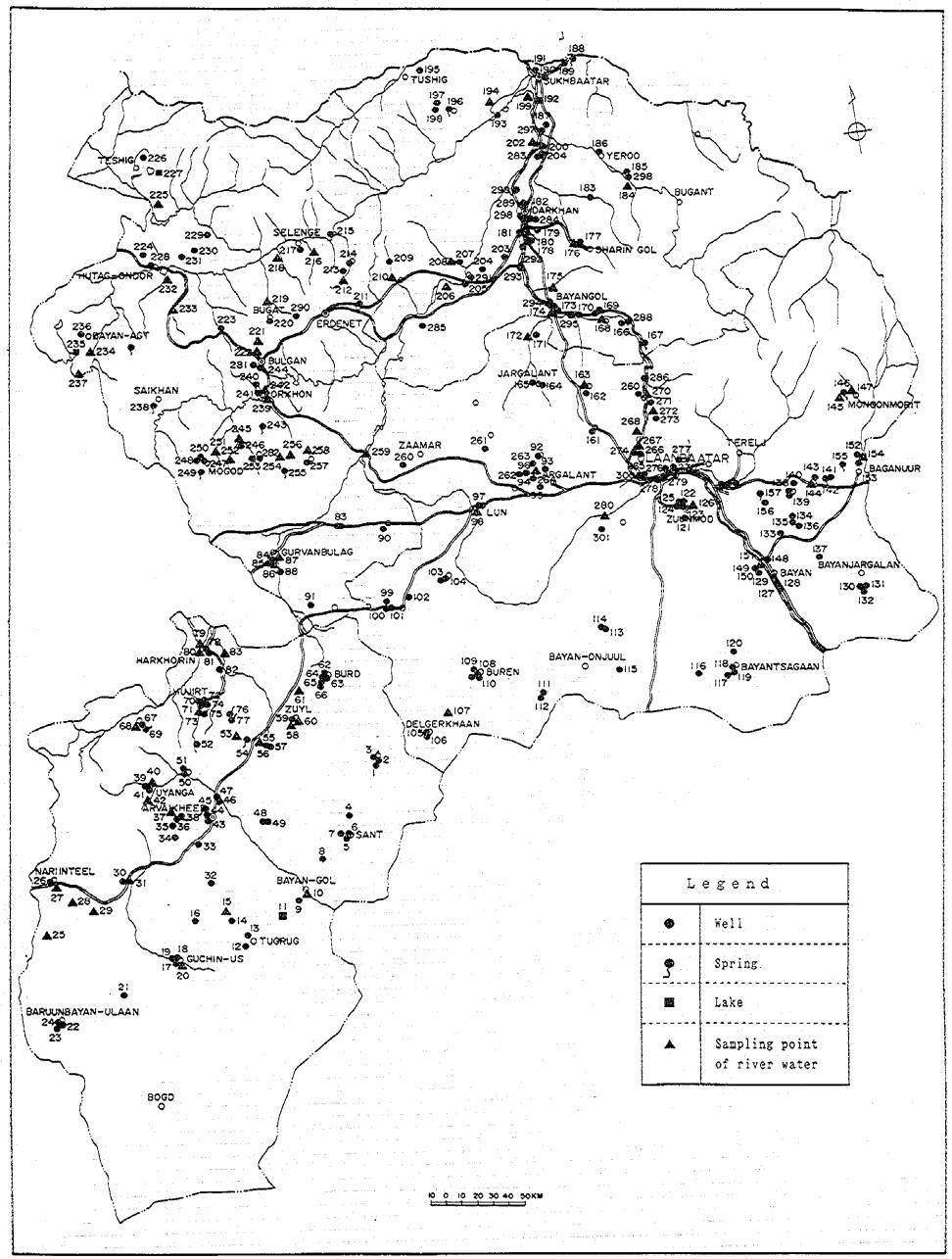
Figure 3.1.3.5 Water Quality Study Sampling Location Map



3.1.4.1 Soils in Mongolia

Mongolia has rich soil resources, which are widely used for , hayfields and plowed fields. Mongolia has the most varied soils, ranging from alpine-tundra to extra-arid desert soils, creating a mosaic of variegated soils. Quite notable are lowland regions with latitudinal soil zonality, mountain regions with vertical soil zonality, and depression-lowland regions with a mixed type of soil zonality.

1.Soils in Mongolian Territory

1)Altitudinal soil zonality

In the mountain systems of the Mongolian Altai, Gov'altai, Hangai, Hentii, and the Hovsgol region,the distribution of soil is governed by altitudinal zonal regulations. In the mountains,there are four different structures of vertical soil zonality: humid, sub-humid, sub-arid and arid.

Humid:The humid type of zonality is characterized by the existence of zones of frozen taiga and sod-taiga soils on all aspects, and also broadly developed tundra soils on the peaks.

Sub-humid:The sub-humid type is distributed for its amplitude of zonal changes, from the arid-steppe chestnut soils in the foothills to the alpine-meadow and meadow-tundra soils. An extremely contrasting development of the influence of aspect is characteristic northern- taiga forest and sourthern - dry steppe.

Sub-arid:The sub-arid type of vertical zonality is characterized by a total absence of forests on all aspects and the presence of a zone of specific alpine-steppe coarse-humus soils, and the occurrence of light chestnut and brown desert-steppe soils on the lower levels of the spectrum of altitudinal zones.

Aried: An increase in the altitude, occurrence of desert-steppe and desert soils are observed. The upper part of the vertical rows of altitudinal zones is more commonly crowned with chestnut soils.

2)Mixed zonality

The depression of the great Lakes, the valley of Lakes, the trans-Altai Gobi and the eastern Mongolian lowland come under areas with complex mixed

zonality.

3)Latitudinal zonality

The lowland territories with a latitudinal zonal structure of soil cover are situated only in the south-east of the country and occupy a relatively small area. A change of three soil zones from north to south is clearly observed here: chestnut and arid-steppe soils (with subzones of dark chestnut, chestnut proper and light chestnut), brown desert-steppe and grey-brown desert soils.

The geographical distribution of soils in Mongolia and The Study Area are shown in Fig.3.1.4.1. And the per cent of soils distributing in Mongolia are shown in Table 3.1.4.1.

As shown in the Table 3.1.4.1, dry-steppe chestnut soils are the most widespread Mongolia - they occupy 39.9 per cent of the total territory - followed by brown desert-steppe and grey-brown desert soils. Meadow,meadow-swamp, alluvial and saline soils cover relatively small areas in different parts of the country.

2.Soils in The Study Area

In the mountainous regions of Hovsgol and Hentii, altitudinal humid type of soil zonality is distributing. In the eastern parts of Selenge and Tov and the western part of Bulgan and Ovorhangai Imag, altitudinal sub-humid soil zonality is distributing as surrounding the mixed type of soil zonality which situates in the north-central parts of the Study Area. In the southern parts of the Study Area being close by Dund Gov, a latitudinal zonal structure of soils such as dark chestnut and light chestnut soil are observed(Fig.3.1.4.2).

Table 3.1.4.1 The Per Cent of Soils Distributing in Mongolia

Soils	Total	Altitudinal Zonality		Latitudinal Zonality
		Mountain	Foothills	
Mountain-tundra soils	1.6(%)	1.6(%)	-	-
Mountain-meadow soil	3.0	3.0	-	-
Mountain-meadow-steppe soils	0.9	0.9	-	-
Alpine-steppe soils	2.0	2.0	-	-
Mountain frozen-taiga soils	2.1	2.1	-	-
Mountain sod-taiga soils	5.0	5.0	-	-
Dark coloured mountain forest soils	1.8	1.6	0.1	0.1
Chernozem	5.9	4.4	0.9	0.6
Chestnut soils	39.9	11.2	11.4	17.3
including				
Dark chestnut	17.1	6.8	4.9	5.4
Chestnut	11.9	2.7	3.6	5.6
light chestnut	10.9	1.7	2.9	6.3
Meadow-chestnut soils	0.5	-	-	0.5
Brown desert-steppe soils	17.1	1.4	2.8	12.9
including				
Brown desert-steppe	8.7	0.6	1.1	7.0
Brown steppe	8.4	0.8	1.7	5.9
Grey-brown desert soils	9.3	0.4	2.0	6.9
Extra-arid desert soils	2.1	-	-	2.1
Saline soils	1.7	-	-	1.7
Meadow and meadow-swamp soils	2.3	-	-	2.3
Alluvial soils Sand soils	2.0	-	-	2.0
Sand soil	1.8	-	-	1.8

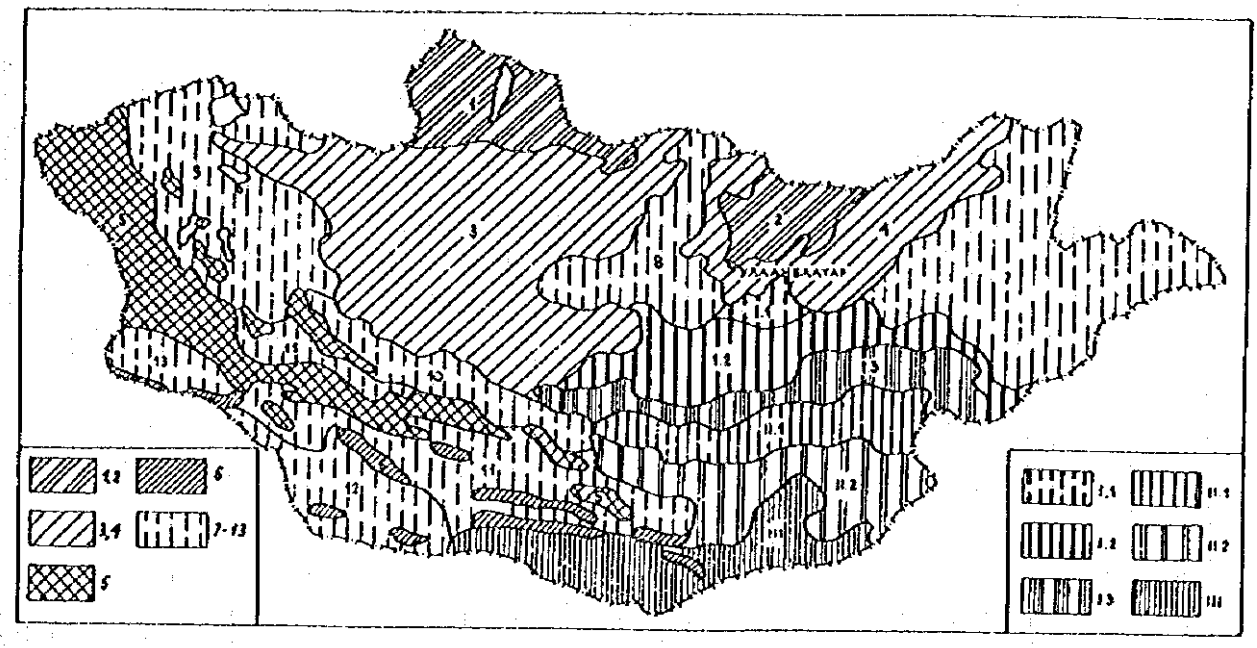


Fig.3.1.4.1 Soils distributing in Mongolia

(A)Territories with altitudinal zonality:

Mountain provinces with humid type of zonality

1. Hovsgol area
2. Central hentii

Mountain provinces with sub-humid type of zonality

3. Hangai
4. Hentii

Mountain provinces with sub-arid type of zonality

5. Altai

Mountain provinces with arid type of zonality

6.Trans-Altai region

(B)Territories with mixed type of zonality

7. Eastern Mongolia
8. Orhon and Tuul
9. The Depression of the Great Lakes
10. The Valley of Lakes
11. The Gov'altai
12. The Trans-Altai
13. The Zuungar Gobi

(C)Territories with latitudinal zonality

I.1. Dark chestnut
I.2. Chestnut
I.3. Light chestnut
II.1. Brown desert-steppe
II.2. Grey-brown desert

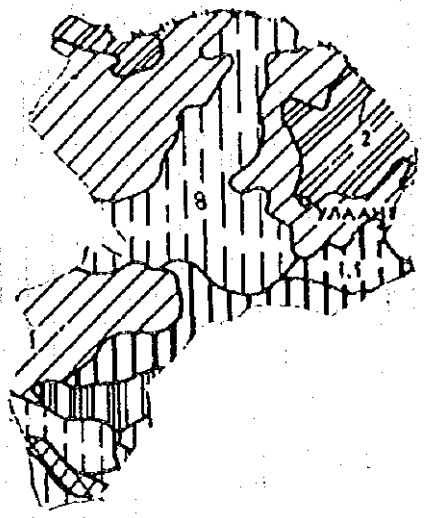


Fig.3.1.4.2 Soils distributing in the Study Region

Source:Information MONGOLIA (1990)
Academy of Sciences MPR

Table 3.1.4.2 Characteristics of the Soil Distributing in the Study Area

Soils	Frozen soils in coniferous forest zone ([illegible])				Deep frozen soils in coniferous forest zone ([illegible])				Fine calcificated black soils ([illegible])					Fine calcificated black brown soils (K [illegible])			
Depth (cm)	0 - 5	5 - 20	20 - 40	40 - 60	0 - 5	5 - 20	20 - 40	40 - 55	0 - 10	10 - 25	25 - 30	30 - 60	60 -	0 - 15	15 - 35	35 - 65	65 - 90
Organic Matter (%)	4.0 - 18.0	1.5 - 3.0	0.8 - 1.5	0.5 - 1.0	4.0 - 14.0	3.0 - 6.0	1.5 - 3.0	0.4 - 0.6	5.0 - 8.0	3.0 - 5.0	1.5 - 2.5	0.5 - 1.5		3.0 - 5.0	1.5 - 2.5	0.5 - 1.5	
ph (H2O)	4.5 - 5.0	4.5 - 5.5	4.5 - 5.5	5.0 - 5.5	5.0 - 6.0	4.5 - 5.5	5.0 - 6.0	5.0 - 6.0	6.0 - 7.0	6.5 - 7.0	7.0 - 8.0	7.5 - 8.5	7.0 - 8.0	6.5 - 7.0	6.5 - 7.0	7.0 - 8.4	7.5 - 8.4
CaCO 3 (%)											0 - 2	5 - 20	4 - 6			5 - 20	3 - 5

Soils	Fine calcificated brown soils (K2)				Fine calcificated bright brown soils (K1)			Plain graydesert soils (C б 2)				
Depth (cm)	0 - 20	20 - 30	30 - 60	60 - 90	0 - 15	15 - 50	50 - 80	0 - 5	5 - 15	15 - 65	65 -	
Organic Matter (%)	2.0 - 3.0	1.0 - 1.5	0.5 - 1.0		1.2 - 2.0	0.5 - 1.0	0.4 - 0.6	0.5 - 0.8	0.6 - 1.3	0.4 - 0.8		
ph (H2O)	7.0 - 7.5	7.0 - 8.0	8.0 - 8.5	7.5 - 8.5	7.0 - 8.0	7.5 - 8.5	8.0 - 9.0	8.0 - 8.5	8.5 - 9.0	9.0 - 9.5	9.0 - 9.5	
CaCO 3 (%)		2 - 4	5 - 20	3 - 5		5 - 20	3 - 5	0.5 - 1.0		5 - 10	3 - 5	

Source: УНДЭНИЙ АТЛАС (1990)

Table 3.1.4.3 Soil Sampling Sites

Aimag/city	Sum	Farm No.	Farm name	Soil sample No.
Selenge	Huder	1	Bumbat	1-7
		2	Urgats	8-13
		3	Uyalga	14-20
	Tsagaan nuur	4	Tovhonhaan	21-34
		5	Nairamdol	35-47
		6	Bayandulaan	48-58
	Mandal	7	Altanboroo	59-65
		8	Bayansuundal	66-70
Tov	Bayantsogt	9	Bayantsogt	71-78
	Bayanhangai	10	Atar	79-88
	Bayan	11	Tsatsralt	89-92
	Zaanmar	12	Zaanar	93-109
	Erdenesant	13	Buyant	110-118
	Erdenesdnt	14	Chandmana-Erdene	119-130
	Lun	15	Enhtal	131-138
	Bayandelger	16	Bayandelger	139-145
	Erdene	17	Tuya	146-147
	Argalant	18	Nohorlol	148-157
	Butumber	19	Butsumber	158-167
	Sumber	20	Octobar	168-175
Ovorhangai	Olziit	21	Olziit	176-178
	Zuil	22	Zuil	179-183
	Burd	23	Burd	184-188
	Taragt	24	Taragt	189-192
	Hujirt	25	Hujirt	193-199
	Bayanodor	26	Bayanodor	200-203
	Hairhaan deelaan	27	Hairhann deelaan	204-206
	Uyanga	28	Uyanga	207-209
Darhan-uul	Orhon	29	Darhan orgil	210-214
	Hongor	30	Sonin hangai	215-235
	Hongor	31	Ih bulogt	236-244
Bulgan	Selenge	32	Ingettolgoi	245-258
	Hishigondol	33	Hishigondol	259-264
	Gurvanbulang	34	Bayanbern	265-267
	Orhon	35	Mandal	268-276
	Hutogt	36	Hantoi	277-284
	Hutagt	37	Namnanuul	285-298
	Hutagt	38	Magsariav	299-312
Orhon	Jargalant	39	Ulantolgoi	313-330
	Jargalant	40	Taliin Nuur	331-340
Ulaanbaatar	Devshil	41	Devshil	341-344

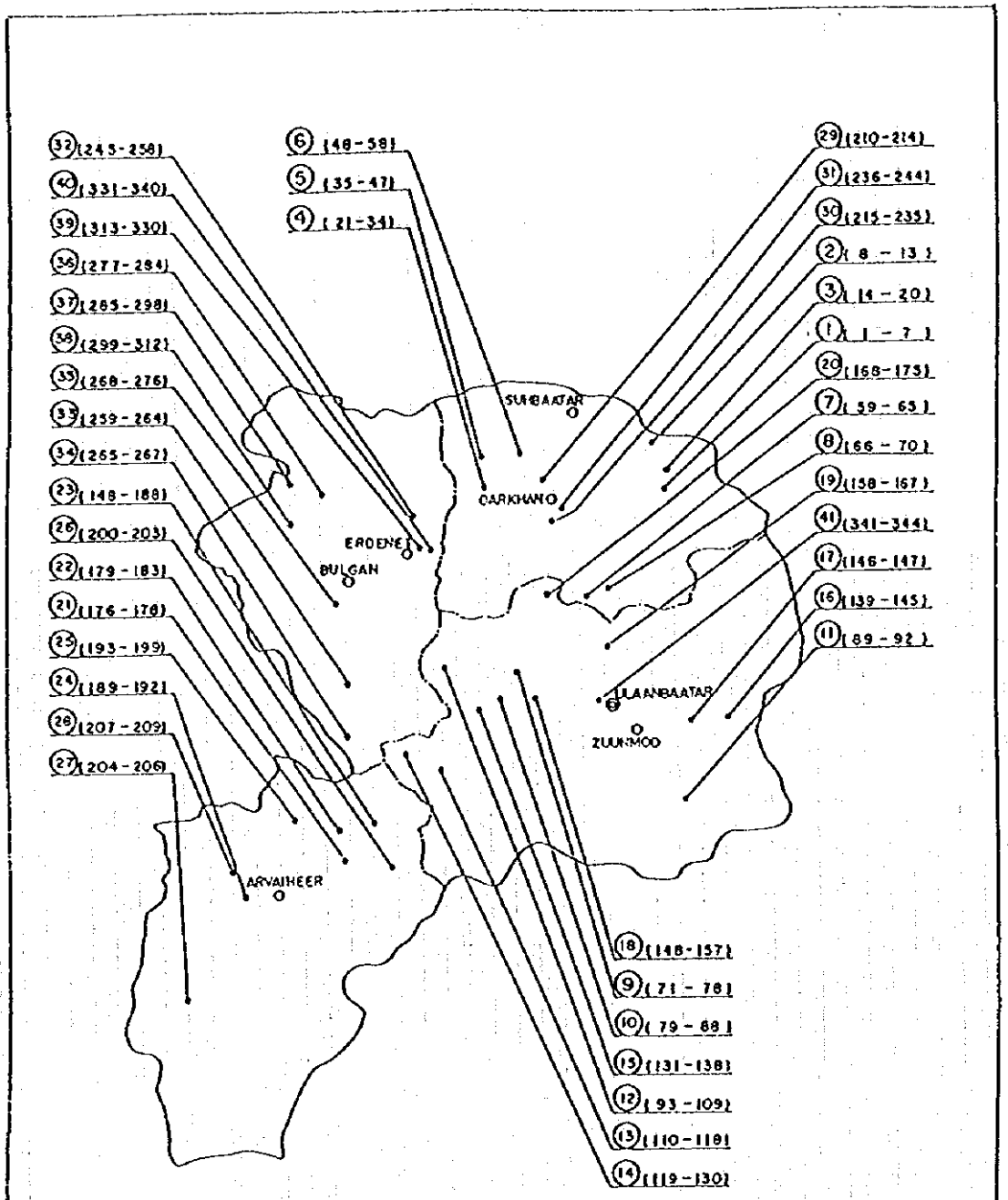
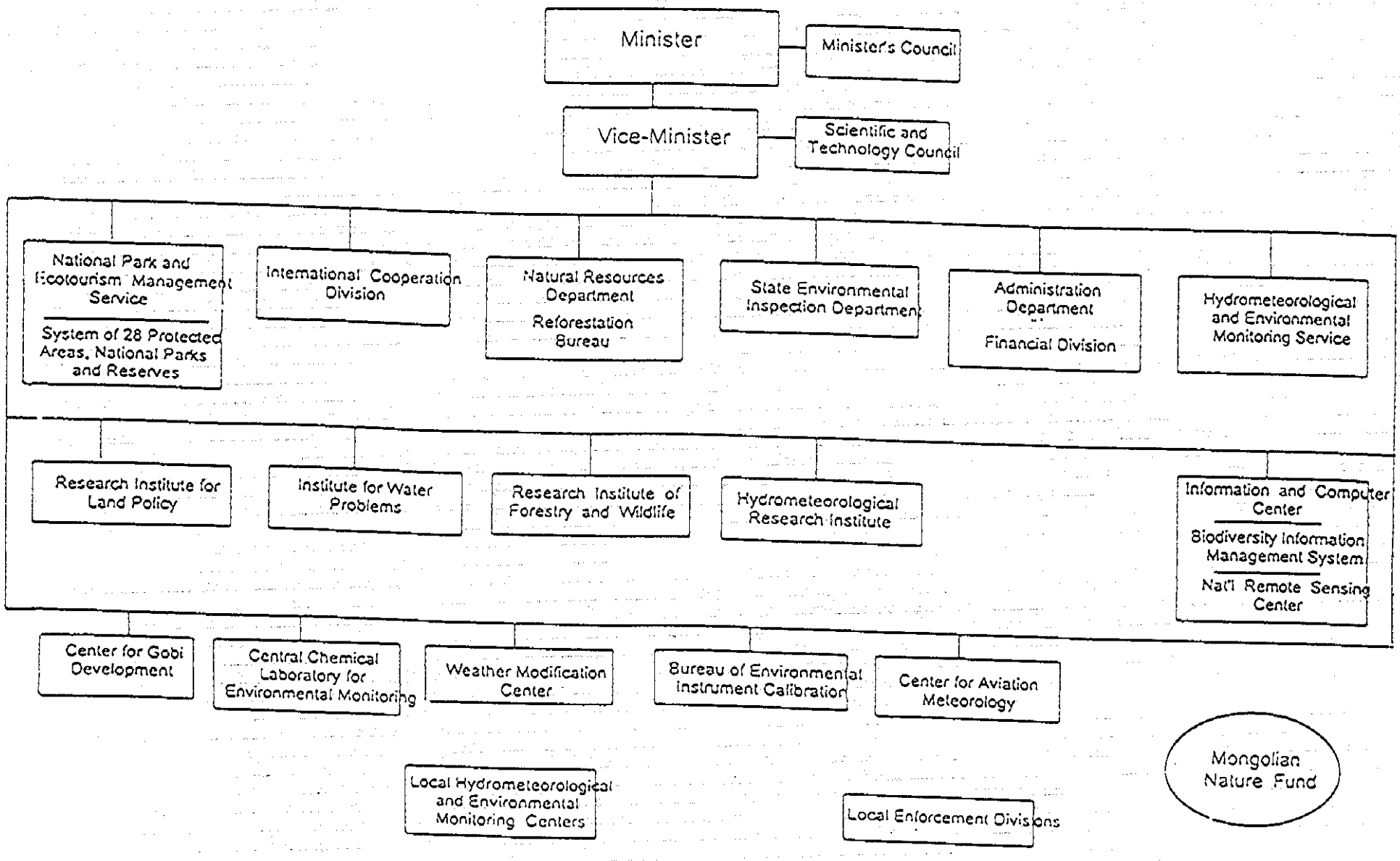


