0	0.4	5.3	50.6	10.2	49.5	1.7	0.0	0.3	118.0
00	1.5	2.6	0.0	2.8	7.0	13.4	7.3	25.3	1.1	0.0	0.0	0.3	61.3
01	0.8	1.0	0.0	2.4	5.5	0.8	12.0	10.1	30.2	13.2	0.4	1.7	78.1
02	0.3	3.6	5.5	7.6	14.2	16.4	11.4	0.6	18.6	0.0	2.1	13.3	93.6
Max	5.6	8.3	20.6	18.7	17.7	39.1	107.3	80.3	59.3	13.3	6.5	13.3	208.7
Average	0.7	1.3	2.9	3.1	4.5	12.6	30.7	26.8	12.2	3.6	1.0	0.9	100.2
Min	0.0	0.0	0.0	0.0	0.0	0.2	1.5	0.2	0.0	0.0	0.0	0.0	21.7

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Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
70	1.2	0.5	2.2	9.0	7.9	8.4	6.6	27.8	29.3	0.2	0.5	0.0	93.6
71	1.3	0.1	1.4	0.0	10.6	26.2	28.8	59.6	3.8	0.1	4.3	0.9	137.1
72	3.6	0.6	1.2	0.3	9.1	28.6	1.7	6.4	5.6	3.4	6.4	0.1	67.0
73	3.5	0.6	5.1	0.2	23.8	13.1	13.1	72.3	16.7	1.7	0.7	2.4	153.2
74	0.0	1.1	1.7	1.1	13.7	29.6	54.3	26.4	2.2	3.8	0.0	1.8	135.7
75	0.0	0.6	0.7	6.3	8.7	12.6	49.7	52.8	13.3	0.0	0.0	0.2	144.9
76	0.0	0.9	2.0	13.4	4.7	21.0	45.2	28.7	6.6	1.6	0.4	1.3	125.8
77	1.5	7.0	3.0	0.5	30.0	77.5	69.9	17.9	21.2	5.3	1.7	0.2	235.7
78	3.0	2.1	1.8	1.0	10.1	1.3	33.8	24.5	0.5	0.9	0.1	0.0	79.1
79	2.5	1.0	1.1	0.0	0.4	71.4	44.1	32.2	9.8	1.2	5.4	0.0	169.1
80	0.0	0.0	1.6	15.1	28.4	15.2	5.5	76.5	0.0	1.9	2.9	1.1	148.2
81	2.2	0.2	7.4	0.0	9.0	14.6	29.3	39.9	5.3	10.1	2.6	1.3	121.9
82	0.2	0.0	0.1	2.5	2.2	6.4	20.6	28.2	8.3	1.1	1.9	5.1	76.6
83	3.4	0.6	3.8	5.2	3.3	16.6	54.6	50.2	31.0	39.1	1.5	0.2	209.5
84	0.0	1.8	0.4	3.7	11.6	6.4	18.6	12.5	12.7	0.1	3.6	3.0	74.4
85	0.2	0.7	1.9	10.8	1.0	6.3	36.7	8.5	19.0	0.0	3.1	0.3	88.5
86	1.9	2.5	5.2	1.2	0.8	9.1	46.1	14.9	37.0	6.2	3.3	4.1	132.3
87	4.1	0.0	4.2	2.6	17.0	17.0	24.2	11.1	13.9	20.9	1.1	0.7	116.8
88	1.4	1.1	1.4	0.2	12.4	1.7	21.1	31.5	6.3	5.5	0.0	0.4	83.0
89	0.5	0.0	3.4	6.8	3.2	3.5	29.4	14.5	7.0	3.5	1.2	0.9	73.9
90	3.0	0.0	13.4	4.9	21.6	6.4	47.7	23.7	1.4	2.9	0.0	0.4	125.4
91	0.4	2.5	10.6	8.5	1.6	37.0	5.2	58.3	6.5	0.9	0.0	4.0	135.5
92	1.9	1.6	1.6	1.1	15.2	10.5	14.7	16.9	1.7	1.4	7.5	0.0	74.1
93	0.4	2.2	1.4	8.1	0.3	40.4	54.9	37.4	16.1	0.0	5.7	2.7	169.6
94	0.0	2.3	1.7	1.0	23.0	40.7	57.1	16.0	7.8	5.7	4.7	0.0	160.0
95	0.0	1.5	8.4	3.9	7.0	11.8	23.5	55.3	16.3	3.9	5.0	0.2	136.8
96	2.9	0.2	2.5	5.9	1.5	26.5	55.1	68.1	2.9	6.3	2.9	0.7	175.5
97	1.0	0.5	0.6	0.3	0.3	35.7	75.4	17.3	17.1	2.9	6.0	0.0	157.1
98	4.3	10.8	4.9	8.5	6.4	11.8	36.8	29.9	0.5	8.7	0.4	0.0	123.0
99	0.6	0.6	1.1	4.6	13.8	10.5	26.1	54.0	44.8	0.0	1.2	0.8	158.1
00	1.3	2.2	0.0	2.9	10.0	9.9	13.9	56.9	2.0	4.6	0.9	0.0	104.6
01	1.0	0.9	1.8	0.6	6.9	14.2	21.3	13.9	10.6	22.4	0.9	0.3	94.8
02	0.0	0.0	5.8	5.6	7.2	8.6	16.8	7.6	3.4	1.3	1.7	17.4	75.4
Max	4.3	10.8	13.4	15.1	30.0	77.5	75.4	76.5	44.8	39.1	7.5	17.4	235.7
Average	1.4	1.4	3.1	4.1	9.8	19.7	32.8	33.1	11.5	5.1	2.4	1.5	125.9
Min	0.0	0.0	0.0	0.0	0.3	1.3	1.7	6.4	0.0	0.0	0.0	0.0	67.0

KIHUVSGUL

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
70	0.6	1.9	8.8	0.3	16.1	4.7	23.6	43.1	0.5	7.1	0.1	6.5	113.3
71	0.0	5.5	8.0	0.0	3.0	14.7	29.5	24.5	0.3	12.5	2.3	0.7	101.0
72	2.5	0.1	0.6	0.0	5.0	5.0	12.7	0.2	0.2	7.3	3.3	0.7	37.6
73	12.5	1.2	2.0	0.0	0.3	25.6	11.4	46.7	27.1	5.5	0.0	6.5	138.8
74	0.0	0.0	0.0	7.0	3.5	12.5	24.8	13.3	2.0	0.0	0.1	1.1	64.3
75	0.0	0.0	0.0	1.8	5.6	10.2	18.5	31.2	20.0	4.0	8.2	0.0	99.5
76	7.2	0.1	1.2	0.1	4.5	22.3	43.7	10.3	42.3	0.8	0.4	0.3	133.2
77	0.9	1.0	0.4	1.7	4.8	15.6	53.6	14.3	3.9	19.5	0.5	0.8	117.0
78	0.2	0.2	0.0	1.2	2.3	4.8	17.3	9.8	0.0	7.5	0.0	0.0	43.3
79	1.2	0.0	0.0	5.9	0.9	19.4	21.4	22.2	6.3	1.0	1.1	0.0	79.4
80	0.0	0.1	1.0	0.9	0.0	0.4	8.7	23.5	0.2	0.0	0.0	1.2	36.0
81	5.0	0.1	8.0	5.0	7.2	5.6	6.1	60.2	17.0	0.0	0.1	0.8	115.1
82	0.0	0.0	0.0	6.4	9.4	3.0	40.5	40.6	10.5	0.0	1.5	2.5	114.4
83	0.2	0.0	0.0	0.5	1.8	7.3	25.2	40.5	39.8	0.8	0.0	0.0	116.1
84	0.0	0.5	0.1	0.0	2.8	25.1	7.2	23.1	17.0	1.4	1.0	0.0	78.2
85	0.0	1.7	0.7	2.6	13.4	9.0	45.9	6.2	5.2	0.1	3.7	0.5	89.0
86	0.0	0.4	3.2	0.0	0.2	30.6	10.5	5.8	24.8	9.2	6.3	6.8	97.8
87	3.1	0.2	2.5	0.1	15.8	2.4	2.8	28.7	12.6	9.5	0.6	0.0	78.3
88	0.6	2.3	0.0	6.5	9.2	8.8	55.8	77.6	7.1	6.9	0.0	0.0	174.8
89	0.0	2.6	0.0	5.7	13.0	15.1	9.0	2.3	10.7	3.0	4.6	1.5	67.5
90	1.9	2.6	1.7	4.3	1.3	18.1	63.1	47.0	15.2	12.1	0.6	0.7	168.6
91	2.1	0.4	11.1	0.0	9.4	53.1	12.2	17.4	3.0	3.6	2.8	2.3	117.4
92	1.3	0.0	10.3	1.0	25.5	4.8	12.0	29.5	2.6	5.8	6.6	0.5	99.9
93	0.0	1.3	0.0	1.3	2.0	21.7	13.5	44.2	1.2	0.0	6.8	0.0	92.0
94	0.4	0.7	1.6	0.1	2.6	13.6	26.8	27.4	28.6	2.7	1.6	1.1	107.2
95	0.0	0.0	1.9	0.3	23.3	12.7	17.6	54.3	8.1	34.2	0.8	0.5	153.7
96	0.4	0.0	3.6	0.1	1.1	25.1	52.0	48.5	0.1	4.3	1.8	0.5	137.5
97	0.0	2.5	2.5	0.0	7.7	3.7	11.5	19.9	7.5	0.0	0.5	0.0	55.8
98	1.5	6.1	1.0	9.8	1.1	31.1	24.6	90.6	5.9	1.5	0.5	0.0	173.7
99	0.4	0.3	1.7	7.1	4.1	17.6	25.8	6.8	16.1	0.0	3.9	1.5	85.3
00	1.1	0.9	0.0	10.9	10.8	17.0	5.3	39.8	4.5	0.0	4.1	1.5	95.9
01	0.6	0.3	3.5	0.3	2.4	15.9	9.6	23.7	3.4	9.9	3.0	0.7	73.3
02	0.0	0.0	0.0	15.1	32.8	19.3	12.8	33.3	3.2	1.9	0.7	8.7	127.8
Max	12.5	6.1	11.1	15.1	32.8	53.1	63.1	90.6	42.3	34.2	8.2	8.7	174.8
Average	1.3	1.0	2.3	2.9	7.4	15.0	22.9	30.5	10.5	5.2	2.0	1.5	102.5
Min	0.0	0.0	0.0	0.0	0.0	0.4	2.8	0.2	0.0	0.0	0.0	0.0	36.0

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Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
70	0.9	0.9	2.7	0.0	14.2	3.4	15.2	78.7	15.4	19.6	0.5	2.3	153.8
71	1.5	1.3	2.9	0.3	6.2	12.2	16.5	46.3	8.0	7.8	2.4	5.6	111.0
72	7.9	0.4	7.3	0.8	3.2	12.4	21.4	6.6	30.1	5.0	4.8	3.0	102.9
73	15.4	2.0	4.2	0.9	2.3	20.9	47.5	58.7	24.5	9.9	0.0	0.0	186.3
74	1.0	4.1	0.3	0.5	0.3	4.9	64.9	16.0	3.5	8.0	0.0	0.0	103.5
75	0.0	2.3	3.3	5.0	17.6	23.4	31.3	35.2	17.3	4.1	14.6	0.0	154.1
76	0.5	0.9	4.2	2.8	5.1	12.5	168.3	36.4	18.2	5.2	0.1	0.0	254.2
77	0.8	0.6	0.0	0.0	6.6	8.0	43.3	20.9	16.5	35.9	0.0	1.1	133.7
78	0.0	0.6	0.0	3.6	11.0	23.2	34.3	18.3	0.2	12.9	0.1	2.1	106.3
79	9.8	2.6	0.0	14.2	0.8	19.8	21.5	80.3	4.0	0.2	4.3	0.1	157.6
80	0.0	0.1	0.1	4.8	0.7	17.7	18.2	21.8	26.7	7.4	1.1	0.7	99.3
81	9.5	0.5	1.7	3.7	1.9	16.3	19.9	62.4	19.4	4.2	6.0	2.9	148.4
82	0.5	1.8	0.0	13.1	0.5	29.4	7.3	8.2	3.3	0.8	0.4	0.5	65.8
83	0.1	0.1	0.0	0.6	9.8	17.3	14.1	25.2	11.3	4.5	0.0	0.0	83.0
84	0.0	4.0	0.2	0.0	2.1	19.3	41.7	30.2	16.1	5.0	0.0	0.3	118.9
85	0.0	1.2	0.7	0.0	14.1	7.0	36.1	14.7	14.5	0.0	4.1	1.3	93.7
86	0.0	0.0	1.3	0.0	4.2	14.5	52.3	42.4	72.2	8.3	4.3	5.8	205.3
87	3.0	0.0	1.0	0.0	0.0	8.7	8.9	35.2	14.9	8.5	0.3	1.6	82.1
88	0.0	1.1	0.8	2.0	4.3	26.5	16.6	108.6	2.5	0.0	0.0	2.3	164.7
89	0.2	1.8	1.2	0.1	7.3	17.5	12.3	0.0	3.3	2.5	0.4	2.6	49.2
90	0.4	1.8	0.9	10.8	1.2	19.4	102.5	54.6	14.2	10.1	0.2	0.0	216.1
91	0.0	0.0	1.7	1.9	3.0	38.1	3.4	11.6	1.0	1.7	0.4	2.8	65.6
92	0.3	0.0	3.4	2.0	22.8	15.2	22.4	16.3	9.7	3.4	5.5	0.0	101.0
93	0.7	0.0	0.1	0.1	3.3	23.2	39.2	26.4	2.0	0.1	14.1	2.5	111.7
94	0.0	0.0	1.5	0.0	1.3	9.4	100.5	52.9	34.3	6.1	0.0	6.1	212.1
95	0.0	0.0	3.7	0.0	0.3	4.0	35.9	41.6	6.0	49.2	0.7	3.0	144.4
96	7.1	0.0	4.5	0.0	2.2	37.6	43.6	112.1	2.0	12.8	0.8	2.4	225.1
97	0.0	2.7	0.0	0.0	7.3	22.9	10.7	38.1	4.6	0.0	0.5	0.0	86.8
98	0.4	5.5	1.7	21.3	18.3	11.8	62.3	79.8	3.9	3.6	7.6	0.0	216.2
99	0.4	0.6	1.3	14.2	1.3	13.9	37.1	20.7	14.7	0.0	4.3	3.4	111.9
00	2.9	0.2	0.0	4.2	31.6	26.9	7.6	36.8	14.2	0.5	2.3	0.5	127.7
01	0.0	0.0	2.9	1.5	3.5	66.8	11.9	7.2	1.5	5.5	0.3	0.0	101.1
02	0.0	0.0	1.7	10.7	20.8	15.2	32.3	10.2	4.1	0.7	0.0	5.2	100.9
Max	15.4	5.5	7.3	21.3	31.6	66.8	168.3	112.1	72.2	49.2	14.6	6.1	254.2
Average	1.9	1.1	1.7	3.6	6.9	18.8	36.4	38.0	13.2	7.4	2.4	1.8	133.2
Min	0.0	0.0	0.0	0.0	0.0	3.4	3.4	0.0	0.2	0.0	0.0	0.0	49.2

SAIKHAN

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
70	1.1	0.3	0.4	8.3	2.9	5.8	0.2	17.9	21.0	0.4	2.0	0.1	60.4
71	0.8	1.0	3.1	1.1	22.1	22.7	18.9	25.9	6.6	5.2	7.4	2.9	117.7
72	4.0	1.2	4.0	1.7	24.6	10.8	4.7	0.5	7.0	3.9	8.9	1.0	72.3
73	1.3	4.2	2.1	4.7	1.5	62.6	30.4	17.4	23.7	1.7	1.4	4.2	155.2
74	0.0	0.5	4.6	8.2	4.0	11.1	21.0	68.6	2.6	4.2	0.4	4.5	129.7
75	0.4	0.5	2.6	5.9	9.9	16.0	22.8	17.2	15.8	0.1	0.0	2.1	93.3
76	0.9	3.5	1.5	32.3	5.9	10.1	31.4	23.1	2.8	1.9	1.0	7.9	122.3
77	3.2	3.6	1.8	4.1	42.4	43.8	130.9	7.8	8.5	11.5	2.7	1.2	261.5
78	0.2	0.8	2.9	5.0	13.9	7.9	28.7	8.6	3.4	1.5	0.4	0.2	73.5
79	0.1	0.2	4.0	6.5	0.1	3.7	16.7	14.8	11.5	2.9	13.8	0.0	74.3
80	0.0	0.2	9.5	13.2	25.8	24.3	12.2	55.1	3.7	0.9	4.5	2.4	151.8
81	3.6	0.1	11.2	0.0	6.3	17.4	29.2	33.5	6.5	10.7	6.7	1.3	126.5
82	0.3	0.0	1.6	3.2	7.7	6.3	7.4	37.7	9.9	2.4	4.7	5.3	86.5
83	5.0	0.4	1.2	0.2	2.0	0.3	21.2	42.5	37.2	19.7	1.6	0.3	131.6
84	0.1	1.8	1.3	1.5	1.2	19.4	12.9	4.0	5.4	1.9	3.2	4.4	57.1
85	2.0	2.2	1.4	4.0	5.2	4.8	35.2	5.6	25.5	0.0	7.3	0.1	93.3
86	5.7	2.8	7.7	1.5	6.2	13.0	41.4	25.3	28.5	2.1	7.1	4.7	146.0
87	6.2	0.3	5.7	0.0	2.6	3.0	31.6	23.2	20.6	27.6	7.2	3.4	131.4
88	2.6	3.0	3.2	1.2	15.1	0.0	13.0	17.3	3.7	2.2	0.0	0.4	61.7
89	0.2	0.7	9.0	22.5	5.9	2.1	12.0	14.4	14.9	2.3	3.5	3.1	90.6
90	7.8	0.7	23.2	10.3	15.6	19.9	79.0	15.8	12.1	9.9	2.8	0.9	198.0
91	1.5	2.2	3.9	4.4	2.6	79.5	3.8	59.8	15.7	2.1	0.3	6.8	182.6
92	4.6	0.7	5.1	0.8	19.8	4.9	24.9	12.8	9.0	1.9	13.9	0.3	98.7
93	0.2	7.3	0.6	9.5	0.6	32.4	38.8	50.5	11.2	0.6	6.0	3.0	160.7
94	0.7	1.7	4.1	6.9	10.4	35.2	48.0	36.9	4.0	19.4	1.3	0.0	168.6
95	0.0	0.8	9.5	5.0	21.8	8.0	25.5	48.4	7.2	2.2	3.5	0.5	132.4
96	2.7	0.0	3.5	5.3	1.5	14.3	32.1	40.1	14.7	1.8	5.6	1.9	123.5
97	1.6	0.4	0.0	3.0	1.7	22.8	42.7	21.6	11.5	6.2	2.9	0.4	114.8
98	5.4	7.5	7.3	7.4	13.3	8.6	13.5	36.0	0.8	14.9	1.0	0.0	115.7
99	2.8	0.2	5.8	7.0	17.9	12.3	19.3	17.5	48.2	4.5	3.8	2.2	141.5
00	3.0	2.5	0.0	7.1	18.2	15.1	14.8	65.1	0.3	3.9	1.6	1.0	132.6
01	1.2	1.3	5.0	0.3	8.2	14.4	10.1	7.7	11.7	21.8	4.3	2.4	88.4
02	0.0	0.0	6.2	3.7	9.1	5.4	17.7	4.0	16.9	11.4	2.0	20.1	96.5
Max	7.8	7.5	23.2	32.3	42.4	79.5	130.9	68.6	48.2	27.6	13.9	20.1	261.5
Average	2.1	1.6	4.6	5.9	10.5	16.9	27.0	26.6	12.8	6.2	4.0	2.7	120.9
Min	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.5	0.3	0.0	0.0	0.0	57.1

TSGTOVOO

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
75	0.2	0.3	0.0	2.8	1.0	18.4	70.2	29.6	18.7	1.1	0.0	0.1	142.4
76	0.1	1.5	0.7	6.1	5.5	18.5	63.4	17.4	5.6	1.6	3.5	0.6	124.5
77	0.1	0.4	6.9	0.0	9.8	43.4	60.3	7.7	8.4	5.8	0.0	0.7	143.5
78	0.0	0.8	0.0	3.7	13.7	9.5	25.3	10.8	1.5	0.0	0.0	0.0	65.3
79	1.9	0.1	0.2	11.9	0.3	24.7	24.1	22.6	22.6	0.3	3.1	0.0	111.8
80	0.0	0.0	0.7	1.3	3.0	7.6	6.9	30.4	0.1	3.7	1.9	0.6	56.2
81	2.8	0.1	3.7	0.0	1.2	7.7	22.3	14.6	1.9	7.1	2.4	1.1	64.9
82	0.5	1.2	0.1	0.7	0.2	1.1	20.1	23.0	6.6	9.4	0.6	1.4	64.9
83	0.6	0.5	1.0	0.4	0.8	22.2	7.8	42.5	51.0	13.6	5.2	0.0	145.6
84	0.0	4.8	0.9	0.0	0.0	6.5	51.1	34.4	9.5	0.0	1.2	0.6	109.0
85	0.0	3.2	0.0	7.9	1.5	10.6	20.6	13.6	17.0	0.4	2.6	0.2	77.6
86	0.5	0.4	4.3	0.1	2.1	1.0	44.2	39.9	54.0	0.7	4.0	5.2	156.4
87	0.4	0.0	1.5	0.0	9.4	0.3	23.9	19.6	22.1	28.3	1.2	0.2	106.9
88	1.6	0.7	0.0	2.6	16.8	9.8	14.7	11.5	3.0	5.0	3.1	0.3	69.1
89	0.0	3.2	1.4	7.4	2.7	3.8	9.0	4.9	13.2	0.4	2.0	1.0	49.0
90	0.8	3.2	0.9	4.3	19.0	15.5	43.3	19.1	7.2	1.8	1.2	1.1	117.4
91	2.0	0.8	1.9	6.2	0.6	38.9	3.7	53.6	9.8	1.6	0.3	5.8	125.2
92	1.1	0.0	2.3	7.7	5.3	16.6	14.1	17.0	4.1	0.4	2.9	0.3	71.8
93	0.4	3.6	1.5	1.3	0.0	17.7	86.5	17.8	2.9	1.5	2.1	2.6	137.9
94	0.2	1.3	0.0	1.1	16.7	24.9	47.2	28.4	2.9	5.2	0.5	0.0	128.4
95	0.4	0.2	2.7	0.3	9.6	4.2	14.6	14.6	7.5	9.8	0.2	0.3	64.4
96	0.0	0.0	3.8	0.0	2.7	10.6	58.6	42.0	7.5	2.5	1.3	1.2	130.2
97	3.1	0.2	0.0	0.0	0.9	24.4	41.8	26.1	21.8	5.0	1.6	0.0	124.9
98	0.8	3.6	3.8	4.6	3.8	3.8	48.9	45.4	3.1	4.3	0.2	0.0	122.3
99	0.2	0.2	0.7	3.0	19.3	10.3	4.5	45.4	13.5	2.5	3.8	2.3	105.7
00	1.6	0.2	0.0	0.6	4.5	10.6	12.2	22.4	0.0	0.6	0.2	1.0	53.9
01	1.2	0.0	1.8	0.2	1.0	19.3	39.5	15.3	6.6	14.5	0.3	0.2	99.9
02	0.2	0.3	3.3	1.4	10.5	16.1	3.7	1.4	10.5	5.3	2.2	6.4	61.3
Max	3.1	4.8	6.9	11.9	19.3	43.4	86.5	53.6	54.0	28.3	5.2	6.4	156.4
Average	0.7	1.1	1.6	2.7	5.8	14.2	31.5	24.0	11.9	4.7	1.7	1.2	101.1
Min	0.0	0.0	0.0	0.0	0.0	0.3	3.7	1.4	0.0	0.0	0.0	0.0	49.0

SAINSHAND

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
70	0.1	1.3	5.5	0.4	13.0	5.1	36.7	48.1	7.3	1.1	2.7	2.0	123.3
71	0.0	0.2	0.8	0.0	12.5	21.5	3.7	39.3	1.2	2.9	0.3	0.5	82.9
72	0.4	0.4	6.6	0.0	6.3	12.0	23.2	13.8	1.6	11.8	4.1	3.6	83.8
73	0.9	0.0	0.5	0.0	11.6	43.6	61.6	59.1	38.6	9.8	0.2	0.4	226.3
74	0.0	0.7	0.0	3.8	2.0	22.0	69.0	21.7	4.3	4.1	0.6	1.2	129.4
75	0.0	0.2	0.5	6.6	12.2	14.2	16.9	2.4	18.8	9.9	0.4	0.0	82.1
76	0.2	0.0	0.0	4.6	15.1	26.3	136.4	26.1	12.0	3.8	2.8	0.9	228.2
77	0.6	0.4	0.3	2.1	26.4	14.7	62.9	13.9	8.9	3.2	0.2	2.3	135.9
78	0.4	1.0	0.0	1.0	4.5	30.9	19.5	16.5	1.2	6.9	2.7	0.1	84.7
79	0.0	0.0	0.2	3.9	1.6	20.6	26.0	48.2	13.3	0.0	4.8	0.0	118.6
80	0.0	0.0	1.0	0.0	2.6	4.3	8.7	33.8	3.0	0.5	0.6	0.2	54.7
81	0.0	0.1	8.7	1.1	3.6	7.2	11.3	23.3	13.3	6.8	0.7	0.1	76.2
82	0.6	0.0	0.1	0.0	1.5	20.2	12.0	25.6	5.8	2.3	2.2	0.3	70.6
83	0.2	0.6	0.2	0.0	14.5	21.7	33.9	8.1	22.3	7.2	0.0	0.0	108.7
84	0.0	0.8	0.2	0.0	0.8	17.7	21.1	67.1	12.5	1.5	0.0	0.4	122.1
85	0.1	5.8	0.0	4.9	0.4	5.3	49.2	10.4	16.5	2.5	6.5	0.9	102.5
86	0.1	0.0	5.2	0.0	0.0	48.6	55.0	6.1	28.7	18.1	7.5	6.6	175.9
87	5.5	0.3	2.4	0.0	4.1	22.8	56.2	88.4	29.4	10.0	1.3	4.1	224.5
88	3.0	1.1	0.0	1.7	29.9	13.3	23.7	60.1	4.7	11.9	0.0	3.1	152.5
89	0.0	1.1	0.4	4.3	2.1	5.7	17.4	2.6	6.2	0.9	5.0	10.3	56.0
90	1.0	1.1	4.4	0.0	2.0	2.6	44.1	54.2	4.2	6.4	1.5	0.4	121.9
91	0.0	0.0	2.1	0.6	8.6	51.2	14.0	7.9	2.2	1.7	1.6	6.0	95.9
92	0.0	0.0	2.3	5.6	2.1	14.3	17.5	34.0	8.0	2.3	9.9	0.4	96.4
93	0.0	0.0	2.3	5.6	2.1	14.3	38.3	30.5	1.7	0.9	8.8	2.8	107.3
94	0.0	0.0	1.0	0.5	1.3	18.2	56.5	20.8	14.0	1.4	0.0	2.1	115.8
95	0.0	0.0	2.7	0.0	4.5	1.8	63.4	31.9	24.1	11.9	0.8	3.1	144.2
96	4.4	0.1	4.7	0.2	25.0	7.8	39.7	29.9	3.4	0.3	2.6	1.8	119.9
97	0.8	0.2	0.0	0.0	0.5	18.4	25.7	34.9	4.5	1.1	0.0	0.0	86.1
98	1.2	5.0	1.3	1.4	4.3	14.5	57.5	47.9	6.7	2.0	4.6	0.4	146.8
99	0.0	0.4	0.8	1.0	14.6	54.7	17.5	17.0	14.9	0.5	1.2	2.7	125.3
00	1.1	1.0	0.0	14.8	7.0	5.7	3.3	104.1	3.3	0.1	3.3	3.5	147.2
01	2.1	1.1	0.8	0.0	0.9	11.3	27.4	24.7	10.2	8.3	0.6	0.3	87.7
02	0.6	0.0	0.3	12.3	23.1	14.3	38.5	4.5	10.7	3.5	0.0	2.1	109.9
Max	5.5	5.8	8.7	14.8	29.9	54.7	136.4	104.1	38.6	18.1	9.9	10.3	228.2
Average	0.7	0.7	1.7	2.3	7.9	18.4	36.0	32.0	10.8	4.7	2.3	1.9	119.5
Min	0.0	0.0	0.0	0.0	0.0	1.8	3.3	2.4	1.2	0.0	0.0	0.0	54.7

SAIKHANOVOO

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
70	1.2	1.0	0.0	2.2	4.0	18.4	9.6	16.5	3.3	3.2	0.0	0.8	60.2
71	1.4	0.0	2.3	5.9	19.1	26.7	31.1	34.9	15.1	2.8	0.0	0.4	139.7
72	0.0	0.2	0.0	0.9	10.0	35.2	9.6	1.7	7.3	1.8	4.2	0.0	70.9
73	0.3	0.4	0.3	3.2	4.7	29.8	31.1	10.9	5.9	8.7	0.9	0.3	96.5
74	0.0	3.0	1.5	0.2	0.3	14.7	37.2	76.6	0.0	5.0	0.0	2.6	141.1
75	0.1	0.7	0.0	9.9	12.7	23.4	33.0	2.6	26.4	3.0	0.0	0.0	111.8
76	0.0	0.0	2.4	1.4	37.7	11.1	53.8	51.4	0.0	1.7	0.8	1.0	161.3
77	0.0	2.0	1.0	0.1	26.2	20.3	175.3	39.6	3.3	0.1	0.0	0.9	268.8
78	0.0	0.5	0.0	0.0	13.4	20.0	20.3	4.8	1.6	0.0	0.0	0.0	60.6
79	0.1	0.3	0.2	7.4	0.0	27.9	40.7	4.2	8.0	0.0	2.9	0.0	91.7
80	0.0	0.2	1.3	0.5	10.4	25.2	77.7	28.3	2.7	9.1	2.8	0.0	158.2
81	1.9	0.3	0.9	0.0	2.1	19.3	34.8	36.0	11.1	3.5	3.8	0.0	113.7
82	0.0	0.0	0.0	0.2	0.0	2.4	22.5	30.8	3.9	3.6	0.2	0.5	64.1
83	0.0	0.0	0.0	0.9	14.6	13.8	3.7	44.4	34.5	11.8	2.4	0.0	126.1
84	0.0	5.3	4.0	0.1	4.0	10.6	31.0	7.4	15.1	5.0	0.1	3.6	86.2
85	0.0	2.3	0.2	0.2	4.2	4.4	51.1	19.2	14.0	0.1	0.2	0.7	96.6
86	0.7	1.5	7.1	0.3	0.1	0.1	23.3	2.8	77.4	2.4	3.6	5.0	124.3
87	0.8	0.0	4.2	0.2	13.4	5.6	34.1	29.6	27.7	14.0	2.4	0.0	132.0
88	0.2	6.1	0.0	0.2	5.1	0.0	16.7	26.9	5.5	0.2	0.7	0.6	62.2
89	0.0	3.4	2.0	9.1	0.2	18.3	15.0	14.9	15.7	0.0	0.1	0.5	79.2
90	2.9	3.4	5.7	1.3	26.5	13.4	39.3	39.2	1.8	2.4	3.0	0.7	139.6
91	0.3	0.9	1.8	12.4	1.7	33.0	5.9	53.2	1.6	1.9	0.2	0.6	113.5
92	1.6	0.0	1.8	1.7	14.2	29.9	38.7	13.9	13.7	1.0	5.0	0.3	121.8
93	1.6	0.0	1.8	1.7	14.2	29.9	50.6	37.2	12.8	9.5	8.5	3.7	171.5
94	0.6	1.7	0.3	1.0	6.3	40.6	97.3	14.3	2.9	2.4	2.9	0.0	170.3
95	0.0	0.0	5.4	0.4	12.8	12.8	10.0	27.4	4.7	8.1	2.1	5.2	88.9
96	1.3	0.0	1.0	4.4	4.6	17.3	85.5	32.0	0.5	0.8	3.0	3.2	153.6
97	0.5	1.0	1.4	1.2	11.4	7.2	86.0	19.1	23.8	1.6	0.4	1.2	154.8
98	0.0	1.1	5.6	11.8	6.2	10.5	50.9	54.5	0.0	6.2	0.0	0.0	146.8
99	0.0	0.0	3.3	0.2	7.5	7.1	19.6	13.1	23.5	0.1	1.3	0.4	76.1
00	1.2	0.6	0.3	11.9	5.3	5.2	18.0	35.4	1.9	1.6	0.4	0.8	82.6
01	0.0	0.1	1.1	0.0	3.5	40.9	49.6	13.3	5.3	8.3	0.0	4.3	126.4
02	4.1	0.0	0.2	5.5	6.1	0.2	21.9	4.3	1.7	5.6	3.4	7.4	60.4
Max	4.1	6.1	7.1	12.4	37.7	40.9	175.3	76.6	77.4	14.0	8.5	7.4	268.8
Average	0.6	1.1	1.7	2.9	9.2	17.4	40.1	25.5	11.3	3.8	1.7	1.4	116.7
Min	0.0	0.0	0.0	0.0	0.0	0.0	3.7	1.7	0.0	0.0	0.0	0.0	60.2

MANDALGOVI

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
70	0.0	0.2	5.2	1.4	0.4	8.3	72.3	36.7	82.5	16.0	3.3	1.7	228.0
71	1.9	5.8	2.9	5.1	15.2	49.4	34.3	73.3	5.5	3.1	0.0	1.1	197.6
72	2.5	0.0	0.7	2.4	16.1	93.3	12.6	15.6	3.6	16.6	8.4	0.0	171.8
73	0.0	1.6	0.3	2.5	5.6	50.4	44.0	76.5	39.2	21.1	0.9	0.2	242.3
74	0.4	1.5	1.0	0.0	0.7	8.3	42.3	31.2	19.2	1.9	0.0	2.0	108.5
75	0.2	3.7	0.6	1.1	3.9	11.9	18.7	34.2	56.8	0.6	0.0	0.0	131.7
76	0.0	0.0	6.8	8.7	18.8	34.5	48.0	31.0	13.2	0.4	3.5	3.0	167.9
77	0.0	2.5	1.3	0.0	28.0	16.0	63.7	56.3	2.0	0.2	0.0	2.6	172.6
78	0.0	2.1	1.4	0.0	9.6	24.2	52.6	17.6	0.0	1.4	0.6	0.4	109.9
79	0.6	0.4	4.5	10.8	2.2	49.7	36.5	22.5	14.6	0.0	3.8	0.0	145.6
80	0.0	0.0	1.8	0.4	0.2	15.0	2.3	48.3	1.8	7.5	0.7	0.0	78.0
81	1.6	0.0	7.3	5.1	3.2	2.4	28.4	38.4	22.9	3.1	6.6	0.0	119.0
82	0.0	0.0	0.0	0.0	5.0	39.9	61.6	62.6	32.1	0.3	0.7	0.8	203.0
83	0.0	0.0	0.1	0.0	23.7	33.6	35.2	26.9	22.6	2.9	2.7	0.0	147.7
84	0.3	4.3	0.8	0.0	2.2	12.8	37.7	50.8	21.8	6.1	0.0	3.1	139.9
85	0.0	4.8	0.2	5.4	0.0	8.0	69.6	12.1	7.5	0.2	1.0	0.3	109.1
86	0.4	0.0	0.0	0.0	6.4	15.6	39.7	22.0	18.4	1.3	4.6	5.8	114.2
87	1.7	0.8	3.5	1.1	10.2	12.9	26.1	66.3	25.5	22.5	5.0	3.9	179.5
88	2.7	2.5	0.0	1.5	31.9	7.4	15.2	43.4	4.8	8.8	0.0	0.0	118.2
89	0.0	3.1	0.5	5.5	1.1	22.3	37.4	32.0	5.6	0.0	0.5	3.2	111.2
90	0.3	3.1	1.8	2.0	18.9	14.9	52.5	57.9	6.4	5.2	4.8	1.2	169.0
91	0.0	0.8	4.2	1.8	0.6	54.3	22.9	61.1	23.6	1.8	0.7	0.7	172.5
92	0.0	0.5	2.7	15.3	7.7	21.3	41.9	58.4	5.4	1.7	6.1	1.2	162.2
93	0.0	2.5	2.1	7.1	2.0	34.0	76.4	23.4	18.1	20.0	8.3	1.2	195.1
94	0.0	0.0	2.4	0.6	3.6	19.6	86.1	85.7	4.4	3.6	1.1	1.9	209.0
95	0.0	0.0	3.4	2.3	19.5	8.2	30.1	55.4	2.3	0.3	0.0	4.1	125.6
96	0.4	0.0	2.5	0.0	1.1	31.4	47.7	17.9	5.0	8.9	4.0	1.0	119.9
97	0.0	0.2	2.3	0.0	7.9	37.0	85.0	41.9	13.8	1.5	0.3	0.6	190.5
98	1.6	2.8	2.2	10.2	20.4	10.2	103.1	87.0	2.6	0.6	1.6	0.0	242.3
99	0.0	1.0	0.2	1.0	9.1	15.6	18.2	38.0	24.8	0.3	2.4	0.0	110.6
00	2.8	0.0	4.0	7.5	4.7	22.4	0.9	69.1	0.5	1.3	1.0	3.1	117.3
01	0.6	0.3	0.8	1.1	7.9	19.1	52.5	43.9	5.6	5.8	4.6	4.1	146.3
02	3.7	0.0	3.8	18.2	25.3	23.1	11.6	24.8	3.8	1.3	1.8	1.3	118.7
Max	3.7	5.8	7.3	18.2	31.9	93.3	103.1	87.0	82.5	22.5	8.4	5.8	242.3
Average	0.7	1.3	2.2	3.6	9.5	25.1	42.6	44.3	15.6	5.0	2.4	1.5	153.8
Min	0.0	0.0	0.0	0.0	0.0	2.4	0.9	12.1	0.0	0.0	0.0	0.0	78.0

(2) Mean Monthly Lowest Temperature

GURVANTES

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
71	-17.7	-16.0	-9.3	-0.3	6.6	11.2	14.1	13.1	6.7	-0.8	-9.0	-17.1
72	-19.1	-20.8	-7.4	0.0	8.5	13.7	15.0	13.8	5.5	-1.6	-9.1	-17.2
73	-18.0	-15.2	-8.3	1.3	5.8	12.5	13.4	12.8	8.2	-1.7	-8.3	-15.8
74	-18.8	-17.5	-11.7	0.3	7.2	12.2	15.4	13.3	6.0	-4.8	-8.6	-22.2
75	-17.2	-15.2	-8.1	-2.4	4.0	12.2	13.9	14.0	8.6	-0.6	-10.3	-19.1
76	-18.7	-12.7	-11.7	-1.1	5.5	11.9	13.7	11.7	6.9	-0.1	-13.5	-17.4
77	-23.5	-15.4	-8.0	-1.8	4.4	12.3	13.5	14.4	7.8	0.3	-10.0	-13.5
78	-17.7	-16.1	-9.1	1.3	8.0	13.3	14.7	13.0	7.9	-2.6	-9.5	-14.2
79	-16.4	-11.0	-9.9	-2.2	5.4	12.2	13.9	13.5	6.4	0.9	-11.5	-15.1
80	-19.8	-17.0	-11.2	-1.7	7.0	13.0	15.6	12.7	7.4	-1.1	-6.2	-15.4
81	-20.0	-16.0	-7.0	1.2	6.2	12.7	16.2	12.6	8.2	-5.3	-13.6	-16.4
82	-15.0	-14.2	-6.8	-0.1	7.7	12.0	14.9	13.0	7.3	2.1	-9.3	-15.7
83	-17.6	-15.3	-8.6	-2.3	8.3	12.3	14.6	12.6	7.7	-0.1	-7.7	-15.1
84	-20.7	-19.3	-9.4	-1.0	8.7	12.9	13.8	11.9	7.1	-0.3	-9.2	-20.6
85	-17.8	-16.0	-12.9	0.4	6.8	13.4	14.2	13.8	6.0	0.0	-10.6	-17.3
86	-15.5	-16.6	-8.9	-2.6	9.7	13.3	15.7	13.9	7.1	-2.6	-13.1	-14.7
87	-14.8	-11.5	-10.2	2.3	6.7	12.1	15.4	13.4	8.8	-1.5	-10.4	-14.2
88	-18.5	-17.7	-12.0	-1.1	6.7	14.0	15.5	14.4	7.3	-0.6	-7.8	-14.3
89	-17.8	-15.6	-9.6	0.7	7.7	13.4	15.1	13.6	6.9	0.4	-11.6	-11.1
90	-17.8	-15.6	-6.0	-2.7	6.8	11.9	14.9	13.1	8.1	2.0	-7.3	-14.3
91	-16.2	-13.3	-7.5	-2.3	6.2	12.8	16.1	14.9	8.0	0.2	-8.0	-15.4
92	-17.0	-14.6	-9.2	1.5	7.1	13.1	15.7	13.0	5.7	-3.2	-10.4	-14.7
93	-19.2	-12.6	-5.2	-1.7	5.4	12.5	14.2	11.7	7.0	-0.7	-11.6	-17.6
94	-17.2	-14.6	-10.4	1.7	8.0	13.5	15.7	14.5	6.0	-2.7	-4.8	-15.8
95	-18.7	-13.2	-8.0	-1.4	5.1	12.6	15.7	13.9	8.7	0.7	-7.7	-15.8
96	-20.0	-16.6	-11.0	-1.3	7.0	12.6	16.2	14.1	8.1	0.5	-10.8	-13.0
97	-17.0	-14.3	-5.4	1.1	9.0	12.8	16.1	14.8	6.7	-0.7	-10.1	-15.8
98	-19.9	-11.1	-7.8	3.3	6.8	14.1	16.1	14.0	11.3	1.1	-4.8	-13.6
99	-17.0	-13.8	-9.8	1.6	7.7	14.0	17.0	15.3	7.6	-0.5	-8.4	-14.2
00	-20.3	-15.1	-7.4	-0.2	9.1	14.0	18.5	13.8	8.8	-2.6	-12.2	-13.2
01	-17.5	-14.2	-7.5	0.2	8.0	14.7	16.8	14.8	9.5	1.2	-7.5	-19.2
02	-14.8	-11.1	-7.8	-0.8	8.9	15.7	17.5	16.2	7.4	-0.7	-8.6	-19.3
Max	-14.8	-11.0	-5.2	3.3	9.7	15.7	18.5	16.2	11.3	2.1	-4.8	-11.1
Average	-18.0	-15.0	-8.8	-0.3	7.1	13.0	15.3	13.6	7.5	-0.8	-9.4	-15.9
Min	-23.5	-20.8	-12.9	-2.7	4.0	11.2	13.4	11.7	5.5	-5.3	-13.6	-22.2

DALANZADGAD

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
70	-22.8	-17.8	-15.4	-1.9	6.3	13.0	16.4	15.1	5.3	-0.7	-13.0	-19.0
71	-19.3	-17.9	-11.4	0.4	7.0	11.0	14.9	13.2	6.6	-2.1	-11.0	-22.1
72	-21.4	-21.8	-7.2	-1.1	8.5	13.8	15.6	13.4	5.0	-2.1	-10.6	-17.6
73	-20.1	-17.3	-9.6	0.0	5.3	13.0	13.8	12.3	7.8	-2.7	-9.9	-17.7
74	-20.6	-19.3	-11.6	-0.4	7.7	12.7	14.6	13.0	5.3	-5.6	-10.2	-22.4
75	-19.0	-17.1	-8.4	-1.7	5.5	12.8	14.0	14.9	9.3	-1.6	-10.3	-20.4
76	-19.2	-13.5	-12.3	-2.2	6.0	11.6	14.4	12.2	7.7	-0.6	-13.1	-18.4
77	-25.3	-18.5	-8.6	-1.1	6.1	12.2	15.1	14.0	8.4	0.2	-11.2	-15.9
78	-19.9	-17.1	-9.6	1.8	7.3	14.2	14.3	13.6	7.9	-4.0	-10.2	-16.5
79	-18.7	-11.8	-9.4	-1.9	6.6	12.7	15.0	14.3	6.5	0.9	-13.2	-16.4
80	-20.4	-18.1	-11.7	-2.8	7.1	13.3	16.3	13.4	6.9	-1.9	-7.3	-17.8
81	-22.6	-17.1	-7.7	1.7	6.7	13.6	17.4	12.2	8.4	-5.4	-13.9	-17.8
82	-18.3	-15.6	-8.1	0.3	7.4	11.8	15.2	13.5	7.7	1.5	-10.2	-17.6
83	-20.2	-19.6	-9.4	-2.3	9.1	12.3	14.5	12.9	7.5	0.1	-8.8	-17.3
84	-22.3	-21.2	-10.5	-1.8	9.0	12.4	14.6	12.2	7.6	-0.8	-11.3	-22.8
85	-19.8	-17.9	-13.9	-0.4	7.3	13.2	13.7	13.5	5.8	-0.3	-12.6	-19.5
86	-19.1	-18.5	-8.8	-2.6	9.3	13.6	14.8	14.2	6.7	-2.3	-14.5	-16.8
87	-17.9	-13.1	-11.4	2.6	7.1	12.3	15.2	13.0	8.8	-2.5	-10.1	-15.9
88	-20.4	-18.3	-11.9	-1.7	6.8	14.3	15.8	14.6	6.3	-0.7	-8.7	-16.3
89	-18.3	-15.9	-8.8	0.9	8.0	12.9	15.3	14.5	6.8	0.2	-12.0	-13.2
90	-20.6	-15.9	-6.1	-1.7	8.0	11.3	15.3	13.0	6.9	1.4	-8.9	-16.4
91	-18.9	-15.7	-9.2	-2.5	6.7	12.2	15.9	16.3	7.8	-0.4	-9.5	-17.4
92	-18.8	-16.4	-8.9	1.0	8.3	12.8	15.7	14.7	6.8	-3.6	-11.2	-17.2
93	-20.8	-13.1	-7.3	-2.0	6.7	12.9	14.8	11.9	7.5	-0.9	-13.4	-19.8
94	-18.4	-15.5	-10.6	2.2	8.1	14.2	15.9	14.6	6.6	-3.3	-6.5	-16.9
95	-19.2	-14.7	-8.2	-2.0	5.1	12.3	16.4	15.0	8.3	1.5	-9.0	-17.3
96	-20.8	-17.8	-11.2	-0.7	7.7	11.8	16.0	13.3	8.0	-0.6	-12.4	-14.9
97	-19.4	-14.7	-5.4	1.3	8.5	13.6	17.0	15.6	6.7	0.1	-10.4	-15.8
98	-20.9	-11.3	-7.3	4.7	7.6	12.4	16.8	13.9	10.9	1.4	-6.2	-14.1
99	-17.8	-13.5	-9.7	2.5	8.7	15.4	18.5	15.8	7.9	-0.3	-8.2	-14.9
00	-21.6	-16.2	-7.2	0.1	8.9	14.8	18.8	14.7	10.2	-2.7	-12.6	-14.1
01	-18.8	-15.0	-7.4	1.6	8.3	15.1	17.8	15.4	10.2	1.1	-8.4	-19.7
02	-15.0	-12.1	-7.3	-0.2	8.7	15.8	18.2	16.9	7.7	-1.8	-11.1	-18.7
Max	-15.0	-11.3	-5.4	4.7	9.3	15.8	18.8	16.9	10.9	1.5	-6.2	-13.2
Average	-19.9	-16.3	-9.4	-0.3	7.4	13.1	15.7	14.0	7.5	-1.2	-10.6	-17.5
Min	-25.3	-21.8	-15.4	-2.8	5.1	11.0	13.7	11.9	5.0	-5.6	-14.5	-22.8

KHUVSGUIL

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
70	-20.4	-17.4	-15.6	-0.3	8.5	15.3	17.6	16.7	7.1	1.2	-10.8	-18.1
71	-18.4	-18.0	-11.7	0.0	8.0	13.2	18.1	16.7	7.9	-1.4	-9.1	-20.2
72	-18.6	-19.0	-6.1	0.2	8.7	14.7	18.1	15.0	7.4	-0.7	-10.9	-16.8
73	-18.8	-17.0	-6.9	1.0	6.7	15.1	17.1	14.7	9.9	-0.9	-8.8	-16.4
74	-19.4	-18.5	-11.3	0.6	7.9	13.5	17.1	16.9	7.0	-3.5	-9.1	-21.3
75	-18.5	-17.5	-8.4	0.6	7.3	14.7	17.6	17.4	10.9	1.4	-6.8	-19.5
76	-19.6	-12.2	-10.7	-1.2	5.8	12.6	16.4	14.3	9.1	0.2	-13.1	-18.7
77	-26.0	-19.2	-8.5	0.4	7.3	13.1	18.1	15.2	9.8	1.1	-9.0	-14.6
78	-19.8	-17.5	-9.1	0.7	8.1	14.7	15.8	15.4	9.7	-0.6	-8.4	-16.3
79	-17.9	-13.2	-9.0	-1.4	8.0	14.1	17.2	15.3	6.7	1.6	-12.3	-16.8
80	-21.8	-19.6	-10.7	-2.7	8.5	15.3	19.1	16.2	6.7	-1.0	-7.3	-20.0
81	-24.2	-17.6	-6.5	2.3	7.2	14.9	19.9	14.4	9.5	-3.3	-14.0	-17.8
82	-20.1	-15.2	-8.6	1.9	8.1	14.2	17.4	16.3	9.3	3.2	-10.1	-18.2
83	-19.4	-20.1	-8.2	-0.5	10.1	13.2	17.6	16.1	9.4	1.0	-7.2	-16.0
84	-22.5	-20.0	-11.1	-0.5	9.2	14.5	17.6	15.7	8.5	0.4	-10.1	-19.5
85	-20.1	-19.1	-13.0	0.5	9.9	14.8	16.7	15.5	7.7	1.2	-12.8	-21.0
86	-20.4	-18.5	-8.1	-1.1	10.2	15.6	17.0	15.9	8.5	-0.5	-14.2	-19.5
87	-20.8	-16.6	-11.4	3.0	8.3	13.4	17.2	16.2	10.2	-0.2	-9.8	-15.4
88	-20.6	-18.6	-12.2	-0.8	7.5	15.0	18.6	15.9	9.6	0.9	-9.2	-16.4
89	-16.7	-15.0	-8.5	2.5	9.4	13.5	17.4	16.4	8.0	1.1	-10.4	-15.4
90	-22.1	-15.0	-4.2	-1.1	8.2	13.1	18.1	15.5	9.9	3.5	-8.2	-16.9
91	-20.3	-15.5	-9.6	-1.3	8.1	14.0	17.3	19.0	10.0	-0.3	-10.7	-17.8
92	-19.1	-16.0	-7.9	1.0	11.1	14.0	18.4	16.9	8.7	-0.9	-9.5	-16.0
93	-20.0	-13.5	-7.0	-1.0	8.3	14.4	17.3	14.7	9.1	0.0	-12.1	-17.9
94	-18.3	-15.3	-10.4	3.4	8.3	16.5	19.3	16.1	8.6	-1.2	-6.1	-17.9
95	-19.1	-14.6	-8.8	-1.8	6.3	15.1	18.1	17.4	9.6	2.4	-6.9	-16.1
96	-20.2	-18.0	-9.4	0.3	9.3	13.7	18.4	15.8	9.4	0.4	-11.9	-14.2
97	-20.8	-15.3	-5.1	1.9	8.5	15.5	18.9	17.2	7.3	-1.5	-9.0	-15.8
98	-21.1	-10.3	-6.9	5.7	8.4	14.2	18.5	15.2	11.6	2.3	-8.6	-16.1
99	-19.5	-13.9	-10.5	2.6	9.8	16.6	20.3	16.9	10.2	-1.2	-9.1	-17.2
00	-23.8	-18.3	-7.8	0.3	10.2	16.4	21.1	16.9	10.7	-1.2	-13.1	-16.7
01	-21.3	-16.3	-8.8	1.5	8.8	16.8	19.4	16.1	11.4	2.3	-9.2	-20.1
02	-15.1	-11.5	-5.7	0.5	9.9	15.6	18.6	16.0	8.8	-2.8	-12.4	-19.1
Max	-15.1	-10.3	-4.2	5.7	11.1	16.8	21.1	19.0	11.6	3.5	-6.1	-14.2
Average	-20.1	-16.5	-9.0	0.5	8.5	14.6	18.0	16.1	9.0	0.1	-10.0	-17.6
Min	-26.0	-20.1	-15.6	-2.7	5.8	12.6	15.8	14.3	6.7	-3.5	-14.2	-21.3