Fig. 3.1.4.3 Soil Sampling Sites

The Organizational Structure of the Ministry for Nature and the Environmental

Figure 3.2.1



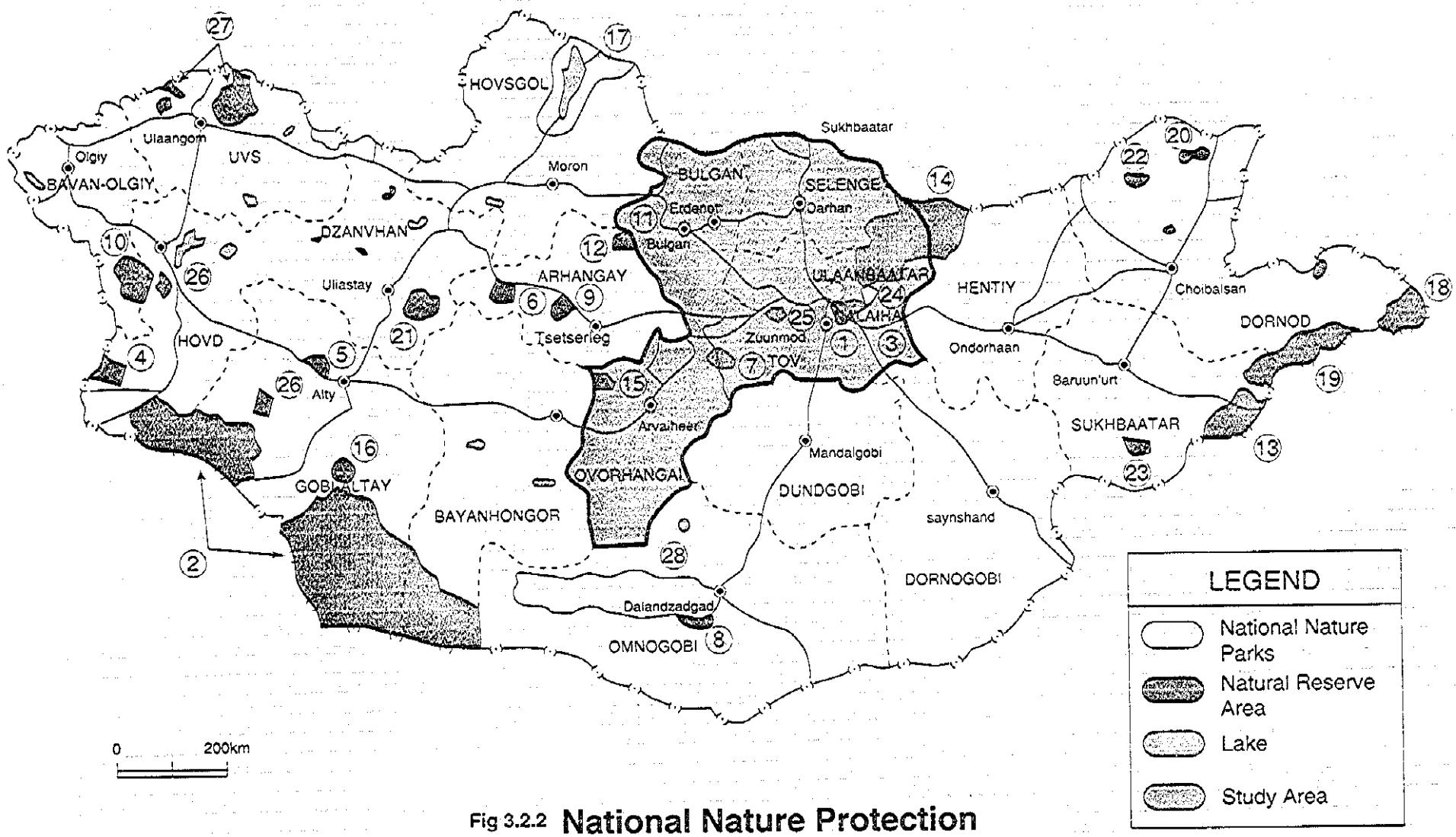


Fig 3.2.2 **National Nature Protection**

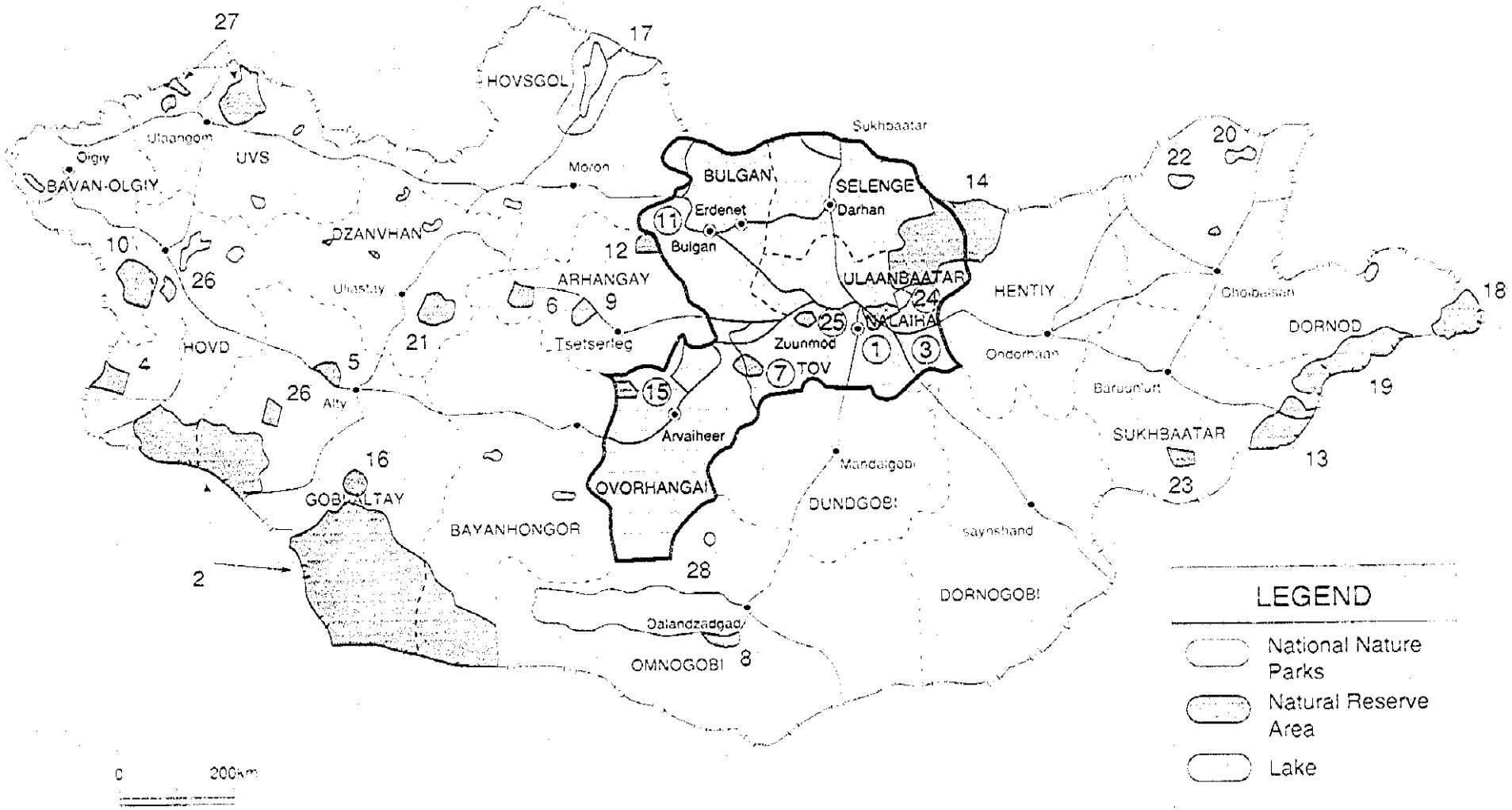


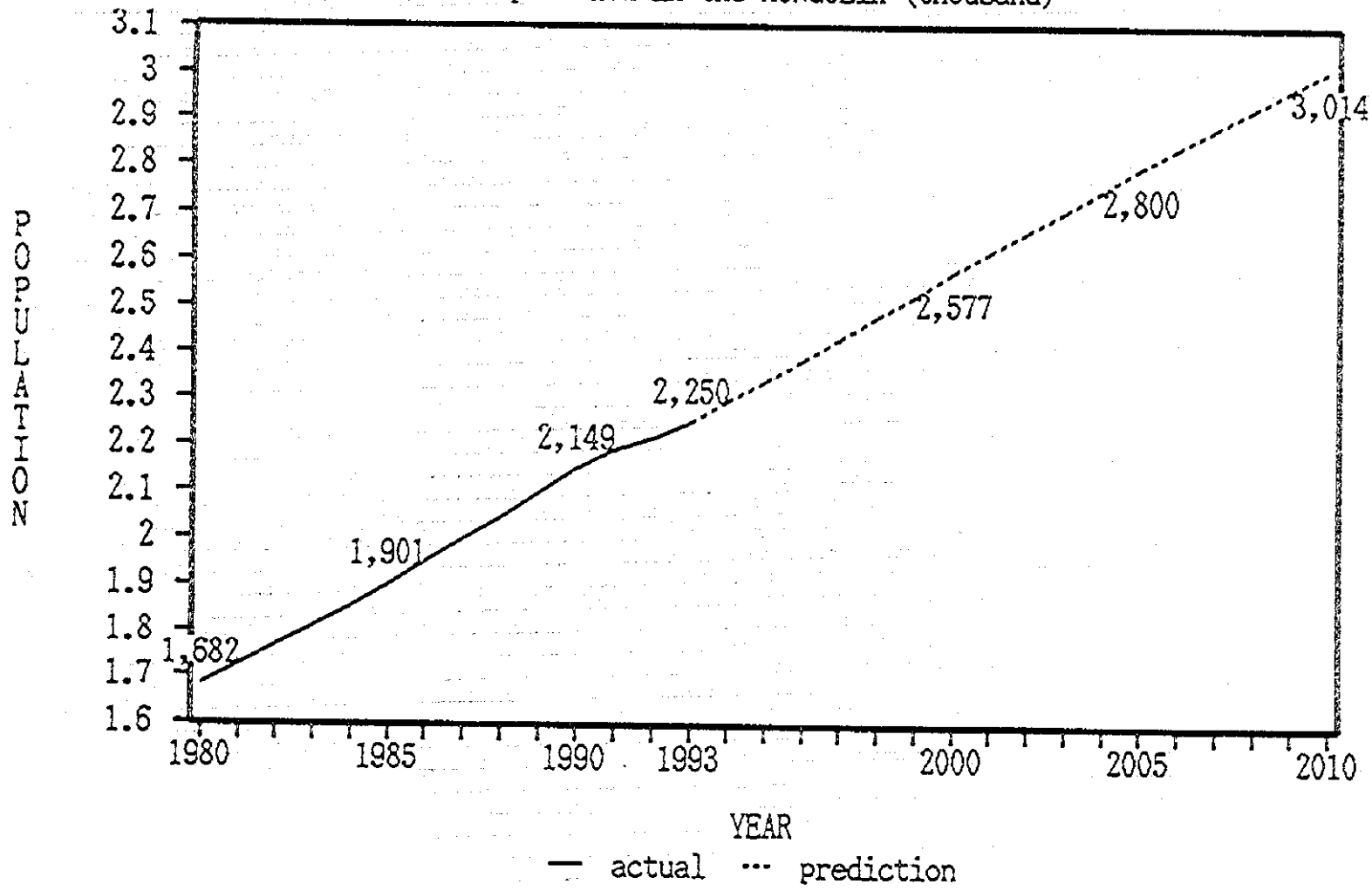
Fig 3.2.2 **National Nature Protection**

Table 3.3.1.1 Prediction of Population by Aimag in 2010

Region, Aimag and City	Population (thous.)		Annual Growth rate	Prediction * (thous.)	Annual Growth rate	Prediction * (thous.)	Annual Growth rate	Prediction * (thous.)
Year	1985	1993		2000		2005		2010
Study-area								
Bulgan(centre)	11.3	15.1	3.0%	18.5	2.4%	20.8	1.9%	22.8
Bulgan(rural)	37.6	46.6	2.4%	55.2	2.0%	60.8	1.8%	66.3
Erdenet	52.1	64.5	2.2%	74.9	1.7%	81.6	1.6%	88.2
Ovorhangay(centre)	13.6	19.9	2.9%	24.3	2.0%	26.9	1.6%	29.2
Ovorhangay(rural)	79.1	90.5	1.5%	100.6	1.5%	108.5	1.5%	117.0
Selenge(centre)	16.0	20.8	2.7%	25.0	2.1%	27.8	1.7%	30.3
Selenge(rural)	63.4	71.6	1.5%	79.6	1.5%	85.9	1.5%	92.7
Darkhan	73.1	93.0	2.4%	110.1	2.0%	121.3	1.6%	131.1
Tov(centre)	12.0	19.0	3.0%	23.3	2.4%	26.2	1.9%	28.8
Tov(rural)	81.8	90.9	1.3%	99.7	1.3%	106.5	1.3%	113.8
Ulaanbaatar	503.3	598.6	1.8%	676.0	1.4%	724.7	1.1%	766.3
subtotal	943.3	1,130.5	1.9%	1,287.2	1.6%	1,391.0	1.3%	1,486.5
West-area								
Bayanhongor	71.4	85.9	2.1%	99.4	1.9%	109.2	1.7%	118.8
Gobi-Altai	61.9	72.4	1.8%	81.9	1.8%	89.5	1.6%	96.9
Hovd	70.2	88.1	2.3%	103.3	1.8%	113.2	1.7%	122.9
Bayan-Olgiy	84.4	75.7	1.5%	83.9	1.5%	90.3	1.5%	97.2
Uvs	80.3	99.0	2.1%	114.7	1.7%	124.8	1.5%	134.6
Dzanvhan	86.5	102.5	1.9%	117.2	1.7%	127.7	1.6%	138.0
Hovsgol	97.4	117.6	2.1%	136.4	1.9%	150.1	1.7%	163.6
Arhangay	81.5	103.4	2.4%	122.2	1.9%	134.5	1.7%	146.6
subtotal	633.6	744.6	2.1%	859.0	1.8%	939.3	1.6%	1,018.6
South-area								
Dornogobi	50.8	61.0	2.1%	70.5	1.9%	77.4	1.7%	84.2
Dundgobi	45.9	51.9	1.5%	57.8	1.5%	62.4	1.5%	67.4
Omnogobi	38.6	46.0	2.0%	52.8	1.8%	57.7	1.6%	62.5
subtotal	135.3	158.9	1.9%	181.1	1.7%	197.5	1.6%	214.1
East-area								
Dornod	67.6	85.0	2.3%	99.8	1.9%	109.4	1.7%	118.9
Suhbaatar	48.3	57.0	1.9%	64.9	1.7%	70.6	1.5%	76.1
Hentii	62.2	73.9	2.0%	84.7	1.8%	92.4	1.6%	100.0
subtotal	178.1	215.9	2.1%	249.4	1.8%	272.4	1.6%	295.0
Total	1,890.3	2,249.9	2.0%	2,576.7	1.7%	2,800.2	1.5%	3,014.2

Source : Mongolian Economy and Society in 1993,
Statistic Office, 1994

Fig. 3.3.1.1 Prediction of Total Population in the MONGOLIA (thousand)



SOURCE:Mongolian Economy and Society in 1993, Statistic Office, 1994
Prediction:Estimated by JICA Study Team

Table 3.3.2.1 Foodstuffs Consumption per Capita /kg

	1970	1975	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Meat and meat products /in terms of meat/	102.6	101.3	92.0	91.5	92.5	90.0	89.9	93.1	97.4	115.6	109.6	101.0	96.1
Milk and milk products /in terms of milk/	140.1	129.9	99.2	110.1	119.1	121.0	118.9	120.7	117.8	122.0	119.5	110.5	120.0
Butter	2.2	2.6	2.6	3.1	3.2	3.1	3.0	3.0	3.0	2.3	0.6	0.6	3.0
Eggs, pieces	4.7	5.9	18.3	26.6	30.9	30.8	27.4	26.9	28.6	14.1	11.1	2.9	3.5
Fish and fish products	0.4	0.6	1.0	0.8	1.4	1.3	1.3	1.3	1.1	0.1	-	0.3	0.9
Sugar and sugar products /in terms of sugar/	16.4	20.4	23.1	22.1	22.3	23.3	23.6	23.6	22.5	15.9	9.4	11.2	10.4
Flour and bakery goods /in terms of flour/	89.9	95.3	100.3	108.0	108.8	105.0	109.0	105.3	96.6	91.2	77.0	74.0	82.1
Potato	7.7	9.6	15.3	27.3	27.3	34.4	28.7	27.4	23.3	18.0	12.0	7.0	13.0
Vegetables /in terms of fresh vegetables/	10.3	12.2	14.8	17.0	17.6	20.2	23.1	21.5	20.1	9.6	3.4	3.0	4.8
Freshn fruits	3.1	4.3	7.6	9.4	10.5	12.0	11.4	12.1	9.4	1.2	0.4	1.4	0.5
Vegetable oil	0.7	0.7	1.0	1.3	1.3	1.2	1.3	1.4	1.0	0.5	0.4	0.6	0.3

Source : Mongolian Economy and Society in 1994,Statistical Office of MONGOLIA,1995

Table 3.3.2.2 Nutritional norms by zone (Decree No 63,1983. the Health Minister)

main food items	unit	national average	Ulaan-baatar	Darhan, Erdenet	Altai mountaneous region	Hangai, Hentey mountaneous region	Steppe region	Gobi region
1. meat/ meat products	kg	92.5	80.0	80.0	100.0	96.0	98.0	101.0
2. milk/ milk products	kg	270.0	200.0	200.0	310.0	320.0	300.0	290.0
3. flour/ flour products	kg	114.0	120.0	120.0	110.0	110.0	112.0	112.0
4. rice	kg	20.0	20.0	20.0	20.0	20.0	20.0	20.0
5. butter	kg	7.0	7.0	7.0	7.0	7.0	7.0	7.0
6. sugar/ sweets	kg	25.0	30.0	30.0	30.0	22.5	22.5	22.5
7. fruits	kg	35.0	45.0	45.0	45.0	33.0	30.0	25.0
8. potatoe	kg	65.0	80.0	80.0	80.0	62.0	60.0	50.0
9. vegetable	kg	66.0	80.0	80.0	80.0	60.0	62.5	50.0
10. eggs	p.	50.0	80.0	80.0	80.0	40.0	35.0	30.0
11. fish/ fish products	kg	1.3	2.0	2.0	2.0	1.0	1.0	0.8
12. vegetable & animal derived oil	kg	7.0	8.0	8.0	8.0	6.5	6.5	6.5

Source : MOFA, National Programme on the Population's Food Supply Improvement, 1993.

Table 3.3.2.3
Coefficient of conversion to average population

Age, Worker's group	Coefficient of conversion		
	Total	Prefec.	City
1. age 0 - 2	0.540	0.547	0.530
2. age 3 - 6	0.597	0.704	0.660
3. age 7	0.770	0.808	0.758
4. age 8 - 13	0.939	0.984	0.920
5. age 14 - 15	0.973	1.020	0.960
6. worker's group I	1.006	1.020	0.989
7. worker's group II	1.023	1.070	1.010
8. worker's group III	1.073	1.120	1.050
9. worker's group IV	1.410	1.470	1.380
10. age 55 - 60	0.810	0.840	0.790
Average	0.917	0.934	0.884

Source: MOFA, National Programme on the Population's Food Supply Improvement, 1993.

Table 3.3.2.4 Projected Food Consumption per capita by Aimag in 2010

Region, Aimag and City	Meat, meat products (kg)	Milk, Dairy products (L)	Butter (kg)	Eggs (pieces)	Fish, fish products (kg)	Suger, suger prods. (kg)	Flour, bakery prods. (kg)	Cereals (kg)	Potato (kg)	Vege-tables (kg)	Fresh fruits (kg)	Oil and Fat (kg)	Popula-tion (thous.)
Study-area													
Bulgan(centre)	89.7	298.9	6.5	37.4	0.9	21.0	102.7	18.7	57.9	56.0	30.8	6.1	22.8
Bulgan(rural)	89.7	298.9	6.5	37.4	0.9	21.0	102.7	18.7	57.9	56.0	30.8	6.1	66.3
Erdenet	70.7	176.8	6.2	70.7	1.8	26.5	106.1	17.7	70.7	70.7	39.8	7.1	88.2
Ovorhangai(centre)	91.5	280.2	6.5	32.7	0.9	21.0	104.6	18.7	56.0	58.4	28.0	6.1	29.2
Ovorhangai(rural)	91.5	280.2	6.5	32.7	0.9	21.0	104.6	18.7	56.0	58.4	28.0	6.1	117.0
Selenge(centre)	89.7	298.9	6.5	37.4	0.9	21.0	102.7	18.7	57.9	56.0	30.8	6.1	30.3
Selenge(rural)	89.7	298.9	6.5	37.4	0.9	21.0	102.7	18.7	57.9	56.0	30.8	6.1	92.7
Darkhan	70.7	176.8	6.2	70.7	1.8	26.5	106.1	17.7	70.7	70.7	39.8	7.1	131.1
Tov(centre)	89.7	298.9	6.5	37.4	0.9	21.0	102.7	18.7	57.9	56.0	30.8	6.1	28.8
Tov(rural)	89.7	298.9	6.5	37.4	0.9	21.0	102.7	18.7	57.9	56.0	30.8	6.1	113.8
Ulaanbaatar	70.7	176.8	6.2	70.7	1.8	26.5	106.1	17.7	70.7	70.7	39.8	7.1	766.3
Average	77.3	216.1	6.3	59.0	1.5	24.7	105.1	18.0	66.2	66.0	36.5	6.7	1486.5
West-area													
Bayanhongor	91.5	280.2	6.5	32.7	0.9	21.0	104.6	18.7	56.0	58.4	28.0	6.1	118.8
Gobi-Altai	93.4	289.5	6.5	74.7	1.9	28.0	102.7	18.7	74.7	74.7	42.0	7.5	96.9
Hovd	93.4	289.5	6.5	74.7	1.9	28.0	102.7	18.7	74.7	74.7	42.0	7.5	122.9
Bayan-Olgii	93.4	289.5	6.5	74.7	1.9	28.0	102.7	18.7	74.7	74.7	42.0	7.5	97.2
Uvs	93.4	289.5	6.5	74.7	1.9	28.0	102.7	18.7	74.7	74.7	42.0	7.5	134.6
Zavhan	89.7	298.9	6.5	37.4	0.9	21.0	102.7	18.7	57.9	56.0	30.8	6.1	138.0
Hovsgol	89.7	298.9	6.5	37.4	0.9	21.0	102.7	18.7	57.9	56.0	30.8	6.1	163.6
Arhangai	89.7	298.9	6.5	37.4	0.9	21.0	102.7	18.7	57.9	56.0	30.8	6.1	146.6
Average	91.5	292.6	6.5	53.4	1.3	24.1	103.0	18.7	65.1	64.6	35.5	6.7	1018.6
South-area													
Dornogobi	94.3	270.9	6.5	28.0	0.7	21.0	104.6	18.7	46.7	46.7	23.4	6.1	84.2
Dundgobi	94.3	270.9	6.5	28.0	0.7	21.0	104.6	18.7	46.7	46.7	23.4	6.1	67.4
Omnogobi	94.3	270.9	6.5	28.0	0.7	21.0	104.6	18.7	46.7	46.7	23.4	6.1	62.5
Average	94.3	270.9	6.5	28.0	0.7	21.0	104.6	18.7	46.7	46.7	23.4	6.1	214.1
East-area													
Dornod	91.5	280.2	6.5	32.7	0.9	21.0	104.6	18.7	56.0	58.4	28.0	6.1	118.9
Suhbaatar	91.5	280.2	6.5	32.7	0.9	21.0	104.6	18.7	56.0	58.4	28.0	6.1	76.1
Hentii	89.7	298.9	6.5	37.4	0.9	21.0	102.7	18.7	57.9	56.0	30.8	6.1	100.0
Average	90.9	286.5	6.5	34.3	0.9	21.0	104.0	18.7	56.7	57.6	29.0	6.1	295.0
Total Average	84.6	252.7	6.4	52.5	1.3	23.9	104.2	18.4	63.5	63.3	34.5	6.6	3014.2

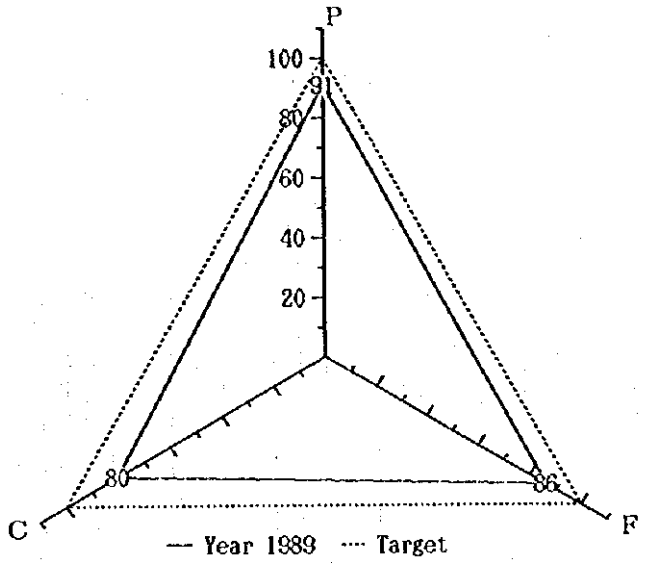
Source : MOFA, Estimated by JICA Mission

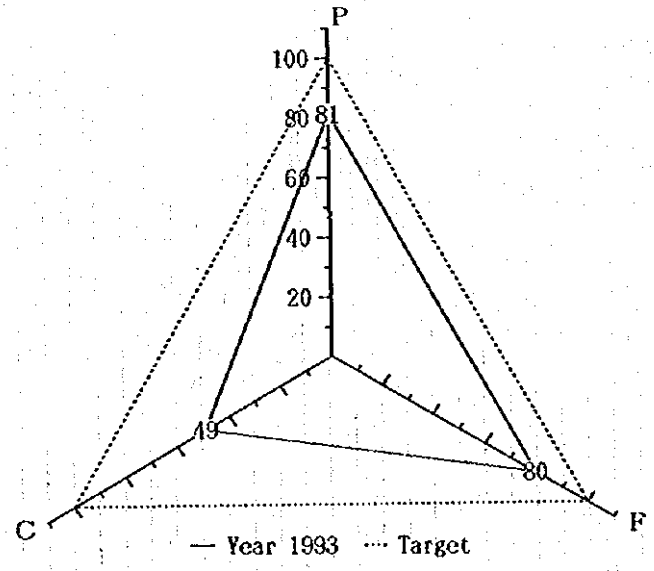
Table 3.3.2.5 Projected Food Consumption by Aimag in 2010

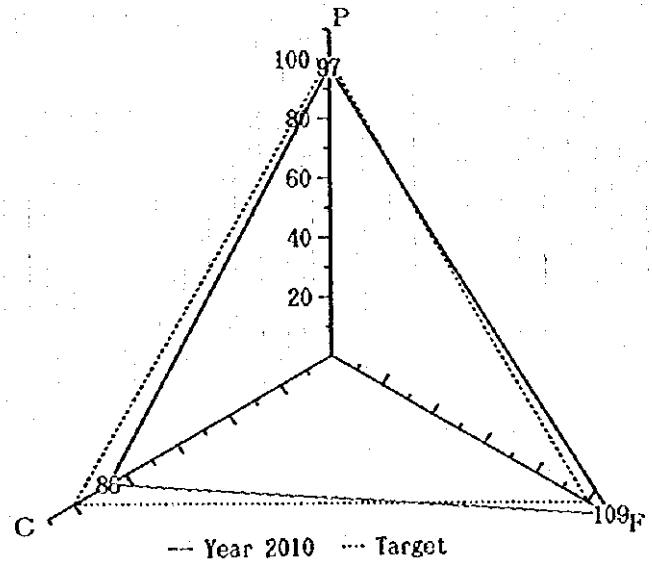
Region, Aimag and City	Meat, meat products (t)	Milk, Dairy products (t)	Butter (t)	Eggs (thous. pieces)	Fish, fish prods. (t)	Suger, suger prods. (t)	Flour, bakery prods. (t)	Cereals (t)	Potato (t)	Vege-tables (t)	Fresh fruits (t)	Oil and Fat (t)
Study-area												
Bulgan(centre)	2,044	6,814	149	852	21	479	2,342	426	1,320	1,278	703	138
Bulgan(rural)	5,945	19,816	433	2,477	62	1,393	6,812	1,238	3,839	3,715	2,043	403
Erdenet	6,238	15,594	546	6,238	156	2,339	9,356	1,559	6,238	6,238	3,509	624
Ovorhangai(centre)	2,673	8,182	191	955	27	614	3,055	545	1,636	1,705	818	177
Ovorhangai(rural)	10,709	32,783	765	3,825	109	2,459	12,239	2,186	6,557	6,830	3,278	710
Selenge(centre)	2,717	9,056	198	1,132	28	637	3,113	566	1,755	1,698	934	184
Selenge(rural)	8,312	27,706	606	3,463	87	1,948	9,524	1,732	5,368	5,195	2,857	563
Darkhan	9,271	23,178	811	9,271	232	3,477	13,907	2,318	9,271	9,271	5,215	927
Tov(centre)	2,582	8,608	188	1,076	27	605	2,959	538	1,668	1,614	888	175
Tov(rural)	10,204	34,013	744	4,252	106	2,392	11,692	2,126	6,590	6,377	3,508	691
Ulaanbaatar	54,193	135,482	4,742	54,193	1,355	20,322	81,289	13,548	54,193	54,193	30,483	5,419
sub-total	114,887	321,232	9,374	87,733	2,210	36,665	156,288	26,782	98,435	98,113	54,236	10,011
West-area												
Bayanhongor	10,874	33,288	777	3,884	111	2,497	12,427	2,219	6,658	6,935	3,329	721
Gobi-Altai	9,050	28,056	634	7,240	181	2,715	9,956	1,810	7,240	7,240	4,073	724
Hovd	11,479	35,584	804	9,183	230	3,444	12,627	2,296	9,183	9,183	5,165	918
Bayan-Olgii	9,078	28,143	635	7,263	182	2,724	9,986	1,816	7,263	7,263	4,085	726
Uvs	12,572	38,972	880	10,057	251	3,771	13,829	2,514	10,057	10,057	5,657	1,006
Zavhan	12,374	41,245	902	5,156	129	2,900	14,178	2,578	7,991	7,734	4,253	838
Hovsgol	14,669	48,897	1,070	6,112	153	3,438	16,808	3,056	9,474	9,168	5,042	993
Arhangai	13,145	43,816	958	5,477	137	3,081	15,062	2,738	8,489	8,215	4,519	890
sub-total	93,241	298,002	6,660	54,372	1,373	24,569	104,873	19,027	66,355	65,796	36,124	6,817
South-area												
Dornogov	7,943	22,806	550	2,359	63	1,769	8,808	1,573	3,932	3,932	1,966	511
Dundgov	6,358	18,256	441	1,889	50	1,416	7,051	1,259	3,148	3,148	1,574	409
Omnogov	5,896	16,929	409	1,751	47	1,313	6,538	1,168	2,919	2,919	1,459	379
sub-total	20,197	57,991	1,400	5,999	160	4,499	22,397	3,999	9,998	9,998	4,999	1,300
East-area												
Dornod	10,883	33,316	777	3,887	111	2,499	12,438	2,221	6,663	6,941	3,332	722
Suhbaatar	6,966	21,323	498	2,488	71	1,599	7,961	1,422	4,265	4,442	2,132	462
Hentii	8,966	29,888	654	3,736	93	2,102	10,274	1,868	5,791	5,604	3,082	607
sub-total	26,815	84,527	1,929	10,111	276	6,199	30,673	5,511	16,719	16,987	8,546	1,791
Total	255,140	761,752	19,362	158,214	4,019	71,933	314,230	55,320	191,507	190,895	103,906	19,918