ZAMIN UUD

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
70	-24.2	-20.3	-19.1	-2.2	6.8	13.5	16.0	15.0	5.6	-1.8	-13.5	-22.9
71	-23.0	-23.4	-15.2	-4.2	5.8	11.0	16.4	13.9	6.2	-4.1	-10.7	-24.2
72	-25.8	-24.7	-9.2	-1.7	5.2	12.7	16.5	12.5	6.1	-2.7	-12.8	-21.1
73	-23.0	-22.1	-10.4	-0.8	5.9	13.3	16.1	13.0	7.7	-2.7	-11.3	-20.0
74	-22.9	-22.2	-14.1	-3.1	5.0	10.5	15.8	15.1	6.6	-5.8	-12.6	-24.9
75	-22.5	-21.5	-10.7	-1.1	5.6	12.7	16.8	15.5	8.7	-1.8	-8.5	-22.3
76	-22.6	-15.4	-12.1	-3.0	4.6	10.5	15.1	12.7	7.1	-2.2	-15.1	-20.6
77	-28.6	-21.4	-9.8	-2.0	4.2	9.2	16.7	14.0	7.5	-1.8	-15.2	-22.2
78	-26.1	-23.6	-11.1	-3.4	5.6	13.1	14.1	13.4	7.5	-2.7	-12.0	-20.2
79	-20.7	-17.0	-11.0	-3.1	5.9	12.7	16.3	13.7	4.8	-0.7	-13.8	-19.9
80	-24.3	-22.5	-13.1	-5.3	6.3	13.7	18.0	15.2	5.6	-3.0	-9.9	-21.8
81	-30.1	-24.5	-9.2	1.0	5.7	12.8	18.6	13.9	7.9	-4.9	-16.2	-20.5
82	-23.9	-18.5	-10.6	-0.9	6.9	12.1	16.1	14.5	6.4	-0.3	-13.0	-21.1
83	-23.8	-23.9	-11.7	-2.6	8.1	12.0	15.8	15.4	7.4	-1.7	-10.2	-19.4
84	-25.9	-23.1	-14.5	-3.0	7.1	13.3	16.1	14.4	6.3	-1.8	-12.3	-21.3
85	-24.6	-21.0	-15.8	-2.0	8.1	12.8	15.8	14.3	5.4	-1.3	-16.5	-27.2
86	-27.2	-25.1	-9.9	-2.4	7.7	13.4	15.0	13.8	6.6	-1.3	-14.3	-23.7
87	-27.0	-23.9	-13.0	0.9	5.8	10.9	15.2	14.6	8.3	-1.0	-11.7	-18.0
88	-22.1	-21.4	-14.3	-2.0	5.7	10.9	17.4	15.2	7.1	-0.9	-11.6	-20.7
89	-21.2	-21.4	-11.1	0.1	7.5	12.4	16.1	14.6	6.0	-1.8	-13.6	-21.0
90	-29.2	-21.4	-6.0	-2.2	6.4	11.4	16.9	14.1	7.5	1.1	-9.8	-20.3
91	-22.8	-18.6	-12.3	-2.8	6.3	12.4	15.6	17.3	7.1	-2.3	-12.6	-22.1
92	-25.7	-20.1	-10.3	-1.1	9.3	11.4	15.5	14.7	6.5	-2.7	-14.2	-20.4
93	-26.7	-20.1	-8.8	-2.3	7.6	13.5	16.5	13.5	7.8	-1.8	-13.5	-21.0
94	-22.4	-19.2	-12.1	1.4	7.0	15.4	18.8	15.7	6.9	-1.7	-7.8	-21.7
95	-22.6	-17.7	-10.6	-2.2	4.5	13.7	17.3	15.9	8.4	0.7	-9.3	-19.9
96	-22.9	-21.1	-10.7	-2.5	7.1	12.5	16.3	14.5	7.0	-1.3	-13.4	-16.4
97	-24.9	-19.6	-8.0	-1.8	7.2	14.1	17.8	15.5	6.0	-3.3	-11.6	-18.5
98	-23.6	-13.1	-7.9	4.3	7.7	12.8	17.3	14.4	9.8	0.7	-12.1	-20.9
99	-23.0	-16.6	-12.6	0.5	7.6	14.2	18.4	15.0	8.4	-2.8	-10.9	-20.7
00	-29.2	-25.4	-9.9	-0.9	8.1	14.5	19.1	15.8	9.1	-3.9	-15.7	-21.7
01	-25.6	-18.9	-10.4	-0.9	7.4	15.2	17.5	15.3	9.0	0.0	-11.6	-22.3
02	-17.2	-14.3	-7.4	-0.2	9.1	15.3	18.5	16.2	7.5	-4.4	-14.6	-22.1
Max	-17.2	-13.1	-6.0	4.3	9.3	15.4	19.1	17.3	9.8	1.1	-7.8	-16.4
Average	-24.4	-20.7	-11.3	-1.6	6.6	12.7	16.6	14.6	7.1	-2.0	-12.5	-21.2
Min	-30.1	-25.4	-19.1	-5.3	4.2	9.2	14.1	12.5	4.8	-5.8	-16.5	-27.2

SAIKHAN

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
70	-18.1	-14.8	-13.5	0.0	7.5	14.7	17.7	16.0	6.2	0.7	-10.7	-15.4
71	-16.0	-16.0	-9.9	1.7	7.8	12.2	15.7	14.4	8.1	0.4	-7.1	-17.7
72	-16.2	-16.8	-4.8	1.2	10.5	15.1	16.8	15.5	7.5	0.3	-7.8	-13.9
73	-14.9	-15.3	-5.7	1.8	6.9	14.6	15.6	13.9	9.9	-0.1	-7.0	-13.6
74	-17.0	-16.4	-9.6	2.0	8.7	13.9	16.7	15.8	7.5	-2.5	-7.0	-20.3
75	-15.4	-14.5	-6.2	-0.2	6.5	13.7	15.3	16.1	10.3	0.3	-8.3	-18.4
76	-16.4	-11.2	-10.6	-1.1	6.4	13.1	14.6	12.8	8.9	1.1	-11.9	-17.8
77	-24.0	-16.9	-7.3	-0.2	6.6	13.7	16.2	15.0	9.7	2.0	-7.6	-12.2
78	-16.6	-13.9	-7.4	3.1	8.4	14.8	15.4	14.0	9.0	-1.0	-7.6	-14.8
79	-17.3	-10.2	-8.6	-2.0	7.4	13.4	15.4	14.8	6.5	1.6	-12.8	-13.8
80	-18.8	-16.4	-11.8	-2.3	7.0	13.6	17.5	13.6	7.7	-1.3	-5.6	-15.9
81	-21.5	-15.3	-6.2	3.0	7.5	14.1	18.1	13.5	9.4	-3.6	-14.8	-16.7
82	-16.4	-14.1	-7.1	2.6	8.5	12.7	16.5	14.9	8.8	2.9	-8.4	-15.2
83	-16.7	-17.4	-8.2	-1.2	9.8	12.6	16.0	14.6	8.4	1.7	-6.7	-15.6
84	-20.9	-20.7	-9.1	-0.5	9.5	13.5	15.8	12.2	8.6	1.0	-9.3	-21.1
85	-17.9	-17.1	-13.9	0.8	7.6	13.9	15.0	13.6	6.8	1.4	-11.3	-17.4
86	-16.5	-16.8	-7.7	-1.6	10.5	15.1	16.1	15.0	8.3	-0.8	-13.8	-16.4
93	-18.0	-12.8	-6.8	-0.4	7.0	13.5	15.7	13.5	9.6	1.0	-12.0	-17.1
94	-15.9	-15.1	-8.7	3.1	9.5	15.2	17.1	15.6	7.8	-2.1	-4.3	-16.6
95	-17.2	-12.9	-7.1	-0.3	5.7	13.3	17.1	16.2	9.4	2.7	-6.5	-15.2
96	-19.9	-16.4	-9.8	0.5	9.6	12.9	16.9	14.8	8.8	0.6	-11.8	-12.5
97	-17.3	-13.4	-3.9	2.5	9.0	14.7	17.4	16.3	7.7	1.3	-8.9	-13.4
98	-19.6	-11.2	-7.9	5.0	8.5	13.7	17.6	15.0	11.5	2.3	-4.6	-12.2
99	-16.2	-12.2	-9.7	3.0	9.5	15.8	19.0	17.1	7.8	0.9	-5.7	-14.0
00	-21.3	-15.1	-6.0	1.4	9.9	15.6	19.2	15.2	10.4	-2.0	-11.3	-12.2
01	-17.6	-13.0	-5.8	2.2	8.7	15.6	18.1	16.5	11.2	2.1	-6.3	-19.5
02	-13.6	-10.5	-5.8	0.5	9.9	16.8	19.6	17.9	9.2	-0.2	-9.1	-17.9
Max	-13.6	-10.2	-3.9	5.0	10.5	16.8	19.6	17.9	11.5	2.9	-4.3	-12.2
Average	-17.7	-14.7	-8.1	0.9	8.3	14.1	16.7	15.0	8.7	0.4	-8.8	-15.8
Min	-24.0	-20.7	-13.9	-2.3	5.7	12.2	14.6	12.2	6.2	-3.6	-14.8	-21.1

TSOGTOVOO

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
71	-20.8	-19.5	-13.3	-1.5	5.8	11.4	15.2	13.6	5.1	-3.7	-10.4	-21.7
72	-20.4	-21.4	-8.4	-1.5	7.2	13.5	15.6	12.8	4.5	-3.1	-12.1	-18.4
73	-19.7	-18.5	-9.8	-1.3	3.8	12.9	14.4	12.1	7.4	-2.6	-11.2	-18.2
74	-21.6	-21.1	-12.7	-1.2	5.8	12.0	15.1	15.2	4.3	-5.3	-10.5	-24.4
75	-20.4	-18.2	-9.4	-2.9	4.4	12.2	14.1	14.9	9.1	-1.6	-10.0	-20.9
76	-20.0	-14.1	-13.4	-2.6	3.9	11.5	14.2	11.8	6.5	-1.6	-15.0	-20.1
77	-26.8	-19.8	-10.1	-3.2	4.4	12.4	15.8	14.1	7.9	-0.7	-11.4	-16.2
78	-20.9	-18.5	-10.8	-0.5	6.2	13.7	14.6	13.4	6.4	-4.1	-11.3	-16.9
79	-19.3	-13.4	-10.9	-3.6	6.2	12.6	15.4	13.6	5.7	0.1	-13.9	-17.1
80	-21.7	-19.2	-12.9	-4.6	5.9	13.2	16.5	13.8	6.1	-2.9	-9.5	-19.7
81	-24.5	-18.0	-8.4	0.9	5.7	12.9	17.8	12.3	7.6	-5.8	-15.5	-19.3
82	-20.4	-17.3	-9.7	0.1	6.1	12.1	15.5	14.0	6.9	-0.2	-10.9	-18.9
83	-21.0	-19.6	-10.4	-3.2	7.3	11.8	15.3	13.9	7.2	0.0	-9.9	-18.4
84	-23.4	-22.1	-11.9	-2.8	8.1	12.5	14.7	12.7	7.4	-1.5	-11.3	-22.5
85	-21.1	-18.9	-15.4	-0.1	7.0	13.1	14.0	13.1	5.9	-1.0	-13.7	-21.2
86	-20.9	-19.5	-10.2	-3.6	8.2	14.1	15.5	14.6	6.7	-2.2	-15.4	-19.3
87	-20.0	-16.4	-12.5	0.4	6.0	11.5	15.0	13.9	8.2	-5.0	-12.2	-17.1
88	-21.6	-19.5	-12.1	-2.7	6.1	13.0	15.6	15.0	6.2	-2.0	-10.9	-18.0
89	-19.2	-17.9	-10.8	0.0	7.2	11.6	15.6	13.8	5.9	-1.1	-13.3	-15.8
90	-23.1	-16.8	-6.7	-3.8	6.7	10.9	15.4	13.0	6.7	1.2	-9.5	-17.3
91	-20.3	-16.0	-9.5	-2.7	5.3	13.0	14.9	15.5	7.2	-1.2	-9.5	-18.4
92	-22.1	-18.9	-9.4	-0.2	7.6	12.2	15.2	13.9	6.1	-3.5	-10.9	-17.4
93	-23.5	-14.9	-8.0	-2.8	5.6	12.2	15.2	12.5	7.2	-1.5	-14.5	-20.3
94	-20.0	-17.2	-12.1	1.9	7.3	14.5	16.5	14.5	6.0	-3.4	-7.1	-18.6
95	-21.0	-16.5	-9.7	-3.5	4.1	11.9	15.9	14.9	7.3	0.5	-9.4	-18.1
96	-21.5	-19.3	-12.0	-1.9	7.5	11.1	16.6	13.3	6.6	-1.5	-14.3	-15.5
97	-21.8	-16.6	-6.0	0.0	7.4	13.1	16.3	15.5	5.6	-2.2	-10.5	-17.1
98	-22.2	-12.3	-8.8	3.6	6.7	12.1	16.9	14.1	9.4	0.0	-8.1	-16.6
99	-19.5	-15.4	-11.9	0.6	8.1	14.6	19.0	14.1	7.7	-2.8	-9.6	-18.5
00	-25.1	-19.3	-8.7	-1.5	7.9	14.7	18.6	14.5	9.2	-3.7	-14.0	-16.6
01	-21.5	-16.7	-8.9	-0.2	6.6	15.4	17.8	15.7	9.3	0.0	-9.9	-21.3
02	-16.4	-13.6	-8.4	-1.9	8.4	15.4	18.1	16.2	7.0	-2.7	-13.7	-21.6
Max	-16.4	-12.3	-6.0	3.6	8.4	15.4	19.0	16.2	9.4	1.2	-7.1	-15.5
Average	-21.3	-17.7	-10.4	-1.4	6.4	12.8	15.8	13.9	6.9	-2.0	-11.5	-18.8
Min	-26.8	-22.1	-15.4	-4.6	3.8	10.9	14.0	11.8	4.3	-5.8	-15.5	-24.4

SAINSHAND

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec
70	-21.6	-18.6	-17.1	-1.6	6.8	15.0	17.1	16.1	6.6	-1.0	-14.3	-22.3
71	-22.0	-21.5	-14.1	-1.8	6.5	13.4	16.8	15.0	6.7	-2.9	-9.6	-20.8
72	-21.4	-19.8	-8.2	0.0	7.0	14.1	17.0	13.7	6.6	-1.8	-11.6	-18.7
73	-20.8	-18.9	-8.7	-0.3	6.2	14.6	16.7	13.6	9.1	-2.1	-10.0	-17.7
74	-21.3	-20.6	-12.4	-0.5	6.6	12.0	17.3	16.7	6.7	-5.0	-11.8	-22.6
75	-20.4	-18.5	-9.2	-0.8	6.7	13.9	17.3	16.7	10.0	-0.2	-8.9	-20.8
76	-20.2	-13.8	-11.7	-2.4	5.3	12.7	16.5	13.8	9.0	-1.6	-14.9	-20.8
77	-27.0	-20.5	-9.2	-1.4	6.4	13.5	17.6	14.5	7.9	-1.1	-11.1	-18.1
78	-22.0	-19.8	-10.3	-0.5	6.8	14.2	15.7	14.3	8.7	-2.3	-10.6	-19.1
79	-19.9	-16.0	-10.1	-4.0	7.3	14.8	16.8	14.1	6.4	0.4	-14.3	-19.8
80	-22.9	-19.9	-11.9	-4.2	7.1	14.8	18.2	16.2	5.9	-2.6	-9.3	-19.4
81	-23.4	-19.2	-7.8	2.1	7.0	14.4	19.4	13.8	8.6	-4.5	-15.9	-19.6
82	-22.2	-17.0	-9.7	1.1	7.1	13.7	16.9	15.6	7.6	1.0	-12.0	-19.0
83	-21.2	-20.5	-9.7	-2.2	8.1	12.4	16.5	15.3	7.9	-0.5	-9.5	-17.6
84	-23.3	-20.8	-12.5	-1.8	8.2	13.9	16.9	14.7	8.0	-0.8	-12.1	-21.4
85	-22.6	-21.2	-14.4	-0.9	8.2	13.7	16.1	14.8	6.2	-0.5	-13.9	-22.1
86	-21.6	-19.5	-9.2	-2.0	9.6	15.1	16.0	15.4	7.6	-1.4	-15.1	-23.0
87	-24.3	-21.3	-13.6	1.6	6.9	12.1	16.2	15.4	8.7	-2.2	-12.6	-18.0
88	-23.0	-21.8	-13.2	-1.4	6.0	13.9	16.8	15.4	8.2	0.3	-9.8	-18.8
89	-19.8	-16.5	-9.6	1.5	8.9	12.5	16.6	15.6	6.6	-0.8	-12.3	-20.8
90	-27.4	-16.5	-5.3	-1.9	6.9	11.9	16.9	14.5	8.0	2.1	-10.5	-18.7
91	-21.1	-16.5	-10.9	-2.7	6.6	13.2	16.1	17.7	8.0	-0.9	-11.4	-20.2
92	-23.4	-17.8	-9.1	-0.5	9.0	12.1	16.0	15.0	7.8	-1.6	-11.3	-18.5
93	-21.6	-19.5	-9.2	-2.0	9.6	15.1	16.5	14.0	7.7	-1.7	-14.7	-21.1
94	-20.6	-16.4	-11.4	1.8	7.6	16.2	18.2	15.5	7.6	-2.1	-8.8	-21.2
95	-21.0	-16.2	-10.1	-2.4	4.7	14.3	17.4	16.2	8.6	0.7	-8.9	-19.3
96	-23.3	-20.0	-10.2	-1.0	9.1	12.4	17.0	14.6	7.4	-2.2	-15.1	-17.6
97	-23.7	-17.7	-7.3	-0.1	8.2	14.7	18.2	15.5	6.2	-1.8	-11.4	-18.2
98	-22.5	-13.2	-7.5	-3.8	7.3	12.3	17.6	14.8	9.3	-0.4	-12.6	-20.2
99	-22.6	-16.1	-13.6	-0.1	8.5	14.9	19.2	15.9	8.7	-2.1	-10.7	-18.7
00	-26.4	-20.8	-8.0	-0.4	9.3	16.0	20.3	15.5	9.1	-3.3	-16.5	-20.9
01	-26.4	-20.2	-9.8	0.2	7.5	15.4	18.2	15.9	10.0	0.5	-10.5	-20.9
02	-16.4	-13.7	-6.5	-0.3	9.3	16.1	18.5	15.5	7.9	-3.3	-13.9	-22.4
Max	-16.4	-13.2	-5.3	3.8	9.6	16.2	20.3	17.7	10.0	2.1	-8.8	-17.6
Average	-22.3	-18.5	-10.3	-0.8	7.5	13.9	17.2	15.2	7.9	-1.4	-12.0	-19.9
Min	-27.4	-21.8	-17.1	-4.2	4.7	11.9	15.7	13.6	5.9	-5.0	-16.5	-23.0

SAIKHANOVOO

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec
70	-28.5	-22.9	-18.8	-4.2	3.1	10.8	14.3	12.5	2.0	-5.3	-17.3	-24.0
71	-24.7	-22.0	-16.5	-3.0	3.4	9.9	13.5	11.2	4.1	-7.2	-13.6	-23.0
72	-25.0	-23.5	-9.6	-2.5	5.7	11.2	13.1	10.9	2.9	-5.1	-16.6	-21.8
73	-24.3	-21.5	-11.7	-3.3	3.2	11.8	13.3	10.5	6.7	-3.7	-12.1	-19.9
74	-25.2	-24.7	-14.8	-3.0	4.0	10.0	14.0	13.6	3.3	-7.0	-13.4	-28.9
75	-27.8	-25.8	-11.1	-4.3	3.4	10.8	12.8	12.9	6.6	-3.5	-12.2	-23.8
76	-22.8	-16.0	-15.3	-4.5	2.3	10.5	12.6	10.1	5.1	-3.7	-17.3	-22.8
77	-30.9	-24.5	-12.4	-4.7	2.2	11.0	14.5	12.0	5.4	-2.8	-13.0	-19.7
78	-23.9	-21.5	-12.9	-3.4	4.3	11.8	12.7	11.2	3.9	-5.9	-14.5	-20.7
79	-22.6	-16.5	-13.0	-5.1	3.4	12.0	13.9	12.0	3.6	-2.8	-15.2	-20.7
80	-23.6	-21.8	-15.8	-6.5	4.8	10.8	14.8	12.2	3.5	-4.9	-12.9	-21.9
81	-27.7	-21.7	-10.6	-1.5	4.7	11.6	15.2	11.4	5.6	-7.3	-18.3	-21.1
82	-23.1	-20.8	-13.0	-1.4	4.6	10.3	13.7	12.1	5.3	-2.2	-12.8	-21.6
83	-23.6	-21.4	-12.9	-5.2	6.3	9.4	13.4	12.8	4.6	-4.2	-12.8	-23.1
84	-26.1	-25.1	-13.5	-4.5	6.2	11.0	12.4	10.7	5.3	-3.9	-14.0	-26.6
85	-26.4	-24.2	-20.0	-2.2	3.9	10.7	12.8	11.0	3.0	-4.6	-14.7	-25.5
86	-23.5	-22.5	-14.3	-6.2	5.9	12.0	12.4	12.0	5.6	-4.6	-18.2	-24.9
87	-25.8	-22.2	-15.1	-0.8	4.6	9.0	13.3	12.4	5.7	-7.6	-18.3	-23.4
88	-28.2	-27.3	-20.1	-3.7	3.8	10.6	13.8	13.8	4.2	-4.4	-15.2	-22.2
89	-23.6	-21.9	-13.2	-2.4	5.8	10.3	13.9	12.9	4.8	-2.1	-15.8	-18.6
90	-26.4	-20.6	-9.4	-4.4	5.3	9.6	14.1	11.6	3.9	-1.6	-14.4	-22.9
91	-25.2	-20.1	-10.5	-4.1	3.4	11.3	13.2	13.9	5.7	-3.2	-13.1	-20.2
92	-25.3	-21.0	-12.9	-2.2	5.7	11.0	14.2	11.1	3.8	-6.4	-15.4	-23.9
93	-23.5	-22.5	-14.3	-6.2	5.9	12.0	13.8	11.5	5.3	-3.3	-17.9	-25.3
94	-26.2	-23.3	-13.7	-0.4	6.1	12.5	14.5	11.9	3.8	-5.7	-10.0	-26.3
95	-26.6	-20.6	-11.7	-4.2	2.1	10.2	14.9	13.5	5.2	-2.0	-13.1	-25.7
96	-29.2	-24.6	-14.1	-4.1	6.0	9.8	15.3	12.2	4.1	-4.3	-16.4	-18.9
97	-26.0	-20.0	-8.5	-0.9	5.7	11.9	15.4	14.0	4.7	-3.7	-12.7	-20.2
98	-25.1	-15.7	-10.8	1.6	5.8	10.3	15.9	12.9	7.0	-1.9	-10.3	-19.6
99	-21.9	-17.7	-14.2	-1.5	6.2	12.5	16.9	13.7	6.1	-4.1	-12.5	-19.7
00	-27.5	-22.3	-11.5	-2.6	7.2	13.8	17.5	13.4	6.4	-6.2	-17.7	-20.5
01	-24.7	-20.7	-11.1	-2.4	4.8	14.1	15.5	14.1	7.6	-2.8	-12.9	-25.1
02	-25.6	-21.3	-10.6	-3.6	6.6	12.7	17.1	14.7	4.5	-5.9	-18.4	-26.3
Max	-21.9	-15.7	-8.5	1.6	7.2	14.1	17.5	14.7	7.6	-1.6	-10.0	-18.6
Average	-25.5	-21.8	-13.3	-3.3	4.7	11.1	14.2	12.3	4.8	-4.4	-14.6	-22.7
Min	-30.9	-27.3	-20.1	-6.5	2.1	9.0	12.4	10.1	2.0	-7.6	-18.4	-28.9

MANDALGOVI

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
70	-22.1	-21.0	-18.3	-4.8	2.4	10.7	14.0	12.0	3.0	-4.1	-17.7	-24.3
71	-22.6	-22.6	-16.4	-3.1	4.0	9.5	12.8	11.4	3.1	-4.9	-11.1	-22.2
72	-23.5	-23.1	-10.3	-3.8	4.6	10.8	12.5	10.5	3.0	-4.3	-13.5	-19.5
73	-19.8	-19.7	-10.7	-3.7	2.9	11.2	12.4	9.9	6.1	-4.1	-12.3	-17.9
74	-22.4	-23.4	-15.1	-3.6	3.0	8.7	13.4	13.3	3.2	-7.5	-14.8	-25.0
75	-21.8	-22.3	-12.0	-4.7	3.0	10.2	12.5	12.4	6.5	-2.8	-11.6	-21.3
76	-20.1	-15.4	-14.1	-5.3	1.8	9.1	12.5	9.6	5.2	-4.5	-17.7	-23.1
77	-28.2	-23.1	-13.9	-5.1	2.2	9.4	13.2	11.1	4.5	-3.1	-13.0	-19.7
78	-22.7	-21.6	-12.7	-3.6	3.1	10.7	11.5	10.9	4.4	-6.2	-13.3	-19.9
79	-22.5	-16.5	-12.6	-6.1	4.0	11.0	12.7	10.5	2.4	-2.0	-16.3	-20.1
80	-23.0	-20.4	-15.2	-7.5	4.1	11.1	14.6	12.5	2.7	-4.7	-12.1	-20.9
81	-23.2	-20.3	-11.1	-1.1	3.2	10.5	14.5	10.4	5.2	-7.7	-19.1	-20.4
82	-22.1	-19.5	-12.2	-1.8	3.6	10.2	13.4	11.1	4.4	-1.6	-13.2	-20.8
83	-21.6	-21.3	-11.2	-6.2	5.3	8.3	12.2	11.3	4.8	-2.6	-11.0	-19.5
84	-23.4	-23.3	-14.7	-5.9	5.2	10.6	12.1	10.8	5.2	-4.0	-15.4	-23.5
85	-23.0	-21.2	-17.8	-3.7	3.9	10.2	12.5	10.2	2.7	-3.7	-15.2	-23.3
86	-21.3	-20.9	-12.4	-5.3	6.3	11.6	12.5	11.3	4.7	-6.4	-17.9	-22.7
87	-23.7	-20.8	-16.2	-1.6	3.9	7.7	12.5	11.5	5.2	-7.5	-17.8	-20.5
88	-26.4	-23.1	-16.2	-4.8	2.9	9.7	12.6	12.5	4.5	-9.0	-14.0	-11.2
89	-19.0	-19.3	-18.7	-11.7	-1.6	5.1	9.1	12.6	11.9	3.7	-2.5	-13.4
90	-19.1	-25.5	-18.4	-8.0	-5.7	4.6	8.4	12.8	10.5	4.9	0.3	-12.3
91	-20.7	-22.1	-18.4	-12.4	-5.7	3.6	11.0	12.6	13.8	5.1	-2.6	-12.3
92	-19.6	-17.0	-12.1	-3.0	6.8	9.7	13.1	11.2	3.5	-4.9	-13.2	-19.8
93	-23.1	-16.1	-9.5	-4.9	3.2	10.1	13.2	10.6	4.9	-2.7	-16.8	-22.4
94	-22.2	-20.0	-12.2	-1.1	5.3	12.6	13.6	11.2	4.0	-4.9	-9.9	-22.0
95	-21.9	-16.5	-11.9	-5.0	2.0	10.3	14.1	12.9	4.7	-2.5	-11.3	-20.7
96	-24.2	-20.6	-13.7	-3.7	5.7	8.7	14.5	11.9	4.6	-3.7	-15.7	-17.2
97	-21.4	-16.9	-7.7	-1.7	5.4	11.3	14.0	12.4	4.0	-3.1	-13.0	-18.7
98	-23.0	-14.8	-10.0	0.7	4.7	8.9	14.9	12.4	7.2	-2.0	-11.6	-18.8
99	-20.8	-15.9	-15.2	-2.1	6.3	12.0	16.8	12.6	5.5	-4.0	-11.2	-18.5
00	-26.1	-20.3	-9.8	-2.9	6.6	13.4	16.2	12.7	6.7	-6.0	-17.9	-19.7
01	-25.4	-19.5	-11.3	-2.9	4.4	13.6	14.8	13.6	7.3	-2.1	-12.4	-23.0
02	-20.4	-16.5	-8.9	-3.8	6.3	12.5	15.7	14.5	5.1	-5.4	-16.5	-21.8
Max	-19.0	-14.8	-7.7	0.7	6.8	13.6	16.8	14.5	13.8	5.1	0.3	-11.2
Average	-22.4	-20.0	-13.4	-4.4	3.4	9.9	13.1	11.7	5.3	-3.6	-13.1	-19.9
Min	-28.2	-25.5	-18.7	-12.4	-5.7	3.6	8.4	9.6	2.4	-9.0	-19.1	-25.0

(3) Mean Monthly Highest Temperature

GURVANTES

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec
71	-4.7	-3.9	2.6	13.5	19.7	23.6	25.0	24.1	17.0	12.0	3.5	-6.6
72	-5.7	-6.7	6.8	12.8	22.1	26.2	26.9	26.7	19.2	10.9	2.6	-4.6
73	-4.8	-2.8	5.5	13.1	18.1	24.7	25.9	24.5	20.1	10.2	4.2	-3.0
74	-6.4	-4.6	0.7	14.1	21.0	25.0	27.0	23.8	17.7	8.7	3.7	-9.8
75	-4.8	-1.0	5.4	11.6	18.3	25.7	25.9	26.8	20.3	12.2	2.4	-7.3
76	-5.0	0.7	1.8	12.3	21.0	25.1	25.8	24.0	19.6	12.5	-1.1	-6.4
77	-11.9	-2.1	6.5	12.8	17.8	23.9	25.3	26.4	20.2	12.2	1.7	-2.9
78	-5.5	-4.0	3.7	14.8	20.4	25.5	26.3	25.8	20.4	11.0	2.6	-1.3
79	-4.9	1.3	2.0	11.7	19.3	24.3	24.1	24.8	18.4	14.1	1.0	-1.8
80	-7.6	-4.1	1.7	11.4	20.3	25.4	28.1	24.2	19.1	10.3	5.2	-3.7
81	-8.7	-4.0	6.6	13.9	19.4	25.8	28.3	23.3	19.1	6.4	-2.5	-5.2
82	-3.5	-2.5	4.9	12.9	20.4	24.4	27.1	24.5	18.7	13.4	1.8	-4.8
83	-5.9	-3.8	4.3	10.3	21.2	24.4	26.3	24.1	19.7	11.7	4.1	-4.4
84	-10.2	-7.9	3.0	12.6	20.3	23.7	25.7	23.4	18.2	11.9	0.8	-10.7
85	-6.8	-4.8	-0.4	14.1	20.2	25.8	26.6	26.2	17.9	12.9	2.1	-5.9
86	-5.0	-4.8	3.7	11.1	22.8	26.0	27.1	25.7	19.0	9.5	-1.5	-3.9
87	-1.9	0.8	2.5	15.1	20.0	23.5	27.4	24.7	20.7	8.4	2.4	-2.7
88	-6.6	-5.9	0.2	12.9	18.9	25.6	28.2	26.5	19.9	10.4	4.6	-4.1
89	-6.3	-2.6	3.4	13.5	20.9	24.6	27.0	25.4	19.2	13.1	-0.2	-0.8
90	-7.0	-2.6	6.0	11.1	19.7	24.6	26.2	25.2	20.4	12.9	4.0	-3.2
91	-5.1	-1.7	3.1	10.7	20.0	25.8	28.9	26.0	18.9	11.3	2.3	-6.0
92	-4.7	-2.3	1.6	14.2	19.5	25.9	27.0	24.6	17.8	8.0	1.5	-4.5
93	-7.0	-0.9	5.6	10.9	18.6	24.3	25.0	23.1	20.2	11.8	-1.5	-6.4
94	-4.8	-1.6	3.1	14.5	20.1	24.8	27.4	26.3	18.4	8.2	5.9	-4.4
95	-7.0	-0.5	4.3	10.4	18.2	24.7	26.9	24.6	19.4	11.5	4.1	-4.1
96	-8.8	-4.2	1.8	11.2	20.0	24.8	26.8	24.9	20.1	12.4	-1.0	-1.9
97	-4.2	-1.9	8.6	13.2	22.1	25.2	28.0	25.8	18.1	11.9	1.0	-3.4
98	-9.6	-0.7	3.2	15.6	19.4	25.7	27.5	25.2	20.9	12.5	5.6	-2.2
99	-5.8	-0.5	2.5	14.7	20.4	27.2	28.4	27.0	19.0	10.8	2.7	-3.0
00	-9.9	-2.6	5.7	12.3	21.5	25.5	29.7	25.0	21.1	8.8	-1.0	-2.8
01	-6.6	-1.6	5.9	13.0	20.0	26.9	29.5	26.6	20.7	12.2	3.2	-8.4
02	-3.1	1.2	4.2	11.1	20.1	26.5	29.4	28.2	18.8	10.1	2.4	-7.6
Max	-1.9	1.3	8.6	15.6	22.8	27.2	29.7	28.2	21.1	14.1	5.9	-0.8
Average	-6.2	-2.6	3.8	12.7	20.1	25.2	27.0	25.2	19.3	11.1	2.1	-4.6
Min	-11.9	-7.9	-0.4	10.3	17.8	23.5	24.1	23.1	17.0	6.4	-2.5	-10.7

DALANZADGAD

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec
70	-8.1	-2.7	-1.7	12.2	20.8	26.1	29.4	28.0	18.1	12.9	0.7	-5.5
71	-4.3	-4.1	2.0	14.7	21.5	24.1	27.5	25.4	18.6	12.9	2.8	-8.4
72	-6.6	-6.4	7.8	13.9	23.4	26.7	29.1	28.0	19.6	11.6	2.7	-3.7
73	-5.9	-4.0	5.5	14.2	18.8	26.1	26.8	24.8	19.5	11.0	4.7	-3.3
74	-6.5	-4.1	2.0	14.7	21.2	26.7	27.4	25.5	19.3	10.2	4.4	-10.4
75	-4.1	-1.0	5.7	13.0	19.3	26.6	27.1	27.2	21.8	12.6	3.2	-7.9
76	-5.2	1.3	1.7	11.6	19.9	24.7	25.3	24.3	20.4	13.5	-1.1	-7.2
77	-13.4	-4.7	6.5	13.6	19.0	23.9	26.1	26.8	20.6	13.3	0.0	-4.0
78	-7.0	-3.1	4.5	15.2	21.5	27.2	26.8	27.0	22.4	12.8	4.0	-2.0
79	-5.2	3.0	4.2	11.9	20.7	25.0	25.8	26.1	19.3	15.3	0.5	-2.5
80	-8.0	-4.3	1.5	10.9	21.2	27.1	29.6	24.3	19.9	10.6	6.1	-5.6
81	-10.6	-4.0	7.6	15.7	20.6	26.7	29.6	24.1	20.5	7.3	-2.9	-5.1
82	-4.5	-1.6	6.6	14.6	21.4	25.8	28.7	25.5	20.5	14.9	2.4	-5.4
83	-6.6	-5.8	4.9	11.0	22.7	25.1	27.0	24.5	20.0	12.5	4.0	-4.6
84	-10.8	-8.4	2.5	13.7	22.2	25.4	27.7	25.4	19.7	13.3	1.5	-10.0
85	-6.2	-5.0	0.3	13.8	22.0	27.6	26.2	26.4	18.8	14.1	-0.5	-7.3
86	-5.5	-4.8	4.7	11.6	23.8	27.5	27.1	26.0	18.9	10.0	-1.9	-4.9
87	-4.2	0.3	2.7	16.8	21.7	26.2	28.7	25.5	21.6	7.3	1.7	-2.1
88	-7.9	-5.7	0.8	13.0	20.0	27.0	29.5	26.5	20.0	11.7	5.0	-3.7
89	-4.4	-2.0	4.7	15.4	21.5	25.7	27.9	26.5	19.5	13.9	0.9	-1.3
90	-7.7	-2.0	6.2	11.5	20.5	24.5	27.1	26.5	21.6	15.5	6.1	-2.1
91	-5.6	-1.3	5.1	11.2	21.3	26.6	29.3	28.1	20.2	12.1	3.6	-5.9
92	-6.8	-3.8	2.8	15.2	21.3	27.1	28.6	26.3	20.4	9.4	2.4	-4.0
93	-7.2	0.6	6.6	11.1	20.4	25.3	26.0	23.4	21.6	13.1	-1.6	-7.2
94	-5.3	-0.6	4.1	16.1	21.4	25.9	27.7	27.2	19.4	8.9	6.2	-3.8
95	-5.6	-0.6	5.2	11.3	19.0	26.2	28.2	26.5	20.4	12.9	4.4	-4.1
96	-9.1	-3.4	2.1	13.0	21.5	25.8	27.3	25.4	21.4	13.4	-0.5	-1.1
97	-5.4	-1.0	9.6	14.3	22.2	26.5	28.9	28.1	18.5	12.6	2.7	-2.8
98	-10.2	-0.8	4.2	17.8	21.4	26.8	28.8	25.4	24.1	14.4	6.8	-1.2
99	-5.1	0.5	3.9	16.0	21.7	28.7	30.7	27.6	19.6	12.0	4.2	-3.0
00	-10.8	-2.9	6.4	14.2	22.4	27.5	31.0	25.3	22.4	10.0	-0.6	-1.9
01	-6.2	-1.3	6.9	14.6	22.1	27.5	30.8	27.9	22.6	14.0	3.1	-8.2
02	-2.1	2.3	6.6	12.7	21.1	28.8	30.4	29.3	20.6	9.5	2.1	-8.3
Max	-2.1	3.0	9.6	17.8	23.8	28.8	31.0	29.3	24.1	15.5	6.8	-1.1
Average	-6.7	-2.5	4.4	13.7	21.2	26.3	28.1	26.2	20.4	12.1	2.3	-4.8
Min	-13.4	-8.4	-1.7	10.9	18.8	23.9	25.3	23.4	18.1	7.3	-2.9	-10.4

KHUVSGUL

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec
70	-6.9	-1.9	-0.7	16.0	24.8	30.3	31.5	30.5	21.1	16.3	3.3	-4.6
71	-3.0	-1.5	4.5	17.7	25.8	27.9	31.2	29.6	21.9	14.5	5.0	-6.4
72	-4.3	-3.0	9.8	15.9	26.6	30.4	32.4	29.6	23.4	13.1	1.5	-4.6
73	-6.9	-4.4	6.7	16.0	22.2	28.8	29.9	26.8	22.0	11.9	4.4	-4.1
74	-7.3	-5.0	2.7	15.4	22.8	27.6	29.0	29.2	21.7	10.9	4.5	-10.3
75	-5.6	-1.4	7.2	15.3	21.5	28.1	30.8	30.0	23.5	13.8	2.9	-8.1
76	-7.2	1.0	3.3	12.0	21.4	26.6	28.7	27.5	22.0	13.7	-1.0	-8.2
77	-14.5	-4.8	7.5	16.4	22.7	27.4	29.6	28.1	22.1	14.3	2.0	-2.4
78	-8.0	-3.7	5.7	16.7	23.4	29.0	29.2	28.8	24.8	13.0	4.6	-4.2
79	-6.4	0.6	5.8	12.5	23.2	26.6	28.9	28.2	20.4	16.1	0.3	-3.6
80	-8.6	-5.1	3.0	12.2	23.7	29.7	32.6	27.8	20.3	11.8	5.9	-8.3
81	-12.8	-4.3	8.0	17.3	22.5	29.0	33.1	25.6	22.1	10.0	-2.5	-6.4
82	-7.7	-1.0	7.4	16.0	22.3	28.1	30.1	27.9	22.3	15.7	1.5	-7.4
83	-7.6	-6.6	6.2	14.0	25.1	27.3	30.5	27.1	22.1	13.7	5.0	-5.0
84	-11.0	-7.4	1.9	14.9	23.6	27.6	31.4	28.8	20.4	14.2	2.6	-9.4
85	-8.5	-6.1	1.2	14.7	23.6	28.9	28.3	28.1	20.4	15.7	-2.2	-10.1
86	-7.8	-5.1	6.4	13.9	25.3	29.5	28.5	29.1	20.5	10.8	-2.3	-9.2
87	-9.4	-3.3	2.9	17.9	23.4	27.5	30.4	27.3	23.6	11.4	2.1	-3.4
88	-8.1	-5.8	2.1	13.6	21.8	29.1	32.5	26.7	22.3	14.2	4.5	-4.8
89	-4.9	-0.7	5.2	18.0	24.3	27.7	30.3	29.9	20.4	14.5	0.6	-5.1
90	-10.7	-0.7	8.9	13.3	23.1	26.6	29.6	28.3	22.5	17.5	4.5	-5.2
91	-8.7	-2.1	2.7	12.0	22.9	27.6	30.5	32.1	22.4	12.6	1.8	-6.9
92	-7.2	-2.0	3.8	16.2	23.6	28.1	31.4	29.1	21.9	10.9	1.2	-4.5
93	-8.3	-0.2	7.2	12.6	23.3	28.3	28.6	26.2	23.1	13.3	-2.0	-7.9
94	-6.2	-0.5	4.6	18.5	23.7	29.7	31.5	28.4	21.2	11.2	5.8	-7.1
95	-7.0	-0.5	6.1	12.7	20.0	28.6	30.8	28.8	22.5	13.4	5.3	-5.1
96	-8.9	-4.6	3.9	14.5	23.6	26.9	29.8	27.2	23.1	12.8	-0.6	-2.5
97	-8.9	-1.9	9.7	15.6	22.5	29.2	32.7	30.1	21.0	13.1	3.4	-2.9
98	-9.2	0.7	7.0	19.6	23.9	28.5	30.5	25.5	25.7	16.1	4.0	-3.2
99	-6.6	0.3	4.5	18.4	24.2	31.1	33.1	30.0	22.1	13.1	4.0	-5.3
00	-12.5	-3.2	8.0	15.8	24.9	31.1	34.2	29.1	24.6	12.4	-0.4	-3.7
01	-8.6	-2.0	7.1	16.6	23.8	30.3	32.9	29.5	24.8	15.8	2.5	-8.5
02	-2.8	2.6	8.5	15.0	22.9	30.2	31.9	31.6	22.4	10.3	0.2	-8.6
Max	-2.8	2.6	9.8	19.6	26.6	31.1	34.2	32.1	25.7	17.5	5.9	-2.4
Average	-7.9	-2.5	5.4	15.4	23.4	28.6	30.8	28.6	22.3	13.4	2.2	-6.0
Min	-14.5	-7.4	-0.7	12.0	20.0	26.6	28.3	25.5	20.3	10.0	-2.5	-10.3

ZAMIIN UUD

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec
70	-9.4	-3.7	-1.5	15.4	23.3	28.7	30.0	28.6	19.6	14.9	0.8	-8.7
71	-7.9	-5.7	1.4	15.3	23.4	27.5	30.4	28.0	19.7	12.6	3.2	-11.5
72	-13.2	-9.3	6.5	14.6	23.8	28.3	30.6	28.4	20.4	11.2	-0.1	-8.1
73	-10.2	-9.3	4.4	15.7	21.1	28.0	29.1	25.8	21.4	10.9	3.9	-4.6
74	-7.2	-6.5	2.9	14.8	22.6	26.9	29.0	29.1	21.7	10.2	4.1	-10.8
75	-7.3	-2.5	6.7	15.6	21.0	27.9	30.3	30.2	22.8	13.6	3.2	-7.8
76	-7.9	0.5	3.2	11.5	20.9	26.6	28.7	27.0	21.4	12.8	-1.0	-7.9
77	-13.8	-4.9	7.2	16.2	23.1	27.8	30.6	28.2	22.5	13.2	-3.3	-11.5
78	-13.0	-8.1	2.7	15.0	22.6	28.6	29.2	27.3	24.4	11.5	4.2	-5.6
79	-7.2	-0.4	5.1	11.4	22.9	26.2	29.3	27.2	20.2	16.5	0.3	-4.0
80	-9.3	-5.4	3.4	11.6	23.5	29.1	32.3	27.4	19.5	11.3	4.8	-10.6
81	-17.7	-10.7	6.0	17.1	22.2	28.9	32.5	25.1	21.4	9.2	-4.2	-7.5
82	-9.3	-1.6	6.5	15.4	22.3	28.9	29.7	28.3	22.7	16.0	1.1	-7.7
83	-8.8	-8.1	5.7	13.9	24.6	27.5	30.1	27.1	21.5	13.5	4.3	-5.1
84	-11.2	-7.6	2.0	16.6	23.6	27.4	29.6	27.8	19.8	13.2	1.9	-10.4
85	-10.4	-6.0	-0.3	13.8	23.6	28.1	27.6	27.5	19.2	14.2	-6.0	-16.7
86	-14.6	-10.8	5.3	13.5	24.5	28.1	26.9	27.2	19.1	10.4	-1.8	-12.7
87	-14.7	-10.1	-0.3	17.7	22.2	26.8	29.9	27.1	22.3	11.6	1.3	-5.2
88	-8.8	-6.6	1.6	12.6	21.0	28.6	32.1	26.8	21.9	13.3	3.7	-7.7
89	-7.0	-1.0	4.3	17.6	24.0	26.8	30.0	29.1	20.1	13.7	0.3	-10.3
90	-17.2	-1.0	8.5	13.4	21.3	25.2	28.4	27.1	21.5	16.1	4.2	-6.0
91	-8.8	-3.3	2.0	11.8	22.8	26.2	29.5	32.1	22.4	12.4	2.2	-9.9
92	-12.3	-4.2	3.1	15.0	22.9	26.8	29.7	28.5	21.4	10.4	-2.6	-10.2
93	-14.5	-4.2	5.3	12.2	21.5	28.2	28.3	26.6	23.4	12.6	-3.3	-10.4
94	-10.9	-6.8	3.2	17.9	23.6	30.7	30.8	27.4	19.3	10.1	4.9	-11.3
95	-8.4	-1.3	6.0	12.8	19.5	28.2	29.7	28.0	20.9	12.3	3.7	-7.3
96	-9.7	-4.6	2.9	14.6	23.2	26.3	28.5	25.9	22.5	12.1	-0.5	-3.2
97	-11.5	-3.6	8.7	15.6	21.6	28.8	32.7	29.3	20.8	12.7	2.9	-4.2
98	-10.0	0.3	7.5	19.4	22.6	27.3	28.6	24.6	25.6	15.5	0.5	-7.6
99	-8.6	-0.4	3.6	17.4	23.8	30.1	31.8	29.2	21.9	12.9	3.4	-9.1
00	-18.1	-11.1	6.3	15.2	23.8	29.6	33.5	28.7	23.7	11.1	-2.5	-7.2
01	-11.4	-2.7	5.4	16.2	23.4	29.8	31.9	29.5	24.1	15.2	3.0	-9.0
02	-2.8	2.1	8.8	14.6	22.7	29.0	31.6	31.0	22.6	9.0	-0.7	-10.2
Max	-2.8	2.1	8.8	19.4	24.6	30.7	33.5	32.1	25.6	16.5	4.9	-3.2
Average	-10.7	-4.8	4.4	14.9	22.7	28.0	30.1	27.9	21.6	12.6	1.1	-8.5
Min	-18.1	-11.1	-1.5	11.4	19.5	25.2	26.9	24.6	19.1	9.0	-6.0	-16.7