* Estimated by JICA Mission

Figure 3.3.2.1
Calorie Supply of P, F and C







SOURCE:Mongolian Economy and Society in 1993, Statistic Office, 1994
:Estimated by JICA Study Team

Table 3.4.2.1 Area of Grain Growing Land in the Study Region (×1000ha)

Year / Aimag·City	1976-1980	1985	1986-1989	1990	1991	1992	1993	1994
Selenge	175.6	185.1	175.3	172.4	170.0	166.4	167.2	141.5
Darkhan-Uul	-	18.5	18.6	19.4	18.3	18.3	16.9	16.8
Tov	144.5	137.1	146.5	152.4	144.8	137.8	130.7	106.8
Ulaanbaatar	-	-	-	-	-	-	-	-
Bulgan	38.2	70.4	72.7	70.9	64.1	62.6	60.8	56.8
Orkhon	2.4	2.0	2.6	2.8	2.3	1.8	1.7	1.7
Ovorhangai	20.3	20.5	19.7	19.9	20.0	18.7	16.3	15.5
Total in Mongolia	530.5	636.6	644.1	653.9	617.5	592.7	546.9	451.9

Source;MOFA,PSARI

Table 3.4.2.2 Unit Grain Yields in the Study Region (t/ha)

Year / Aimag·City	1976-1980	1985	1986-1989	1990	1991	1992	1993	1994
Selenge	0.73	1.55	1.38	1.11	1.02	0.94	0.91	0.87
Darkhan-Uul	-	1.65	1.45	1.44	1.43	1.11	1.30	1.07
Tov	0.54	1.59	1.24	1.05	0.90	1.06	0.83	0.69
Ulaanbaatar	-	-	-	-	-	-	-	-
Bulgan	0.88	1.26	1.29	1.27	1.25	1.03	0.97	0.78
Orkhon	1.26	0.74	1.31	0.95	0.95	1.24	1.35	0.88
Ovorhangai	0.99	1.10	1.21	1.35	1.09	0.70	0.94	0.68
Means	0.70	1.45	1.31	1.02	0.95	1.01	0.90	0.83
Total in Mongolia	0.69	1.40	1.23	1.10	0.95	0.83	0.88	0.74

Source;MOFA

Table. 3.4.2.3 Area of Wheat Growing Land in the Study Region (×1000ha)

Year / Aimag·City	1976-1980	1985	1986-1989	1990	1991	1992	1993	1994
Selenge	162.6	177.5	163.3	167.1	166.2	166.0	166.1	140.9
Darkhan-Uul	-	16.3	16.9	19.4	18.3	18.3	16.9	16.8
Tov	85.5	85.7	93.9	104.5	107.4	106.8	106.8	95.3
Ulaanbaatar	-	-	-	-	-	-	-	-
Bulgan	36.1	57.8	58.8	59.9	56.4	55.9	55.9	53.5
Orkhon	1.8	0.9	1.5	2.1	2.2	1.7	1.7	1.6
Ovorhangai	17.5	17.7	17.1	17.8	18.4	16.8	14.7	14.6
Sub-total	303.5	355.9	351.5	370.3	368.9	365.5	362.1	322.7
Total in Mongolia	385.7	481.0	493.8	532.5	534.0	527.9	499.4	430.9

Source;MOFA

Table 3.4.2.4 Unit Wheat Yields in the Study Region (×1000ha)

Year / Aimag·City	1976-1980	1985	1986-1989	1990	1991	1992	1993	1994
Selenge	0.76	1.57	1.45	1.12	1.03	0.94	0.88	0.90
Darkhan-Uul	-	1.55	1.45	1.45	1.43	1.11	1.30	1.10
Tov	0.61	1.59	1.32	1.11	0.99	1.13	0.89	0.70
Ulaanbaatar	-	-	-	-	-	-	-	-
Bulgan	0.91	1.32	1.31	1.27	1.27	1.17	0.98	0.80
Orkhon	1.61	1.22	1.20	1.09	0.96	1.23	1.35	0.90
Ovorhangai	1.03	1.10	1.22	1.37	1.12	0.70	0.84	0.70
Sub-total	0.76	1.51	1.36	1.21	1.08	1.03	0.92	0.90
Total in Mongolia	0.75	1.44	1.29	1.12	1.01	0.86	0.90	0.80

Source;MOFA

Table 3.4.2.5 Area of Potato Growing Land in the Study Region (ha)

Year / Aimag·City	1976-1980	1985	1986-1989	1990	1991	1992	1993	1994
Selenge	1,323	-	2,474	3,173	2,527	1,915	1,217	1,487
Darkhan-Uul	206	-	610	511	484	565	578	471
Tov	2,752	-	3,306	3,074	3,385	3,322	2,789	2,144
Ulaanbaatar	-	-	35	2	3	179	640	775
Bulgan	150	-	476	545	483	361	255	214
Orkhon	230	-	334	180	175	225	277	177
Ovorhangai	141	-	242	177	153	174	231	222
Sub-total	4,802	-	7,477	7,662	7,210	6,742	5,986	5,490
Total in Mongolia	6,364	8,000	11,200	10,507	9,345	8,722	8,583	7,639

Source;MOFA

Table 3.4.2.6 Unit Potato Yields in the Study Region (t/ha)

Year / Aimag·City	1976-1980	1985	1986-1989	1990	1991	1992	1993	1994
Selenge	8.79	-	13.58	9.4	9.8	9.7	6.87	7.3
Darkhan-Uul	5.41	-	10.00	12.6	12.9	9.6	8.14	8.5
Tov	8.77	-	14.22	15.2	12.8	11.2	7.24	7.8
Ulaanbaatar	-	-	8.00	5.5	5.5	4.4	6.89	8.6
Bulgan	4.68	-	9.49	12.5	8.2	7.8	9.54	6.1
Orkhon	7.31	-	15.17	18.5	12.8	12.4	8.89	8.0
Ovorhangai	4.56	-	10.45	12.5	6.9	5.9	7.94	5.9
Means	10.0	-	13.27	12.5	11.4	10.1	7.5	7.5

Source;MOFA

Table 3.4.2.7 Area of Fodder Crops Growing Land and Total Feed Production in the Study Region

(×1000ha, ×1000t)

Aimag/City	1991						1992						1993						1994					
	Fodder Crops		of which Silage		of which Green fodder		Fodder Crops		of which Silage		of which Green fodder		Fodder Crops		of which Silage		of which Green fodder		Fodder Crops		of which Silage		of which Green fodder	
	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
Selenge	3.5	16.8	2.2	15.7	1.3	11.0	3.1	14.9	1.9	14.9	1.2	-	2.2	10.8	1.8	9.8	0.4	1.0	2.2	2.3	-	-	2.2	2.3
Darkhan-Uul	0.5	6.2	0.5	6.2	-	-	0.4	3.3	0.4	3.3	-	-	0.4	2.3	0.4	2.3	-	-	-	-	-	-		
Tov	21.1	82.3	6.6	59.5	14.5	22.8	16.5	74.2	7.3	66.1	9.2	8.1	8.6	44.0	6.5	39.2	2.1	4.8	4.3	17.4	3.4	15.7	0.9	1.7
Ulaanbaatar	2.2	17.0	2.2	17.0	-	-	1.8	22.7	1.8	22.7	-	-	1.8	11.4	1.8	11.4	-	-	1.1	6.0	1.0	4.5	0.1	1.5
Bulgan	2.1	5.7	0.4	3.8	1.7	1.9	0.3	0.7	0.1	0.3	0.2	0.4	0.4	0.5	0.1	0.2	0.3	0.3	-	-	-	-	-	-
Orkhon	0.9	8.2	0.8	8.1	0.1	0.1	0.7	8.0	0.7	8.0	-	-	0.5	5.5	0.5	5.5	-	-	0.3	3.3	0.3	3.3	-	-
Ovorhangai	7.7	6.7	0.3	1.7	7.4	5.0	5.5	2.6	0.3	0.6	5.2	2.0	2.7	3.2	-	-	2.7	3.2	1.7	0.7	-	-	1.7	0.7
Sub-total	38.0	142.9	13.0	112.0	25.0	40.8	28.3	126.4	12.5	115.7	15.8	10.7	16.6	77.7	11.1	68.4	5.5	9.3	9.6	29.7	4.7	23.5	4.9	6.2
Total in Mongoria	80.0	199.0	15.0	116.0	65.0	83.0	53.5	153.8	13.9	123.1	39.6	30.7	26.9	99.2	11.2	69.9	15.7	29.3	11.0	32.2	4.8	23.8	6.2	8.4

Source:MOFA

Table.3.4.2.8 Area of Vegetable Growing Land in the Study Region

(ha)

Year / Aimag·City	1990	1991	1992	1993	1994
Selenge	367	370.7	307.2	306	579
Darkhan-Uul	233	204.6	176.9	208.7	142
Tov	666	700.1	673.0	810.0	684
Ulaanbaatar	70	91.5	109.6	474	441
Bulgan	97	93.1	80.5	85	36
Orkhon	55	57.8	71.2	101	50
Ovorhangai	86	55.0	38.2	54	40
Sub-total	1,574	1,573	1,457	2,039	1,972
Total in Mongolia	2,261	2,389	2,226	2,927	2,788

Source;MOFA,PSARI

Table 3.4.2.9 Unit Vegetable Yields in the Study Region (t /ha)

Year / Imag·City	1990	1991	1992	1993	1994
Selenge	17.8	3.7	3.0	13.0	11.7
Darkhan-Uul	10.8	11.9	3.9	9.2	8.9
Tov	15.1	11.2	7.3	6.1	5.8
Ulaanbaatar	27.8	18.4	15.2	9.8	12.5
Bulgan	12.5	9.0	5.3	8.0	5.5
Orkhon	26.7	15.9	10.0	9.7	13.3
Ovorhangai	10.4	7.6	11.4	5.5	6.5
Sub-mean	16.8	11.8	8.4	9.5	9.2
Mean in Mongolia	10.7	8.6	-	-	8.2

Source;MOFA,PSARI

Table 3.4.2.10 Area of Fruit Growing Land and Total Production in the Study Region

(ha,t/ha)

Aimag/City	1993			1994		
	Planted Area	Harvested Area	Production	Planted Area	Harvested Area	Production
Selenge	4.7	2.5	1.1	-	-	-
Darkhan-Uul	118.5	40.9	12.9	93.1	71.2	14.6
Tov	56.0	36.6	3.7	60.5	32.5	1.8
Bulgan	-	-	-	37.0	37.0	15.7
Orkhon	1.6	1.6	-	-	-	-
Sub-total	180.8	81.6	17.7	190.6	140.7	32.1
Total in Mongolia	483.7	362.0	247.5	-	-	-

Source: Statistical office of Mongolia for 1993
MOFA for 1994

Table 3.4.2.11 Areas of Land Used to Grow Main vegetable in the Study Region (1994)

(ha)

vegetable / Aimag·City	Cabbage	Turnip	Carrot	Onion	Garlic
Selenge	347.8	71.8	53.0	37.8	1.5
Darkhan-Uul	28.4	38.6	27.3	7.4	0.1
Tov	157.8	369.8	134.1	21.1	-
Ulaanbaatar	97.0	105.0	64.4	115.5	9.0
Bulgan	13.8	13.6	2.3	11.9	0.2
Orkhon	21.0	11.6	8.2	4.0	-
Ovorhangai	15.0	11.6	6.6	6.9	-
Total in Mongolia	914.2	878.4	442.5	288.9	14.4

Source : MOFA,PSARI

Table. 3.4.2.12 Unit Yield of Main Vegetables in the Study Region (1994)

(t/ha)

Vegetable / Aimag	Cabbage	Turnip	Carrot	Onion	garlic	Cucumber		Tomato	
						green house	open field	green house	open field
Selenge	15.4	3.9	2.7	3.3	3.6				
Darkhan-Uul	24.4	5.8	3.7	3.1	2.0	180.0		120.0	
Tov	9.4	4.4	5.6	5.0	-		8.0		7.0
Ulaanbaatar	19.3	10.9	7.8	7.6	2.2	130.0		100.0	
Bulgan	8.7	2.7	4.3	0.7	5.0				
Orkhon	17.7	3.2	4.6	0.8	-				
Ovorhangai	10.0	4.4	5.7	2.5	-				
Means	15.0	6.3	4.9	4.6	3.2	155.0	8.0	110.0	7.0
Total in Mongolia	13.0	4.9	4.6	7.0	3.5	-	-	-	-

Source;MOFA,PSARI

Table 3.4.2.13 Composition of Farm Companies by Holding Share Size

Share Holder	State	(23.6%)	Mem.of Company (72.3%)		Other
Rate of Hold	No.of Farm	Composition	No.of Farm	Composition	No.of Farm
0%	61	47.7%	9	7.0%	117
1-30%	23	18.0%	3	2.3%	3
31-49%	7	5.5%	31	24.2%	3
50-99%	31	24.2%	33	25.8%	5
100%	6	4.7%	52	40.6%	0
Total	128	100.0%	128	100.0%	128

Source:JALDA Farm Company Study, in 1994
Remarks:Values are average of composition by farm company.

(Reference) Number of Farm Companies
by Built Year

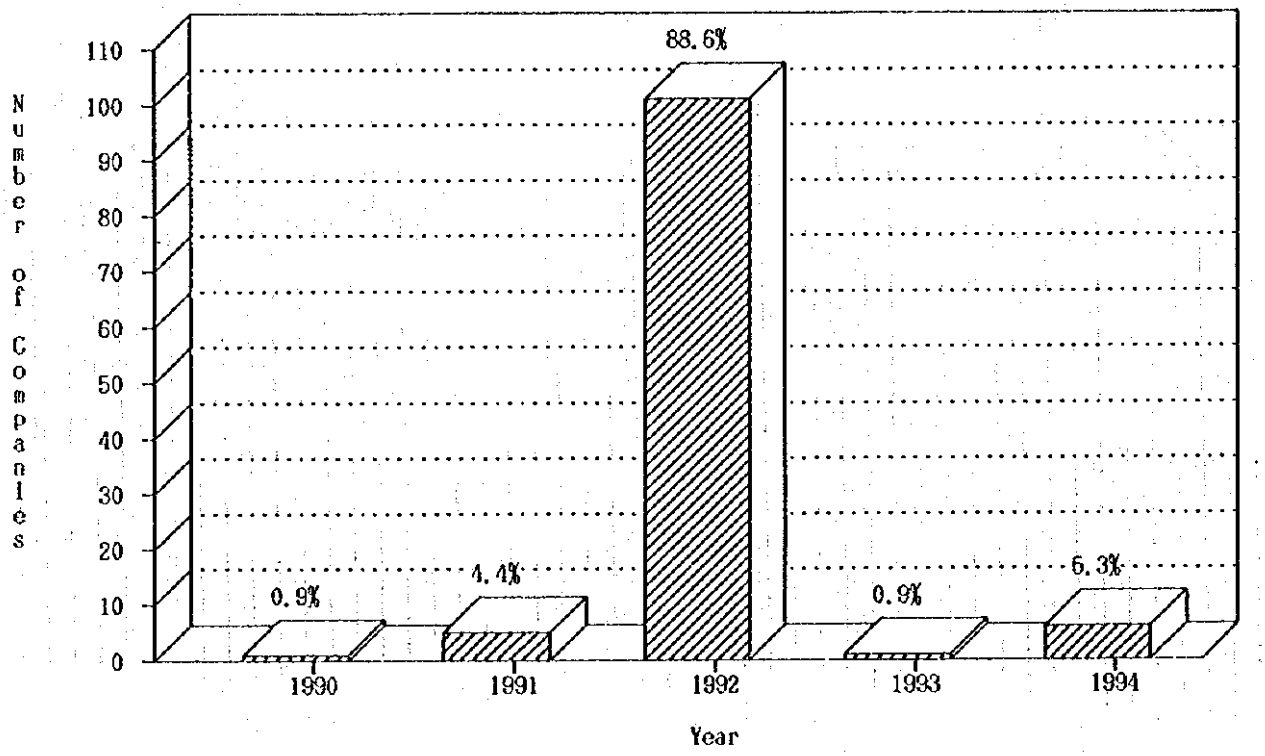
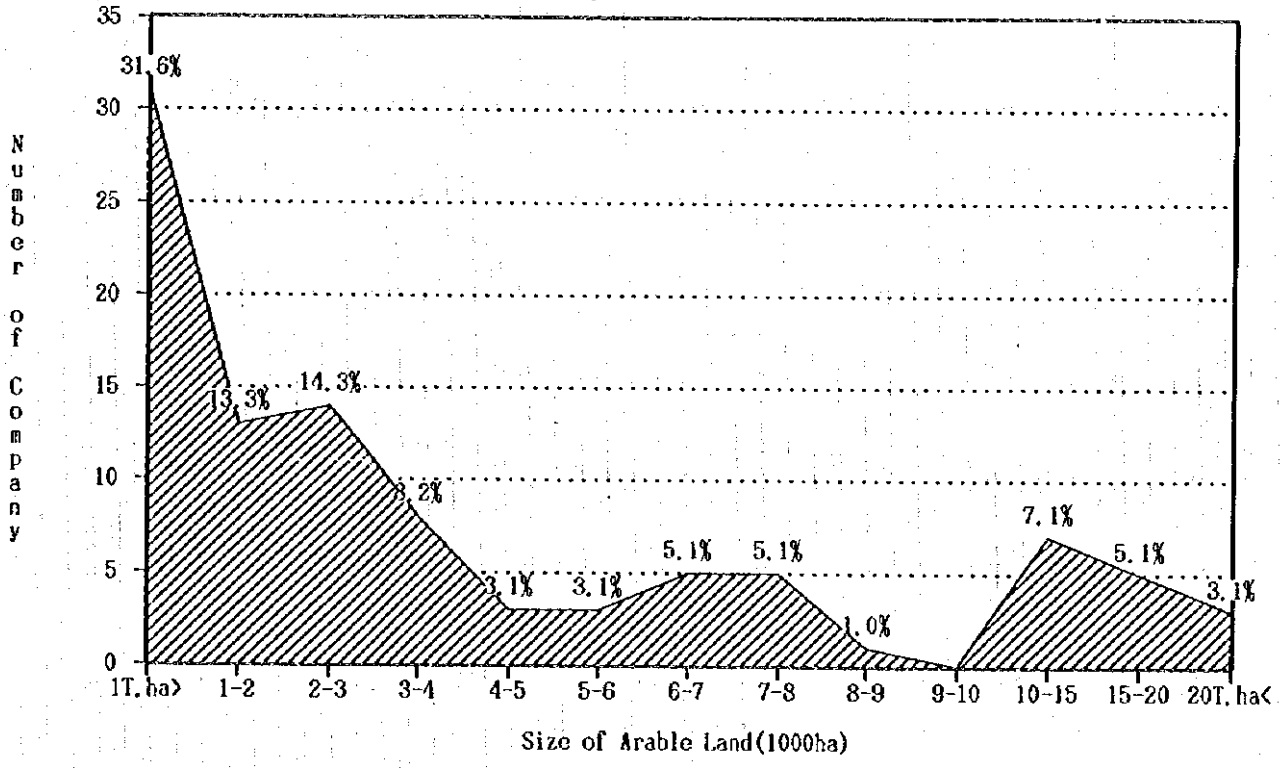


Table3.4.2.14 Number of Farm Company by Arable Land Size

Size of Land	No. of Company	Composition
1T.ha>	31	31.6%
1-2	13	13.3%
2-3	14	14.3%
3-4	8	8.2%
4-5	3	3.1%
5-6	3	3.1%
6-7	5	5.1%
7-8	5	5.1%
8-9	1	1.0%
9-10	0	0.0%
10-15	7	7.1%
15-20	5	5.1%
20T.ha<	3	3.1%
Total	98	100.0%
Average Area per Company		4,624ha

Source:JALDA Farm Company Study, in 1994

(Reference) Number of Farm Company by Arable Land Size

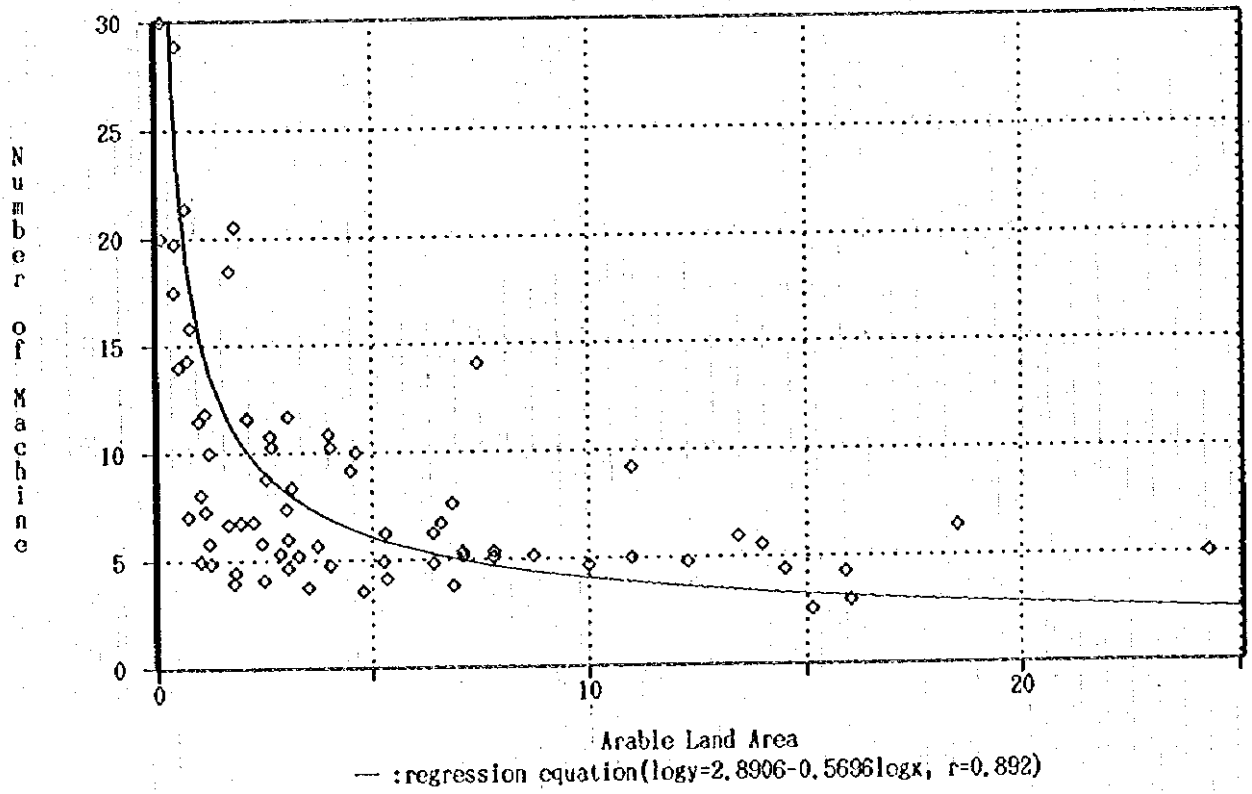


Tab. 3.4.2.15 Number of Farm Companies by Agricultura Machinery Owned

	Tractor		Harvestor	
No. of Mac	Company	Composition	Company	Composition
5>	29	25.7%	29	36.7%
5-9	23	20.4%	22	27.8%
10-14	19	16.8%	14	17.7%
15-19	9	8.0%	3	3.8%
20-24	5	4.4%	4	5.1%
25-29	6	5.3%	2	2.5%
30-34	10	8.8%	2	2.5%
35-39	2	1.8%	0	0.0%
40<	10	8.8%	3	3.8%
Total	113	100.0%	79	100.0%
Average	18.1	-	10.9	-

Source: JALDA Farm Company Study

(Reference) Number of Machineries per 1
(Tractor + Harvestor)



— :regression equation(logy=2.8906-0.5696logx, r=0.892)

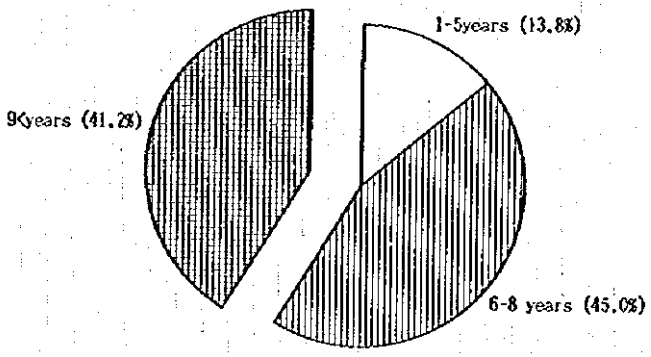
Table 3.4.2.16 AGRICULUTURAL MACHINERY & EQUIPMENT BY USING YEARS

	1-5years	6-8 years	9<years	total	*1	*2
Tracror	55	65	225	345	342.5	34.5
	15.9	18.8	65.2	100.0		
Combine	26	83	71	180	656.5	18
	14.4	46.1	39.4	100.0		
Seed drill	32	185	123	340	347.6	34
	9.4	54.4	36.2	100.0		
Plough	19	60	21	100	1181.7	10
	19.0	60.0	21.0	100.0		
Harrow	27	178	130	335	352.7	33.5
	8.1	53.1	38.8	100.0		
Cultivator	37	75	82	194	609.1	19.4
	19.1	38.7	42.3	100.0		
Vehicle	19	30	91	140	844.1	14
	13.6	21.4	65.0	100.0		
Total	342	1119	1023	2484	47.6	248.4
	13.8	45.0	41.2	100.0		

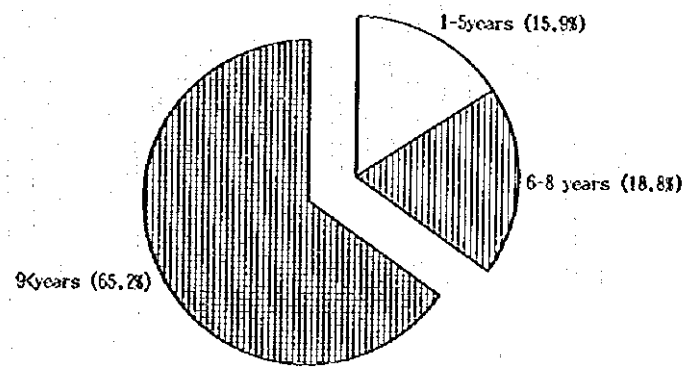
Source: WB 10 farms study

Notes : *1; arable land(ha)/unit, *2; units/company

(Reference) Number of Agricultural Machineries by Utilized Year



(Reference) Number of Tractor by Utilized Year

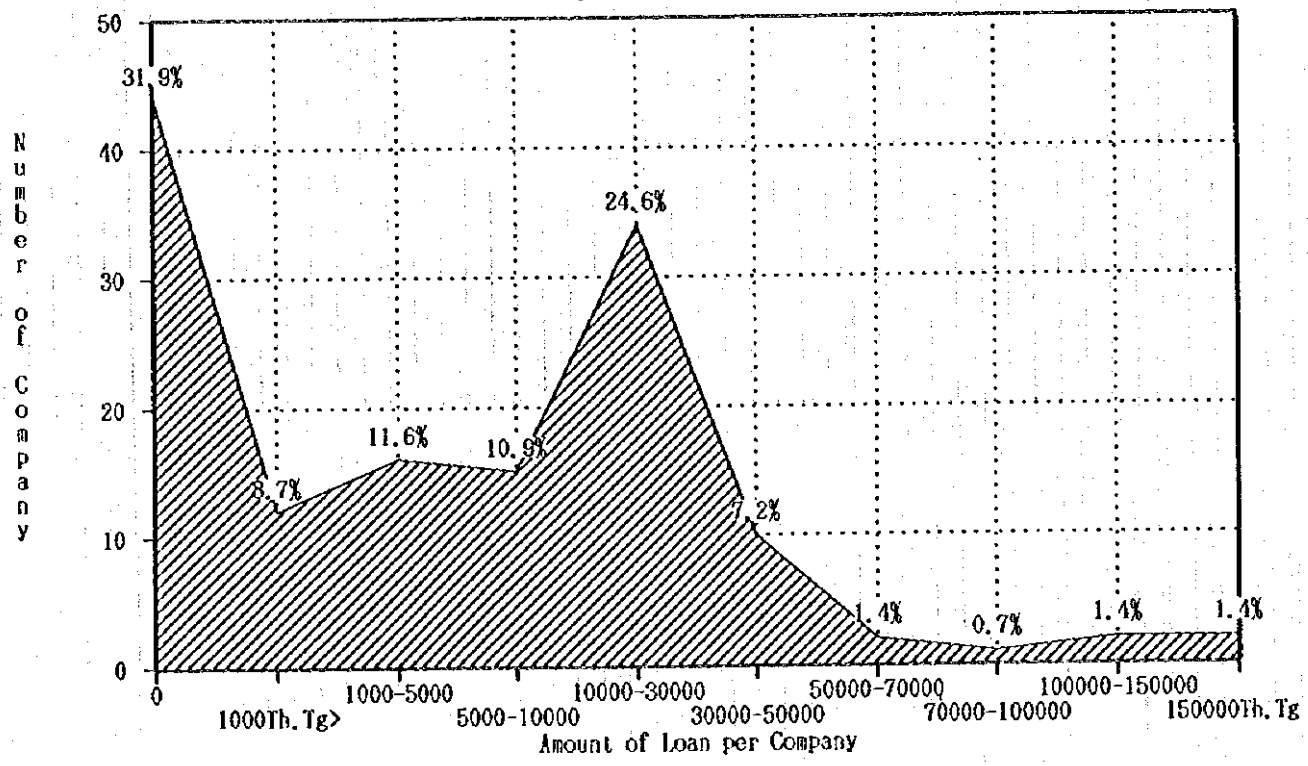


Tab.3.4.2.17 Number of Farm Companies by Borrowed Loan Size

Amount of Loan	Companies	Composition
0	44	31.9%
1000Th.Tg>	12	8.7%
1000-5000	16	11.6%
5000-10000	15	10.9%
10000-30000	34	24.6%
30000-50000	10	7.2%
50000-70000	2	1.4%
70000-100000	1	0.7%
100000-150000	2	1.4%
150000Th.Tg<	2	1.4%
Total	138	100.0%
Average(all)	138	14,012Th.Tg
-do-(Borrowed)	94	20,652Th.Tg