SAIKHAN

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
70	-8.0	-3.0	-0.9	13.3	22.2	27.4	30.9	29.8	19.1	13.0	-0.4	-6.7
71	-6.9	-4.1	1.7	15.5	22.8	25.5	28.2	26.3	19.8	12.2	2.6	-8.1
72	-7.4	-7.3	7.9	14.6	24.2	28.3	30.0	29.3	20.4	11.7	1.4	-5.4
73	-5.9	-4.9	5.9	15.1	19.9	27.2	27.8	26.3	21.3	10.9	3.4	-4.1
74	-7.8	-6.3	2.1	15.3	22.4	27.6	29.0	26.6	20.1	9.0	3.5	-11.8
75	-4.5	-3.1	6.2	12.8	20.2	27.8	27.8	29.2	22.2	12.9	2.5	-9.1
76	-6.1	0.4	2.2	12.3	21.8	26.1	26.5	25.4	21.4	13.1	-2.0	-8.8
77	-14.5	-5.5	6.4	14.7	20.2	25.3	27.1	28.1	22.0	13.6	0.6	-3.5
78	-8.1	-3.9	4.5	15.8	21.9	27.8	27.9	27.5	22.7	12.0	3.2	-4.6
79	-8.1	1.4	3.9	12.4	22.0	26.7	27.9	29.1	20.2	15.2	-1.6	-3.7
80	-8.1	-4.2	1.6	12.1	22.6	28.1	31.0	25.5	20.5	10.8	4.6	-6.4
81	-12.0	-4.1	7.7	16.9	22.1	28.3	31.5	26.0	21.9	6.8	-5.6	-7.5
82	-6.8	-2.8	6.5	15.9	22.7	27.4	30.1	26.3	21.5	15.2	1.8	-6.1
83	-6.1	-4.7	5.6	12.1	24.3	26.4	28.9	26.1	20.6	12.9	3.2	-6.3
84	-10.9	-9.4	2.9	14.2	23.3	26.6	29.0	25.9	20.6	12.9	0.9	-12.2
85	-8.2	-5.9	-0.1	14.6	22.7	28.4	27.2	27.5	19.2	14.2	-0.7	-8.1
86	-6.5	-4.8	4.2	12.2	24.9	28.6	28.7	27.2	20.0	9.7	-3.9	-8.4
87	-6.9	-1.7	2.2	16.7	22.4	26.4	28.8	26.6	22.3	6.9	-0.3	-5.1
88	-9.8	-6.5	1.0	14.0	20.7	28.9	31.3	28.7	21.6	13.1	4.0	-4.7
89	-6.3	-2.5	5.1	16.4	23.1	27.2	30.0	28.3	20.6	14.2	-0.1	-3.5
90	-9.9	-1.8	6.0	12.5	21.8	25.6	28.3	27.1	22.3	15.5	4.0	-4.3
91	-7.8	-2.0	4.6	12.2	21.9	26.9	29.9	29.2	20.5	12.5	2.9	-7.2
92	-6.8	-4.0	2.6	16.1	22.2	27.7	28.9	27.0	20.8	9.5	0.7	-5.8
93	-8.6	-1.4	6.4	13.4	21.9	27.0	27.3	25.2	22.8	13.0	-2.0	-7.9
94	-8.0	-2.0	5.0	17.0	23.2	27.6	29.0	28.5	20.7	8.0	5.8	-6.2
95	-6.8	-0.5	5.3	12.7	20.4	27.6	30.3	28.5	22.3	14.2	4.6	-5.1
96	-9.8	-3.6	3.1	13.7	23.2	27.6	29.5	27.8	23.0	13.6	-1.6	-4.6
97	-7.3	-1.3	10.7	15.9	24.0	28.5	31.2	29.8	19.7	13.7	1.2	-4.3
98	-10.5	-1.6	4.3	18.5	22.4	28.8	30.7	26.9	25.1	14.4	5.2	-3.0
99	-7.0	0.4	3.3	17.6	23.1	30.4	32.1	29.6	20.0	12.8	3.9	-5.6
00	-11.8	-3.0	6.9	15.3	23.7	29.2	32.9	27.1	24.0	10.1	-1.3	-3.2
01	-7.7	-1.9	7.6	15.9	23.6	29.7	32.7	30.1	24.4	14.0	3.4	-11.0
02	-3.9	1.5	7.0	13.3	22.4	29.8	31.7	31.2	21.5	10.1	-0.1	-9.4
Max	-3.9	1.5	10.7	18.5	24.9	30.4	32.9	31.2	25.1	15.5	5.8	-3.0
Average	-8.0	-3.2	4.5	14.6	22.4	27.6	29.5	27.7	21.4	12.2	1.3	-6.4
Min	-14.5	-9.4	-0.9	12.1	19.9	25.3	26.5	25.2	19.1	6.8	-5.6	-12.2

TSGOTVOO

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
70	-8.5	-4.0	-2.0	12.6	21.2	26.5	30.0	28.6	18.2	12.2	-1.2	-7.8
71	-6.9	-4.7	1.4	14.4	21.9	24.1	27.8	26.2	19.1	12.2	2.6	-10.0
72	-7.1	-6.4	7.8	13.7	23.1	26.9	29.7	27.8	19.7	10.7	-0.4	-6.0
73	-6.9	-5.1	5.2	14.2	19.1	27.0	26.9	24.9	20.1	10.9	3.0	-5.4
74	-7.5	-7.3	1.0	14.6	20.7	26.8	28.0	27.0	18.9	8.7	2.9	-12.4
75	-6.4	-3.1	5.5	12.5	19.5	27.1	27.1	28.1	21.5	12.4	2.0	-8.8
76	-6.2	0.4	1.5	11.3	20.2	24.7	25.8	24.8	20.5	12.4	-3.2	-9.1
77	-15.2	-6.0	5.4	13.4	19.2	25.1	27.1	27.6	21.6	13.3	2.0	-4.1
78	-8.4	-3.9	4.5	14.3	21.4	27.2	27.2	26.9	22.3	11.4	2.8	-4.5
79	-7.9	1.2	3.9	11.5	21.0	26.1	27.4	26.9	18.7	15.0	-1.3	-4.2
80	-9.2	-5.0	1.3	10.7	21.8	27.7	30.6	25.0	19.8	10.0	3.3	-7.9
81	-13.0	-4.9	6.7	15.9	20.7	27.3	31.0	25.0	21.2	7.0	-4.1	-7.4
82	-7.3	-2.3	5.8	14.8	21.7	26.3	29.2	25.7	21.3	14.9	1.7	-6.9
83	-7.3	-6.0	5.2	11.5	23.0	25.6	28.2	25.7	20.0	12.6	2.4	-6.9
84	-11.9	-9.2	1.3	12.8	22.6	25.8	28.2	26.0	19.4	12.5	0.3	-11.6
85	-9.4	-6.6	-1.1	13.8	22.8	27.7	26.8	26.1	18.5	13.7	-1.5	-9.2
86	-7.1	-4.7	4.4	11.6	23.9	28.0	27.2	26.3	18.8	9.6	-3.6	-8.8
87	-8.1	-2.4	1.6	16.0	21.4	25.9	28.4	25.6	21.5	6.4	-1.7	-6.1
88	-10.5	-7.6	0.3	12.4	19.7	27.8	30.7	27.9	20.8	12.0	3.0	-5.7
89	-6.1	-2.6	4.6	15.9	22.4	26.4	28.8	27.8	19.2	13.6	-0.5	-4.9
90	-10.4	-3.5	6.8	12.3	22.4	25.9	28.4	26.8	21.2	16.3	4.4	-4.5
91	-8.9	-3.3	3.6	11.1	21.7	26.3	28.6	27.8	19.8	11.6	2.1	-8.4
92	-10.2	-6.3	2.2	14.5	21.4	26.1	27.9	25.9	20.0	8.9	1.6	-5.6
93	-10.5	-1.2	6.1	12.1	21.0	26.2	26.5	24.0	21.9	12.4	-2.6	-8.8
94	-7.3	-1.7	4.2	16.5	22.4	27.2	28.8	27.2	19.7	8.5	4.9	-7.4
95	-7.3	-1.2	4.9	11.6	18.9	26.8	29.7	27.9	21.3	12.9	3.9	-5.4
96	-9.7	-4.1	2.1	13.6	22.2	25.8	28.0	26.4	21.9	12.5	-1.5	-3.5
97	-8.3	-1.7	9.8	15.1	22.3	27.6	30.0	28.8	18.3	12.2	1.4	-4.1
98	-10.9	-1.0	4.2	17.2	21.8	27.0	29.4	25.0	23.9	14.2	4.3	-4.0
99	-8.0	-0.5	2.4	16.0	22.2	29.2	31.9	25.0	19.9	11.7	3.0	-7.4
00	-14.3	-5.2	5.9	14.5	23.2	29.3	32.1	26.8	23.2	9.4	-2.4	-4.5
01	-8.9	-2.6	6.4	14.8	22.4	28.4	31.1	28.5	23.2	14.0	2.2	-10.1
02	-4.6	1.2	6.3	12.6	21.2	29.3	31.3	30.3	21.2	8.8	-1.4	-10.8
Max	-4.6	1.2	9.8	17.2	23.9	29.3	32.1	30.3	23.9	16.3	4.9	-3.5
Average	-8.8	-3.7	3.9	13.6	21.5	26.8	28.8	26.7	20.5	11.7	0.9	-7.0
Min	-15.2	-9.2	-2.0	10.7	18.9	24.1	25.8	24.0	18.2	6.4	-4.1	-12.4

SAINSHAND

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
70	-10.0	-4.2	-3.1	14.0	22.3	28.7	29.7	28.5	18.3	13.2	-2.2	-13.1
71	-11.0	-8.0	0.5	14.9	22.7	25.8	28.9	27.9	19.1	10.4	1.7	-10.0
72	-12.2	-7.3	5.0	14.3	24.2	27.8	30.8	28.2	21.1	9.9	-1.3	-9.0
73	-11.1	-7.0	5.8	14.6	20.7	27.6	28.2	25.0	21.4	10.1	1.9	-6.2
74	-9.4	-7.5	1.2	14.0	22.0	26.9	28.0	28.5	20.8	9.3	0.7	-13.6
75	-9.8	-4.1	5.6	13.8	21.2	27.0	29.7	30.2	22.0	12.1	1.8	-9.7
76	-8.6	-0.6	2.1	11.1	20.2	25.8	28.0	26.5	21.0	11.8	-5.1	-12.1
77	-17.3	-7.5	5.7	15.7	21.5	27.1	29.4	27.6	22.2	12.9	0.8	-7.8
78	-10.2	-7.0	4.4	15.6	22.1	27.8	28.3	27.7	23.3	11.1	1.3	-7.9
79	-8.5	-1.1	4.1	10.9	22.8	26.5	28.5	27.3	19.1	14.7	-3.3	-8.7
80	-11.0	-6.4	1.6	10.8	22.5	29.1	32.3	27.1	19.8	10.4	2.7	-9.8
81	-13.4	-7.0	6.3	17.6	21.7	27.7	32.5	25.0	21.4	8.6	-6.6	-9.5
82	-11.4	-4.6	5.2	16.1	21.4	27.5	29.6	27.1	21.1	15.2	-1.3	-9.3
83	-10.1	-7.5	5.4	12.8	24.0	26.2	28.7	27.3	20.7	12.5	2.4	-6.8
84	-12.6	-7.9	0.6	13.8	23.0	26.7	29.7	27.3	19.4	12.3	0.6	-11.7
85	-11.5	-10.1	-0.4	13.1	22.9	27.4	27.1	27.0	19.3	14.1	-4.2	-12.8
86	-10.4	-7.2	4.6	12.6	24.2	29.1	27.4	28.2	20.4	9.5	-4.6	-13.9
87	-15.0	-10.9	-2.7	16.1	21.9	26.9	28.8	25.7	21.7	9.2	-1.7	-7.5
88	-13.1	-10.5	0.1	12.8	20.3	27.7	31.2	27.6	21.5	13.1	2.8	-8.8
89	-9.2	-3.0	4.9	17.2	23.3	26.4	29.3	29.3	19.3	13.2	-1.1	-11.4
90	-17.1	-3.9	6.8	12.5	22.6	26.3	28.6	26.2	20.8	16.1	1.5	-8.4
91	-10.3	-4.6	1.8	11.7	22.1	26.9	27.7	30.8	21.0	11.7	0.9	-10.9
92	-13.5	-5.6	2.8	14.2	22.5	26.4	28.9	26.9	20.2	10.2	-1.0	-8.7
93	-10.4	-7.2	4.6	12.6	24.2	29.1	27.6	25.3	22.9	12.5	-4.6	-11.7
94	-10.0	-4.2	3.6	17.5	23.2	29.0	29.8	27.8	20.8	10.8	3.9	-11.1
95	-8.9	-2.2	4.9	12.9	19.5	27.9	30.3	28.3	21.6	12.7	3.1	-10.6
96	-12.8	-6.4	2.3	13.8	23.2	25.9	28.4	26.8	22.2	11.6	-3.2	-5.9
97	-13.3	-4.0	8.1	15.2	22.2	28.8	31.1	28.4	20.0	11.7	1.5	-6.0
98	-12.8	-1.7	5.8	18.4	23.4	27.1	29.0	24.1	24.2	14.5	-1.2	-9.4
99	-10.8	-2.6	1.2	16.7	23.4	29.0	32.0	28.9	21.4	12.0	1.3	-9.1
00	-18.0	-8.1	6.5	15.0	24.4	30.6	33.6	26.9	23.2	10.4	-5.7	-10.9
01	-15.8	-7.5	5.0	15.7	23.1	29.6	32.0	29.0	23.7	14.0	1.0	*****
02	-4.9	0.7	8.3	13.6	21.8	28.7	31.3	31.1	21.6	8.4	-2.4	-13.8
Max	-4.9	0.7	8.3	18.4	24.4	30.6	33.6	31.1	24.2	16.1	3.9	-5.9
Average	-11.6	-5.7	3.6	14.3	22.4	27.6	29.6	27.6	21.1	11.8	-0.6	-9.9
Min	-18.0	-10.9	-3.1	10.8	19.5	25.8	27.1	24.1	18.3	8.4	-6.6	-13.9

SAIKHANOVOO

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
70	-11.3	-4.9	-2.3	11.4	20.8	25.5	29.5	28.4	17.5	11.2	-1.9	-8.1
71	-7.6	-5.7	-1.1	13.8	21.3	23.5	26.5	25.2	17.4	9.2	0.1	-9.7
72	-9.7	-7.1	6.5	13.5	22.8	26.2	28.6	27.6	18.6	10.5	-3.3	-8.6
73	-8.8	-6.2	5.5	13.7	19.3	26.0	26.0	24.0	20.2	10.0	2.8	-4.1
74	-8.2	-7.7	1.7	14.6	21.1	26.8	27.8	25.3	18.8	8.1	1.7	-16.9
75	-12.8	-9.0	5.5	10.9	19.6	26.9	26.2	28.0	20.7	11.7	1.9	-8.2
76	-5.6	0.4	1.1	11.4	20.4	24.5	24.6	23.2	19.9	11.6	-3.4	-9.8
77	-18.0	-7.5	4.5	13.1	18.4	24.9	26.2	26.6	21.1	12.7	2.0	-5.2
78	-8.4	-4.0	4.6	15.0	21.0	26.9	26.4	27.2	22.4	11.7	2.5	-4.9
79	-8.0	2.7	3.9	11.0	22.4	27.3	28.3	27.4	18.9	16.5	0.4	-3.7
80	-8.8	-4.3	0.5	11.0	21.2	27.1	30.0	24.6	19.2	9.1	2.3	-8.3
81	-13.3	-5.4	6.7	15.8	20.4	26.6	30.2	24.6	21.1	8.8	-3.9	-5.8
82	-6.4	-2.6	5.1	14.7	20.9	25.4	27.8	24.7	20.3	13.8	0.9	-7.9
83	-8.0	-4.8	5.2	11.6	23.2	24.5	27.3	25.0	19.3	11.0	-1.0	-11.1
84	-13.5	-11.1	0.8	12.8	22.4	26.0	27.9	25.4	19.4	11.7	0.5	-14.5
85	-12.3	-8.1	-2.7	13.8	20.5	26.0	24.2	24.7	17.3	12.3	-0.8	-11.6
86	-7.1	-5.0	3.3	11.5	23.5	28.0	26.6	25.1	19.2	8.0	-4.7	-13.0
87	-12.0	-5.5	-0.2	14.8	20.2	24.1	-26.9	24.8	20.5	4.9	-5.0	-10.3
88	-15.8	-12.9	-3.3	12.0	17.8	27.6	29.2	26.5	20.7	11.3	2.0	-7.2
89	-6.6	-4.8	4.7	15.7	21.2	24.9	27.8	26.7	18.1	12.8	-0.9	-3.1
90	-11.3	-3.4	6.1	10.6	20.6	23.7	26.5	24.2	20.0	15.2	0.2	-8.1
91	-11.0	-4.4	1.6	9.6	20.3	24.9	27.7	22.7	18.1	11.1	1.3	-8.3
92	-11.9	-5.7	1.3	14.4	20.4	24.9	26.2	24.3	18.5	8.0	-2.7	-11.2
93	-7.1	-5.0	3.3	11.5	23.5	28.0	24.9	23.6	20.7	11.5	-5.4	-13.0
94	-12.1	-6.8	3.5	15.5	22.1	26.1	26.9	26.1	19.2	9.3	5.3	-12.7
95	-9.3	-0.9	4.7	11.3	18.8	26.0	29.5	27.6	20.7	13.2	3.2	-11.5
96	-15.7	-7.6	2.3	12.9	22.7	25.0	27.5	26.5	20.7	10.8	-1.9	-4.0
97	-11.5	-3.2	9.1	14.2	21.5	26.6	28.8	27.5	17.7	12.7	0.4	-5.0
98	-10.9	-0.8	4.3	16.2	20.9	26.3	28.7	24.4	23.0	13.4	2.7	-4.3
99	-7.4	-0.1	0.4	15.8	21.7	28.3	30.4	27.9	18.3	11.3	2.7	-5.9
00	-15.2	-4.9	5.8	15.2	23.1	29.1	31.2	26.0	22.6	8.7	-3.3	-5.5
01	-9.9	-2.6	7.2	14.3	21.9	27.7	29.4	27.7	22.4	13.0	1.5	-12.3
02	-11.8	-4.9	5.8	11.8	21.1	28.9	30.9	30.0	21.0	7.8	-3.3	-14.0
Max	-5.6	2.7	9.1	16.2	23.5	29.1	31.2	30.0	23.0	16.5	5.3	-3.1
Average	-10.5	-5.0	3.2	13.2	21.1	26.2	26.1	25.9	19.8	11.0	-0.2	-8.7
Min	-18.0	-12.9	-3.3	9.6	17.8	23.5	-26.9	22.7	17.3	4.9	-5.4	-16.9

MANDALGOVI

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec
70	-9.4	-6.7	-4.7	10.5	19.4	24.5	27.5	26.2	15.6	9.2	-5.4	-13.1
71	-11.2	-10.1	-4.2	11.8	19.6	21.6	24.5	23.8	15.9	10.3	2.0	-9.1
72	-10.6	-8.2	5.5	12.2	21.5	23.8	27.2	25.4	17.5	7.6	-2.0	-7.2
73	-7.4	-6.6	3.8	11.9	17.0	24.2	24.5	22.0	18.1	7.9	0.9	-5.6
74	-9.7	-10.1	-1.1	12.4	18.8	24.4	25.1	24.5	16.5	6.4	-0.4	-14.1
75	-9.8	-6.4	3.7	9.7	18.2	25.1	25.3	26.1	18.1	9.7	-0.1	-9.7
76	-7.9	-1.6	-1.1	8.1	17.3	22.4	23.5	22.5	18.5	9.5	-6.9	-12.8
77	-18.4	-10.4	1.4	11.3	17.7	23.3	25.5	25.4	20.1	11.0	0.5	-6.6
78	-10.5	-7.9	2.4	12.8	19.7	24.9	23.9	24.7	20.7	9.4	1.0	-7.0
79	-9.8	-0.8	2.6	8.8	20.0	24.5	25.7	24.9	16.5	13.7	-3.6	-7.0
80	-11.1	-7.2	-2.3	8.8	20.3	25.8	29.0	24.6	17.8	7.5	2.1	-9.0
81	-11.9	-7.1	4.0	13.6	19.1	25.8	28.7	22.8	18.5	5.6	-8.1	-9.7
82	-10.2	-4.9	3.2	13.5	19.1	23.8	25.9	22.7	18.3	12.8	-0.6	-9.3
83	-9.7	-8.6	3.6	10.1	21.3	22.8	26.2	24.3	17.4	10.6	1.9	-6.3
84	-12.6	-10.7	-1.1	10.8	21.2	24.1	26.4	23.2	17.5	9.9	-1.9	-13.2
85	-11.0	-10.2	-4.5	10.4	19.9	24.5	23.1	23.0	16.2	11.5	-3.1	-11.5
86	-7.7	-7.2	2.1	9.8	21.6	26.4	24.3	24.2	17.9	7.3	-5.2	-12.2
87	-11.0	-7.8	-3.2	13.2	18.1	22.6	25.0	22.7	17.7	3.5	-7.2	-9.7
88	-15.3	-13.0	-5.0	8.8	15.9	24.6	27.1	24.3	18.1	3.6	-0.8	2.6
89	-7.1	-6.6	-5.5	2.0	13.3	18.7	22.4	24.6	24.6	16.0	10.7	-0.9
90	-6.7	-13.4	-5.1	4.3	8.7	18.2	21.5	23.9	21.4	17.6	13.7	0.0
91	-8.7	-11.0	-5.8	0.1	8.3	19.3	23.8	25.7	26.8	16.8	9.8	0.2
92	-8.3	-3.5	0.7	13.1	19.9	23.7	24.9	22.9	17.5	8.3	-1.7	-8.6
93	-10.1	-3.0	4.9	10.1	19.3	24.1	23.6	22.1	19.5	10.0	-5.8	-12.2
94	-11.1	-6.5	1.2	13.6	20.8	24.9	25.2	23.3	17.6	7.3	2.2	-11.5
95	-9.5	-3.0	2.3	9.0	16.1	24.5	27.2	24.4	18.4	10.7	2.4	-9.8
96	-12.5	-6.6	-0.4	11.8	20.5	22.7	25.4	24.4	18.9	7.9	-4.5	-6.0
97	-10.4	-4.0	6.7	12.7	20.3	24.6	26.8	25.9	16.1	10.6	-1.3	-6.2
98	-11.9	-2.5	2.5	14.6	19.3	23.8	26.3	21.5	21.4	11.3	-0.2	-6.8
99	-8.5	-2.3	-1.6	14.1	20.6	25.7	29.4	25.9	17.8	9.7	0.6	-8.5
00	-17.4	-7.0	3.6	12.8	21.6	28.0	29.5	23.7	21.0	6.6	-7.0	-8.3
01	-13.2	-5.4	4.4	12.5	20.0	26.7	28.0	25.8	20.8	11.5	-1.1	-12.7
02	-5.8	-3.3	5.3	10.0	19.4	27.2	30.1	28.6	20.3	7.3	-4.0	-10.7
Max	-5.8	-0.8	6.7	14.6	21.6	28.0	30.1	28.6	26.8	17.6	13.7	2.6
Average	-10.5	-6.8	0.6	10.6	18.6	24.0	25.8	24.2	18.8	9.7	-0.7	-8.3
Min	-18.4	-13.4	-5.8	0.1	8.3	18.2	21.5	21.5	15.6	3.5	-8.1	-14.1

ANNEX B: NUMBER OF LIVESTOCK

Final Report
The Study for Improvement Plan of
Livestock Farming System in Rural Area

March, 2006

ANNEX B Number of Livestock in three Aimags

Number of Camel

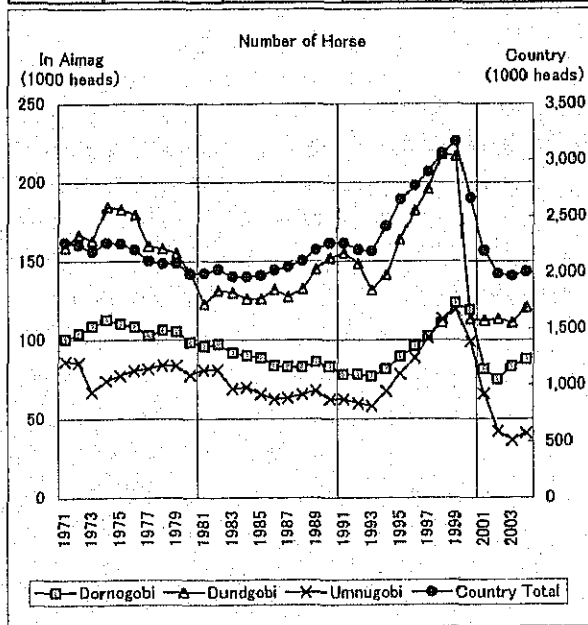
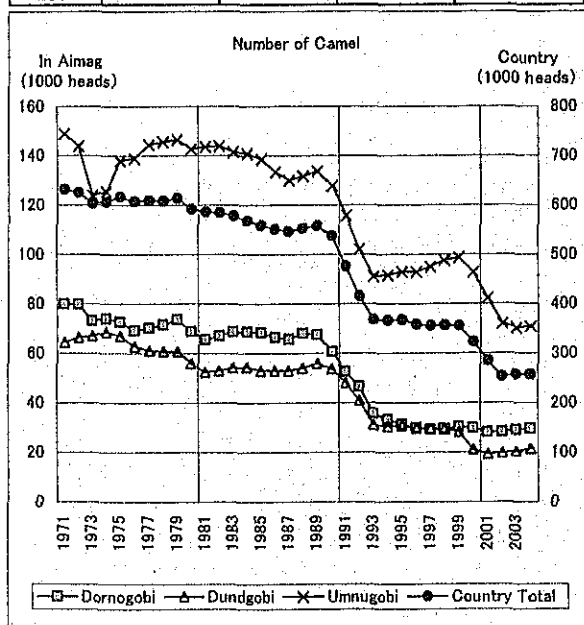
(unit: 1,000 head)

	Dornogobi	Dundgobi	Umnugobi	Country Total
1971	79.9	64.5	148.9	632.0
1972	79.8	66.4	143.9	625.1
1973	73.2	67.1	123.9	603.1
1974	74.0	68.5	125.5	606.7
1975	72.7	67.0	138.0	617.1
1976	69.1	62.8	138.9	607.4
1977	70.2	61.1	144.5	609.0
1978	71.5	60.8	145.6	608.6
1979	73.6	60.8	146.6	613.7
1980	68.7	55.9	142.8	591.5
1981	65.5	52.4	143.6	586.2
1982	67.0	53.0	143.9	584.6
1983	68.6	54.2	141.6	578.0
1984	68.6	54.5	140.9	566.2
1985	68.4	53.1	138.6	559.0
1986	66.4	53.1	133.4	550.7
1987	65.6	53.0	130.1	546.6
1988	68.0	54.0	131.7	552.9
1989	67.5	55.9	133.7	556.3
1990	60.7	53.7	127.9	537.5
1991	52.5	48.1	115.8	476.0
1992	46.5	41.1	102.1	415.2
1993	35.8	31.3	91.3	367.7
1994	33.2	30.5	91.6	366.1
1995	31.2	30.7	92.9	367.5
1996	30.0	29.7	92.9	367.9
1997	29.2	29.7	95.0	355.4
1998	29.5	29.4	97.7	356.5
1999	30.3	28.4	98.8	355.6
2000	29.8	21.1	92.8	322.9
2001	28.1	19.4	82.3	285.2
2002	28.2	19.7	72.0	253.0
2003	29	20.4	70.2	256.7
2004	29.6	21.3	70.8	256.6

Number of Horse

(unit: 1,000 head)

	Dornogobi	Dundgobi	Umnugobi	Country Total
1971	100.5	158.9	86.4	2,269.5
1972	103.6	166.9	85.7	2,239.3
1973	108.3	163.2	67.1	2,184.9
1974	112.4	184.7	74.2	2,264.4
1975	110.1	182.9	77.5	2,254.6
1976	108.1	179.8	80.8	2,204.6
1977	102.6	159.6	81.7	2,103.5
1978	105.9	157.9	84.1	2,078.4
1979	105.2	155.2	83.9	2,078.9
1980	98.3	142.9	77.9	1,985.4
1981	95.7	122.8	81.0	1,991.1
1982	97.1	131.3	81.1	2,027.9
1983	91.7	130.0	69.0	1,959.5
1984	90.0	126.1	70.1	1,960.8
1985	88.3	126.0	65.6	1,971.0
1986	83.4	131.9	62.4	2,018.4
1987	82.7	127.3	63.3	2,047.1
1988	82.6	132.4	65.6	2,102.9
1989	85.8	144.9	67.8	2,199.6
1990	82.9	152.0	62.5	2,262.0
1991	77.9	155.3	62.6	2,259.3
1992	78.0	148.3	59.9	2,200.2
1993	76.9	131.8	58.5	2,190.3
1994	81.4	141.2	67.7	2,408.9
1995	89.4	163.8	78.6	2,648.4
1996	95.8	182.4	88.7	2,770.5
1997	102.1	195.8	101.4	2,893.2
1998	110.7	218.0	113.6	3,059.1
1999	123.2	216.8	119.0	3,163.5
2000	118.9	113.2	99.2	2,660.7
2001	81.3	112.0	65.9	2,191.8
2002	74.8	113.4	42.2	1,988.9
2003	83	111.1	36.7	1,968.9
2004	87.5	120.7	40.9	2,005.4



Number of Cattle

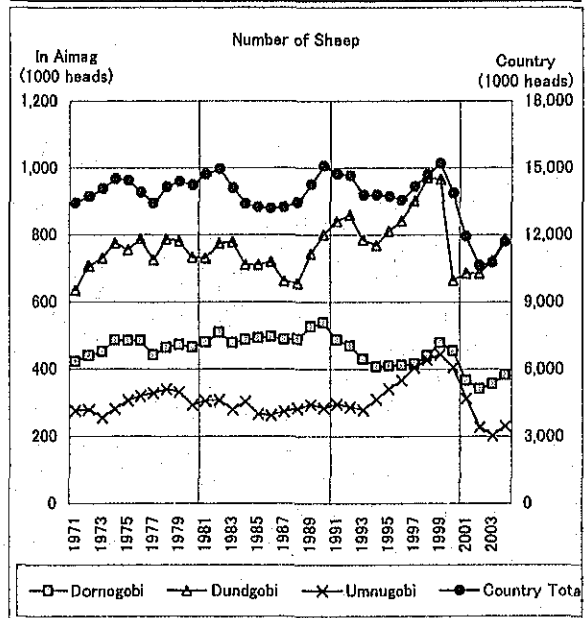
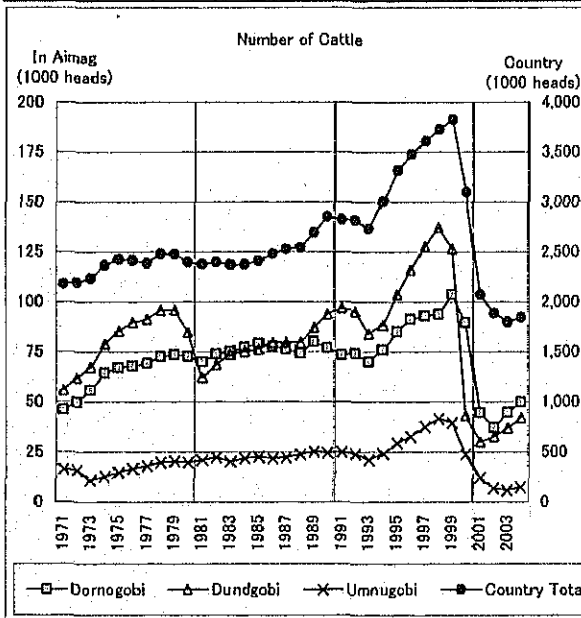
(unit: 1,000 head)

	Dornogobi	Dundgobi	Umnugobi	Country Total
1971	46.1	55.8	16.3	2,176.1
1972	49.7	61.8	15.7	2,189.4
1973	55.8	67.4	10.8	2,234.6
1974	64.3	78.8	12.6	2,364.5
1975	67.1	85.3	14.7	2,427.0
1976	67.8	89.7	16.6	2,417.4
1977	69.1	91.4	17.9	2,388.3
1978	72.5	95.7	19.8	2,481.5
1979	73.6	95.9	20.4	2,476.9
1980	72.5	84.7	19.7	2,397.1
1981	70.0	62.2	21.0	2,376.3
1982	73.9	68.7	22.3	2,395.5
1983	75.2	73.9	20.2	2,373.9
1984	77.2	75.1	21.8	2,373.9
1985	79.0	76.1	22.5	2,408.1
1986	77.7	79.6	21.9	2,479.6
1987	76.2	79.7	22.4	2,525.9
1988	74.2	79.7	23.8	2,541.3
1989	80.0	87.1	25.3	2,692.7
1990	77.0	93.8	24.6	2,848.7
1991	73.4	96.9	25.0	2,822.0
1992	74.2	95.0	23.9	2,819.2
1993	69.9	84.1	21.1	2,730.5
1994	75.9	88.2	24.2	3,005.2
1995	85.0	103.6	29.4	3,317.1
1996	91.1	116.0	32.7	3,476.3
1997	93.0	127.9	37.8	3,612.8
1998	93.6	137.4	41.6	3,725.8
1999	103.7	126.6	39.6	3,824.7
2000	89.4	43.3	23.8	3,097.6
2001	44.5	30.1	12.1	2,069.6
2002	37.3	32.7	6.9	1,884.3
2003	44.7	36.9	5.9	1,782.8
2004	49.9	42.1	7.4	1,841.6

Number of Sheep

(unit: 1,000 head)

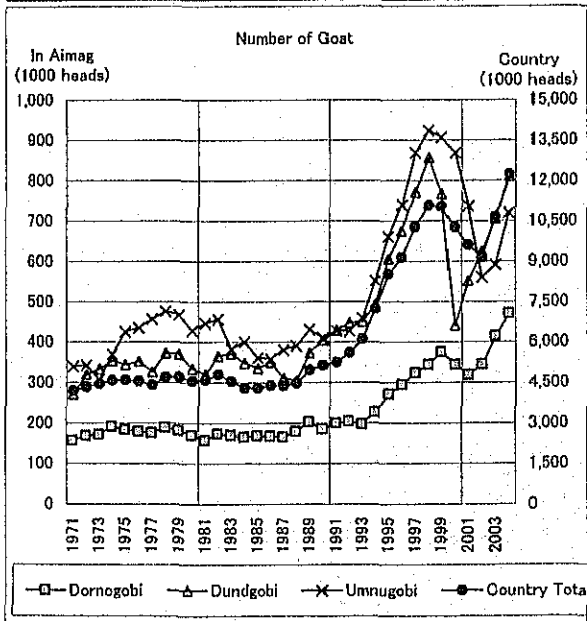
	Dornogobi	Dundgobi	Umnugobi	Country Total
1971	421.4	635.6	276.3	13,420.3
1972	439.7	707.1	279.0	13,716.9
1973	451.7	732.1	255.6	14,077.1
1974	485.9	776.3	282.0	14,503.2
1975	485.0	756.0	307.2	14,458.1
1976	484.6	789.1	320.2	13,906.3
1977	441.5	726.2	328.1	13,430.2
1978	463.7	788.2	340.2	14,152.7
1979	472.4	782.0	332.5	14,400.2
1980	465.5	734.0	293.3	14,230.7
1981	480.2	730.4	305.9	14,714.0
1982	509.2	775.2	308.4	14,954.8
1983	478.1	778.7	280.1	14,110.4
1984	486.5	711.2	303.1	13,391.2
1985	492.3	711.6	266.8	13,248.8
1986	496.0	720.5	262.3	13,194.0
1987	488.0	662.5	274.5	13,233.8
1988	488.1	655.1	282.7	13,450.8
1989	525.9	744.7	294.7	14,265.2
1990	538.2	801.3	284.4	15,083.0
1991	486.6	841.9	296.5	14,721.0
1992	467.8	859.5	286.8	14,657.0
1993	430.0	785.8	278.8	13,779.2
1994	406.4	769.7	309.6	13,786.6
1995	409.1	810.8	341.1	13,718.6
1996	411.4	842.1	367.0	13,560.6
1997	415.0	901.4	404.5	14,165.6
1998	439.6	971.5	427.2	14,694.2
1999	477.4	966.5	444.0	15,191.3
2000	453.9	663.8	405.1	13,876.4
2001	365.6	685.0	312.4	11,937.3
2002	340.4	685.6	227.7	10,636.6
2003	355.1	724.0	202.8	10,756.4
2004	381.9	787.0	230.6	11,686.4



Number of Goat

(unit: 1,000 head)

	Dornogobi	Dundgobi	Umnugobi	Country Total
1971	156.6	271.8	340.4	4,194.8
1972	169.3	320.1	342.7	4,338.4
1973	171.4	333.1	307.1	4,441.7
1974	191.7	353.6	369.6	4,574.4
1975	183.8	344.6	425.8	4,594.7
1976	179.3	352.1	435.4	4,548.3
1977	176.3	326.9	457.0	4,411.1
1978	189.5	373.3	476.4	4,704.6
1979	182.8	370.7	466.6	4,714.9
1980	170.3	334.4	429.2	4,566.7
1981	168.1	320.7	447.3	4,595.4
1982	173.7	366.1	457.2	4,801.5
1983	170.4	371.6	383.2	4,548.5
1984	185.7	348.2	401.0	4,298.0
1985	168.6	335.2	362.2	4,298.6
1986	167.8	350.5	359.8	4,401.3
1987	165.4	311.4	381.1	4,387.7
1988	179.4	305.2	391.9	4,474.3
1989	203.1	374.1	431.8	4,959.1
1990	184.7	404.7	411.4	5,125.7
1991	200.5	429.5	428.1	5,249.6
1992	204.4	447.3	427.3	5,602.5
1993	197.8	450.8	458.7	6,107.0
1994	227.4	492.2	551.4	7,241.3
1995	271.5	605.4	661.5	8,520.7
1996	294.4	674.6	739.5	9,134.8
1997	323.9	770.8	869.7	10,265.3
1998	344.4	856.5	923.7	11,061.9
1999	375.6	766.9	907.5	11,033.9
2000	344.6	441.4	868.7	10,269.8
2001	318.8	550.9	736.8	9,591.3
2002	345	623.7	560.4	9,134.7
2003	414.6	705.8	591.7	10,652.9
2004	469.6	809.9	720.4	12,238.0



**ANNEX C:
RECORD OF WELL CONSTRUCTION AND
WELL REHABILITATION**

Final Report
The Study for Improvement Plan of
Livestock Farming System in Rural Area

March, 2006

ANNEX C Record of Well Construction and Well Rehabilitation in Pilot Study

C.1 New Construction of Well in 2003

Three wells were newly constructed in 2003.

(1) No. JN-1

1) Well point

Erdene Soum in Dornogobi Aimag

Latitude: North 44°14'07"

Longitude: East 110°51'30"

TEM was applied to the three points based on the request from herders' group and estimated that water resources could be at relatively lower aquifer of 20 to 50m. After confirming that there is no problem on control of pasture use, location of the new well was determined.

2) Process of Well Construction

Oct. 4, 2003: Carrying Equipment, Setting up Camp

Oct. 5, 2003: Beginning of Drilling

Oct. 6, 2003: Completion of Drilling (Depth: 50.5m)

Oct. 7, 2003: Bailing Work

Oct. 8, 2003: Preparation of Installing Casing Pipe

Oct. 9, 2003: Preparation of Equipment

Oct. 10, 2003: Installation of Casing Pipe and Screen

Oct. 11, 2003: Cleaning of Airlift

Oct. 12, 2003: Pumping Test

Oct. 13, 2003: Dismantling and Removal

3) Geology

Geological profile is shown in Fig. C.10. It was estimated that aquifer existed at the sand layer of 23 to 25m and 40 to 42m.

Screen pipe was arranged at the depth of 36.4 to 50.5m like the submergible pump does not suck up sand, and filling sand to secure water was determined at the depth of 23 to 25m.

4) Cleaning by Airlift

After installing the casing pipe and screen pipe, inside of the casing was cleaned up by using airlift.

Cleaning pipe of $\phi 108\text{mm}$ was arranged at depth of 50m and air pipe of $\phi 32\text{mm}$ was also arranged at depth of 48m. Working was completed after confirming that there was no muddiness in water. Natural water level before working was 11.7m, dynamic water level during airlifting was 16m, and pumped discharge was 2.9 l/sec.

5) Pumping Test

i) Applied submergible pump

Maximum capacity: 5m³/h

Maximum pump head: 65m

Output of Motor: 0.8kW

ii) Continuous Pumping Test and Water Level Recovering Test

Although continuous pumping test and water level recovering test were done, data necessary for the hydraulic analysis could not get because of lack of pump power.

6) Applied Equipment

Type and capacity of the main equipment applied for drilling are shown in the following table.

Table.C1 List of Equipment for Drilling (JN-1)

Kind of Equipment	Type and Capacity	Quantity
Drilling Rig	URB-34, Drilling Depth: 500m	1 unit
Sand Pump	HB-32, Discharge: 150l/min, 10kgf/cm ²	1 unit
Compressor	PR-10 Output power: 15kgf/cm ² , Blowing Volume: 10m ³ /h	1 unit
Truck	Carrying Equipment: 10t	1 unit

7) Name of Contractor

UB-Ujsuulagh Company (Ulaanbaatar)

(2) No. JN-2

1) Well point

Erdene Soum in Dornogobi Aimag

Latitude: North 44°49'01"

Longitude: East 111°28'20"

TEM was applied to the three points based on the request from herders group and estimated that water resources could be at relatively lower aquifer of 20 to 30m. After confirming that there is no problem on control of pasture use, location of the new well was determined.

2) Process of Well Construction

Oct. 14, 2003: Carrying Equipment (JN-1 -> JN-2)

Oct. 15, 2003: Carrying Equipment

Oct. 16, 2003: Commencement of Drilling

Oct. 17, 2003: Completion of Drilling (Depth: 30m)

Oct. 18, 2003: Installation of Casing Pipe and Screen

Oct. 19, 2003: Cleaning of Airlift

Oct. 20, 2003: Dismantling and Removal

3) Geology

Geological profile is shown in Fig.C.11. Clay layer appeared at the depth of 4m and successive layers were almost clay though there were parts included sand and small gravel.

4) Cleaning by Airlift

Although screen pipe was installed at depth of 20 to 30m and cleaning was done by airlift, inside of the pipe emptied and water did not spring out. Furthermore, cleaning by airlift was continued while pouring 5 times, as much water as well capacity that was transferred

with tank of 2m³, but finally water did not spring out.

5) Applied Equipment

Type and capacity of main equipment used for drilling is same as JN-1 and shown in Table C.1.

6) Name of Contractor

UB-Usjuulagh Company (Ulaanbaatar) (the same as JN-1)

(3) No. JN-3

1) Well point

Ulaanbadrakh Soum in Dornogobi Aimag

Latitude: North 44°04'54"

Longitude: East 110°17'11"

There was a data of electrical prospecting executed by MFA within the area requested from herders' group, which showed aquifer at the depth of 20m. TEM was applied to verify this data and judged that aquifer could be at depth of 20 to 40m. The depth of the new well was planned to be 40m.

2) Process of Well Construction

Oct. 13, 2003: Carrying Equipment, Setting up Camp

Oct. 14, 2003: Beginning of Drilling

Oct. 15, 2003: Completion of Drilling (Depth: 40.29m, Diameter: 161mm)

Oct. 16, 2003: Pumping Test by Airlift

Oct. 17, 2003: Removal of Airlift Pipe, Extension Work of Hole (φ161mm→244mm)

Oct. 18, 2003: Completion of Drilling (Depth: 60.56m, Diameter: 244mm)

Oct. 19, 2003: Installation of Casing Pipe and Screen

Oct. 20, 2003: Cleaning of Airlift

Oct. 21, 2003: Pumping Test

Oct. 23, 2003: Dismantling and Removal

3) Geology

Geological profile is shown in Fig. C.12. Since there was gravel layer with sand at depth of 26 to 36m and sand layer with clay at depth of 36 to 40m, presence of the aquifer could be expected, and airlift pumping test was done, but there was no spring.

With review of the result of TEM, there was a possibility that aquifer resided in geological boundary at depth of 40 to 50m, so additional drilling of 20m was executed. Medium-sized sand layer existed at depth of 40 to 55m and clay layer with gravel existed at depth of 55 to 60.5m.

Screen pipe was arranged at the depth of 36.4 to 40.6m and 45.5 to 54.8m.

4) Cleaning by Airlift

Cleaning pipe of φ108mm was arranged at depth of 59m and air pipe of φ32mm was also arranged at depth of 57m. Working was completed after confirming that there was no muddiness in water. Natural water level before working was 43.0m, dynamic water level

during airlifting was 44m, and pumped discharge was 0.62 l/sec.

5) Pumping Test

i) Applied submergible pump

Maximum capacity: 5m³ /h
 Maximum pump head: 90m
 Output of Motor: 1.1kW

ii) Continuous Pumping Test and Water Level Recovering Test

Continuous pumping test and water level recovering test were done at the capacity of 1.0 l/sec, consequently water level went down 1.3m and stabilized at 44.3m. The result of the test is shown in the following figure.

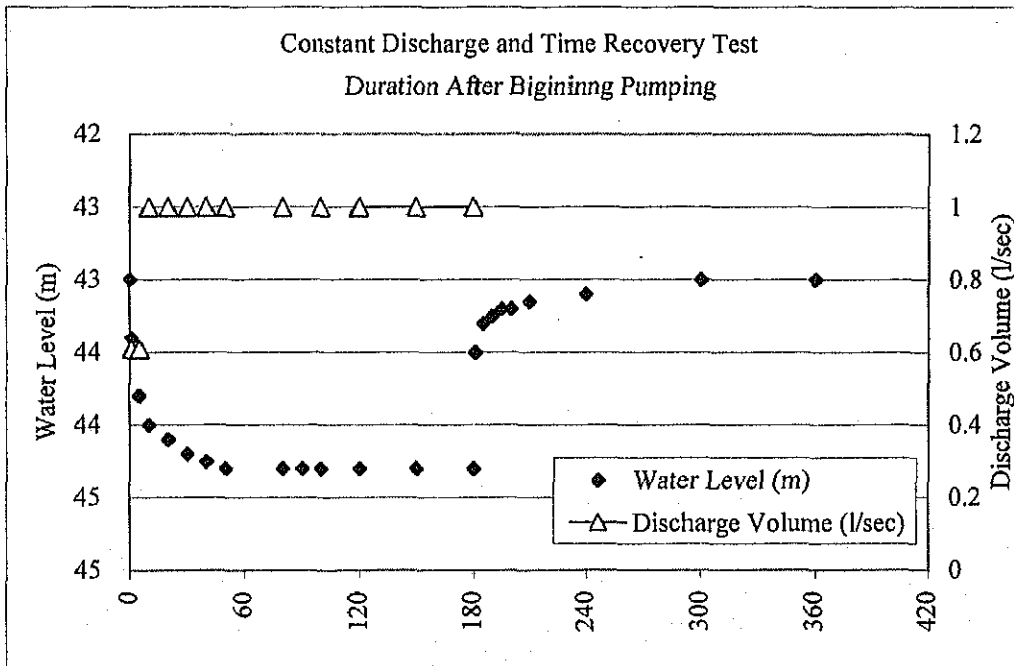


Fig C.1 Results of Constant Discharge and time Recovery Test in JN-3

iii) Result of Pumping Test

Transmissibility coefficient and hydraulic conductivity was estimated by Jacob's approximation formula

- T: Transmissibility Coefficient
- K: Hydraulic Conductivity
- Q: Pumping discharge 0.00065m³/sec
- R: Radius of Well 0.122m
- B: Length of Screen Pipe 13.44m

The following figure shows that Δs is 0.6m, and then Transmissibility Coefficient and Hydraulic Conductivity can be calculated as follows;

$$T = 2.3Q / 4\pi \Delta s = 3.05E-04 m^2/sec$$

$$k = T/b = 2.27E-05 m/sec = 2.27E-3 cm/sec$$

Constant Discharge and Time Recovery Test

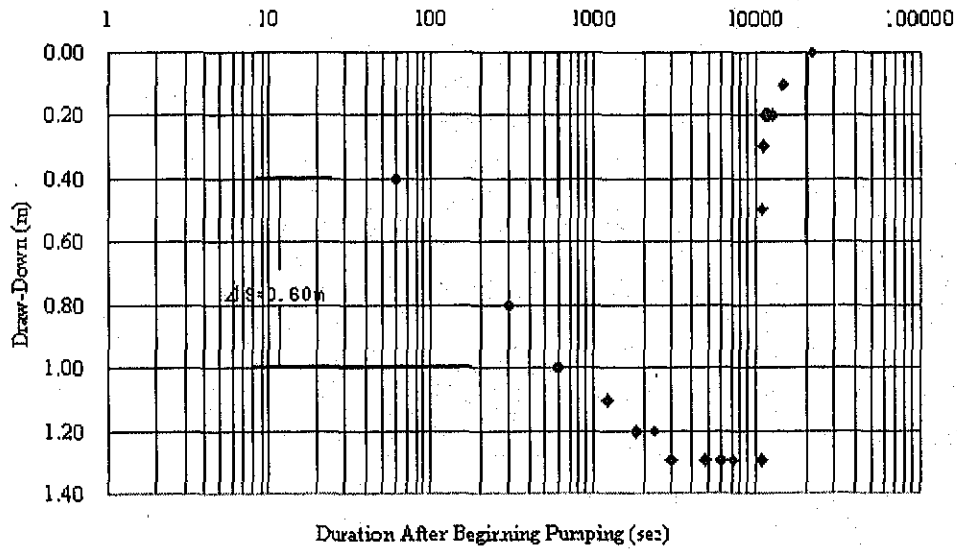


Fig C.2 JN-3 Analysis by Jacob's approximation formula

6) Applied Equipment

Type and capacity of the main equipment applied for drilling are shown in the following table.

Table.C.2 List of Equipment for Drilling (JN-3)

Kind of Equipment	Type and Capacity	Quantity
Drilling Rig	1BA-15V, Drilling Depth: 500m	1 unit
Sand Pump	HB-32, Discharge: 150l/min, 10kgf/cm ²	1 unit
Compressor	NV-10, Output power: 10kgf/cm ²	1 unit
Truck	ZIL-130, Installed with Water Tank, Carrying Equipment	2 units

7) Name of Contractor

UB-Uсjuulagh Company (Ulaanbaatar)

C.2 Record of Well Rehabilitation in 2003

Work to study possibility of well rehabilitation was done by the local contractor contracted with the JICA Study Team. The targeted wells were primarily proposed by the herders' group, and temporarily determined by considering consistency between the well improvement plan and the existing data prepared by JICA and finally confirmed at the field by the Team

Regarding the production well, the type that the lift pipe is remained inside of the well, submergible pump had been installed and the casing is topped was targeted. Regarding the shallow well and shaft well, the one that water level is low and pumping by hand is difficult was also targeted. Working process was as follows;

Table C.3 Rehabilitation Works

Process	Working Time
1. Removable of lift pipe 100mm)	4 hours
2. Confirmation of well depth	1 hour
3. Installation of dredging pipe (50 mm) and air pipe (32 mm) and dredging	12 hours
4. Pumping test	12 hours

(1) Contractor

Name: TANAN- IMPEX CO. , LTD
Address: Ulaanbaatar 210646 Mongolia

(2) Working Form

Staff: One Engineer, Two Operators, Four Assistants
Working Time: Two shift of 12 hours

(3) Well Rehabilitation Work

i) Production Well (Deep Well)

Out of 12 deep wells 11 wells were successfully rehabilitated but 1 well (Taliin buuts) could not rehabilitated because the lower part of the lift pump was broken and its shaft was remained inside of the well. Before rehabilitating the well, basic data of well depth, water level, dynamic water level, and proper pumping discharge were checked by the "passport" but almost results were different from those data except water level.