Source:JALDA Farm Company Study

(Reference) Number of Farm Companies by Borrowed Loan Size



Tab.3.4.2.18Number of Farm Companies by Employee Size

Employee Size	No.of Companies	Composition
10人>	5	3.6%
10-30	21	15.1%
30-50	21	15.1%
50-100	42	30.2%
100-200	29	20.9%
200-500	19	13.7%
500-1000	1	0.7%
1000人<	1	0.7%
Total	139	100.0%
Employees per Company		125.6

Source:JALDA Farm Company Study, in 1994

Tab.3.4.2.19 Number of Employee by Age

Age	Employee	Composition	Composition
29>	4873	38.2%	38.2%
30-50	6374	50.0%	50.0%
50-60	1162	9.1%	9.1%
60<	340	2.7%	2.7%
Total	12749	100.0%	100.0%
Avarege Age of	Employee	32.5	32.5

Source:JALDA Farm Company Study, in 1994

(Reference) Number of Farm Companies by Employee Size

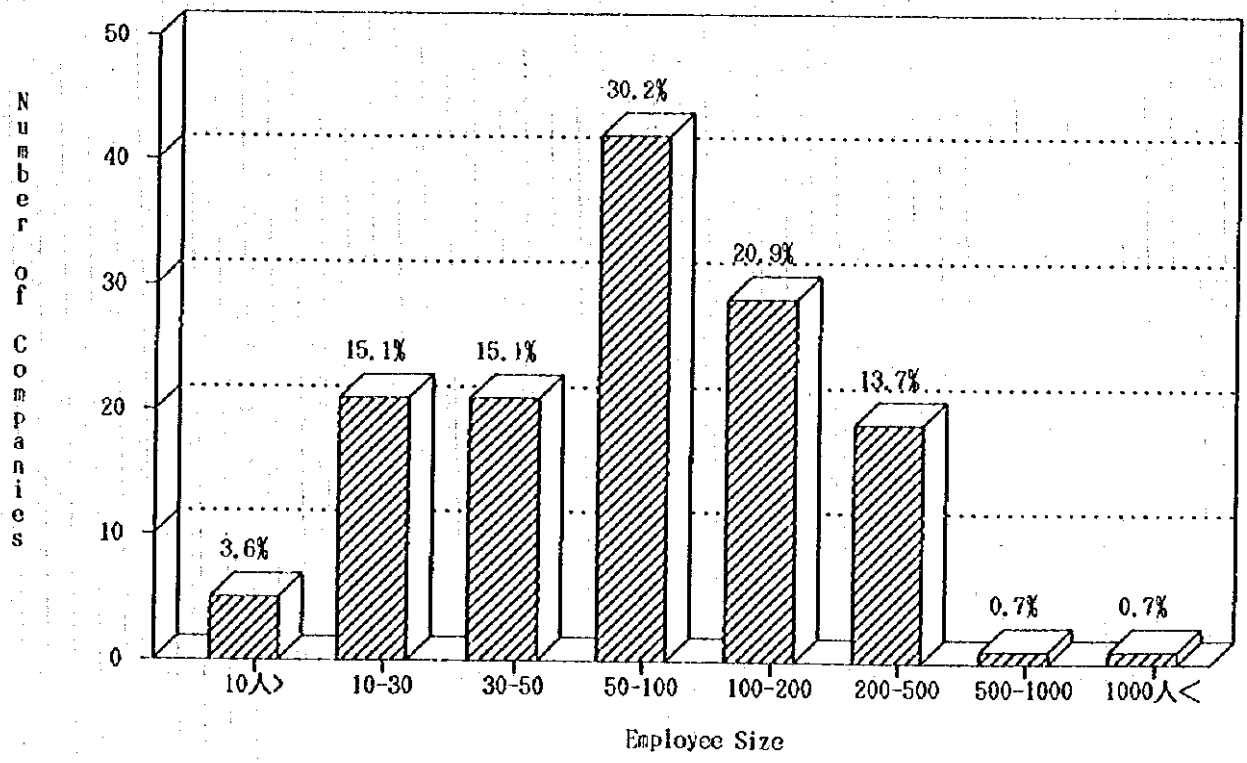


Table 3.4.2.20 Irrigated Areas(surveyed by the Government of Mogolia) (1/7)

AIMAG NUMBER on Map	MARK	SUM (DISTRICT)	SCHEME NAME	RECONNOI-TERED AREA (ha)	UNSUITABLE AREA for IRRIGATION (ha) LACK of WATER	UNSUITABLE AREA for IRRIGATION (ha) due to SOIL	REGISTERED AREA (ha)	IRRIGATION FACILITIES CONSTRUCTED AREA (ha) MECHANICAL IRRI	IRRIGATION FACILITIES CONSTRUCTED AREA (ha) GRAVITY IRRI.	IRRIGATION FACILITIES CONSTRUCTED AREA (ha) TOTAL	CULTIVATED AREA as of 1993 (ha) MECHANICAL IRRI	CULTIVATED AREA as of 1993 (ha) GRAVITY IRRI.	CULTIVATED AREA as of 1993 (ha) TOTAL	WATER RESOURCE (RIVER,WELL, etc.)	WATER VOLUME m3/s
SELENGE															
S-1	○	Altanbulag	Baruun gol	13.0	-	-	13.0	-	-	-			-	Uiagt gol (r)	0.019
S-2	○		Nariin nogoit	60.0	40.0	-	20.0	-	-	-			-	Nariin nogoit gol(r)	0.016
S-3	◎		Bor bulan	1,000.0	200.0	-	800.0	-	825.0	825.0			-	Uyaraan gol (r)	0.620
S-4	◉		Dros davaa	1,000.0	-	500.0	500.0	216.0	-	216.0	216.0		216.0	Uyaraan gol (r)	0.620
S-5	◉		Ulaan burgas	800.0	350.0	400.0	50.0	50.0	-	50.0	50.0		50.0	Uiagt gol(r)	0.019
S-6	▲	Javhlant	Huitnii gol	100.0	40.0	-	60.0	-	100.0	100.0		3.5	3.5	Huitnii gol (r)	0.038
S-7	□		Sharyn gol	100.0	100.0	-	-	-	-	-			-	Sharyn gol (r)	0.030
S-8	○	Bayangol	Tariatyn gol	400.0	350.0	-	50.0	-	-	-			-	Tariat gol (r)	0.044
S-9	◉		Bayangol	600.0	-	400.0	200.0	214.0	-	214.0	60.0		60.0	Haraa gol (r)	7.000
S-10	▲		Bayangol	200.0	120.0	-	80.0	-	15.0	15.0		15.0	15.0	Bayangol (r,W)	0.064
S-11	◉		Zagdal gol	250.0	174.0	-	76.0	76.0	-	76.0	76.0		76.0	Zagdalgol (r)	0.184
S-12	◉	Baruun buren	Zuunmod	1,500.0	-	500.0	1,000.0	666.0	-	666.0	666.0		666.0	Burgaltai (r)	1.000
S-13	□		Shuvuutyn hondii	2,000.0	2,000.0	-	-	-	-	-			-	Burgaltai (r)	1.000
S-16	○	Mandal	Bayangol	350.0	250.0	-	100.0	-	-	-			-	Haraa (r)	-
S-17	◉		Shar tohoi	800.0	-	-	800.0	1,034.0	-	1,034.0	544.0		544.0	Haraa (r)	7.000
S-18	○		Borogiin hondii	1,400.0	-	-	1,400.0	-	-	-			-	Haraa (r)	7.000
S-19	○		Temeetiin hotgor	1,500.0	-	-	1,500.0	-	-	-			-	Haraa (r)	7.000
S-21	○	Zuun buren	Bongiin tohoi	3,000.0	-	-	3,000.0	-	-	-			-	Selenge (r)	250.000
S-22	▲		Sumiin bulan	500.0	-	-	500.0	-	20.0	20.0		20.0	20.0	Selenge (r)	250.000
S-23	○		Orkhon selengiin belchir	3,000.0	-	-	3,000.0	-	-	-			-	Selenge (r)	250.000
S-24	▲	Mushig	Hadan hoshuu	100.0	90.0	-	10.0	-	60.0	60.0		4.0	4.0	Hadan hoshuu (r)	
S-25	□		Hujirt gol	200.0	-	200.0	-	-	-	-			-	Hadan hoshuu (r)	
S-26	○		Hurkhree	10.0	-	-	10.0	-	-	-			-	Hurkhree	0.064
S-27	○	Yeroo	Enkhtal	4,500.0	-	3,000.0	1,500.0	-	-	-			-	Yeruu (r)	39.400
S-28	○		Karnakov	200.0	-	-	200.0	-	-	-			-	Yeruu (r)	39.400
S-29	○		Har ereg	100.0	-	-	100.0	-	-	-			-	Yeruu (r)	39.400
S-30	○		Tsagaan tohoi	200.0	-	-	200.0	-	-	-			-	Yeruu (r)	39.400
S-31	○		Bayan gol	20.0	-	-	20.0	-	-	-			-	Bayangol(r)	
S-32	▲		Shaazgait	15.0	-	-	15.0	-	10.0	10.0		5.0	5.0	Shaazgait (r)	0.050
S-33	▲	Tsagaan nuur	Tiireg hondii	6,000.0	-	-	6,000.0	-	10.0	10.0		7.0	7.0	Selenge (r)	250.000
S-34	○		Sogooch	500.0	-	-	500.0	-	-	-			-	Selenge (r)	250.000
S-35	□		Sangaltai	1,160.0	1,160.0	-	-	-	-	-			-		
S-20	□		Manhtai	430.0	430.0	-	-	-	-	-			-		
S-36	□		Orkhi gol	2,000.0	2,000.0	-	-	-	-	-			-	Orkhi (r)	0.150
S-37	□	Saikhan	Ders bulan	400.0	-	400.0	-	-	-	-			-		
S-38	○		Nogoo brigad	200.0	-	170.0	30.0	-	-	-			-	Haraa (r)	7.000
S-39	○		Noshoo chuluu	300.0	-	280.0	20.0	-	-	-			-	Haraa (r)	7.000
S-40	◎		Haraa orkhony belchir	1,000.0	-	-	1,000.0	-	700.0	700.0			-	Orkhon (r)	99.100
S-41	○	Orkhon	Hudgiin hondii	500.0	-	-	500.0	-	-	-			-	Orkhon (r)	99.100
S-42	▲		Shiilegiin gol	400.0	320.0	-	80.0	-	30.0	30.0		7.0	7.0	Shiir (r)	0.060
S-43	□	Orkhontuul	Tsagaan tohoi	500.0	-	500.0	-	-	-	-			-		
S-44	▲		Tsagaan ereg	400.0	-	-	400.0	-	5.0	5.0		2.0	2.0	Tuul (r)	99.100
S-45	□		Shar usny gol	500.0	500.0	-	-	-	-	-			-		
S-46	○		Burgaltai	80.0	-	-	80.0	-	-	-			-	Burgaltai (r)	0.430
S-47	○		Chuluut gol	20.0	-	-	20.0	-	-	-			-	Chuluut (r)	0.042
S-49	○	Sant	Duduun nuhryn am	700.0	200.0	300.0	200.0	-	-	-			-	Orkhon (r)	99.100
S-50	▲		Hushaat	100.0	-	-	100.0	-	60.0	60.0		5.0	5.0	Hushaat (r)	0.060
S-51	◉		Yeven	3,300.0	-	-	3,300.0	3,300.0	-	3,300.0	2,685.0		2,685.0	Orkhon (r)	99.100
S-52	◎	Shaanar	Shar tohoi	1,800.0	-	300.0	1,500.0	-	1,000.0	1,000.0			-	Selenge (r)	250.000

Table 3.4.2.20 Irrigated Areas(surveyed by the Government of Mogolia) (2/7)

AIMAG NUMBER on Map	MARK	SUM (DISTRICT)	SCHEME NAME	RECONNOITERED AREA (ha)	UNSUITABLE AREA for IRRIGATION (ha) LACK of WATER	due to SOIL	REGISTERED AREA (ha)	IRRIGATION FACILITIES CONSTRUCTED AREA (ha) MECHANICAL IRRI	GRAVITY IRRI.	TOTAL	CULTIVATED AREA as of 1993 (ha) MECHANICAL IRRI	GRAVITY IRRI.	TOTAL	WATER RESOURCE (RIVER,WELL, etc.)	WATER VOLUME m3/s
S-53	○		Yapon tohoi	1,000.0	-	500.0	500.0	-	-	-			-	Orkhon (r)	145.000
S-54	□		Undur hur	300.0	-	300.0	-	-	-	-			-		
S-55	○		Dhindoin tal	600.0	-	-	600.0	-	-	-			-	Selenge (r)	250.000
S-56	⊗		Manj dotor tal	500.0	-	200.0	300.0	-	60.0	60.0			-	Orkhon (r)	145.000
S-57	◉		Shaamar	85.0	-	-	85.0	61.0	-	61.0	41.0		41.0	Orkhon (r)	145.000
S-61	○	Huder	Belchir	1,200.0	-	-	1,200.0	-	-	-			-	Shorgoolj (r)	2.600
S-62	⊗		Shorgoolj	500.0	-	-	500.0	-	500.0	500.0			-	Tumurt (r)	1.160
S-63	○		Huder hondii	800.0	-	500.0	300.0	-	-	-			-	Huder(r)	4.160
SUBTOTAL				49,193.0	8,324.0	8,450.0	47) 32,419.0	8) 5,617.0	14) 3,395.0	22) 9,012.0	8) 4,338.0	9) 68.5	17) 4,406.5		
TOV															
T-1	○	Erdene	Tsagaan shiree	100.0	-	20.0	80.0	-	-	-			-	Tuul gol (r)	15.200
T-2	○		Ovor ogoomor	360.0	-	160.0	200.0	-	-	-			-	Tuul gol (r)	15.200
T-3	○		Oliin bulag	200.0	-	120.0	80.0	-	-	-			-	Terelj gol (r)	5.870
T-4	○		Dugan tsagaan	300.0	-	-	300.0	-	-	-			-	Terelj gol (r)	5.870
T-5	○		Baruun bayan	240.0	-	170.0	70.0	-	-	-			-		
T-6	□		Hurh	50.0	-	50.0	-	-	-	-			-		
T-7	◉		Uu bulan	300.0	-	200.0	100.0	36.0	-	36.0	36.0		36.0	Tuul gol (r)	15.200
T-8	□		Gorhi	100.0	-	100.0	-	-	-	-			-	Tuul gol (r)	15.200
T-9	□		Tost bulag	11.0	11.0	-	-	-	-	-			-	Tost bulag (s)	
T-10	□	Bayandelger	Tahilt	60.0	-	60.0	-	-	-	-			-	Tahilt bulag (s)	
T-11	◉		Togosin hooloi	200.0	-	200.0	-	72.0	-	72.0	72.0		72.0	Tal bulag (w)	
T-12	○		Tal bulag	300.0	228.0	-	72.0	-	-	-			-	Tal bulag (s)	0.009
T-13	⊠		Halangiin uruu bulan	600.0	-	600.0	-	-	200.0	200.0			-	Herlen gol (r)	25.800
T-14	○		Delberhei	800.0	700.0	-	100.0	-	-	-			-	Delberhei bulag (s)	0.025
T-15	□		Shine us	200.0	-	200.0	-	-	-	-			-	Shine gus gol (r)	0.074
T-16	⊠		Hundlun bulag	10.0	10.0	-	-	-	10.0	10.0		6.5	6.5	Hundlun bulag (s)	
T-17	○	Undur shireet	Shagai taijiin huree	60.0	-	55.0	5.0	-	-	-			-	Tuul gol (r)	15.200
T-18	○		Maihan boryn denj	100.0	-	-	100.0	-	-	-			-	Tuul gol(r)	15.200
T-19	○		Barhiin hondii	120.0	70.0	-	50.0	-	-	-			-	(s)	
T-20	○		Talyn bayan	200.0	100.0	-	100.0	-	-	-			-	(s)	
T-21	□		Hermen denj	150.0	-	150.0	-	-	-	-			-	Tuul gol (r)	15.200
T-22	□		Ar uvur tsahiurtain am	300.0	-	300.0	-	-	-	-			-	Tuul gol (r)	15.200
T-23	□		Oliin bulan	200.0	-	200.0	-	-	-	-			-	Tuul gol (r)	15.200
T-24	⊛	Arkhust	Shunkhlai	9.0	7.0	-	2.0	-	7.7	7.7		7.7	7.7	Shunhulai bulag (s)	0.001
T-25	○	Mongon morit	Yudgiin denj	720.0	-	420.0	300.0	-	-	-			-	Herlen gol (r)	25.800
T-26	○		Hongoriin tal	4,316.0	-	2,016.0	2,300.0	-	-	-			-	Herlen gol (r)	25.800
T-27	○	Bayanjargalan	Undur dalan	1,230.0	-	-	1,230.0	-	-	-			-	Herlen gol (r)	25.800
T-28	□	Bayan	Engeriin bulag	2.0	2.0	-	-	-	-	-			-	Enger bulag (s)	
T-29	□		Ih bulag	2.0	2.0	-	-	-	-	-			-	Ih bulag (s)	
T-30	□		Zulegt	2.0	2.0	-	-	-	-	-			-	Zulegt bulag (s)	
T-31	□		Undurtolgoi	4.0	4.0	-	-	-	-	-			-	Undurtolgoi (s)	
T-32	⊛	Lun	Burkhantiin hondii	10.0	-	-	10.0	-	4.0	4.0		2.9	2.9	Tuul gol (r)	15.200
T-33	○		Yatuudiin hondii	100.0	-	-	100.0	-	-	-			-	Tuul gol (r)	15.200
T-34	□		Urgun namag	250.0	-	250.0	-	-	-	-			-	Tuul gol (r)	15.200
T-35	□		Argalyn enger	160.0	-	160.0	-	-	-	-			-	Tuul gol (r)	15.200
T-36	□		Bulgany bulan	150.0	-	150.0	-	-	-	-			-	Tuul gol (r)	15.200
T-37	□		Bor taliin adag	150.0	-	150.0	-	-	-	-			-	Tuul gol (r)	15.200
T-38	□		Uguumur	50.0	-	50.0	-	-	-	-			-	Tuul gol (r)	15.200
T-39	○	Ugtaal tsaidam	Yatuudiin hondii	200.0	-	-	200.0	-	-	-			-	Tuul gol (r)	15.200

Table 3.4.2.20 Irrigated Areas(surveyed by the Government of Mogolia) (3/7)

AIMAG NUMBER on Map	MARK	SUM (DISTRICT)	SCHEME NAME	RECONNOITERED AREA (ha)	UNSUITABLE AREA for IRRIGATION (ha) LACK of WATER	due to SOIL	REGISTERED AREA (ha)	IRRIGATION FACILITIES CONSTRUCTED AREA (ha) MECHANICAL IRRI.	GRAVITY IRRI.	TOTAL	CULTIVATED AREA as of 1993 (ha) MECHANICAL IRRI.	GRAVITY IRRI.	TOTAL	WATER RESOURCE (RIVER,WELL, etc.)	WATER VOLUME m3/s
T-40	□		Haliuny gol	100.0	100.0	-	-	-	-	-			-	Haliungol (r)	
T-41	⑧		Bor hujir	5.0	-	-	5.0	-	15.0	15.0		15.0	15.0	Borhujir gol (r)	
T-42	○	Zaamar	Gichgenii gol	5.0	3.0	-	2.0	-	-	-			-	Gichgenii bulag (s)	0.003
T-43	○		Hadan hoshuun bulag	200.0	-	-	200.0	-	-	-			-	Hadan hoshuu bulag (s)	0.018
T-44	○		Tsagaan bulag	50.0	45.0	-	5.0	-	-	-			-	Tsagaan bulag (s)	0.008
T-45	○		Bayan gol	35.0	-	-	35.0	-	-	-			-	Bayangol (r)	0.010
T-46	◉		Ar urt	125.0	-	-	125.0	125.0	-	125.0	125.0		125.0	Arurt gol (r)	
T-47	□	Tseel	Bugiin gol	250.0	250.0	-		-	-	-			-	Bugiyn gol (r)	
T-48	○		Teeliin gol	250.0	50.0	-	200.0	-	-	-			-	Teel gol (r,w)	0.027
T-49	⑧		Bor gol	30.0	10.0	-	20.0	-	24.0	24.0		24.0	24.0	Bor hujir gol (r)	
T-50	⑧	Jargalant	Teeliin gol	300.0	200.0	-	100.0	-	4.5	4.5		4.5	4.5	Teel gol (r)	0.037
T-51	○		Helhiin gol	100.0	40.0	-	60.0	-	-	-			-	Helhiingol (r)	0.011
T-52	⑧		Bor hujir	400.0	280.0	-	120.0	-	0.6	0.6		0.6	0.6	Bor hujir gol (r)	0.041
T-53	○		Mendiin uzuur	350.0	150.0	-	200.0	-	-	-			-	Mendiin uzuur gol (r,W)	
T-54	◉		Jargalant	850.0	-	-	850.0	850.0	-	850.0	532.0		532.0	Jargalant gol (r)	
T-55	⑧	Sumber	Huts uhnat	70.0	-	-	70.0	-	8.3	8.3		8.3	8.3	Zagdal gol (r)	0.315
T-56	○		Ugalz hondiin adag	80.0	-	-	80.0	-	-	-			-	Zagdal gol (r)	0.315
T-57	◉	Bayantsogt	Dund urt	80.0	40.0	-	40.0	57.0	-	57.0	57.0		57.0	Dund urt gol (r)	0.006
T-58	□		Hairt haan	50.0	50.0	-	-	-	-	-			-	Hairt haany sair (r)	
T-59	◉		Guna	70.0	-	-	70.0	70.0	-	70.0	70.0		70.0	Gunyn gol (r)	
T-60	⑧	Batsumber	Mandalyn uhaa	800.0	-	600.0	200.0	-	120.0	120.0		120.0	120.0	Sugnugur gol (r)	0.335
T-61	○		Dugan davaa	1,000.0	-	700.0	300.0	-	-	-			-	Sugnugur gol (r)	0.335
T-62	○		Shatangiin gol	200.0	195.0	-	5.0	-	-	-			-	Shatangiin gol (r)	0.005
T-63	○		Jargalant ar	500.0	350.0	-	150.0	-	-	-			-	Hui mandal gol (r)	0.182
T-64	◉		Bayangol	100.0	-	-	100.0	34.0	-	34.0	22.0		22.0	Bayangol (r)	0.222
T-65	○		Udleg	34.0	-	-	34.0	-	-	-			-	Udleg gol (r)	
T-66	◉		Mandal	802.0	-	-	802.0	802.0	-	802.0	386.0		386.0	Mandal gol (r)	0.182
T-67	◉		Bayantolgoi	257.0	-	-	257.0	250.0	-	250.0	250.0		250.0	Bayantolgoi (r)	
T-68	◉	Bayan chandmani	Ih suuj	10.0	10.0	-	-	-	10.0	10.0		10.0	10.0	Ih suu bulag (s)	
T-69	⑧		Zuun suhar	220.0	190.0	-	30.0	-	28.8	28.8		28.8	28.8	Zuun suhar gol (r)	0.003
T-70	◎		Sumiin tov	72.0	-	-	72.0	72.0	-	72.0			-	Huh buh gol (r)	
T-82	⑧		Shariin am	60.0	-	-	60.0	-	60.5	60.5		60.5	60.5	Sharyn gol (r)	
T-71	⑧	Altanbulag	Buhug gol	100.0	30.0	-	70.0	-	8.0	8.0		8.0	8.0	Buhug gol (r)	0.108
T-72	○		Baanyn bulan	10.0	-	-	10.0	-	-	-			-	Tuul gol (r)	15.200
T-73	○		Ih tsagaan aral	200.0	-	180.0	20.0	-	-	-			-	Tuul gol (r)	15.200
T-74	○		Baga tsagaan aral	140.0	-	110.0	30.0	-	-	-			-	Tuul gol (r)	15.200
T-75	○		Sairin tsagaan burgas	15.0	-	-	15.0	-	-	-			-	Tuul gol (r)	15.200
T-76	○		Sumyn tov	50.0	-	-	50.0	-	-	-			-	Tuul gol (r)	15.200
T-77	○	Sergelen	Bayan bulag	2.0	-	-	2.0	-	-	-			-	Bayanbulag (s)	
T-78	□		Huiten	10.0	10.0	-	-	-	-	-			-	Huitnii bulag (s)	
T-79	□		Seruun	20.0	20.0	-	-	-	-	-			-	Seruun bulag (s)	
T-80	□		Suuj	5.0	5.0	-	-	-	-	-			-	Suuj bulag (s)	
T-81	▣	Bornuur	Arangat	-	-	-	-	280.0	26.0	306.0	80.0	26.0	106.0	Boroo gol (r)	
T-84	◉		Bornuur	966.0	-	-	966.0	966.0	-	966.0	900.0		900.0	Boroo gol (r)	
SUBTOTAL				21,289.0	3,164.0	7,371.0	53) 10,754.0	12) 3,614.0	15) 527.4	27) 4,141.4	11) 2,530.0	14) 322.8	* 25) 2,852.8		
DARKHAN-UUL															
S-14	◉	Hongorsum	Buurt	200.0	70.0	-	130.0	130.0	-	130.0	130.0		130.0		
S-15	◉		Hongoryn gol	280.0	-	-	280.0	201.0	-	201.0	201.0		201.0	Haraa gol (r)	7.000
S-58	◉	Orkhon	Sharyn gol	962.0	340.0	-	622.0	436.0	-	436.0	436.0		436.0	Sharyn gol (r)	

Table 3.4.2.20 Irrigated Areas(surveyed by the Government of Mogolia) (4/7)