Content of the well of which data was very different can be explained as follows; 1) well depth shows excavated depth not but length of casing, 2) dynamic water level and discharge were determined by airlift pump and these values differed with capacity of compressor, consequently comparison of capacity of the well in rehabilitation orders could not completed correctly. However, the fact that there was no sign that sand newly entered through screen while dredging, in spite of long period after well construction makes it possible to use sufficiently the well in the future.

ii) Shaft Well (Shallow Well & Shaft Well)

3 shaft wells were rehabilitated. Due to impossibility of using the shallow well as hand pumping well when the well was broken, there was no repairable shallow well. Shaft well of which water level was deep was targeted for rehabilitation to reduce labor of pumping water by hand.

Shaft well is mainly constructed at lowlands of the remained river and deeper than the traditional well, however, pumping capacity is low due to shallow aquifer and screen is liable to damage and be blocked with sand. When the well was dredged by airlift pump, inside of the well emptied due to lack of well capacity. Among 3 shaft wells especially Zurkhiin was lack of water and water level did not recover in spite of pouring water while dredging.

Judging from these results of the Study, dredging by airlift pump is very uneasy and dredging by manpower is more suitable. This means that person goes down the bottom of the well and cleans screen while bailing out deposit by bucket, it needs pump for sprung water and air for oxygen supply. However, it can be judged that rehabilitation of the shaft well could be very difficult based on the following condition that there is no local contractor holding such kind of equipment, choking of screen is liable to happen again even if screen could be cleaned up temporarily, and change of usable water might bring trouble.

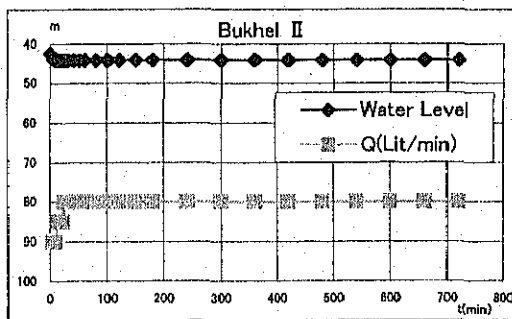
Result of the Study on well rehabilitation is shown as follows;

iii) Result of Pumping Test

After dredging and washing the inside of the well, 12 hours pumping test was done to measure falling of water level and discharge. These results are shown below;

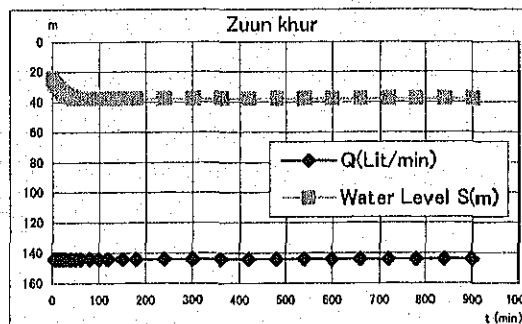
Bukhel II:

- Surveying Date: Oct. 1 to Oct. 5
- Change of Water Level & Discharge
 - Depth of Well: 100.0m
 - Dredging Depth: 94.0m
 - Statistic Water Level: 42.3m
 - Dynamic Water Level: 43.8m
 - Discharge: 80 l/min



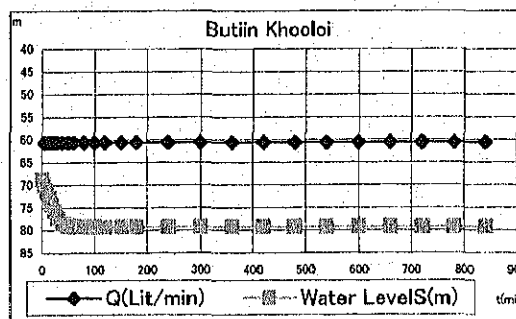
Zuun Khur:

- Surveying Date: Oct. 4 to Oct. 6
- Change of Water Level & Discharge
 - Depth of Well: 107.5m
 - Dredging Depth: 102.0m
 - Statistic Water Level: 24.2m
 - Dynamic Water Level: 37.6m
 - Discharge: 144 l/min



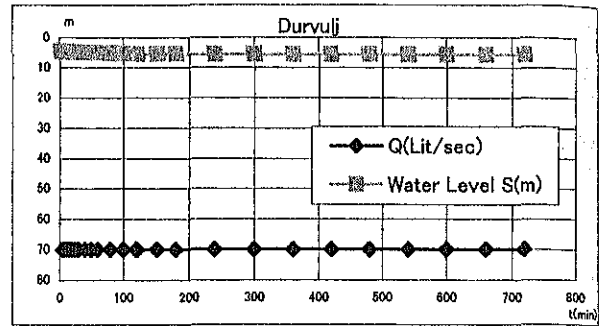
Butiin Khooloi:

- Surveying Date: Oct. 6 to Oct. 9
- Change of Water Level & Discharge
 - Depth of Well: 115.2m
 - Dredging Depth: 108.0m
 - Statistic Water Level: 68.7m
 - Dynamic Water Level: 79.3m
 - Discharge: 60 l/min



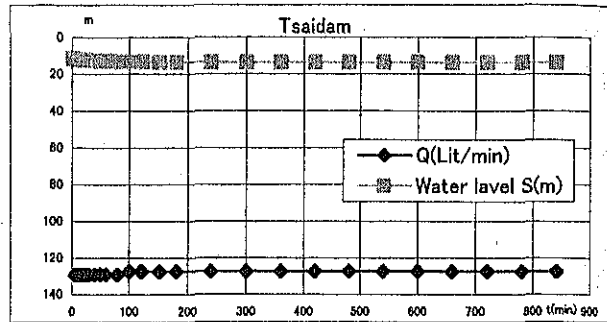
Durvulj:

- Surveying Date: Oct. 7 to Oct. 9
- Change of Water Level & Discharge
 - Depth of Well: 8.0m
 - Dredging Depth: 8.0m
 - Statistic Water Level: 4.5m
 - Dynamic Water Level: 5.67m
 - Discharge: 70 l/min



Tsaidam:

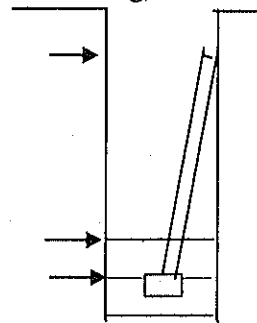
- Surveying Date: Oct. 10 to Oct. 12
- Change of Water Level & Discharge
 - Depth of Well: 90.3m
 - Dredging Depth: 85.0m
 - Statistic Water Level: 11.45m
 - Dynamic Water Level: 13.9m
 - Discharge: 132 l/min



Taliin Buuts:

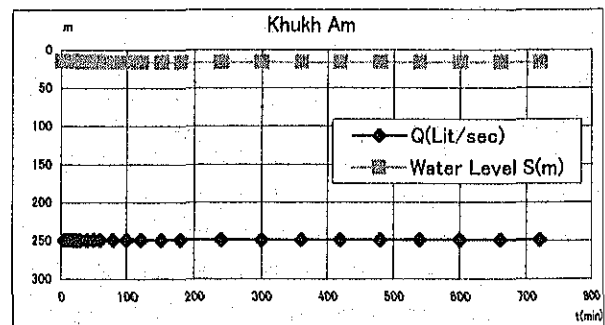
Because the shaft of the lifting pump is remained inside of the casing, the well could not be rehabilitated.

- Surveying Date: Oct. 11 to Oct. 12
- Change of Water Level & Discharge
 - Depth of Well: 84.0m
 - Dredging Depth: 75.3m
 - Statistic Water Level: 61.4m
 - Dynamic Water Level: 84.0m
 - Discharge: -



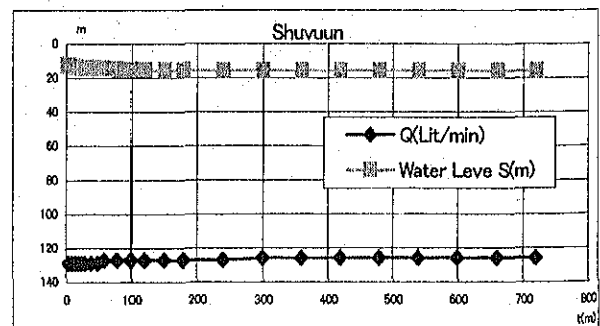
Khukh Am:

- Surveying Date: Oct. 11 to Oct. 14
- Change of Water Level & Discharge
 - Depth of Well: 66.7m
 - Dredging Depth: 60.0m
 - Statistic Water Level: 14.35m
 - Dynamic Water Level: 16.25m
 - Discharge: 240 l/min



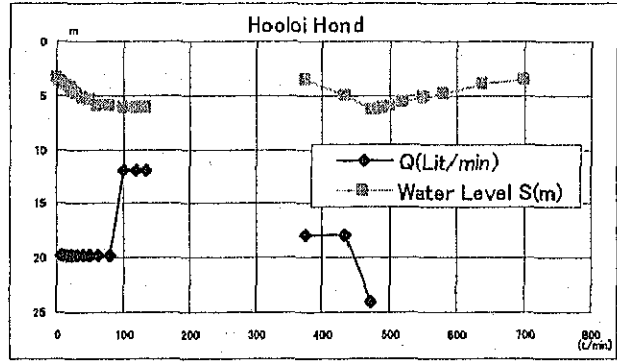
Shuvuun:

- Surveying Date: Oct. 13 to Oct. 15
- Change of Water Level & Discharge
 - Depth of Well: 89.4m
 - Dredging Depth: 84.0m
 - Statistic Water Level: 12.35m
 - Dynamic Water Level: 15.7m
 - Discharge: 126 l/min



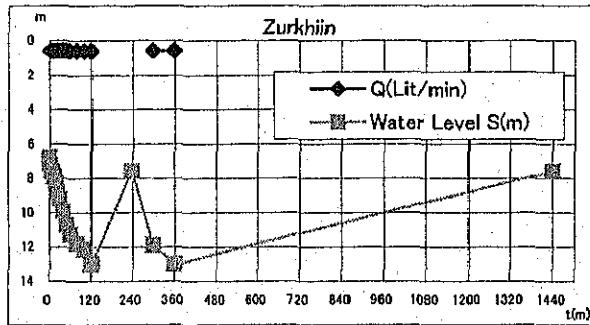
Hooloi Hond:

- Surveying Date: Oct. 12 to Oct. 14
- Change of Water Level & Discharge
 - Depth of Well: 6.9m
 - Dredging Depth: 60.0m
 - Statistic Water Level: 6.1m
 - Dynamic Water Level: 6.1m
 - Discharge: 12 l/min



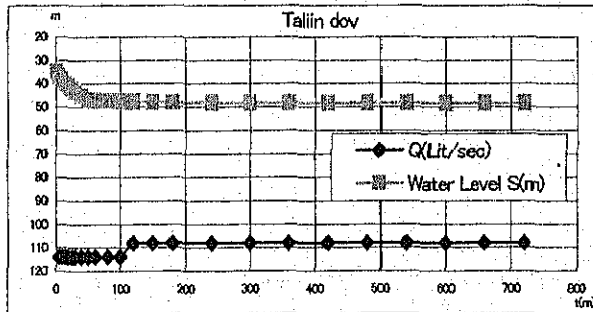
Zurkhiin:

- Surveying Date: Oct. 12 to Oct. 14
 - So much time to recover water the level was needed.
- Change of Water Level & Discharge
 - Although the well was dredged while pouring water from upper side, discharge did not increase.
 - Depth of Well: 13.6m
 - Dredging Depth: 13.2m
 - Statistic Water Level: 6.8m
 - Dynamic Water Level: -
 - Discharge: Immeasurable



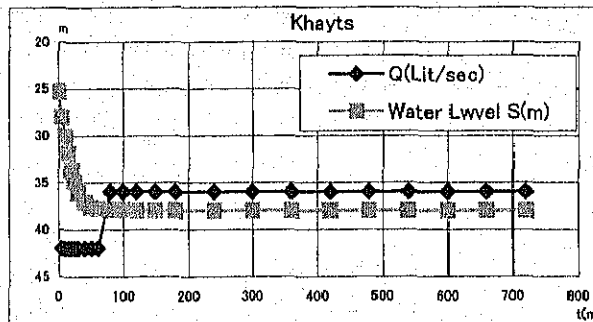
Taliin dov:

- Surveying Date: Oct. 15 to Oct. 17
- Change of Water Level & Discharge
 - Depth of Well: 101m
 - Dredging Depth: 96.0m
 - Statistic Water Level: 35m
 - Dynamic Water Level: 48.3m
 - Discharge: 108 l/min



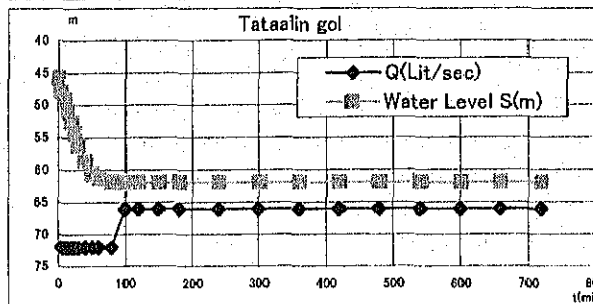
Khayts:

- Surveying Date: Oct. 16 to Oct. 18
- Change of Water Level & Discharge
 - Depth of Well: 43.8m
 - Dredging Depth: 40.0m
 - Statistic Water Level: 25.3m
 - Dynamic Water Level: 38.0m
 - Discharge: 36 l/min



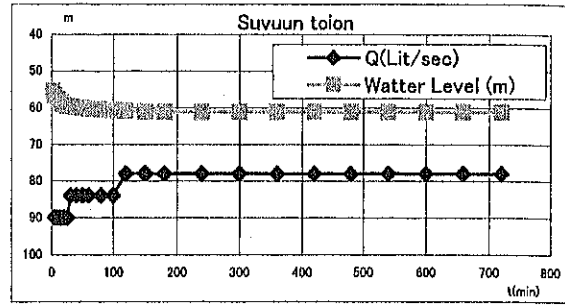
Tataalin gol:

- Surveying Date: Oct. 17 to Oct. 19
- Change of Water Level & Discharge
 - Depth of Well: 97.7m
 - Dredging Depth: 90.0m
 - Statistic Water Level: 45.7m
 - Dynamic Water Level: 61.9m
 - Discharge: 66 l/min



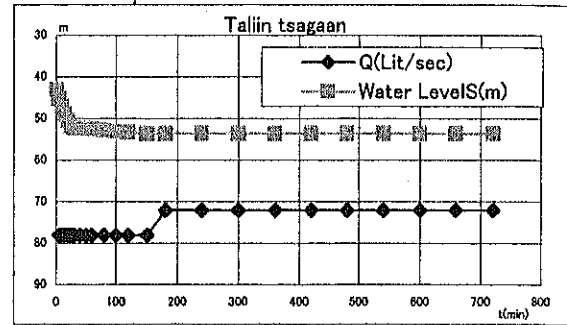
Shuvuun Toion:

- Surveying Date: Oct. 18 to Oct. 20
- Change of Water Level & Discharge
 - Depth of Well: 93.0m
 - Dredging Depth: 90.0m
 - Statistic Water Level: 55.4m
 - Dynamic Water Level: 61.2m
 - Discharge: 66 l/min



Taliin Tsagaan:

- Surveying Date: Oct. 19 to Oct. 22
- Change of Water Level & Discharge
 - Depth of Well: 97.8m
 - Dredging Depth: 92.0m
 - Statistic Water Level: 43.1m
 - Dynamic Water Level: 53.6m
 - Discharge: 72 l/min



iv) Installation of Submersible Pump

In order to study how herders group operate and maintain the well, submersible pumps were installed at the wells for winter camp. When the pump was installed, the group was taught how to operate and maintain the pump and generator. Considering the difficulty of maintenance in the remote area, the pump of Grundfos (made in Denmark) of which agency is in Ulaanbaatar and the generator of KAMA made by technical cooperation between China and U.S.A were selected.

Table C.4 Submersible Borehole Pump • Sump Master Pump

Model	Country of Origin	Qty	Motor Watts kW	Capacity pumped		Capacity pumped	
				Volume (L/s)	Dynamic level (m)	Volume (L/s)	Dynamic level (m)
SP5A-4	Denmark	1	0.37	0.92	21	0.06	40
SP5A-12	Denmark	1	1.1	0.92	60	1.75	32
SP5A-6	Denmark	2	0.55	0.92	29.5	1.75	15.5
SP5A-8	Denmark	1	0.75	0.92	40	1.75	21
AP12.40.04	Denmark	2	0.8	0.70	10	3.90	4

Table C.5 Diesel Generator, Frequency 50HZ

Model	Country of Origin	Qty	Max AC output(kW)	Regular AC output(kW)	Phase	Dimensions (L×W×H(mm))	Weight (Kg)
KDE2000C	China-USA	5	1.9	1.7	Single-Phase	640×480×530	53
KDE3300C	China-USA	2	3.0	2.8	Single-Phase	640×480×530	65

Table C.6 Pump and Generator

Soum	ID	Well name	Pump model	Pumping Depth (m)	steel pipe 32mm	Diesel Generator	Control Box
Erdene	JN-1	Ulziit	SP5A-4	20	20	KDE2000C	1
	3175	Buhel II	SP5A-12	70	70	KDE3300C	1
	850	Durvutj	AP12.40.04	7	7 (hose)	KDE2000C	
Ulaanbadrakh	5154	Tsaidam	SP5A-6	35	35	KDE2000C	1
	3180	Khukh Am	SP5A-6	32	32	KDE2000C	1
	1354	Hooloin Hond	AP12.40.04	7	7 (hose)	KDE2000C	
Khuvsgul	3843	Khayts	SP5A-8	45	45	KDE2000C	1

Table C.7 Results Rehabilitation

Soum	Well No	Well name	Well Type *	Depth (m)	Mobilization (hour)	Construction (hour)	Recovery of Lifting Pipe (hour)	Dredge (hour)	Production test (hour)	Withdrawal (hour)	Total (hour)
Erdene	3175	Bukhel II	A	100.0	12	8	12	10	12	2	56.0
	5078	Zuun khur	A	107.5	6	1	2	5	15	1	30.0
	6936	Butiin Khooloi	A	115.2	4	1	2	6	14	2	29.0
		Durvulj	C	6.0	1.5	1.5	-	1	12	1	17.0
Ulaanbadrakh	5154	Tsaidam	A	90.3	8	2	2	4.5	14	1	31.5
	5062	Taliin boats	A	84.0	5	2	6	6	-	1	20.0
	3180	Khukh Am	A	66.7	5	2	3	6	12	1	29.0
	3185	Shuvuun	A	89.4	5	2	2	4	12	1	26.0
	1354	Hooloi Hond	C	6.9	2	1	-	8	21	0.5	32.5
		Zurkhiin	C	13.6	2	1	-	8	24	0.5	35.5
Khuvsgul	3173	Taliin dov	A	101.0	6	2	2	8	12	1	31.0
	3843	Khayts	A	43.3	3	2	3	8	12	1	29.0
	5151	Tataalin gol	A	97.7	3	2	2	8	12	1	28.0
	3837	Shuvuun toion	A	93.0	4	4	-	8	12	1	29.0
	5149	Taliin tsagaan	A	97.8	5	2	2	8	12	1	30.0
Total					71.5	33.5	38	98.5	196	16	453.5

Table C.8 List of Well Rehabilitation Site

Soum	Well No	Well name	Well Type *	Coordinate data		Before Rehabilitation				After Rehabilitation			
						Depth (m)	Water table (m)	Dynamic level (m)	Ex Yield (l/sec)	Depth (m)	Water table (m)	Dynamic level (m)	Ex Yield (l/sec)
				Latitude	Longitude								
Erdene	3175	Bukhel II	A	442632	1105214	100.2	33	35	1.5	100	42.4	43.8	1.33
	5078	Zuun khur	A	443727	1111324	101.2	15	48.5	1.05	107.5	24.2	37.6	2.4
	6936	Butiin Khooloi	A	444314	1111048	120	68	80	3.6	115.2	68.7	79.3	1.01
		Durvulj	C	444235	1111826	8	4.5			8	4.5	5.67	1.17
Ulaanbadrakh	5154	Tsaidam	A	440515	1103913	120	11.5	21.5	2.6	90.3	11.45	13.9	2.2
	5062	Taliin boats	A	435629	1100649	84	35.6		0.7	No Rehabilitation			
	3180	Khukh Am	A	435156	1102014	91.5	14.2	40.2	3.25	66.7	14.35	16.25	4
	3185	Shuvuun	A	434301	1102730	93	12.2	27.2	1.5	89.4	12.35	15.7	2.1
	1354	Hooloi Hond	C	433746	1102437	6.6	3.4			6.9	3.3	6.1	0.2
		Zurkhiin	C	433612	1103706	13.6	6.6			No Rehabilitation			
Khuvsgul	3173	Taliin dov	A	433001	1094900	150	35.2	60.2	1.5	101	35	48.3	1.8
	3843	Khayts	A	432749	1100238	60.5	25.6	38	0.89	43.3	25.3	38	0.6
	5151	Tataalin gol	A	433041	1093308	120	50	65	1.8	97.7	45.7	61.9	1.1
	3837	Shuvuun toion	A	433702	1092011	108.5	55	59.3	1.42	93	55.4	61.2	1.3
	5149	Taliin tsagaan	A	435720	1094517	94	43	73	1.3	97.8	43.1	53.6	1.2

*Well Type

A Production Well

C Shaft Well

C.3 New Construction of Well in 2004

(1) No. JN-4

1) Well point

Erdene Soum in Dornogobi Aimag

Latitude: North 44°49'00"

Longitude: East 111°28'20"

This location was drilled to expect the shallow aquifer water in 2003 but it was not succeeded. However, it was decided to try new well construction again in the phase III due to herder's strong request. The well point was moved to another geophysical surveyed point located in about 1km northeast from last year point. The low resistively layer deeper than 70m is expected water aquifer, so that the drilling depth is assumed 80m.

2) Process of Well Construction

Apr. 24, 2004: Carrying Equipment, Setting up Camp, Beginning of Drilling

Apr. 28, 2004: Completion of Drilling (Depth: 80m)

Apr. 29-30, 2004: Preparation of Installing Casing Pipe and Screen

May 1, 2004: Installation of Casing Pipe and Screen

May 2, 2004: Preparation of Bailing Work for Cleaning

May 3, 2004: Cleaning of Bailing

May 4, 2004: Cleaning of Airlift

May 5-7, 2004: Preparation of Pumping Test by submerge pump

May 8-9, 2004: Pumping Test

3) Geology

Geological profile is shown in Fig.C.13. It was estimated that aquifer existed at the sand layer and gravel layer of 32 to 44m and 44 to 51m.

Screen pipe was arranged at the depth of 32 to 38m and 44, to 56m, and filling gravel to secure water was determined at the depth of 10m.

4) Cleaning borehole

After installing the casing pipe and screen pipe, inside of the casing was cleaned up by 100 times bailing (6m³).

Moreover, the lift pump was set at 78m deep of the casing and it was cleaned up continuously 18 hours by using airlift. The works was completed after confirming that there was no muddiness in water.

5) Pumping Test

i) Applied submergible pump

Maximum capacity: 5m³/h

Maximum pump head: 140m

Output of Motor: 2.2 kW

iii) Continuous Pumping Test and Water Level Recovering Test

Although continuous pumping test and water level recovering test were done at the capacity of 1.37 l/s, consequently water level went down 6.8m and stabilized at 13.8m. (Statistic water level is 7.0,). The result of test is shown in figure.

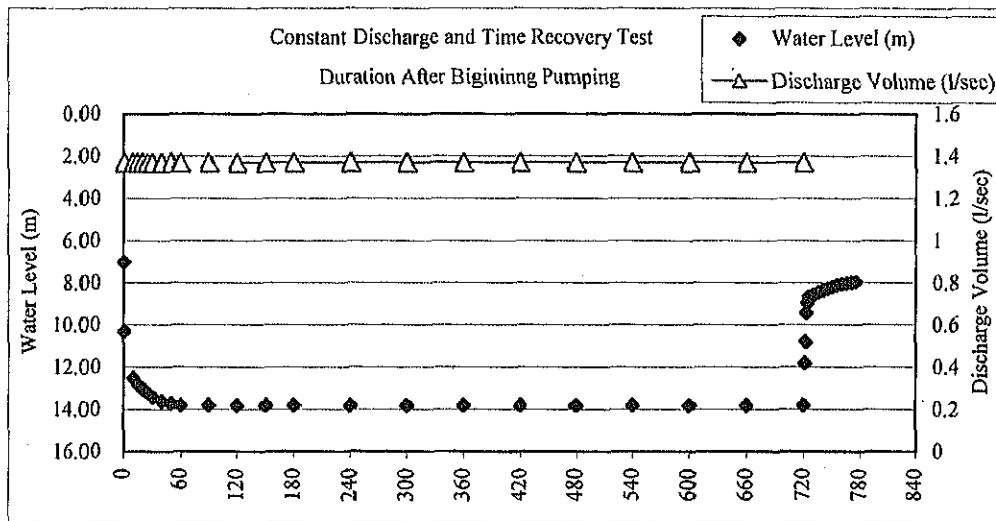


Figure C.3 Results of Continuous Pumping Test and Water Level Recovering Test in JN-4

iii) Result of Pumping Test

Transmissibility coefficient and hydraulic conductivity was estimated by Jacob's approximation formula

- T: Transmissibility Coefficient
- K: Hydraulic Conductivity
- Q: Pumping discharge 0.00137m³/sec
- R: Radius of Well 0.122m
- b: Length of Screen Pipe 17.4m

The following figure shows that Δs is 2.20m, and then Transmissibility Coefficient and Hydraulic Conductivity can be calculated as follows;

$$T = 2.3Q / 4\pi \Delta s = 1.14E-04 \text{ m}^2/\text{sec}$$

$$k = T/b = 6.55E-06 \text{ m/sec} = 6.55E-04 \text{ cm/sec}$$

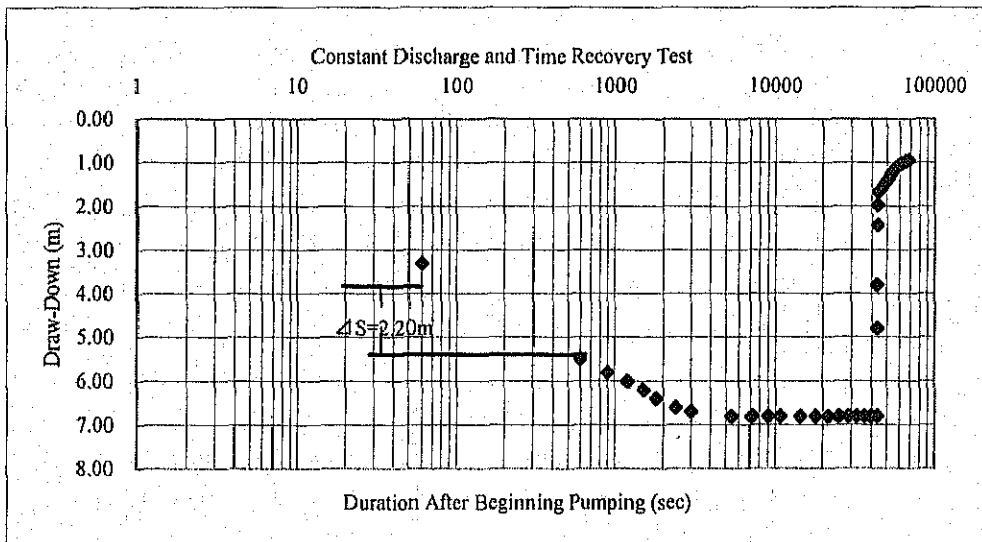


Fig. C 4 JN-4 - Jacob's approximation formula

6) Applied Equipment

Type and capacity of the main equipment applied for drilling are shown in the following table.

Table.C.10 List of Equipment for Drilling (JN-4)

Kind of Equipment	Type and Capacity	Quantity
Drilling Rig	URB-3A, Drilling Depth: 500m	1 unit
Sand Pump	HB-32, Discharge: 150l/min, 10kgf/cm ²	1 unit
Truck	Capacity 10 ton	2 units

7) Name of Contractor

Tungalag us Company (Tuv Aimag)

(2) No. JN-5

1) Well point

Ulaanbadrakh Soum in Dornogobi Aimag

Latitude: North 43°56'29"

Longitude: East 110°06'48"

There are an unused well in this point. It was rehabilitated in phase-II but it was not success due to the part for previous pump was stacked in the well.

However, it was decided to try new well construction again in this phase III due to herder's request. The low resistivity layer between 100m to 140m depth is expected water aquifer from result of geophysical survey (TEM), so that the drilling depth is assumed 140m.

2) Process of Well Construction

Apr. 25, 2004: Carrying Equipment

Apr. 26, 2004: Setting up Camp, Preparation of Drilling

Apr. 27, 2004: Beginning of Drilling

May 6, 2004: Completion of Drilling (Depth: 140m)

May 7, 2004: Preparation of Installing Casing Pipe and Screen

May 8, 2004: Installation of Casing Pipe and Screen

May 9, 2004: Cleaning of Bailing

May 10, 2004: Cleaning of Airlift

May 12, 2004: Pumping Test by submerge pump

3) Geology

Geological profile is shown in Fig. C.14. It was estimated that aquifer existed at the sand layer of 66 to 80m and sand and gravel layer of 80 to 96m.

Screen pipe was arranged at the depth of 63 to 68m and 73m to 78m, and filling gravel to secure water was determined at the depth of 10m.

4) Cleaning borehole

After installing the casing pipe and screen pipe, the casing was cleaned up by 8 hours bailing continuously.

Moreover, the casing was cleaned up continuously 10 hours by using airlift. The works was completed after confirming that there was no muddiness in water.

5) Pumping Test

- i) Applied submergible pump
 - Maximum capacity: 5m³/h
 - Maximum pump head: 140m
 - Output of Motor: 2.2 kW

iv) Continuous Pumping Test and Water Level Recovering Test

Although continuous pumping test and water level recovering test were done at the capacity of 1.00 l/s, consequently water level went down 1.57m and stabilized at 64.07m. (Statistic water level is 62.50,). The result of test is shown in figure.

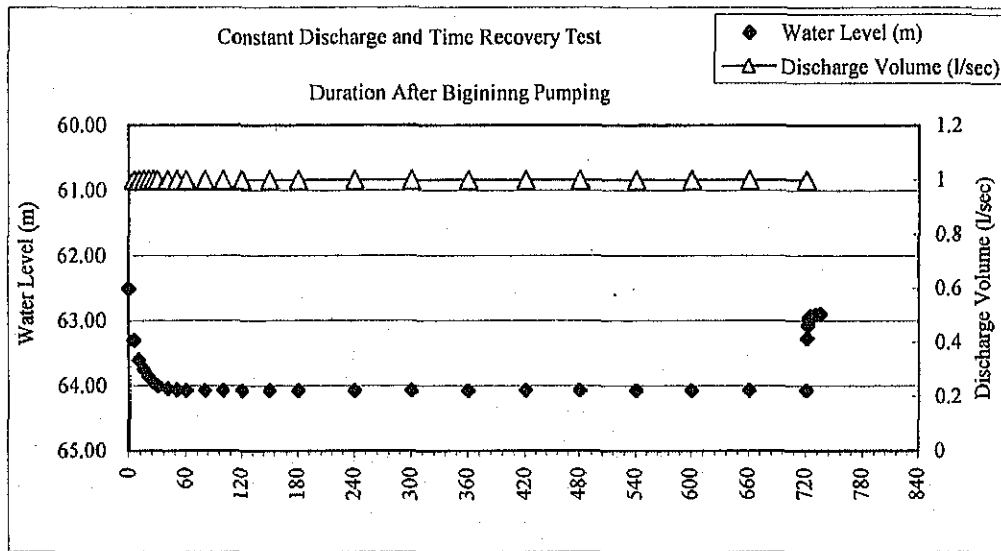


Fig C.5 Results of Continuous Pumping Test and Water Level Recovering Test in JN-5

iii) Result of Pumping Test

Transmissibility coefficient and hydraulic conductivity was estimated by Jacob's approximation formula

- T: Transmissibility Coefficient
- K: Hydraulic Conductivity
- Q: Pumping discharge 0.001m³/sec
- R: Radius of Well 0.122m
- b: Length of Screen Pipe 19.2m

The following figure shows that Δs is 0.92m, and then Transmissibility Coefficient and Hydraulic Conductivity can be calculated as follows;

$$T = 2.3Q / 4\pi \Delta s = 1.99E-04 \text{ m}^2/\text{sec}$$

$$k = T/b = 1.04E-05 \text{ m/sec} = 1.04E-03 \text{ cm/sec}$$

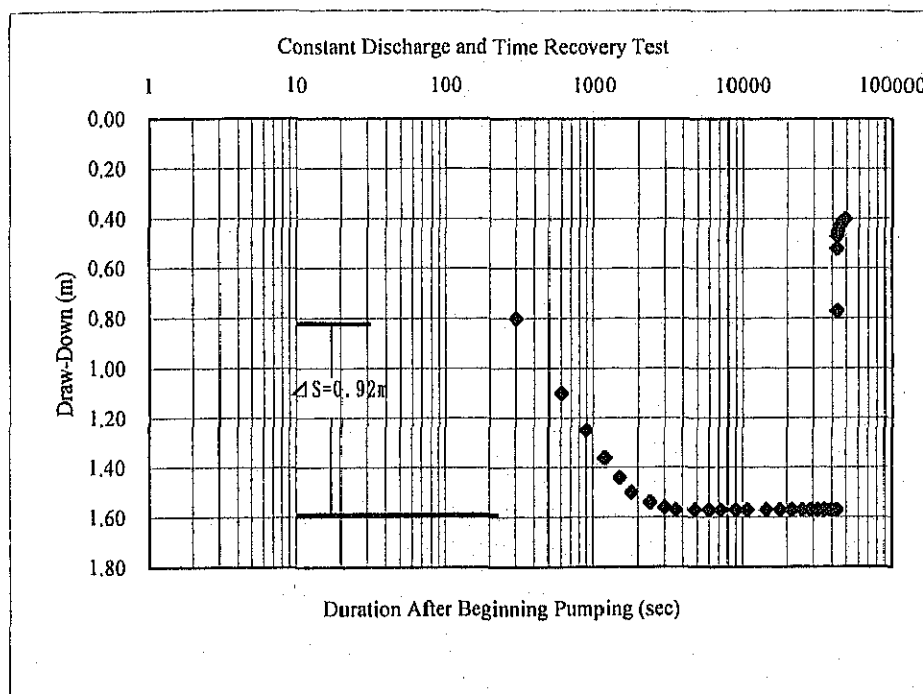


Fig C.6 JN-5 Jacob's approximation formula

6) Applied Equipment

Type and capacity of the main equipment applied for drilling are shown in the following table.

Table.C.11 List of Equipment for Drilling (JN-4)

Kind of Equipment	Type and Capacity	Quantity
Drilling Rig	URB-3A, Drilling Depth: 500m	1 unit
Sand Pump	HB-32, Discharge: 150l/min, 10kgf/cm ²	1 unit
Truck	Capacity 10 ton	2 units

7) Name of Contractor

Tungalag us Company (Tuv Aimag)

(3) No. JN-7

1) Well point

Khuvs gul Soum in Dornogobi Aimag

Latitude: North 43°44'41"

Longitude: East 109°36'58"

There are an unused well in this point. It was rehabilitated in phase-II but it was not success.

However, it was decided to try new well construction again in this phase III due to herder's request. The depth of existing well is 120m and a result of geophysical survey (TEM) in 20km far from the point is 100m, so that the aquifer depth is expected about 100m then the drilling depth is assumed 120m.

2) Process of Well Construction

- May 20, 2004: Carrying Equipment
- May 21, 2004: Setting up Camp, Preparation of Drilling
- May 22, 2004: Beginning of Drilling
- May 26, 2004: Completion of Drilling (Depth: 120m)
- May 27, 2004: Preparation of Installing Casing Pipe and Screen
- May 28, 2004: Installation of Casing Pipe and Screen, Cleaning of Bailing, Airlift
- May 29, 2004: Pumping Test by submerge pump
- May 30, 2004: Reconstruction of Water Supply Facilities

3) Geology

Geological profile is shown in Fig. C.15. It was estimated that aquifer existed at the sand layer of 63 to 85m and 91m to 95m.

Screen pipe was arranged at the depth of 76 to 86m and 90m to 96m, and filling gravel to secure water was determined at the depth of 10m.

4) Cleaning borehole

After installing the casing pipe and screen pipe, the casing was cleaned up by 8 hours bailing continuously.

Moreover, the casing was cleaned up continuously 10 hours by using airlift. The works was completed after confirming that there was no muddiness in water.

5) Pumping Test

i) Applied submergible pump

- Maximum capacity: 5m³/h
- Maximum pump head: 140m
- Output of Motor: 2.2 kW

v) Continuous Pumping Test and Water Level Recovering Test

Although continuous pumping test and water level recovering test were done, data necessary for the hydraulic analysis could not get because of decreasing of power capacity.

Although continuous pumping test were done at the capacity of 0.50 l/s, consequently water level went down 5.00m and stabilized at 57.56m. (Statistic water level is 52.56,). The result of test is shown in figure.

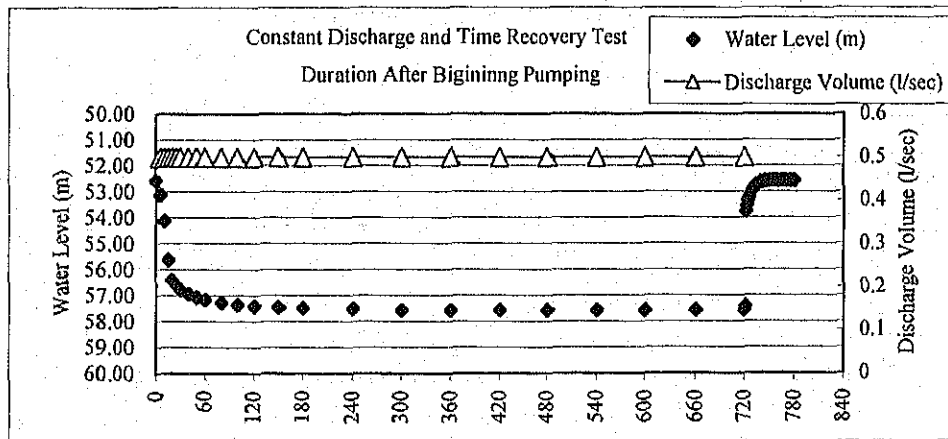


Fig C.7 Results of Continuous Pumping Test and Water Level Recovering Test in JN-7

iii) Result of Pumping Test

Transmissibility coefficient and hydraulic conductivity was estimated by Jacob's approximation formula

- T: Transmissibility Coefficient
- K: Hydraulic Conductivity
- Q: Pumping discharge 0.0005m³/sec
- R: Radius of Well 0.122m
- b: Length of Screen Pipe 15.4m

The following figure shows that Δs is 2.29m, and then Transmissibility Coefficient and Hydraulic Conductivity can be calculated as follows;

$$T = 2.3Q/4\pi \Delta s = 4.00E-05 \text{m}^2/\text{sec}$$

$$k = T/b = 2.6E-06 \text{m}/\text{sec} = 2.6E-04 \text{cm}/\text{sec}$$

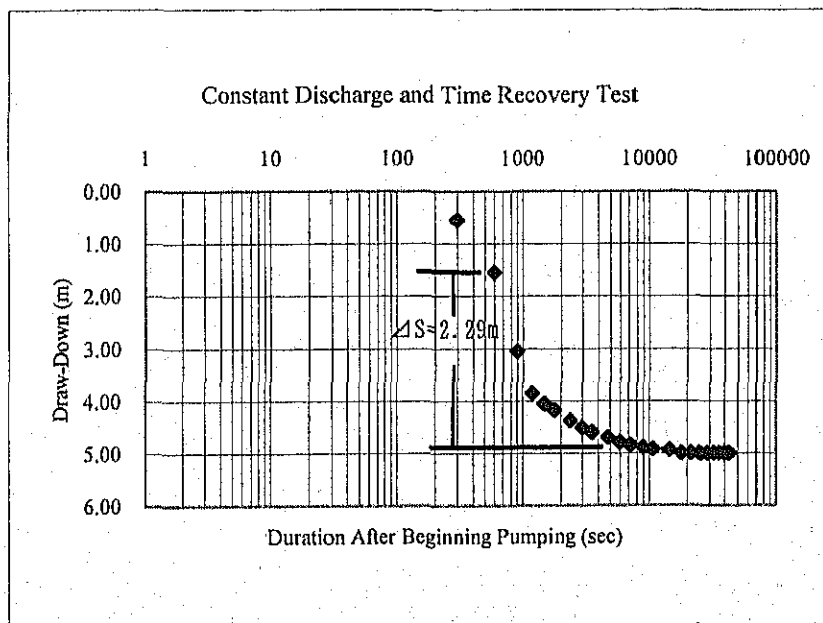


Fig C.8 JN-7 Jacob's approximation formula

6) Applied Equipment

Type and capacity of the main equipment applied for drilling are shown in the following table.

Table.C.12 List of Equipment for Drilling (JN-4)

Kind of Equipment	Type and Capacity	Quantity
Drilling Rig	URB-3A, Drilling Depth: 500m	1 unit
Sand Pump	HB-32, Discharge: 150l/min, 10kgf/cm ²	1 unit
Truck	Capacity 10 ton	2 units

7) Name of Contractor

Tungalag us Company (Tuv Aimag)

C.4 Setting of Submerge Pump and Construction of Well Facilities

The pumps installation and construction of protection boxes, feed water tanks and water storage tanks are was carried out at 3 new constructed wells and 7 constructed/rehabilitated wells in Phase II.

The operation of the generator and pump, and corresponding network when they are broken down is taught to herder with guidance note when submerge pump was installed. Moreover, the installation works were done with the prepared equipment in the Study aiming the herders learns how to change pump by themselves in next time.

The type of equipments was selected as same as Phase-II one of which agency is in Ulaanbaatar, the pump of Grundfos (made in Denmark) and the generator of KAMA made by technical cooperation between China and U.S.A were selected.

The Submersible Borehole Pump and generator are shown in below table.

Table C.13 Submersible Borehole Pump and Generator

Soum	ID	Well Name	Pump Model	Well Depth (m)	Pumping Depth (m)	Diesel Generator	Switch Breaker
Erdene	6936	Butiin khooloi	SP5A-17	115.2	87	KDE5000C	MKE10
	5082	Zuun khur	SP5A-8	107.5	39	KDE2000C	
		Tsant(JN-4)	SP5A-4	80	21	KDE2000C	MKE4
Ulaanbadrakh		Uvgon Mod(JN-3)	SP3A-12	60	51	KDE3300C	MKE4
	3185	Shuvuun	SP5A-6	89.4	36	KDE2000C	MKE4
		Taliin Buuts(JN-5)	SP5A-12	140	69	KDE3300C	MKE6.3
Khuvsgul	5149	Talin tsagaan	SP5A-12	97.8	66	KDE3300C	MKE6.3
	5151	Tataalin gol	SP5A-12	97.7	69	KDE3300C	MKE6.3
	3173	Talyn dov	SP5A-12	101	63	KDE3300C	MKE6.3
		Yast(JN-7)	SP5A-17	120	72	KDE5000C	MKE10

The specification of set submersible pump and generator is below tables.

Table C.14 Submersible Borehole Pump

Model	Country of Origin	Qty	Motor Watts kW	Capacity pumped		Capacity pumped	
				Volume (l/s)	Dynamic level (m)	Volume (l/s)	Dynamic level (m)
SP3A-12	Denmark	1	0.75	0.42	66	1.08	30
SP5A-17	Denmark	2	1.5	0.92	85	1.75	44
SP5A-12	Denmark	5	1.1	0.92	60	1.75	32
SP5A-6	Denmark	1	0.55	0.92	29.5	1.75	15.5
SP5A-8	Denmark	1	0.75	0.92	40	1.75	21

Table C.15 Diesel Generator Frequency 50HZ

Model	Country of Origin	Qty	Max AC output(kW)	Rated AC output(kW)	Phase	Dimensions L×W×H(mm)	Weight (kg)
KDE 2000C	China-USA	3	1.9	1.7	Single-Phase	640×480×530	53
KDE 3300C	China-USA	5	3.0	2.8	Single-Phase	640×480×530	65
KDE 5000C	China-USA	2	4.6	4.2	Single-Phase	720×480×645	95

The water supply facilities are designed as below.

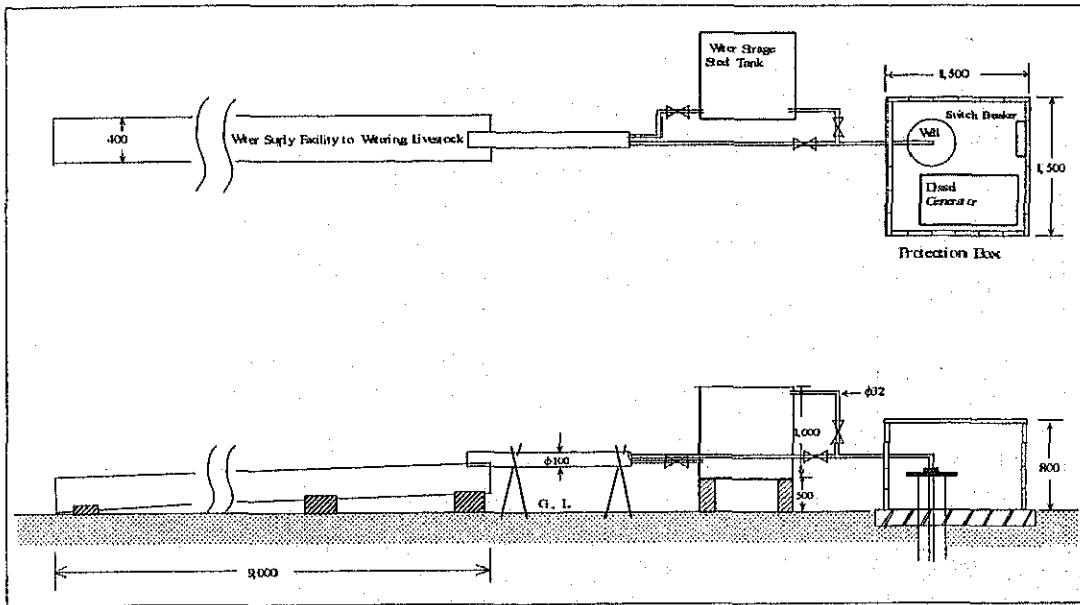


Fig C.9 Design of Water Facilities

Fig C.10 Progress Record (JN-1)

Depth (m)	Symbol	Name of Rocks	October										Remarks		
			1	2	3	4	5	6	7	8	9	10			
0.2		Granule													
3.0		Medium sand													
7.0		Clayey sand													
11.0		Clay													
15		Clay													
20		Clay													
25		Clay with Coars sand(27m~28m)													
30		Clay													
35		Clay													
40		Clay with Medium sand(40m~42m)													
45		Clay													
50		50.5m													

Fig C.11 Progress Record (JN-2)

Well Name, JN-2

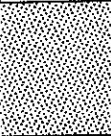
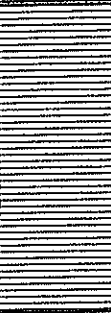

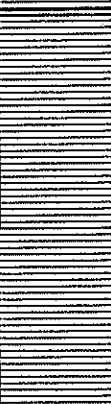

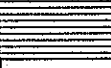
Depth (m)	Symbol	Name of Rocks	October										Remarks			
			14	15	16	17	18	19	20	21	22	23				
1.2		Sand														
4.0		Clay														
13.0		Clay with Granule														
18.0		Clay														
30		Clay with Fine sand(30m~32m)														
35		Clay														
40																

Fig C.12 Progress Record (JN-3)

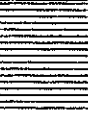
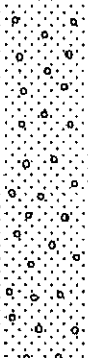

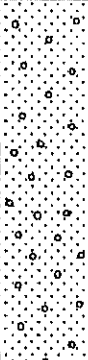

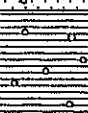
Well Name, JN-3			October										Remarks
Depth (m)	Symbol	Name of Rocks	13	14	15	16	17	18	19	20	21	22	
5		Clay											
9.0		Sand with Granule											
15													
20													
23.0		Clay											
25													
26.0		Sand with Granule											
30													
35													
40													
45		Clay											
50		50.5m											
55.0		Clay with Medium sand											
60.5													

Fig C.13 Progress Record (JN-4)

Well Name, JN-4

Depth (m)	Symbol	Name of Rocks	April							Remarks	
			24	25	26	27	28	29	30		
10		Granule									Instration of screen pipe from 32m to 38m from 44m to 56m
20		Sand with Granule									
		Clay with Sand									
30		Clay with Granule									
40		Granule with Sand									
50		Granule									
60		Sandstone									
70											
80											

Fig C.14 Progress Record (JN-5)

Well Name, JN-5

Depth (m)	Symbol	Name of Rocks	April				May				Remarks				
			27	28	29	30	1	2	3	4		5	6	7	8
0-10		Granule													
10-20		Granule with Clay													
20-30		Sand with Granule and Clay													
30-40															
40-50															
50-60		Sand													
60-70															
70-80		Sand													
80-90		Sand with Granule and Clay													Installation of screen pipe from 63m to 68m from 73m to 78m from 83m to 93m
90-100		Sand with Granule													
100-110		Clay with Sand													
110-120															
120-130															
130-140														Repairment of drilling machine	

Fig C.15 Progress Record (JN-7)