AIMAG NUMBER MARK on Map	SUM (DISTRICT)	SCHEME NAME	RECONNOI-TERED AREA (ha)	UNSUITABLE AREA for IRRIGATION (ha) LACK of WATER	due to SOIL	REGISTERED AREA (ha)	IRRIGATION FACILITIES CONSTRUCTED AREA (ha) MECHANICAL IRRI	GRAVITY IRRI.	TOTAL	CULTIVATED AREA as of 1993 (ha) MECHANICAL IRRI	GRAVITY IRRI.	TOTAL	WATER RESOURCE (RIVER,WELL, etc.)	WATER VOLUME m3/s
S-59 ◉		79-yn tohoi	100.0	-	-	100.0	58.0	-	58.0	58.0		58.0	Orkhon gol (r)	
S-60 ◉		Buren tolgoi	800.0	-	200.0	600.0	360.0	-	360.0	360.0		360.0	Haraa gol (r)	7.000
SUBTOTAL			2,342.0	410.0	200.0	5) 1,732.0	5) 1,185.0	)	5) 1,185.0	5) 1,185.0		5) 1,185.0		
OVORHANGAI														
OV-1 ○	Baruun bayan ulaan	Taatsyn bor hoshuu	30.0	-	10.0	20.0	-	-	-			-	Taatsun	0.600
OV-2 ◭		Taatsyn bor zalaa	200.0	-	-	200.0	-	53.0	53.0		23.0	23.0	Taatsun	0.600
OV-3 ○		Tahiin us	25.0	-	5.0	20.0	-	-	-			-	Tahiin	0.030
OV-4 ○	Bat-Ulzii	Dzuun sedet	50.0	-	-	50.0	-	-	-			-	Bulag	0.024
OV-5 ◈		Suveitiin adag	40.0	-	-	40.0	-	10.0	10.0			-	Subet	0.001
OV-6 ○		Tsagaan chuluut	60.0	-	-	60.0	-	-	-			-	Bulag	0.013
OV-7 ◈		Ongolsot	150.0	50.0	-	100.0	-	30.0	30.0			-	Dund us	0.007
OV-8 ◈	Bayangol	Talyn hudgiin tal	800.0	-	200.0	600.0	-	2.0	2.0			-	Ongiin	1.000
OV-9 □		Ulaan ereg	20.0	-	20.0	-	-	-	-			-	Ongiin	1.000
OV-10 □		Namag	60.0	-	60.0	-	-	-	-			-	Bulagtain	
OV-11 ○	Bayan ondor	Harztain gol	70.0	-	-	70.0	-	-	-			-	Hardztain	0.062
OV-12 ◭		Bor hujir	12.0	5.0	-	7.0	-	20.0	20.0		10.0	10.0	Bor hujir	0.002
OV-13 □		Baruun arhich	6.0	6.0	-	-	-	-	-			-	Bulag	0.001
OV-14 □		Dzuun arhich	5.0	5.0	-	-	-	-	-			-	Bulag	0.001
OV-15 ○		Sonduult	2.0	-	-	2.0	-	-	-			-	Dzuun arhict	
OV-16 ◈	Bogd	Hovd gol'1	300.0	240.0	-	60.0	-	5.0	5.0			-	Hovd	0.033
OV-17 □		Hovd gol'2	10.0	-	10.0	-	-	-	-			-	Hovd	0.033
OV-18 ◈		Ord ulaan bulag	125.0	105.0	-	20.0	-	5.0	5.0			-	Bulag	0.007
OV-19 □		Hoit ulaan bulag	20.0	-	20.0	-	-	-	-			-	Bulag	0.007
OV-20 □		Hunhriin gol	100.0	-	100.0	-	-	-	-			-	Hurhereen	
OV-21 ○	Burd	Hoit noils	20.0	15.0	-	5.0	-	-	-			-	Hoit noils	0.003
OV-22 ○		Bayan turuu	50.0	-	-	50.0	-	-	-			-	Elst	0.068
OV-23 ◭		Tarian tolgoi	100.0	-	-	100.0	-	50.0	50.0		50.0	50.0	Chuluut	0.040
OV-24 ○		Baga borigdoi	20.0	-	-	20.0	-	-	-			-	Bulag	0.009
OV-25 ○		Jargalan har biluut	150.0	-	60.0	90.0	-	-	-			-	Jargalant	0.240
OV-26 □	Guchin-Us	Hureen golyn adag	35.0	-	35.0	-	-	-	-			-		
OV-27 ◪		Arguin golin huvuu	100.0	-	100.0	-	-	10.0	10.0			-	Arguin	0.086
OV-28 ◉	Zuil	Saryn hondii	200.0	-	-	200.0	74.0	-	74.0	74.0		74.0	Jargalant	0.106
OV-29 □		Shuvuut gol	30.0	-	30.0	-	-	-	-			-	Shuvuutiin	0.006
OV-30 □		Bayan gol	10.0	-	10.0	-	-	-	-			-		
OV-31 □		Ulaan chuluu	8.0	8.0	-	-	-	-	-			-	Bulag	0.001
OV-32 □		Burgasny gol	10.0	-	10.0	-	-	-	-			-	Burgas	0.005
OV-33 ○		Ulaan ereg	150.0	-	-	150.0	-	-	-			-	Ulaan ereg	0.024
OV-34 ○		Honkhiin gol	10.0	5.0	-	5.0	-	-	-			-	Bulag	0.002
OV-35 ○		Asgatyn bulag	5.0	-	-	5.0	-	-	-			-	Bulag	0.011
OV-36 □		Dulguun gol	20.0	-	20.0	-	-	-	-			-	Dolgoon	0.010
OV-37 ○	Zuun bayan-Ulaan	Hunguin nuhar	300.0	-	-	300.0	-	-	-			-	Bulag	0.020
OV-38 ◭		Hargany gol	25.0	-	-	25.0	-	2.0	2.0		2.0	2.0	Hargana	0.004
OV-39 ○		Hayrhany uzuur	800.0	-	200+0	600.0	-	-	-			-	Ondi	1.000
OV-40 ◈	Nariinteel	Hurentolgoi	30.0	-	-	30.0	-	20.0	20.0			-	Shargai	0.040
OV-41 ○		Undur humsug	10.0	-	-	10.0	-	-	-			-	Taatsiin	0.600
OV-42 ◪		Artsyn gol	5.0	5.0	-	-	-	12.0	12.0		6.0	6.0	Artsat	0.004
OV-43 ◈	Ulziit	Huisiin gol	300.0	235.0	-	65.0	-	5.0	5.0		5.0	5.0	Huis	0.040
OV-44 ○		Ulzii burd	30.0	-	-	30.0	-	-	-			-	Uldziit burd	0.003
OV-45 ○		Ih bulag	10.0	8.0	-	2.0	-	-	-			-	Bulag	0.001

Table 3.4.2.20 Irrigated Areas(surveyed by the Government of Mogolia) (5/7)

AIMAG NUMBER MARK on Map	SUM (DISTRICT)	SCHEME NAME	RECONNOITERED AREA (ha)	UNSUITABLE AREA for IRRIGATION (ha)		REGISTERED AREA (ha)	IRRIGATION FACILITIES CONSTRUCTED AREA (ha)			CULTIVATED AREA as of 1993 (ha)			WATER RESOURCE (RIVER,WELL, etc.)	WATER VOLUME m3/s
				LACK of WATER	due to SOIL		MECHANICAL IRRI	GRAVITY IRRI.	TOTAL	MECHANICAL IRRI	GRAVITY IRRI.	TOTAL		
OV-46 ○	Taragt	Altan tal	2,348.0	-	-	2,348.0	-	-	-			-	Ongiin	1.000
OV-47 ⑭		Arvain tal	120.0	-	-	120.0	120.0	2.0	122.0		2.0	2.0		
OV-48 ○		Seeriin gol	30.0	-	-	30.0	-	-	-			-	Seeriin	0.006
OV-49 ○		Talyn hudag	3,000.0	-	-	3,000.0	-	-	-			-	Ongiin	1.000
OV-50 ⑭		Dairgany gol	70.0	-	-	70.0	-	70.0	70.0		50.0	50.0	Dairganu	0.020
OV-51 ⑨	Tugrug	Nazar	100.0	-	-	100.0	37.0	-	37.0	37.0		37.0		
OV-52 □		Arguun goliin haya	2,100.0	-	2,100.0	-	-	-	-			-		
OV-53 ○	Uyanga	Baraan chuluut	300.0	-	-	300.0	-	-	-			-	Baraan chuluut	0.230
OV-54 ○		Chandagatai	150.0	140.0	-	10.0	-	-	-			-	Chandagatai	
OV-55 ○		Nariin husht	30.0	-	-	30.0	-	-	-			-		
OV-56 ○		Baarain	200.0	100.0	-	100.0	-	-	-			-	Barain	
OV-57 ○		Tarimal	300.0	-	-	300.0	-	-	-			-	Tarimaliin	
OV-58 ○		Bum buhyn gol	100.0	-	-	100.0	-	-	-			-	Bum buhun	0.025
OV-59 □		Taats	80.0	-	80.0	-	-	-	-			-	Taatsiin	0.600
OV-60 ⑮		Maanit	175.0	165.0	-	10.0	-	2.0	2.0			-	Maanit	
OV-61 ○	Hairkhan dulaan	Teeliin gol	90.0	-	-	90.0	-	-	-			-		
OV-62 ⑭		Nariin gol	60.0	28.0	-	32.0	-	10.0	10.0		10.0	10.0	Nariin	0.010
OV-63 ○		Shavart bulag	40.0	-	-	40.0	-	-	-			-	Shavart	0.020
OV-64 ⑨	Harkhorin	Bugshnii hondii	8,150.0	-	-	8,150.0	8,150.0	-	8,150.0	3,235.0		3,235.0	Orhon	32.300
OV-65 ○		Harzny gol	1,000.0	300.0	-	700.0	-	-	-			-	Hardznii	0.127
OV-66 ○		Havtslyn gol	400.0	180.0	-	220.0	-	-	-			-	Havtsal	0.072
OV-67 ○		Bayan gol	130.0	70.0	-	60.0	-	-	-			-	Bauan	0.019
OV-68 ○		Temeen buzuu	70.0	-	-	70.0	-	-	-			-	Temeen hudzuu	0.033
OV-69 ○		Orhony zuun ereg	1,200.0	-	-	1,200.0	-	-	-			-	Orhon	32.300
OV-70 ○	Huzirt	Duut	450.0	-	250.0	200.0	-	-	-			-	Must	0.067
OV-71 ○		Dvor Modot	80.0	70.0	-	10.0	-	-	-			-	Modot	0.001
OV-72 ⑨		Tsuurai	1,500.0	1,100.0	-	400.0	219.0	-	219.0	219.0		219.0	Stuurait	0.037
OV-73 ⑭		Haahai	150.0	90.0	-	60.0	-	30.0	30.0		30.0	30.0	Bulag	0.001
OV-74 ⑮		Shavar turuun	450.0	338.0	-	112.0	-	100.0	100.0			-	Shavar turuu	0.057
OV-75 ○		Teel	200.0	-	-	200.0	-	-	-			-	Teel	0.038
SUBTOTAL			27,586.0	3,268.0	3,320.0	58) 20,998.0	5) 8,600.0	19) 438.0	24) 9,038.0	4) 3,565.0	10) 188.0	14) 3,753.0		
BULGAN														
B-1 ◎	Bajan-Agt	Havtsgait	2,560.0	-	-	2,560.0	74.0	-	74.0			-	Havtsgait	0.023
B-2 ○		Tal us	60.0	-	-	60.0	-	-	-			-	Tal us	0.014
B-3 ○		Ih gol	300.0	200.0	-	100.0	-	-	-			-	Ih	0.016
B-4 ⑭		Balig	100.0	-	40.0	60.0	-	5.0	5.0		2.1	2.1	Bulig	0.124
B-5 ○		Ih bulag	200.0	100.0	-	100.0	-	-	-			-	Ih bulag	0.018
B-6 ○		Uneg tsagaan gol	200.0	100.0	-	100.0	-	-	-			-	Unegt tsagaan	0.230
B-7 ⑭	Bugat	Maanit	600.0	550.0	-	50.0	-	21.0	21.0		7.0	7.0	Maanit	0.014
B-8 ⑮		Hujirt	250.0	150.0	-	100.0	-	40.0	40.0			-	Hujirt	0.015
B-9 ○	Bureg hangai	Ar huuvur	200.0	100.0	-	100.0	-	-	-			-	Bulag	0.012
B-10 ○		Hujiryn gol	200.0	120.0	-	80.0	-	-	-			-	Hujiriin	0.020
B-11 ⑭		Dajin gol	3,200.0	-	-	3,200.0	-	6.0	6.0		0.3	0.3	Dzajiin	0.060
B-12 ○		Angirt tuluujin	1,200.0	1,195.0	-	5.0	-	-	-			-	Toloodzin	0.008
B-13 ○		Yamaat	240.0	160.0	-	80.0	-	-	-			-	Yamaat	0.209
B-14 ⑮	Gurvan bulag	Sain turuu	100.0	50.0	-	50.0	-	13.0	13.0			-	Sain turuunii	0.045
B-15 ⑭		Tarnain gol	500.0	-	300.0	200.0	-	1.0	1.0		1.0	1.0	Tarnain	0.105
B-16 ○		Tahilt	400.0	240.0	-	160.0	-	-	-			-	Tahilt	0.021
B-17 ○	Dashinchilen	Shar dov	450.0	-	-	450.0	-	-	-			-	Har buhuh	

Table 3.4.2.20 Irrigated Areas(surveyed by the Government of Mogolia) (6/7)

AIMAG NUMBER on Map	MARK	SUM (DISTRICT)	SCHEME NAME	RECONNOITERED AREA (ha)	UNSUITABLE AREA for IRRIGATION (ha) LACK of WATER	due to SOIL	REGISTERED AREA (ha)	IRRIGATION FACILITIES CONSTRUCTED AREA (ha) MECHANICAL IRRI	GRAVITY IRRI.	TOTAL	CULTIVATED AREA as of 1993 (ha) MECHANICAL IRRI	GRAVITY IRRI.	TOTAL	WATER RESOURCE (RIVER,WELL, etc.)	WATER VOLUME m3/s
B-18	㉘		Myalaan gol	150.0	90.0	-	60.0	-	4.0	4.0			-	Milan	0.043
B-19	□		Savangiin gol	800.0	800.0	-	-	-	-	-			-	Savangiin	0.008
B-20	㉚	Mogod	Bosgo	10.0	-	-	10.0	-	7.0	7.0		3.0	3.0	Huitnii	0.007
B-21	○		Orkhony hondii	500.0	-	100.0	400.0	-	-	-			-	Orhon	32.300
B-22	⑨	Orkhon	Tochekiin hotgor	600.0	250.0	-	350.0	85.0	-	85.0	85.0		85.0	Shuvuut	0.526
B-23	⑩		Seeriin gol	197.0	-	50.0	147.0	48.0	-	48.0			-	Seeriin	0.025
B-24	㉛		Jargalant	200.0	100.0	-	100.0	-	150.0	150.0		22.0	22.0	Jargalant	0.100
B-25	○		Mogoin gol	250.0	150.0	-	100.0	-	-	-			-	Mogoin	0.158
B-26	㉜	Saihan	Hoid urd tal bulag	2,200.0	1,600.0	-	600.0	-	5.0	5.0		2.0	2.0	tal bulag	0.015
B-27	㉝		Buiryn hondii	1,200.0	1,000.0	-	200.0	-	25.0	25.0			-	Boor nuur	
B-28	○		Jargalant	200.0	100.0	-	100.0	-	-	-			-	Jargalant	0.011
B-29	○		Buurlyn gol	150.0	50.0	-	100.0	-	-	-			-	Buurliin	0.018
B-30	○	Teshig	Tsagaan aral	460.0	-	-	460.0	-	-	-			-	Egiin	81.900
B-31	○		Hooloin nuga	300.0	-	150.0	150.0	-	-	-			-	Egiin	81.900
B-32	○		Maraany nuga	350.0	-	100.0	250.0	-	-	-			-	Egiin	81.900
B-33	○		Dalan	450.0	-	-	450.0	-	-	-			-	Egiin	81.900
B-34	○		Ih hondiin nuga	400.0	-	-	400.0	-	-	-			-	Egiin	81.900
B-35	○		Altan uul	200.0	-	-	200.0	-	-	-			-	Egiin	81.900
B-36	㉞		Suujiin bulag	50.0	30.0	-	20.0	-	29.0	29.0			-	Suujiin	0.023
B-37	㉟		Jargalant	50.0	40.0	-	10.0	-	1.0	1.0		1.0	1.0	Jargalant bulag	0.003
B-38	□		Teshig gol	460.0	460.0	-	-	-	-	-			-	Teshig	
B-39	○		Hujirt tarvagtai	1,400.0	800.0	-	600.0	-	-	-			-	Hujirt, Tarvagtai	0.103,0.423
B-40	○		Ulaan tolgoi	400.0	-	200.0	200.0	-	-	-			-	Egiin	81.900
B-41	○	Hangal	Gun gol	200.0	100.0	-	100.0	-	-	-			-	Gun	0.006
B-42	○		Dund evert	300.0	290.0	-	10.0	-	-	-			-	Evert	0.007
B-43	○		Deed evert	400.0	200.0	-	200.0	-	-	-			-	Deed evert	0.028
B-44	□		Chuluut	100.0	100.0	-	-	-	-	-			-		
B-45	□		Dood evert	150.0	150.0	-	-	-	-	-			-		
B-46	○		Ulaan burgas	300.0	200.0	-	100.0	-	-	-			-	Ulaan burgas	0.030
B-47	○		Irgediin ar hoshoot	500.0	200.0	-	300.0	-	-	-			-	Selenge	88.000
B-48	○		Tsulhar	150.0	-	-	150.0	-	-	-			-	Tsulhar	0.211
B-49	㊱		Bayan nug	30.0	-	-	30.0	-	17.0	17.0			-	Sevcuul	0.035
B-50	○	Hishig-Undur	Bayart bulag	5.0	2.0	-	3.0	-	-	-			-	Bayart	0.001
B-51	㊲		Sharhain gol	400.0	250.0	-	150.0	-	30.0	30.0		1.8	1.8	Sharhain	0.088
B-52	○		Bayan gol	200.0	100.0	-	100.0	-	-	-			-	Bayan	0.143
B-53	○		Shivert	100.0	-	-	100.0	-	-	-			-	Shivert	0.338
B-54	○		Maanit	1,150.0	150.0	-	1,000.0	-	-	-			-	Hujiriin	0.122
B-55	○	Selenge	Hujirt	300.0	-	-	300.0	-	-	-			-	Hujiriin	0.368
B-56	○		Har ereg	340.0	-	-	340.0	-	-	-			-	Selenge	88.000
B-57	○		Alag morit	500.0	-	-	500.0	-	-	-			-	Selenge	88.000
B-58	○		Tsagaan tohoi	500.0	-	-	500.0	-	-	-			-	Selenge	88.000
B-59	○		Inget gol	3,200.0	1,200.0	-	2,000.0	-	-	-			-	Selenge	88.000
B-60	㊳		Inget goliin adag	270.0	-	20.0	250.0	-	10.0	10.0		2.3	2.3	Inget	0.036
B-61	○		Harlag	400.0	100.0	-	300.0	-	-	-			-	Selenge	88.000
B-62	○		Hartsain gol	300.0	290.0	-	10.0	-	-	-			-	Hartsain	0.004
B-63	○		Tariatyn zuun bulag	500.0	380.0	-	120.0	-	-	-			-	Dzuun bulag	0.045
B-64	○		Shavriin gol	50.0	35.0	-	15.0	-	-	-			-	Shavart	0.006
B-65	□		Shar tal	600.0	600.0	-	-	-	-	-			-		
B-66	○		Hyalganatyn nug	300.0	-	50.0	250.0	-	-	-			-	Selenge	88.000
B-67	○		Bayangolyn nug	800.0	-	200.0	600.0	-	-	-			-	Selenge	88.000

Table 3.4.2.20 Irrigated Areas(surveyed by the Government of Mogolia) (7/7)

AIMAG NUMBER MARK on Map		SUM (DISTRICT)	SCHEME NAME	RECONNOI-TERED AREA (ha)	UNSUITABLE AREA for IRRIGATION (ha) LACK of WATER	due to SOIL	REGISTERED AREA (ha)	IRRIGATION FACILITIES CONSTRUCTED AREA (ha) MECHANICAL IRRI	GRAVITY IRRI.	TOTAL	CULTIVATED AREA as of 1993 (ha) MECHANICAL IRRI	GRAVITY IRRI.	TOTAL	WATER RESOURCE (RIVER,WELL, etc.)	WATER VOLUME m3/s
B-68	○		Tsuutsiin gol	200.0	160.0	-	40.0	-	-	-			-	Tsuutsiin	0.058
B-69	○		Shar nanhtai	350.0	100.0	-	250.0	-	-	-			-	Shar nantain	0.088
B-70	◬	Hutag	Teeliin gol	2,500.0	1,500.0	-	1,000.0	-	200.0	200.0			-	Teel	0.146
B-71	○		Namnangiin uvur	2,000.0	-	500.0	1,500.0	-	-	-			-	Selenge	88.000
B-72	○		Hangain bel	600.0	-	-	600.0	-	-	-			-	Selenge	88.000
B-73	○		Hongor ovoo	2,000.0	600.0	-	1,400.0	-	-	-			-	Egiin	81.000
B-74	○		Urtyn goliin adag	600.0	-	-	600.0	-	-	-			-	Egiin	81.000
B-75	□		Mogoin gol	300.0	300.0	-	-	-	-	-			-	Mogoin	
B-76	○		Talhiin tohoi	200.0	-	-	200.0	-	-	-			-	Selenge	88.000
B-77	◬		Ih tulbur tsagaan bulan	1,000.0	-	200.0	800.0	-	300.0	300.0		20.0	20.0	Ih tolbor,Selenge	0.343,88.0
B-78	◬	Bayannuur	Shar tal	10,200.0	-	1,300.0	8,900.0	-	560.0	560.0			-	Tuul	17.600
B-79	◬		Bor bulan	5,710.0	-	-	5,710.0	-	350.0	350.0			-	Tuul	17.600
B-80	○		Zaan hoshuu	2,000.0	-	-	2,000.0	-	-	-			-	Tuul	17.600
B-81	◉		Dalain gol	50.0	-	-	50.0	57.0	-	57.0	51.0		51.0		
B-82	○	Bulgan	Achuutiin gol	100.0	-	-	100.0	-	-	-			-	Achuut	0.010
SUBTOTAL				61,582.0	15,432.0	3,210.0	76) 42,940.0	4) 264.0	20) 1,774.0	24) 2,038.0	2) 136.0	11) 62.5	13) 198.5		
ORKHON															
B-83	◉	Jargalant	Ulaan tolgoi	547.0	-	-	547.0	547.0	-	547.0	547.0		547.0		
SUBTOTAL				547.0	-	-	1) 547.0	1) 547.0		1) 547.0	1) 547.0		1) 547.0		
ULAANBAATAR															
UL-1	◉	Nan-Uul	Shuvuun fabric	800.0	-	300.0	500.0	339.0	-	339.0	339.0		339.0	Tuul gol (r)	15.200
UL-2	◉	Songino hairhan	Ayushiin am	175.0	-	-	175.0	175.0	-	175.0	150.0		150.0	Spring and lake water	
UL-3	◉		Rashaant	400.0	320.0	-	80.0	63.0	-	63.0	63.0		63.0	(w)	
UL-4	□		Gunt	300.0	300.0	-	-	-	-	-			-		
UL-5	□		Nariin	250.0	250.0	-	-	-	-	-			-		
UL-6	◎	Bayan dzurh	Har usan tohoi	95.0	-	-	95.0	95.0	-	95.0			-	Tuul gol(r)	15.200
UL-7	○		Ar bayan	862.0	762.0	-	100.0	-	-	-			-	Spring and lake	
UL-8	◉		Dvor bayan	500.0	380.0	-	120.0	74.0	-	74.0	74.0		74.0	(w)	
SUBTOTAL				3,382.0	2,012.0	300.0	6) 1,070.0	5) 746.0	-	5) 746.0	4) 626.0	)	4) 626.0		
TOTAL				165,921.0	32,610.0	22,851.0	246)110,460.0	40) 20,573.0	68) 6,134.4	108)26,707.4	35) 12,927.0	44) 641.8	79) 13,568.8		

Note:) shows the number of schemes
*:Number of schemes takes a count of double if the schemes are irrigated by Mechanical and Gravity
(r):river, (w):well, (s)spring

Table 3.4.2.20 Irrigated Areas(unsurveyed)

AIMAG NUMBER MARK on Map		SUM (DISTRICT)	SCHEME NAME	RECONNOI-TERED AREA (ha)	UNSUITABLE AREA for IRRIGATION (ha)		REGISTERED AREA (ha)	IRRIGATION FACILITIES CONSTRUCTED AREA (ha)				CULTIVATED AREA as of 1993 (ha)				WATER RESOURCE (RIVER,WELL, etc.)	WATER VOLUME m3/s
					LACK of WATER	due to SOIL		MECHANICAL IRRI	GRAVITY IRRI.		TOTAL	MECHANICAL IRRI	GRAVITY IRRI.		TOTAL		
BULGAN																	
B-84	△	Rashaant	Bulag						1) 11.0	1)	11.0		1) 11.0	1)	11.0		
ORKHON																	
B-85	△		Hotiin tuv						1) 30.0	1)	30.0		1) 30.0	1)	30.0		
DARKHAN-UUL																	
S-64	△	Hongor	Aj ahuin tuv						10.2		10.2		10.2		10.2		
S-65	△	Orhon	Hotiin tuv						8.4		8.4		8.4		8.4		
S-66	△	Nairamdal	Hotiin heseg						16.5		16.5		16.5		16.5		
S-67	△	Busad	Hotiin sah						27.0		27.0		27.0		27.0		
SUBTOTAL								-	4) 62.1	4)	62.1		4) 62.1	4)	62.1		
TOV																	
T-85	△	Bayanhangai	Buduun dugar						6.6		6.6		6.6		6.6		
T-86	△	Argalant	Ehnii hudag						1.5		1.5		1.5		1.5		
T-87	△	Erdenesant	Jargalant						4.0		4.0		4.0		4.0		
T-88	△	Bayan	Hunheriin hudag						0.3		0.3		0.3		0.3		
T-89	△	Bayanjargalan	Tarianii hudag						0.5		0.5		0.5		0.5		
T-90	△	Buren	Hoid hudag						0.4		0.4		0.4		0.4		
T-91	△	Undorshireet	Dudengiin hudag						1.3		1.3		1.3		1.3		
T-92	△	Sergelen	Tuviin hudag						0.3		0.3		0.3		0.3		
SUBTOTAL								-	8) 14.9	8)	14.9		8) 14.9	8)	14.9		
ULAANBAATAR																	
UL-9	△	Bachuurt	Uliastai am					240.0	-		240.0				-		
UL-10	△	Bayanzurh	Holiin gol						20.0		20.0		20.0		20.0		
UL-11	△		Uliastai						25.0		25.0		25.0		25.0		
UL-12	△		Angalan						5.0		5.0		5.0		5.0		
UL-13	△		Janjny club						3.0		3.0		3.0		3.0		
UL-14	△	Bayangol	Zuun salaa						10.0		10.0		10.0		10.0		
UL-15	△	Han-Ul	Turgen						65.0		65.0		65.0		65.0		
UL-16	△		Tuuliin toboi						18.0		18.0		18.0		18.0		
UL-17	△	Songino hairhan	Baruun salaa						15.0		15.0		15.0		15.0		
UL-18	△	Suhbaatar	V-buudal						13.0		13.0		13.0		13.0		
SUBTOTAL								1) 240.0	9) 174.0	10)	414.0		9) 174.0	9)	174.0		
TOTAL								1) 240.0	23) 292.0	24)	532.0		23) 292.0	23)	292.0		

Note:) shows the number of schemes
Source: MOFA

Table 3.4.2.21 Mechanical Irrigation Facilities in the Study Area (part 1)

Number on Map Name of Aimag	Name of Sum	Name of Area	Name of Former State Farm	Year to Begin to Use	Irrigated Area (unit: ha)	Condition where Main Facilities are Maintained for Irrigation (G)---Good (M)---Mean (P)---Poor	Type and Number of Sprinklers Type	Number	Owner of Irrigation Facilities	Present Irrigated Area (unit: ha)	Potential Area for Irrigation (unit: ha)	Cultivated Area in 1993	Planted Crops in 1993	Water Supply Source	Remarks
S-17	Mandal	Zuunharaa 1	Zuunharaa	1957	1,034.0	2(M),4(P),5(P)	DM	8	Privately Owned	400	240	174	1,4,6	4	Sugar
(S-20	Manbar	Zuunharaa 2	Zuunharaa	1980	included above	2(P),3(M),4(p),5(P)	DKSy-64	2	Privately Owned	144	-	-	-		Sugar)
S-11	Baingol	Zagdal	Baruunharaa	1975	76.0	2(M),3(G),4(M),5(G)	DDA-100MA	2	State Owned	76	50	726	4	3	ADB-Project(F2)
S-51	Sant	Tsagaantolgoi	Tsagaantolgoi	1958	3,300.0	2(G),3(G),4(G),5(P)	DM	52	'	2,685	411	1,458	1,2,4	3	Sugar
S- 4	Altanbulag	Hiraan	Altanbulag	1982	216.0	2(M),3(M),4(M),5(P)	DKSy-64	3	'	216	100	100	2	3	
S-57	Shaamar	Shaamar	Shaamar	1966	61.0	2(M),3(M),4(P),5(P)	MA-200	1	Privately Owned	41	20	33.7	4,5	2	ADB-Project(F1)
S- 9	Baingol	Bainuvur	Baruunharaa	1984	214.0	2(P),2(P),4(M),5(P)			State Owned	60	-	-	-	3	
S-12	Baruunburen	Zuunmod	Borgaltai	1986	666.0	2(G),3(G),4(M),5(M)	DKSy-64	10	'	666	366	286.5	2,3,4	3	
S- 5	Altanbulag	Tuhum	Altanbulag	1989	50.0	2(G),3(G),4(G),5(G)	DDA-100MA	1	'	50	50	50	4	3	
Selenge		8 Areas			5,617.0					8)4,338	1,237	2,174.8			
Total															
S-58	Orhon	Shariin Gol	Shariin Gol	1971	436.0	2(M),3(M),4(M),5(M)	DDA-100MA	9	State Owned	436	200	270.1	3,4,5	2	ADB-Project(F1)
S-15	Hongol	Hongoriin Gol	Tsuguut Shuvuu	1983	201.0	2(P),3(M),4(M),5(M)	DKSy-64	3	'	201	100	181	1,3,6	2	
S-14	Hongol	Buurt	Darhan	1977	130.0	2(P),3(P),4(P),5(P)			'	130	-	60	2	3	
S-59	Orhon	79-iin Tohoi	Shariin Gol	1984	58.0	2(M),3(M),4(M),5(P)	DDA-100MA	1	'	58	58	5.6	5	3	
S-60	Orhon	Buren Tolgoi	Shariin Gol	1985	360.0	2(P),3(G),4(M),5(M)	DDA-100MA	2	'	360	-	12.5	3,4,5	2	ADB-Project(F2)
Darkhan-Uul		5 Areas			1,185.0					5)1,185	358	529.2			
Total															
T-54	Jargalant	Jargalant	Jargalant	1967	850.0	1(P),2(M),3(M),4(M),5(M)	DDN-70	3	'	532	140	396	2,3,4,5	1	Sugar,ADB-Project(F2)
							DDN-100	6							
T-84	Bornuur	Bornuur	Bornuur	1965	966.0	1(P),2(P),3(M),4(M),5(M)	DDA-100MA	11	State Owned	900	300	150.9	4	1	Sugar,ADB-Project(F1)
T-81	'	Arangat	Bornuur	1982	220.0	1(P),2(P),3(M),4(P),5(P)	RR125/300	2	'	80	-	-	-	1	
T-66	Batsumbur	Batsumbur	Batsumbur	1971	802.0	1(P),2(P),3(M),4(M),5(M)	DDA-100M	7	'	386	200	213	2,3,4	1	Sugar
T-67	'	Baintolgoi	Batsumbur	1979	250.0	2(P),3(M),4(P),5(P)	DDN-70	4	'	250	-	-	-	3	Sugar
T-64	'	Baingol	Batsumbur	1971	34.0	2(M),3(M),4(P),5(M)			-	-	-	22	3,4	2	Cancelled Registration
T-11	Baindelgel	Togosnii Hooloi	Herlenbain	1975	72.0	2(M),3(G),4(M),5(M)	DKSy-64	1	State Owned	72	72	70	2	3	
T- 7	Eedene	Cubulan	Tuianegdel	1974	36.0	2(P),3(P),4(P),5(M)			'	36	20	13.0	4	2	
T-46	Zaamar	Ar Urt	Zaamar	1976	125.0	2(M),3(M),4(M),5(M)	DKSy-64	2	'	125	60	29.5	3,4	2	
T-59	Baintsogt	Guna	Baintsogt	1978	70.0	1(M),2(M),3(M),4(M),5(M)	DDN-100	1	Privately Owned	70	-	-		1	
T-57	'	Dund Urt	Baintsogt	1983	57.0	1(M),2(M),3(M),4(M),5(M)	DDN-100	1	'	57	57	44	1,3,4	1	
T-70	Bainchandmani	Bainchandmani	Bainchandmani	1975	72.0	1(P),2(P),3(M),4(P),5(P)	DKSy-64	1	-	-	-	-	-	1	Cancelled Registration
Tuv		12 Areas			3,614.0					10)2,508	849	938.4			
Total															

① Main Irrigation Facilities:1---Dam,Reservoir, 2---Head Works, 3---Main and Lateral Canal, 4---On-farm Canal, 5---Water Pump,Sprinkler,etc.
② Type of Sprinklers:DDN---Rain Gun, DDA---Sprinkling Wing, DKSy,RR,DF---Side Role, DM---Center Pivot, MA---Moveable Pipe with Small Hole
③ '-' in the Coluan of Owner of Irrigation Facilities stands for unused Facilities.
④ Potential area for irrigation represents an area that can be converted into an irrigated land if irrigation works properly arranged.
⑤ Planted Crops:1---Grain, 2---Feed Crops, 3---Potatoes, 4---Vegetables, 5---Fruits, 6---Others
⑥ Water Source:1---Dam,Reservoir, 2---Head Works,Water Outlet Facilities, 3---Water Pump, 4---Wells
⑦ Suger production plan by state is nine,however this table consists of only eight. Remaining one is now under construction in Zuunharaa,Selenge Aimag.

Mechanical Irrigational Facilities in the Study Area (part 2)

Number on Map Name of Aimag	Name of Sum	Name of Area	Name of Former State Farm	Year to Begin to Use	Irrigated Area (unit: ha)	Condition where Main Facilities are Maintained for Irrigation (G)---Good (M)---Mean (P)---Poor	Type and Number of Sprinklers Type	Number	Owner of Irrigation Facilities	Present Irrigated Area (unit: ha)	Potential Area for Irrigation (unit: ha)	Cultivated Area in 1993	Planted Crops in 1993	Water Supply Source	Remarks
OV-47	Taragt	Arvaintal	Hudulmur Negdel	1973	120.0	1(G),2(M),3(M),4(P),5(P)			-	-	-	-	-	1	Cancelled Registration
OV-28	Zuil	Sariin Mundii	Hugjil	1979	74.0	2(G),3(G),4(M),5(P)	MA-200	1	State Owned	74	50	74	2,3,4	2	
OV-51	Tugrug	Mazar Gol	Ialalt	1979	37.0	1(G),2(M),3(M),4(M),5(P)	MA-200	1	"	37	30	7.5	3,4	1	
OV-64	Harhorin	Harhorin	Harhorin	1962	8,150.0	1(M),2(G),3(P),4(G),5(G)	DKSy-64	6	"	3,235	3,235	3,235	1,2,3,4	2	
							DDN-70	9							
							DF-120	24							
OV-72	Hujirt	Tsuurain Gol	Enhtaivan	1987	219.0	1(M),2(P),3(M),4(M),5(M)	DKSy-64	4	"	219	150	219	2	1	
Ovorhangai		5 Areas			8,600.0					4)3,496	3,465	3,535.2			
Total															
B-81	Bainnuur	Dalin Bulag	Bainnuur	1983	57.0	2(M),3(M),4(M),5(M)	DDN-100	1	"	51	51	51	4,5	3	
B-23	Orhon	Seeriin Gol	Choibalsench	1977	48.0	2(P),3(P),4(P),5(P)			-	-	-	-	-	2	Cancelled Registration
B-22	"	Shuvuutiin Gol	UAA Contor	1988	85.0	2(G),3(G),4(G),5(G)	DDA-100MA	1	State Owned	85	85	13.8	4	2	ADB-Project(F2)
B-1	Bainagt	Havtsgait	Ih Ireedui	1977	74.0	2(M),3(M),4(P),5(P)			-	-	-	-	-	2	Cancelled Registration
Bulgan		4 Areas			264.0					2) 136	136	64.8			
Total															
B-83	Jargalant	Ulaantolgoi	Ulaantolgoi	1979	547.0	2(M),3(M),4(P),5(P)	DM	9	State Owned	547	247	175	2,4	4	Sugar
Orkhon		1 Area			547.0					1) 547	247	175			
Total															
UL- 6	Gachuurt	Har Usan Tohoi	Gachuurt	1977	95.0	2(P),3(P),4(P),5(P)			-	-	-	-	-	3	Cancelled Registration
UL- 8	"	Uvurbain	Gachuurt	1983	74.0	2(G),3(M),4(M),5(M)	DKSy-64	1	State Owned	74	74	-	-	4	
UL- 9	"	Uliastain Am	Gachuurt	1988	240.0	2(G),3(M),4(P),5(P)	MA-200	1	-	-	-	-	-	2	Cancelled Registration
UL- 2	Jargalant	Ayushiin Am	Partizan	1981	175.0	1(M),2(M),3(P),4(P),5(P)			State Owned	150	-	-	-	1	
UL- 3	"	Arushant	Partizan	1983	63.0	2(G),3(G),4(G),5(M)	DKSy-64	1	"	63	63	-	-	4	
UL- 1	Tuul	Buhug 1	Devshil	1984	150.0	2(P),3(M),4(M),5(P)	DKSy-64	1	"	150	150	33.5	3,4	3	
UL- 1	"	Buhug 2	Maliin Zohiogol Heeltuulgiin Stants	1989	189.0	2(P),3(G),4(M),5(M)	DKSy-64	3	"	189	100	25	3,4	4	
Ulaanbaator		6 Areas			986.0					4) 626	387	58.5			
Total															
Grand Total		41 Areas			20,813.0					12,905	6,679				
									State Owned	12,193					
									Privately Owned	712					
									~1969	7,937					
									1970~	4,968					

① Main Irrigation Facilities:1---Dam,Reservoir, 2---Head Works, 3---Main and Lateral Canal, 4---On-farm Canal, 5---Water Pump,Sprinkler,etc.
② Type of Sprinklers:DDN---Rain Gun, DDA---Sprinkling Wing, DKSy,RR,DF---Side Role, DM---Center Pivot, MA---Moveable Pipe with Small Hole
③ "-" in the Column of Owner of Irrigation Facilities stands for unused Facilities.
④ Potential area for irrigation represents an area that can be converted into an irrigated land if irrigation works properly arranged.
⑤ Planted Crops:1---Grain, 2---Feed Crops, 3---Potatoes, 4---Vegetables, 5---Fruits, 6---Others
⑥ Water Source:1---Dam,Reservoir, 2---Head Works,Water Outlet Facilities, 3---Water Pump, 4---Wells
⑦ Suger production plan by state is nine,however this table consists of only eight. Remaining one is now under construction in Zuunharaa,Selenge Aimag. e.

Table 3.4.2.22 Specifications of Irrigation Facilities and Structures in the Study Area

Name of Aimag	Name of Sum	Name of Area	Name of Dams and Head Works	Year of Construction	Water Supply Source	Dams and Head-works				Irrigated Area (unit: ha)	Gradient		Structur of Head Works	Area of Basin (unit: km²)	Discharge of Canal Spillway (unit: m³/sec)	Condition of Facilities (Good, Average, Bad)	Maintenance and Management Cost in 1994 (unit: 1000 TG)
						Capacity of Water (unit: 1000 m³)	Height (in meters)	Length (in meters)	Width (in meters)		Upstream	Downstream					
Ulaanbaatar	Jargalant	Aiushiin Am	Aiushiin Amnii	1980	Huin river	148.0	3.5	930	3.0	175	2.5	2.0	Earth	608	-	Average	-
Ovorhangai	Zuil	Sariin Hundii	Sariin Hundiin	1979	Zuil river	750	6	397	3.5	74	2.5	2.0	Earth	-	-	Average	-
	Tugrug	Mazariin Gol	Mazariin	1979	Mazariin river	7.1	2.7	300	3.0	37	3	2.0	Earth	94.5	4.0	Good	-
	Hujirt	Shuurain Gol	Shuurain Goliin	1987	Tsurain river	60	5.1	212	3.0	219	3	2.5	Earth	-	40.0	Bad	-
	Harhorin	Harhorin	Harhorin	1982	Orhon river(Divers	ion work	0.7	170	0.8	3,235	-	-	Concrete	132,000	26	Average	-
Tov	Batsumburu	Mandal	Hui Mandliin	1972	Huin river	120.0	4	1,200	3.5	210	2.5	2.0	Earth	-	25	Average	-
		Udleg	Udlegiin	1972	Udleg river	386.0	8.2	561	3.6	176	2.5	2.0	Earth	-	25	Bad	3.5
	Bornuur	Bornuur	Bornuuriin	1967	Shavartai river Shivertei river	2,700.0	12	460	4.8	900	2.5	2.0	Earth	938	12	Average	78.0
		Arangat	Arangatiin	1982	Boroo river	923.0	6	675	4.5	80	2.5	2.0	Earth	-	7.4	Bad	-
	Baintsogt	Guna	Guniin	1978	Guniin river	196.0	6.1	408	3.0	70	3.0	2.0	Earth	-	13.9	Average	194.6
		Dund Urt	Dund Urtiin	1976	Dund Urtiin river	667.4	10	310	3.0	57	3.0	2.0	Earth	42	14.2	Good	49.6
	Jargalant	Jargalant	Jargalantiin	1964	Jargalantiin riv.	2,600.0	15	590	4.5	532	3.0	2.0	Earth	393	13.0	Average	-

Table3.4.2.23 INDEX FOR WHEAT FARM MANAGEMENT IN 1993

farm No.	planted area	harveste	selling	turnover	unit yield	unit price	selling rate	gross income	unit GI	total cost	unit cost	total profit	unit profit
	(ha)	(t)	(t)	(1000Tg)	(t/ha)	(Tg/kg)		(T.Tg)	(T.Tg/ha)	(T.Tg)	(T.Tg/ha)	(T.Tg)	(T.Tg/ha)
102.03	7565	8372	7178	131822	1.1	18.4	85.7%	153734	20.3	140487	18.6	13247	1.8
121.04	1849	1636	1166	36582	0.9	31.4	71.3%	51341	27.8	24504	13.3	26837	14.5
122.03	3500	3055	2520	82788	0.9	32.9	82.5%	100372	28.7	55862	16.0	44510	12.7
124.03	3600	2615	2188	72214	0.7	33.0	83.6%	86333	24.0	32368	9.0	53965	15.0
125.03	6200	6691	5857	183349	1.1	31.3	87.5%	209457	33.8	118799	19.2	90658	14.6
126.05	1500	1327	1038	41532	0.9	40.0	78.3%	53043	35.4	13663	9.1	39380	26.3
127.10	800	1205	560	20341	1.5	36.3	46.5%	43747	54.7	12146	15.2	31601	39.5
128.01	14343	11457	8822	342955	0.8	38.9	77.0%	445377	31.1	194401	13.6	250976	17.5
129.02	7600	7174	4989	179111	0.9	35.9	69.5%	257555	33.9	130030	17.1	127525	16.8
131.01	3696	3077	2358	86662	0.8	36.7	76.6%	113073	30.6	61473	16.6	51600	14.0
132.01	3000	2319	1608	59340	0.8	36.9	69.3%	85585	28.5	55847	18.6	29738	9.9
133.03	1700	1933	1574	65780	1.1	41.8	81.4%	80786	47.5	25416	15.0	55370	32.6
134.05	1566	1845	1364	52740	1.2	38.7	73.9%	71338	45.6	19732	12.6	51607	33.0
135.02	7851	8470	6994	254945	1.1	36.5	82.6%	308753	39.3	91483	11.7	217270	27.7
136.01	1700	878	571	19460	0.5	34.1	65.0%	29938	17.6	19584	11.5	10354	6.1
22201	8400	10951	7478	176436	1.3	23.6	68.3%	258378	30.8	61272	7.3	197106	23.5
23601	6956	3900	2321	69566	0.6	30.0	59.5%	116892	16.8	NA	NA	NA	NA
23602	10097	6388	5968	163945	0.6	27.5	93.4%	175483	17.4	NA	NA	NA	NA
24302	5367	7039	4862	168843	1.3	34.7	69.1%	244444	45.5	81478	15.2	162966	30.4
24401	21809	23385	19452	627477	1.1	32.3	83.2%	754347	34.6	NA	NA	NA	NA
30103	1250	1346	1100	43780	1.1	39.8	81.7%	53575	42.9	42044	33.6	11530	9.2
32131	2181	1612	1026	36592	0.7	35.7	63.7%	57481	26.4	31341	14.4	26140	12.0
32201	300	180	150	18000	0.6	120.0	83.3%	21600	72.0	NA	NA	NA	NA
32431	2098	2000	1600	35200	1.0	22.0	80.0%	44000	21.0	35006	16.7	8994	4.3
32531	3690	3016	2000	72000	0.8	36.0	66.3%	108576	29.4	69728	18.9	38848	10.5
32631	1530	1836	1203	40482	1.2	33.7	65.5%	61783	40.4	34271	22.4	27513	18.0
32831	1050	1800	1179	43034	1.7	36.5	65.5%	65700	62.6	34674	33.0	31027	29.5
33101	11750	9398	5646	201963	0.8	35.8	60.1%	336167	28.6	233010	19.8	103157	8.8
33231	1500	1439	1100	35000	1.0	31.8	76.4%	45786	30.5	19067	12.7	26720	17.8
33331	1580	976	812	20450	0.6	25.2	83.2%	24592	15.6	20768	13.1	3824	2.4
33401	4224	5360	3722	132000	1.3	35.5	69.4%	190091	45.0	95384	22.6	94707	22.4
33402	5050	3667	3271	108079	0.7	33.0	89.2%	121143	24.0	40928	8.1	80215	15.9
33403	3200	4105	2519	90828	1.3	36.1	61.4%	148027	46.3	55848	17.5	92179	28.8
42632	1020	499	252	9340	0.5	37.1	50.5%	18506	18.1	7379	7.2	11127	10.9
42831	86	65	47	934	0.8	20.0	71.8%	1300	15.1	NA	NA	NA	NA
43501	5867	4693	3	53	0.8	21.2	0.1%	99492	17.0	58522	10.0	40969	7.0
43502	5536	5237	2952	112195	0.9	38.0	56.4%	199036	36.0	40036	7.2	159000	28.7
43503	1912	2732	1915	77502	1.4	40.5	70.1%	110568	57.8	30774	16.1	79794	41.7
total	172923	163677	118364	3913320	-	-	-	5347397	-	1987321	-	2290455	-
average	4551	4307	3141	102982	0.9	32.8	72.9%	140721	30.9	60222	13.2	69408	22.1

SOURCE:JALDA Farm Management Study(1994)

Table 3.4.2.24 INDEX FOR VEGETABLE FARM MANAGEMENT(1993)

farm No.	planted area	harveste	selling	turnover	unit yield	unit price	selling rate	gross income	unit GI	total cost	unit cost	total profi	unit profit
	(ha)	(t)	(t)	(1000Tg)	(t/ha)	(Tg/kg)		(T.Tg)	(T.Tg/ha)	(T.Tg)	(T.Tg/ha)	(T.Tg)	(T.Tg/ha)
32331	6	75	60	15000	12.5	250.0	80.0%	18750	3125.0	981.7	163.6	17768	2961.4
42831	4	244.2	145.9	4797.8	61.1	32.9	59.7%	8030	2007.6	453.4	113.4	7577	1894.2
43503	16	539	378.9	13071	33.7	34.5	70.3%	18594	1162.1	1982.7	123.9	16611	1038.2
130.01	27	212.4	94.2	3856	7.9	40.9	44.4%	8694	322.0	3200	118.5	5494	203.5
42632	2	6.7	6.7	230.7	3.4	34.4	100.0%	231	115.4	172	86.0	59	29.3
43332	1	0.5	0.5	20	0.5	40.0	100.0%	20	20.0	24	24.0	-4	-4.0
32131	1	8.4	8.4	230.1	8.4	27.4	100.0%	230	230.1	235.6	235.6	-6	-5.5
22601	26	7.7	7	207.7	0.3	29.7	90.9%	228	8.8	574.6	22.1	-346	-13.3
33101	11	165.5	160.2	4492.2	15.0	28.0	96.8%	4641	421.9	4965	451.4	-324	-29.5
122.03	2	8.7	6.4	350.2	4.4	54.7	73.6%	476	238.0	3733.2	1866.6	-3257	-1628.6
23301	300	314.5	300.6	10345.7	1.0	34.4	95.6%	10824	36.1	NA	NA	NA	NA
23601	76	695.6	671.7	13396	9.2	19.9	96.6%	13873	182.5	NA	NA	NA	NA
23602	38	207.7	207.7	3755	5.5	18.1	100.0%	3755	98.8	NA	NA	NA	NA
24302	10	1.9	1.9	72.1	0.2	37.9	100.0%	72	7.2	NA	NA	NA	NA
合計	520	2488	2050	69825	-	683	-	88419	7976	16322	-	43573	-
平均	37.1	177.7	146.4	4987.5	11.6	48.8	82.4%	6315.6	569.7	1632.2	320.5	3112.3	317.6

(POTATO FARMING)

farm No.	planted area	harveste	selling	turnover	unit yield	unit price	selling rate	gross income	unit GI	total cost	unit cost	total profi	unit profit
	(ha)	(t)	(t)	(1000Tg)	(t/ha)	(Tg/kg)		(T.Tg)	(T.Tg/ha)	(T.Tg)	(T.Tg/ha)	(T.Tg)	(T.Tg/ha)
124.03	32	115	58	232	50.4%	4000	3.6	460	14.4	8067	252.1	-7607	-237.7
127.10	90	378	7	32	1.9%	4571	4.2	1728	19.2	10799	120.0	-9071	-100.8
130.01	27	337	71	635	20.9%	9000	12.5	3033	112.3	3546	131.3	-513	-19.0
136.01	60	316	263	18242	83.2%	69363	5.3	21919	365.3	7124	118.7	14795	246.6
30103	13	96	78	1820	82.1%	23209	7.3	2216	170.5	2173	167.1	44	3.4
32131	8	48	24	520	48.6%	21667	6.1	1049	131.1	1198	149.7	-149	-18.7
32202	20	120	55	823	45.8%	14956	6.0	1795	89.7	1088	54.4	707	35.3
33101	46	593	281	7614	47.4%	27076	12.9	16051	348.9	9797	213.0	6254	136.0
合計	296	2003	837	29917	-	-	-	48250	-	43792	-	4459	-
平均	37	250.3	104.6	3739.6	41.8%	35739	6.8	6031.3	241.8	5474.0	147.9	557.3	15.1

SOURCE:JALDA Farm Management Study(1994)

3.4.3.1 Productivity of natural grassland in Mongolia

(1) Productivity of natural grassland

Natural grassland in Mongolia has different types of vegetation depending on the altitude, rainfall, soil conditions, etc., and livestock are distributed to fit such vegetation. Various attempts are made to classify the types of vegetation. According to the data obtained from a survey of the natural grassland throughout the country (Table 3.4.3.1), the types of grassland are classified into five, and high mountain accounts for 5%, forest steppe accounts for 22.8%, steppe accounts for 27.9%, semidesert steppe accounts for 28.2%, and desert steppe accounts for 16.1%.

On the other hand, forest steppe accounts for 44.1% of the land area in the Study area. When combined with the 35.1% steppe , these two types of land would then account for about 80% of the total area. From the perspective of the productivity of the grasslands, this region can be said to be a region which is favored with grass resources. The national average of grass produced per hectare (dry matter) is 0.37 tons for summer grasslands, while this figure becomes 0.48 tons for the Study area. In addition, according to the results of surveys by the RIAH, these average production figures are reported as being 0.6 to 1.8 t/ha for mountain grasslands and forest steppe, 0.3 to 1.0 t/ha for steppe, and 0.1 to 0.3 t/ha for desert steppe.

(2) Grazing capacity

Grasping the grazing capacity in natural grassland is not easy because productivity changes greatly based on the amount of rainfall and other weather conditions as well as the intensity of grazing. Surveys over long periods of time are necessary. However, based on the data mentioned previously, reasonable numbers of animals (in converted Sheep Units) per 100 hectares of natural grassland are around 80 - 100 head for forest steppe, 50-60 head for steppe, and 20-30 head for desert steppe. The number of animals per 100 ha calculated from actual numbers being raised in the Study Area was 64 head in 1988 which is approximately 60% more than the national average, and is estimated to be even more than this presently. (Table 3.4.3.1)

Based on preliminary calculations of the balance of feed by 3 cities, Aimag and the whole country performed in order to examine the number of head that can be raised from current amounts of grass resources, an increase of about 20% in the number of head in converted sheep units is possible for the entire country. Although a state of

balance has been more or less reached in the Study Area as a whole as of 1990, there is unbalance by regions, and there a strong trend towards shortages of feed in urban areas in particular. (Table 3.4.3.2)

There are some problems in the methods used to determine yields and balance per unit in these calculations, and it is pointed out that care needs to be taken in using these results. However, based on other reports which clarified the past shortages in feed by Aimag and by Sum (Table 3.4.3.3,Figure3.4.3.1), there is a surplus in the northern portion of the Study area, the central area is in balance, while there are shortages in the southern part of Ovorhangai Aimag. By Sum, 6 Sums out of 18 in Ovorhangai Aimag are reported to be short of feed. Further, since there is some problem in terms of reliability in these two sets of materials in that past shortages have been reversed in a number of Aimag, understanding of one forecast is probably correct. Long term observation and handling of the capacity of fine textured grasslands is necessary to establish grazing capacity for the purpose of continuously using grasslands and to make regeneration of the grasslands possible.

(3) Supplementary feed

Feed units (F.U.) are used in Mongolia as a means of determining the quality and quantity of feed. With 1 kg of oats as 1 kg F.U., hay would be evaluated as being equivalent to 0.45 kg F.U. and grass silage would be 0.35 kg F.U. (Table 3.4.3.4) In examinations of the balance of supply and demand of feed nationwide or by region, conversion units per head of sheep are used (Sheep Units or S.U.). Thus, one sheep would be 1 S.U., while a goat would be the equivalent of 0.9 S.U., a cow would be 6 S.U., a horse would be 5 S.U. and a camel would be 7 S.U. 560 kg of grass (D.M.) per year is considered to be necessary for each 1 S.U. Although this amount would be satisfactory as the amount of dry matter, it can be seen from an analysis of the constituent of the feed that this amount would be inadequate in terms of energy and protein. (Table 3.4.3.5) As a result, around 45 to 60 kg F.U. of supplementary feed would be required for each S.U. focusing on the winter season, though this would vary by region.

The establishment of feeding standard which gather analytical data on the constituents of feed and set the amount of nourishment required by species and by life cycle stage are desired.

Table—3.4.3.1 Classification of Natural Grassland in the Study Area

(Unit:Grassland Area= 1,000ha, Sheep=heads)

Aimag	Grassland (1981)	Classification of Grassland					Yield (t/ha)		Land with Water (%)	Sheep/100ha		Grassland (1988)
		H.Mountain	Fore.Steppe	Steppe	Semi-Desert	Desert	Summer	Winter		1981	1988	
Bulgan	3,636.9	642.0	2,303.5	691.4			0.58	0.39	84.4	92.0	78.0	2,953.5
Ovorhangai	5,982.2	6.0	1,567.3	1,698.9	2,578.4	131.6	0.42	0.25	79.2	60.0	62.0	5,983.1
Selenge	1,966.5	37.4	1,675.4	253.7			0.58	0.40	73.8	81.0	60.0	1,786.4
Tov	6,002.8	300.1	2,173.0	3,529.7			0.44	0.29	56.4	46.0	56.0	6,027.8
Darkhan	44.6		14.3	30.3			0.58	0.40			224.0	127.9
Erdenet	53.0		53.0				0.58	0.39			193.0	53.0
Ulaanbaatar	75.5		54.7	20.8			0.44	0.29			178.0	74.8
S.A.Total (%)	17,761.5 (100)	985.5 (5.6)	7,841.2 (44.1)	6,224.8 (35.1)	2,578.4 (14.5)	131.6 (0.7)	0.48	0.31	71.9	64.2	64.3	17,006.5
Natio.Total (%)	126,359.0 (100)	6,313.8 (5.0)	28,831.7 (22.8)	35,185.3 (27.9)	35,652.3 (28.2)	20,375.9 (16.1)	0.37	0.24	54.1	36.0	40.6	121,813.7

Note: H.Mountain=High Mountain, Fore.Steppe=Forest Steppe, Natio.=National
Source: MOFA

Table—3.4.3.2 Feed Balance in the Study Area (1990)

Aimag	Grassland (1,000ha)	Ave.Yield t /ha	Available Feed(1,000t)	Sheep Units (1,000heads)	Required Feed (1,000t)	Feed Balance (%)
Bulgan	2,953.5	0.43	1,270.0	2,415.4	1,352.6	93.9
Ovorhangai	5,983.1	0.31	1,854.7	3,824.1	2,141.5	86.6
Selenge	1,786.4	0.48	857.4	1,125.9	630.5	136.0
Tov	6,027.8	0.38	2,290.5	3,570.4	1,999.4	114.6
Darkhan	178.9	0.51	91.2	178.6	100.0	91.2
Erdenet	53.0	0.58	30.7	137.4	76.9	39.9
Ulaanbaatar	74.8	0.29	21.6	386.6	216.5	10.0
S.A.Total	17,057.5	0.38	6,416.1	11,638.4	6,517.4	98.4
National Total	121,864.4	0.28	34,122.0	51,662.5	28,931.0	117.9

Source: MOFA

Table-3.4.3.3 Feed Balance by Aimag in the Study Area (1989)

AIMAG	NUMBER OF SUMS	DEFICIT SUMS	BALANCED SUMS	SURPLUS SUMS
ARHANGAI	17	3	12	2
BAYAN-ULGII	13	13	0	0
BAYANHONGOR	19	13	6	0
BULGAN	14	0	0	14
GOVI-ALTAI	17	17	0	0
DORNOGOVI	13	11	2	0
DORNOD	14	0	4	10
DUNDGOVI	15	13	2	0
ZAVHAN	23	15	8	0
UVURHANGAI	18	6	11	1
UMNUGOVI	14	14	0	0
SUKHABAATAR	13	5	5	3
SELENGE	16	0	0	16
TUV	27	0	9	18
UVS	19	19	0	0
HOVD	16	16	0	0
HUVSUGUL	22	5	11	6
HENTII	19	1	3	15
TOTALS	309	151	73	85

Source:ADB (Feeds Improvement Project Report)

Figure-3.4.3.1 Feed Balance by Aimag in the Study Area (1989)

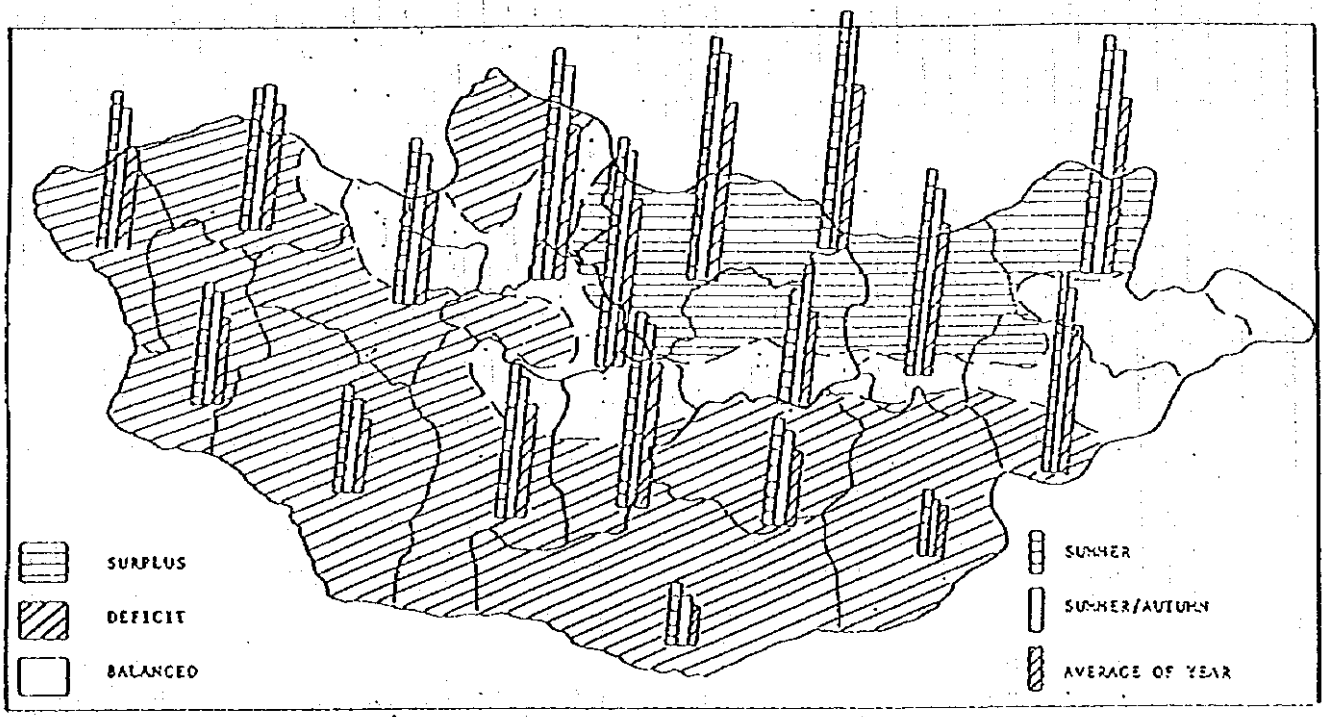


Table-3.4.3.4 Conversion Rate of Fodder Unit

Kind of fodder		Fodder unit	Remarks
Grain	wheat	1.1	
	barley	1.2	
	oats	1.0	
	bran	0.78	wheat bran
Grass	grass	0.30	from forest - steppe zone
	hay	0.45	medium quality
Green Fodder	green fodder	0.49	
	grass silage	0.35	barley + oats + beans
	Silage	0.20	sunflower + barley + rye
Concentrates	concentrates	0.68	usually granular bran+grains+minerals
	mixed fodder	0.58	straw + bran + minerals
Straw	Straw	0.30	wheat straw

(1) Supplmentary Fodder Requirement per Sheep Unit
① 1 Sheep 0.5kg fodder unit / day
② 1 Sheep 45-60kg fodder unit / year
(a)Gobi region:60days × 0.5kg = 30kg(fodder unit) / year
(b)Hangai region:120days × 0.5kg = 60kg fodderunit / year
(c)Steppe:90days × 0.5kg = 45kg fodder unit/year
(2) Mineral Requirement per Sheep Unit:
1 Sheep 2 kg minerals / year

Source:MOFA

Table-3.4.3.5 Nutrient Analyses of Roughage

Indicative Nutrient Analyses for Ruminant Feeds

Ecological Zone for Each Season (% in DM)

Feed	Ecological Zone	Season	Water %	Crude Protein(%)	Fat(%)	Cellulose (%)	NFE(%)	Ash(%)
Natural Pasture	High Mountain	Summer	54.82	6.23	1.48	10.6	20.17	6.7
		Autumn	54.82	5.12	1.43	11.29	20.6	7.71
		Winter	15.0	4.5	1.1	12.1	0.0	8.5
		Spring	20.0	3.3	0.6	15.1	0.0	9.1
	Forest Steppe	Summer	49.8	6.26	2.85	13.73	28.93	3.39
		Autumn	35.72	4.36	1.27	19.89	36.13	3.29
		Winter	16.1	2.57	1.25	30.84	45.88	3.31
		Spring	27.58	3.35	1.66	20.13	43.31	3.45
	Steppe	Summer	48.7	6.8	1.3	14.9	23.1	5.2
		Autumn	42.4	5.1	1.4	18.7	25.2	5.9
		Winter	15.6	2.3	1.5	29.4	44.9	5.7
		Spring	33.1	3.3	1.0	26.1	31.2	4.7
	Semi Desert	Summer	49.0	7.8	2.0	14.9	20.7	5.6
		Autumn	36.0	7.0	2.0	19.6	32.4	6.0
		Winter	15.0	2.0	1.0	21.6	54.4	6.0
		Spring	28.7	3.3	1.6	22.4	35.6	8.7
	Desert	Summer	39.1	7.1	1.7	9.8	30.7	11.6
		Autumn	40.3	9.9	1.7	6.8	26	15.3
		Winter	18.1	6.3	1.5	22.8	41.5	17.2
		Spring	27.4	3.8	2.1	14.9	41.1	10.7
Hay	High Mountain	July	17.0	14.54	3.12	17.51	41.47	6.33
		August	17.0	11.33	1.55	24.5	39.14	6.48
	Forest Steppe	July	17.0	13.86	3.97	25.3	33.9	5.9
		August	17.0	9.13	3.34	28.9	34.5	7.2
	Steppe	July	17.0	10.2	3.0	30.8	35.8	6.8
		August	17.0	8.1	2.3	27.8	35.0	7.3
Silage	Forest Steppe	Oat	55-60	8.2	2.1	30.8	50.2	8.7
		Oat and Pea	55-60	12.4	12.4	27.8	46.8	10.7
		Oat, Barley & Pea	55-60	13.9	13.9	30.1	43.4	10.0

Note: The Underlined date are unreliable

Source: ADB [Feeds Improvement Project Report]

Table-3.4.3.6 Livestock Numbers in Mongolia (Unit: 1,000 heads)

Livestock	1960	1970	1980	1985	1989	1990	1991	1992	1993	1994
Cattle	1,906	2,108	2,397	2,408	2,693	2,849	2,822	2,819	2,731	3,005
Horses	2,503	2,319	1,985	1,971	2,200	2,262	2,259	2,200	2,190	2,409
Sheep	12,102	13,312	14,231	13,249	14,265	15,083	14,721	14,657	13,779	13,787
Goats	5,631	4,204	4,567	4,299	4,959	5,126	5,250	5,603	6,107	7,241
Camels	859	634	592	559	558	538	476	415	368	366
Total	23,001	22,575	23,772	22,486	24,675	25,857	25,528	25,694	25,175	26,808
Pig	10.9	10.7	33.9	56.1	192.1	134.7	83.3	48.6	28.6	23.4
Poultry	104.4	132.6	249.3	271.4	369.9	326.2	223.3	183.6	131.6	74.1

Source: Statistical Year Book 「Mongolian Economy and Society in 1994」

(Reference)

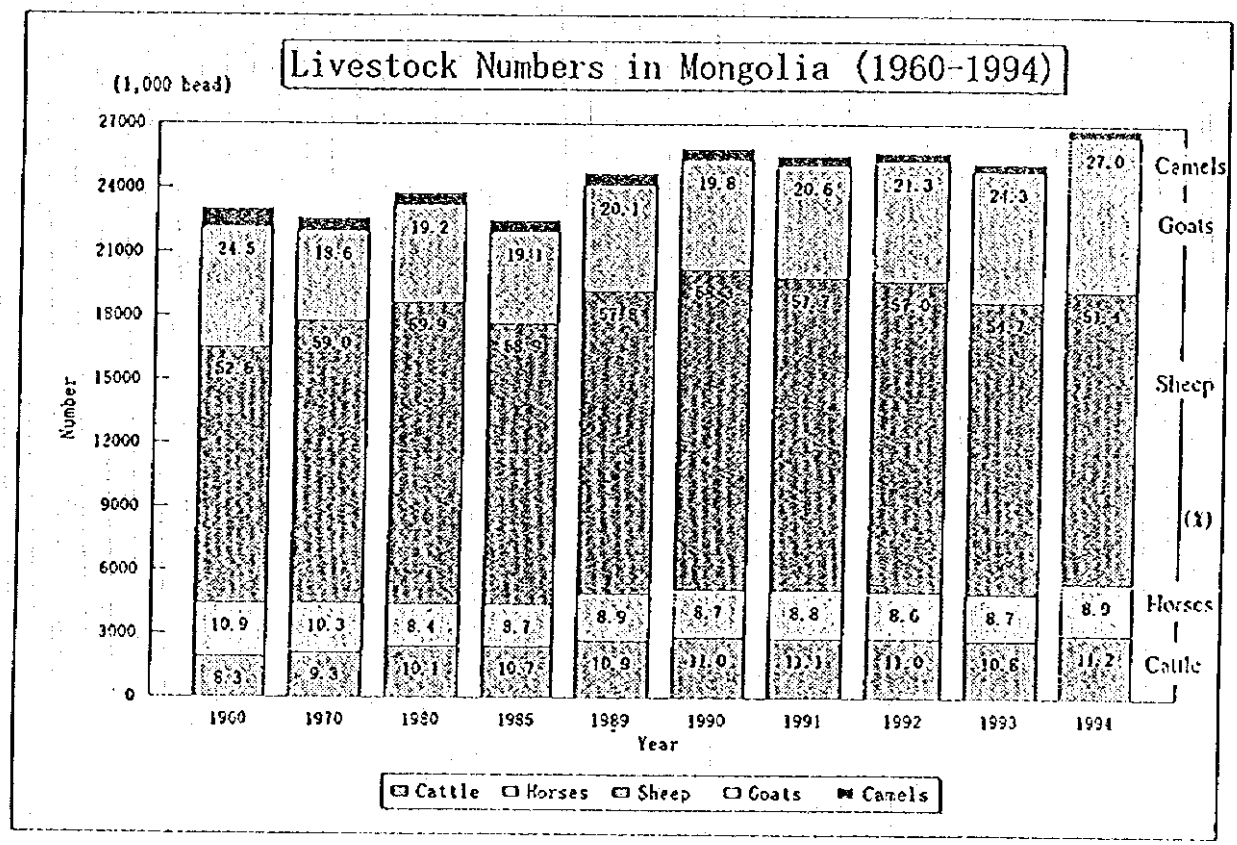


Table-3.4.3.7 Livestock Numbers in the Study Area (Unit:1,000heads, %)

Aimag	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Bulgan	934.6	872.3	846.6	889.4	943.0	998.2	1,021.2	1,066.1	1,036.8	1,078.8
Selenge	410.1	414.6	429.4	448.5	477.7	512.6	500.0	481.9	456.6	496.4
Tov	1,362.1	1,390.1	1,408.6	1,457.2	1,589.3	1,711.4	1,653.2	1,687.9	1,620.4	1,629.9
Ovorhangai	1,675.7	1,726.2	1,749.3	1,777.6	1,937.6	2,061.6	2,022.2	2,046.0	2,106.2	2,346.2
Ulaanbaatar	80.2	87.8	93.7	99.6	118.1	143.5	206.3	275.1	266.2	277.4
Darkhan	61.9	59.0	59.2	68.1	80.3	109.2	137.4	145.5	130.3	139.5
Erdenet	26.0	27.6	30.1	36.4	43.1	53.5	73.0	92.1	105.6	110.9
S.A.Total	4,550.6	4,577.6	4,616.9	4,776.8	5,189.1	5,590.0	5,613.3	5,794.6	5,722.1	6,079.1
National Total	22,485.5	22,644.0	22,741.1	23,122.2	24,674.9	25,856.9	25,527.9	25,693.9	25,174.7	26,808.1
Share/ S.A.	20.2	20.2	20.3	20.7	21.0	21.6	22.0	22.6	22.7	22.7

Source: Statistical Year Book 「Mongolian Economy and Society in 1994」

(Reference)

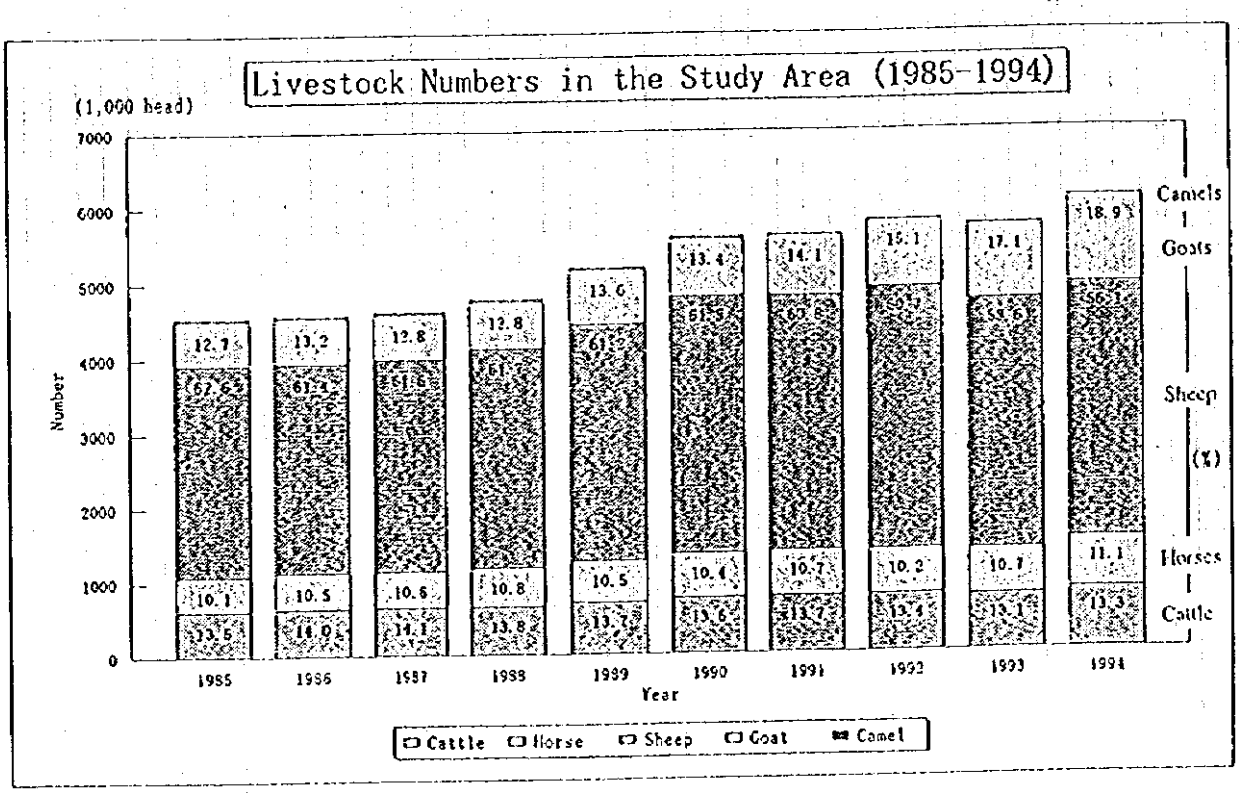


Table-3.4.3.8 Change of Private Livestock Numbers in Mongolia (1960~1993) (Unit: 1000 heads)

Item	1960	1970	1980	1985	1990	1991	1992	1993
Total Numbers	23,001	22,575	23,772	22,486	25,857	25,528	25,694	25,175
of which private	5,415	5,006	4,161	4,996	8,243	14,003	18,081	22,565
State (%)	2.7	4.6	6.4	7.6	9.5	45.1	29.6	10.4
Negdel (%)	73.8	73.2	76.1	70.1	58.6			
Private(%)	23.5	22.2	17.5	22.3	31.9	54.9	70.4	89.6

Source: Statistical Year Book 「Mongolian Economy and Society in 1994」

Table-3.4.3.9 Reproduction and Culling Data for Mongolian Livestock

Species	Age at First Mating (mths)	Breeding Period (No. Years)	Culling Age (Years)
Camel(bull)	58－60	10－12	15－17
Camel(cow)	46－48	14－16	18－20
Horse(Stallion)	34－36	9－10	12－13
Horse(mare)	34－36	11－12	14－15
Cattle(bull)	24－26	6－7	8－9
Cattle(cow)	24－26	8－9	10－11
Yak(bull)	36－38	4－5	7－8
Yak(cow)	24－26	8－9	10－11
Sheep/Goats(male)	18－20	4－5	6－7
Sheep/Goats(females)	18－20	5－6	7－8

Source:ADB 「 Feeds Improvement Project Report 」

Table-3.4.3.10 Survival Rate of Younglings (1960-1994)

(UNIT:%)

	1960	1970	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Cattle	93.7	95.1	95.7	96.2	96.6	96.2	96.6	97.7	97.3	97.1	96.8	94.5	97.8
Horses	93.4	94.9	94.5	97.3	97.5	97.5	97.5	98.1	96.9	96.8	95.6	90.9	96.6
Sheep	88.9	90.3	83.5	88.6	91.5	90.0	88.3	96.0	94.3	93.2	93.3	86.5	93.8
Goats	79.6	89.0	84.7	87.8	91.2	91.0	89.5	95.8	93.5	93.7	93.6	86.0	93.2
Camels	94.4	82.5	87.2	90.5	91.9	92.1	94.1	94.6	93.7	94.1	93.7	90.0	93.5
Total	87.0	90.6	84.9	89.3	92.0	90.9	89.5	96.2	94.4	93.8	93.7	87.2	94.1

Source:Statisitical Year Book 「Mongolian Economy and Society in 1994」

(Reference)

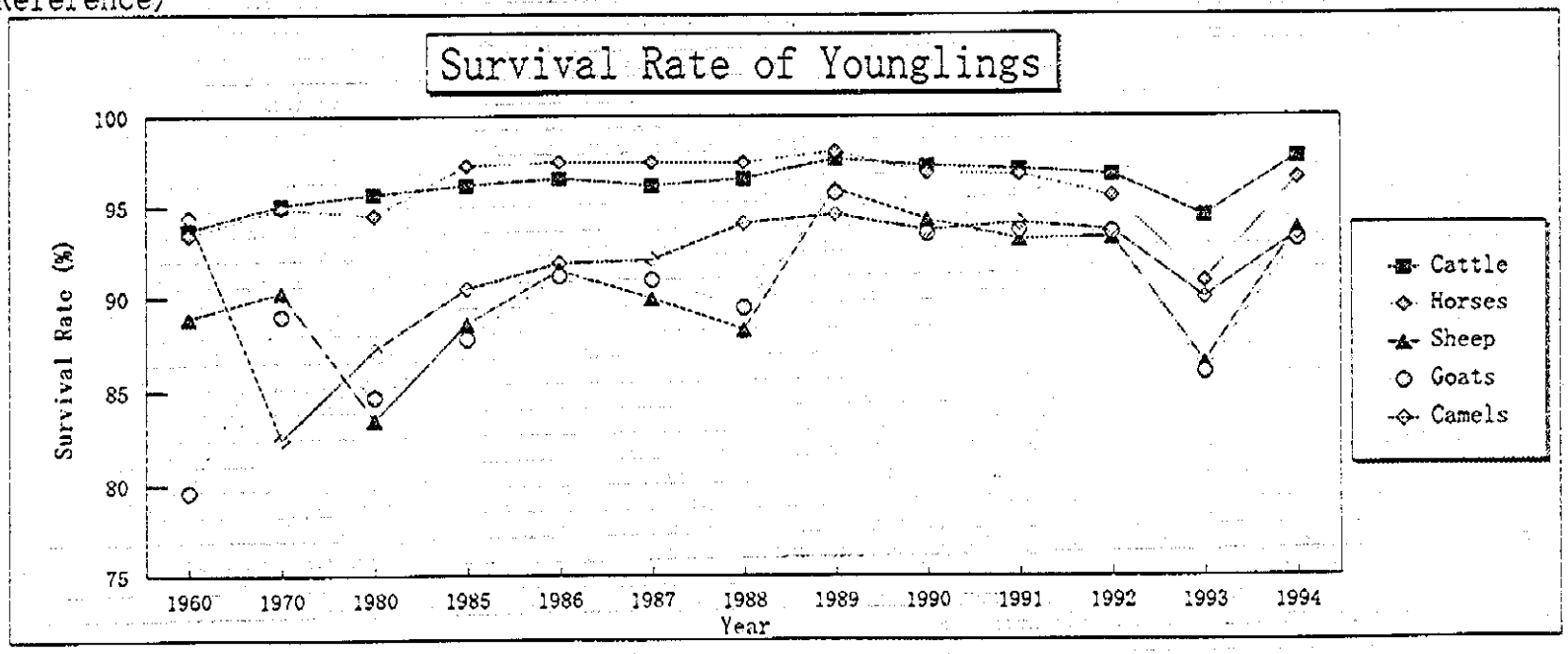


Table-3.4.3.11 Average Rate of Survivals of Younglings per 100 Female Breeding Stock (1960-1994)

(Unit:head)

	1960	1970	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Cattle	58	69	62	65	67	68	67	71	70	68	68	65	78
Horses	47	53	48	56	61	59	62	66	61	61	55	51	67
Sheep	62	83	76	81	85	83	81	91	88	83	77	69	79
Goats	52	80	70	73	81	79	73	87	82	82	78	70	80
Camels	37	34	33	39	37	39	41	43	38	38	35	32	37
Total	58	78	72	76	81	79	77	86	83	86	75	68	78

Source:Statistical Year Book 「Mongolian Economy and Society in 1994」

(Reference)

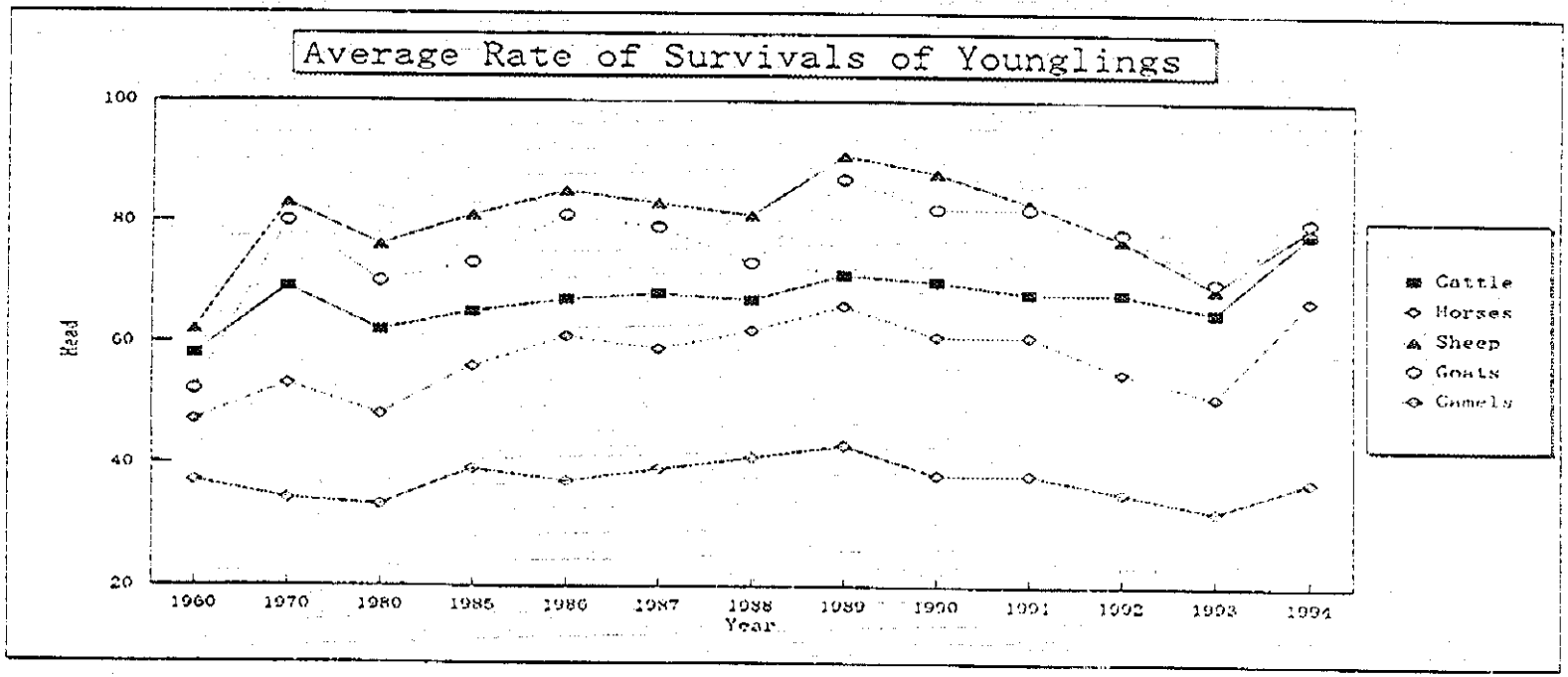


Table-3.4.3.12 Outline of the Mechanized Dairy Farm in the Study Area (1991)

Aimag	Cow-scale ~Numbers	Cattle Numbers (head)				Milk Production (t,kg)				Death (Head)		
		Cows	Other	Total	Calving	Year	Head	Lowest	Highest	Total	Calf	Cow
Tov	400cows ~10	377	324	701	295	830	2,140	1,561	2,863	150	93	19
	800// ~ 5	716	683	1,399	533	1,485	2,017	1,463	3,227	286	158	29
	1,200// ~ 1	736	604	1,340	581	1,512.2	1,820	-	-	359	235	41
	Total 16	8,083	7,261	15,344	6,192	17,238.6	2,133	-	-	3,293	1,958	373
Selenge	400// ~ 4	369	479	848	300	819.6	2,135	1,705	2,572	125	76	18
	800// ~ 3	603	612	1,215	511	964.4	1,617	978	2,399	344	207	48
	Total 7	3,284	3,753	7,037	2,733	6,171.5	1,914	-	-	1,531	926	217
Ovorhangai	400// ~ 1	363	-			438	1,207	-	-	-	-	-
Ulaanbaatar	400// ~ 2	355	311	666	280	804.3	2,278	1,990	2,566	97	52	22
	800// ~ 3	713	614	1,327	577	1,882.2	2,611	2,284	3,061	272	165	36
	Total 5	2,849	2,463	5,312	2,291	7,219.1	2,478	-	-	1,010	597	150
Darkhan	200// ~ 1	184	288	472	-	-	-	-	-	-	-	-
	800// ~ 1	646	794	1,440	483	935.0	1,447	-	-	203	138	30
	Total 2	830	1,082	1,912	483	935.0	1,447	-	-	203	138	30
Erdenet	1,200// ~ 1	806	822	1,628	621	1,830.2	2,270	-	-	555	183	127
Total	(19,000//) 32	15,852	15,381	31,233	12,320	33,394.4	2,107	-	-	6,592	3,802	897

Source : MOFA
Note : Total doesn't include Ovorhangai Aimag because the data is in 1993.

Table-3.4.3.13 Numbers of Nomadic Households and Age Composition of Nomads

Item	1988	1989	1990	1991	1992	1993	1994	1994/1988
Households(natio.)	66,323	68,963	74,710	114,938	143,440	153,647	167,260	2.52
-do- (S.A.total)	13,940	15,368	16,837	24,922	36,591	36,802	39,405	2.83
-do- (3 cities)	659	786	756	1,443	4,577	3,922	3,961	6.01
Nomads(natio.)	127,557	135,420	147,508	244,973	330,076	347,921	377,148	2.96
-do- (S.A.total)	26,189	28,316	31,897	47,208	83,539	79,994	85,377	3.26
-do- (3 cities)	1,080	1,087	1,047	2,399	15,567	11,557	10,940	10.13
Age(natio.)16~35	50.6	51.0	55.7	56.5	52.9	53.7	54.3	1.07
36~55/60	45.5	45.0	40.3	31.2	29.4	27.6	28.2	0.62
56/61~	3.9	4.0	4.0	12.3	17.7	18.7	17.5	4.49

Unit: house, people, %
Source: Statistical Year Book 「Mongolian Economy and Society in 1994」

Table-3.4.3.14 Composition of Private Livestock Numbers by Nomadic Households

Class	1990	1991	1992	1993	1994	Composition (%)	
						1992	1994
less than 10 heads	76.4	64.8	58.9	48.3	46.8	19.5	16.2
11~30	88.1	70.8	69.2	57.0	53.8	23.0	18.6
31~50	42.6	49.5	50.2	43.7	42.0	16.7	14.5
51~100	42.6	61.5	66.3	63.4	62.9	22.0	21.8
101~200		29.6	42.8	51.4	53.2	14.2	18.4
201~500	0.5	4.8	13.7	24.6	28.2	4.5	9.8
501~1,000			0.4	1.3	2.1	0.1	0.7
more than 1,001			[7]	[47]	[144]		

Unit: 1,000 households, [ ]=household numbers
Source: Statistical Year Book 「Mongolian Economy and Society in 1994」

Table－3.4.3.15 Fodder Production in Mongolia (1980-1994)

(Unit: 1,000 t)

Fodder	1980	1985	1987	1989	1990	1991	1992	1993	1994
Hay harvest	1,125.4	1,280.6	1,235.4	1,166.4	866.4	885.5	668.8	689.7	691.8
of which SEFF	201.6	112.4	206.7	209.4	155.1	158.1	77.5	39.8	0.7
// Private	86.3	109.8	115.4	160.4	147.0	251.6	338.3	456.4	-
Used straw	80.1	187.9	110.0	99.0	58.3	54.6	31.9	26.7	22.3
Handmade fodder	20.2	21.7	25.6	25.6	12.0	10.1	6.6	7.6	11.6
Mixed fodder	79.8	142.6	145.6	169.4	57.5	23.6	21.0	15.1	13.8
Mineral fodder	39.8	76.9	66.4	49.2	42.4	15.4	12.9	16.8	18.9
Total (FU)	677.8	1,060.0	1,145.8	1,027.3	696.4	562.1	403.7	410.9	373.3

Source: Statistical Year Book 「Mongolian Economy and Society in 1994」

(Reference)

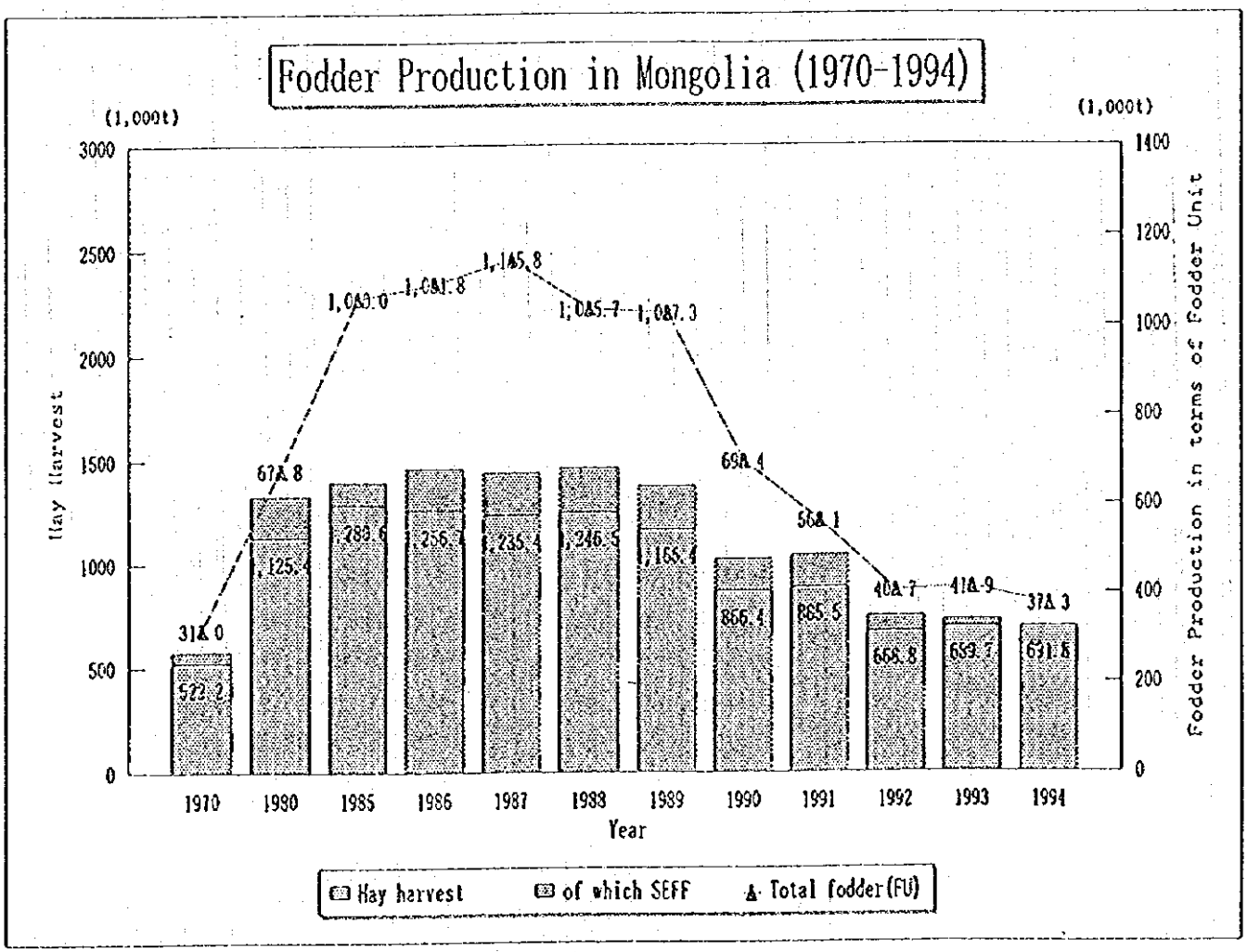


Table-3.4.3.16 Fodder Production in the Study Area(1989-1994)

1. Hay

(1,000t,%)

	1989	1990	1991	1992	1993	1994	94/89
National Total	1,166.4	866.4	885.5	668.8	698.4	691.8	59
Bulgan	127.2	83.1	85.6	62.7	56.0	54.3	43
Selenge	161.2	135.4	145.6	86.5	131.8	94.0	58
Tov	103.9	76.9	78.6	58.6	58.1	67.1	65
Ovorhangai	17.4	12.2	12.5	8.4	10.2	13.0	75
Ulaanbaatal	34.4	30.7	32.1	21.0	31.6	26.4	77
Darkhan	19.0	18.9	24.5	28.8	33.5	20.2	106
Erdenet	7.0	1.8	4.3	7.6	7.2	7.3	104
S.A. Total	470.1	359.0	383.2	273.6	328.4	282.3	60
Share of S.A.	40.3	41.4	43.3	40.9	47.0	40.8	101

2. Used Straw

(1,000t,%)

	1989	1990	1991	1992	1993	1994	94/89
National Total	99.0	58.3	54.6	31.9	26.5	22.3	23
Bulgan	10.3	8.3	5.4	3.7	8.8	7.6	74
Selenge	22.0	20.0	31.7	9.9	3.9	6.1	28
Tov	20.4	6.7	4.6	4.6	2.8	2.2	11
Ovorhangai	5.2	1.7	2.2	2.3	0.4	3.2	62
Ulaanbaatal	0.3	0.0	-	0.8	0.1	0.2	67
Darkhan-Uul	0.2	1.0	1.7	0.7	0.1	0.5	250
Orkhon	0.3	0.0	0.0	0.2	0.8	0.1	33
S.A. Total	58.7	37.7	45.6	22.2	16.7	19.9	34
Share of S.A.	59.3	64.7	83.5	69.6	63.0	89.2	150

3. Mixed Fodder (1,000t,%)

	1989	1990	1991	1992	1993	1994	94/89
National Total	169.4	57.5	23.6	21.0	15.1	13.8	8
Bulgan	8.2	4.3	0.6	0.7	0.2	-	-
Selenge	42.9	0.9	4.6	0.1	0.4	2.7	6
Tov	19.6	12.7	3.4	0.6	1.5	2.0	10
Ovorhangai	10.3	11.2	-	0.0	0.2	0.4	4
Ulaanbaatal	-	-	-	5.7	4.8	-	-
Darkhan-Uul	8.1	0.1	0.0	0.2	0.1	-	-
Orkhon	-	-	-	-	-	-	-
S.A. Total	89.1	29.2	8.6	7.3	7.2	5.1	6
Share of S.A.	52.6	50.8	36.4	34.8	47.7	37.0	70

4. Total Fodder in terms of Fodder Unit (FU) (1,000t,%)

	1989	1990	1991	1992	1993	1994	94/89
National Total	1,027.3	696.4	562.1	403.7	410.9	373.3	36
Bulgan	83.6	53.4	47.8	31.8	30.3	27.5	33
Selenge	171.9	98.6	98.1	54.1	86.0	53.0	31
Tov	135.7	103.9	71.8	46.7	46.6	40.7	30
Ovorhangai	32.5	30.3	21.1	7.6	9.8	10.9	34
Ulaanbaatal	40.9	34.6	19.3	24.0	21.1	17.0	42
Darkhan-Uul	28.0	11.9	16.7	15.5	10.7	10.1	36
Orkhon	9.7	2.3	2.4	5.4	4.7	4.1	42
S.A. Total	502.3	335.0	277.2	185.1	209.2	163.3	33
Share of S.A.	48.9	48.1	49.3	45.9	50.9	43.7	89

Source: Statistical Year Book 「 Mongolian Economy and Society in 1994 」

Table-3.4.3.17 Hay Harvesting and Yield per Ha

Yield of fodder crops (t/ha)

Sectors	Fodder grains			Green fodder		Silage grasses
	barley	oats	beans	annual	perennial	
State farms	15.3	10.3	8.0	26.3	34.0	156.2
Cooperative farms	11.9	9.5	6.2	19.9	15.1	109.1

Hay harvesting, yield

Zones	1971-1975		1976-1980		1981-1985		1986-1990	
	yield t/ha	hay harvest ths/t	yield t/ha	hay harvest ths/t	yield t/ha	hay harvest ths/t	yield t/ha	hay harvest ths/t
Western	0.48	115.4	0.77	169.4	0.76	195.6	0.74	181.4
Central	0.60	471.8	0.50	621.0	0.56	691.6	0.54	670.4
Eastern	0.71	213.8	0.50	271.8	0.52	322.9	0.51	307.9
Total	0.60	801.0	0.53	1068.2	0.52	1210.0	0.51	1159.7

Source: Working Paper No.4 「Policy Alternatives for Livestock Development in Mongolia (PALD)」

Table-3.4.3.18 Productivity per Head of Livestock (1960~1992)

Item		1960	1970	1980	1985	1990	1991	1992	1992/1960
Live Weight at Slaughter(kg)	Cattle	248	243	217	259	254	245	258	1.04
	Sheep	36	36	33	41	39	39	38	1.06
	Goat	28	28	26	32	34	33	31	1.11
Wool per Head (g)	Sheep	1,186	1,502	1,390	1,412	1,479	1,425	1,425	1.21
	Camel	4,104	5,272	5,034	5,009	4,354	4,550	4,881	1.19
	Goat	195	231	190	179	171	175	179	0.92
	Goatdown	200	263	275	287	295	321	305	1.53
Milk per Head(kg)	Cow	344	292	292	351	336	328	332	0.97

Source: Statistical Year Book 「Mongolian Economy and Society in 1992」

Table-3.4.3.19 Numbers of Livestock by breeds in Mongolia (1993)

Livestock	Breed	Numbers (heads)	Composition (%)
cattle	Mongolian local breed	2,236,701	81.9
	Yak	450,000	16.5
	Selenge (Meat-type)	17,850	
	Simmental	10,219	
	Alatau (Brown Swiss)	3,258	1.6
	Holstein	9,400	
	Steppe Red	3,072	
	Total	2,730,500	
horse	Mongolian local breed	2,190,300	100
camel	Mongolian local breed	367,700	100
sheep	Mongolian local breed	13,056,288	94.8
	Hangai (Wool)	38,028	
	Gobi-Altai (Meat · Wool)	135,326	
	Bajad (Meat · Wool)	257,435	
	Sumbel (Karakul)	37,506	
	Uzemchin (Meat · Fat)	145,064	5.2
	Steppe White (Wool)	4,557	
	Baidrag (Wool)	63,894	
	Orhon (Wool)	41,102	
	Total	13,779,200	
goat	Mongolian local breed	5,950,267	97.4
	Mountain brown (cashmere)	115,113	2.6
	Gobi-gorbansaihan (cashmere)	41,620	
	Total	6,107,000	

Source: MOFA

Table-3.4.3.20 Livestock Breeds and Productivity in Mongolia

1. Dairy Breeds in Mongolia

Breed	Birth Weight (Kg)		Adult Weight (Kg)		Milk Yield / year (Kg)	Fat (%)	Lactation length (days)
	Male	Female	Male	Female			
Black & White	33	31	570~770	450~500	2,880 ~ 3,200	3.4~3.7	240 ~ 305
Red Cattle of Steppe	32	30	600~625	450~500	2,360	3.6~3.8	240 ~ 305
Alatau (Brown Swiss)	34	32	600~800	485~550	3,000 ~ 3,330	3.8	240 ~ 305
Simmental	34	32	600~800	460~550	2,300 ~ 2,800	3.6~3.8	240 ~ 305
Local Breed	22	20	450~500	280~300	400 ~ 600	4.2~4.5	90

2. Beef Cattle in Mongolia

Breed	Birth Weight		Adult Weight		Comments
	Male	Female	Male	Female	
Selenge	25	24.5	650~700	440~500	Mongolian breed with some Herefond blood
Local Breed	22	20	450~500	280~300	Milk yield : 400~600Kg Fat : 4.2~4.5%
Yak	16	15.5	450	280	Milk yield : 400~600Kg Fat : 5.8~7.0%

3. Goat productivity in Mongolia

		Local	Improved
Birth Weight (Kg)		2.8~3.0	2.8~3.0
Adult Weight (Kg)	Male	60	58
	Female	43	44
Cashmere yield (g)		250	330
Cashmere fineness (mkM)		14	17~18

Source : MOFA

4. SHEEP BREEDS OF MONGOLIA

Name of Breed	Birth weight male	Birth weight fem.	Adult weight male	Adult weight fem.	dress. %	Milk in g/day	wool quality	wool yield male	wool yield fem.	type
Baidrag	3.7	3.5	65	53	47.7	300	sc	2.5	1.9	f.t. mount. breed/carpetwool
Bajad	3.8	3.5	72	56	45.4	200- 800	c	2	1.6	f.t. mutton/carpet wool
Barga	3.8	3.5	72	56	45.4	200- 600	c	1.3	1.3	f.t. mutton/felt woolain
Darkhad	3.6	3.1	71	51	42.6	200- 600	c	1.7	1.4	f.t. mutton
Gobi-Altai	3.5	3.3	69	54	46	200- 600	c/sc	2.3	1.8	f.t. carpet wool/mutton
Karakul	3.7	3.5	65	46	46	300- 600	c	1.9	1.6	f.t. lamb skin
Kazakh	3	2.8	70	56	45	200- 600	c	2.1	1.4	r.t. mutton(fat)/felt wool
Khalkha			70	55	46.5	70 - 130	c	1.8	1.4	f.t. mutton/wool for felt.
Sutai	3.5	3	73	57	45.5		c/sc	2	1.6	f.t. mutton/carpet wool
Torguud	3.9	3.6	85	65	48.9	60 - 100	c	2.3	1.6	r.t. mutton/felt wool/fat
Uzemching	3.8	3.5	73	56	48.9		c	1.5	1.2	f.t. mutton

(f.t.) = fat tail; (r.t.) = rump tail; c = course; sc = semi-course

CROSSBREEDS

Khangai	4.2	3.8	80	58	47	300- 700	f	6	3.4	fine wool/mutton
Orkhon	4	3.6	80	57	50	300	s/f	9.7	6	wool/mutton
Tsigai	3.8	3.5	76	56	47	500-1000	s/f	5.4	3.2	wool/mutton
Voroo	4.2	3.9	85	56	51	300- 600	s/f	6	3.2	wool/mutton

f = fine; s/f = semi-fine

Source : MOFA

Table-3.4.3.21 Numbers of Livestock Shelter (1994)

(Unit: Capacity 1000 heads)

Aimag	Total		Details of Which (Slt.= Shelter)										Classification by owner			No.of slt.used only for winter
			Barn		Slt. with roof		Slt.without roof		Slt.for horse		Slt.for camel					
	Number	Capacity	Number	Capacity	Number	Capacity	Number	Capacity	Number	Capacity	Number	Capacity	agri. company	non agri company	indivi-dual	
Bulgan	3,033	1,053.5	129	47.6	2,481	862.7	409	140.5	13	2.6	1	0.1	97	50	2,886	1,796
Ovorhangai	6,867	2,225.4	791	199.1	5,648	1,975.6	396	43.9	4	0.7	28	6.1	186	144	6,537	4,931
Selenge	4,125	418.2	1,101	189.9	2,636	215.5	383	12.4	5	0.4	0	0	787	65	3,273	4,125
Tov	4,074	1,094.7	234	74.9	3,637	927.0	163	76.9	23	11.1	17	4.8	3,399	576	99	2,694
Darkhan-uul	2,492	108.3	257	55.5	2,222	51.6	4	0.1	9	1.1	0	0	31	84	2,377	2,492
Ulaanbaatar	750	92.8	38	9.2	683	79.3	27	4.2	2	0.1	0	0	132	96	522	304
Orkhon	196	77,5	1	2.4	195	75.1	0	0	0	0	0	0	33	23	140	196
S.A.Total	21,537	5,070.4	2,551	578.6	17,502	4,186.8	1,382	281.0	56	16.0	46	11.0	4,665	1,038	15,834	16,538
National Total	84,085	27,119.3	11,846	3,257.3	56,651	17,419.2	13,910	6,153.5	849	140.2	832	148.6	7,332	1,679	75,084	60,774

Source: MOFA

Table-3.4.3.22 Change of Livestock shelter (1991~1994)

(Unit: Capacity 1000 heads)

Year / Aimag	1991			1992			1993			1994		
	Number	Capacity	Newly-constructed	Number	Capacity	Newly-constructed	Number	Capacity	Newly-constructed	Number	Capacity	Newly-constructed
Bulgan	2,305	835.1	53	2,706	952.2	498	2,984	998.3	395	3,033	1,053.5	133
Ovorhangai	5,005	1,609.5	40	6,533	1,938.0	258	5,762	1,706.6	378	6,867	2,225.4	591
Selenge	1,020	436.7	21	2,371	371.3	15	2,027	416.6	56	4,125	418.2	3,050
Tov	2,990	1,348.9	69	3,266	1,202.1	20	3,385	1,104.8	371	4,074	1,094.7	48
Darkhan-uul	186	83.2	41	132	84.5	11	149	99.0	17	2,492	108.3	246
Ulaanbaatar	373	57.9	5	543	60.8	55	674	81.8	198	750	92.8	76
Orhon	484	30.3	7	151	84.2	12	217	78.7	66	196	77.5	0
S.A.Total	12,363	4,401.6	236	15,702	4,693.1	869	15,198	4,485.8	1,481	21,537	5,070.4	4,144
National Total	68,029	28,265.0	1,466	74,395	27,742.5	4,993	76,050	26,080.7	6,188	84,085	27,119.3	7,848
Capacity for cattle	80.8 %			65.4 %			65.6 %			61.8 %		
// for sheep & goat	130.1 %			127.8 %			120.6 %			118.8 %		

Source: MCFA

Table-3.4.3.23 Outline of Dairy Farm Facilities

Name	Housing System	Stall Size		Barn Size					Equipment	Heat system
		Length	Width	Width	Length	Space	Capacity	Space/Head		
Cow barn	Tie	1.9 m	1.2 m	21.0 m	78.0 m	1,638 m²	200 head	8.19 m²	Water-cup Barn-cleaner	Warm Wind
Delivery Barn	Cow : Tie Calf: Group	1.9	1.2	18.0	60.0	1,080	Cow 40 Calf 228		Water-cup Barn-cleaner	Warm Wind
Calf Barn	Group	-	-	18.0	54.0	972	140	6.94	Water-cup Barn-cleaner	Warm Wind
Heifer Barn	Tie	1.9	1.0	21.0	54.0	1,134	148	7.66	Water-cup Barn-cleaner	Warm Wind
Milk Room				12.0	25.0	300			Vacuumizer Bulk cooler	

Source: Made by hearing

Table-3.4.3.24 Outline of Dairy Farm Facilities

Name	Housing system	Pen Size			Feeding	Manure Handling	Barn Size				Remarks
		Width	Length	Heads/Pen			Width	Length	Space	Capacity	
Breeding Barn	Boar: individual Group	2.0 m	3.1 m	1~3 head	Hand Feeding	Manual	22.0 m	94.0 m	2,068 m²	40 ~ 60 head	
	Sow: Group	Removal	4.5	30 ~ 50						200 ~ 300	
Gestation Barn	Group	6.1	3.0	10 ~ 20	Hand Feeding	Manual	22.0	94.0	2,068	200 ~ 400	
Delivery Barn	Individual	3.0	2.5	1	Hand Feeding	Manual	22.0	94.0	2,068	100	45 days-age weaning
Pigling Barn	Group	4.8	8.6	30 ~ 50	Hand Feeding	Manual	22.0	94.0	2,068	1,000	60~120 days-age
Fattening Barn	Group	4.8	8.6	30 ~ 35	Hand Feeding	Manual	22.0	94.0	2,068	1,000	120~285 days-age

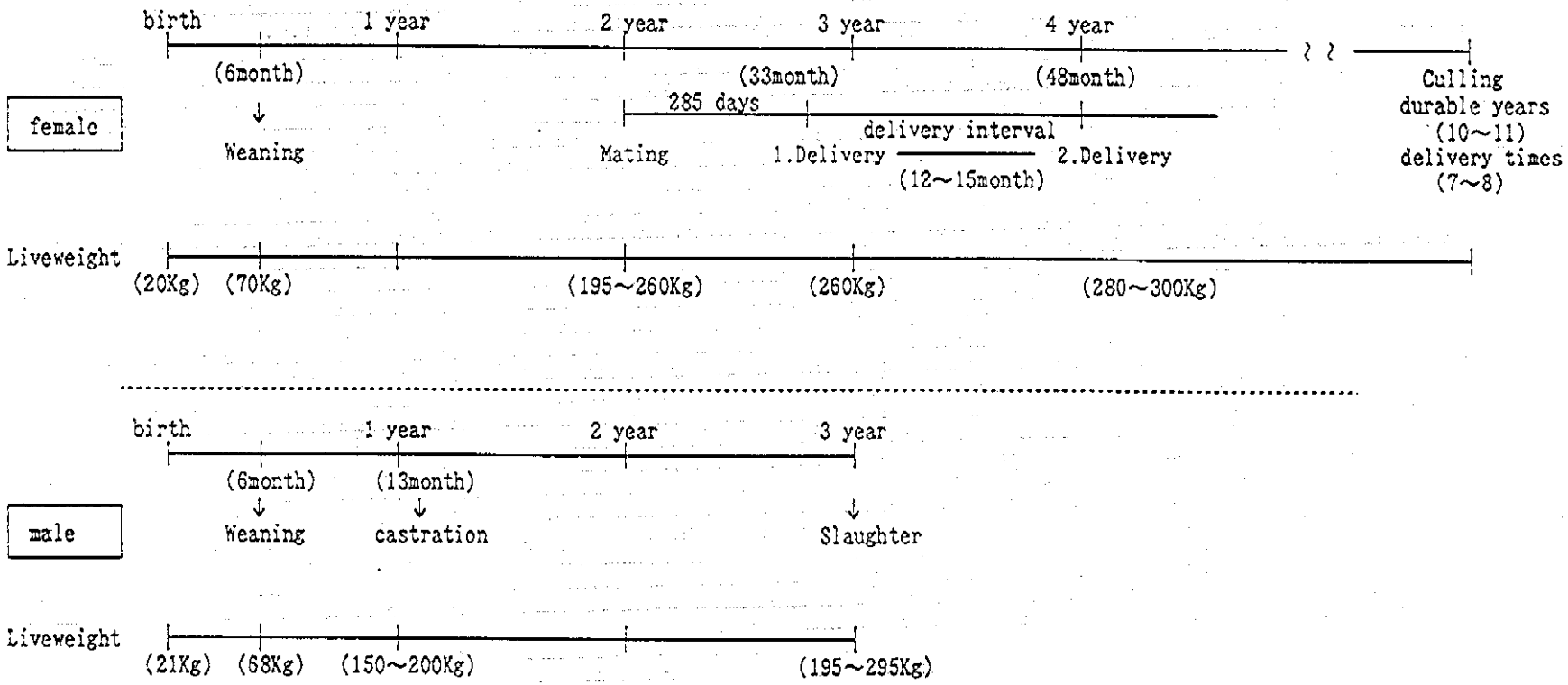
Source: Made by hearing

Table-3.4.3.25 Outline of Paultry Farm Facilities

Name	Housing System	Capacity	Feeding	Manure Handling	Egg Collection	Ventilation	Heat System	Barn Size			Remarks
								Width	Length	Space	
Hen Barn	3-layer cage	23,500	Auto Feeding	Scraper	Manual	Roof:Natural Wall:Fan	Warm Wind	m 14.8	m 98.8	m^2 1,462.2	cage size 500(D)*700(W)*500(H)
Hatching Barn	Group	8,000	Hand Feeding	Manual	Manual	Roof:Natural Wall:Fan	Warm Wind	20.0	72.5	1,450	
Pullet Barn	Group	4,000	Hand Feeding	Manual	-	Roof:Natural Wall:Fan	Warm Wind	8.0	67.0	536	

Source : made by hearing

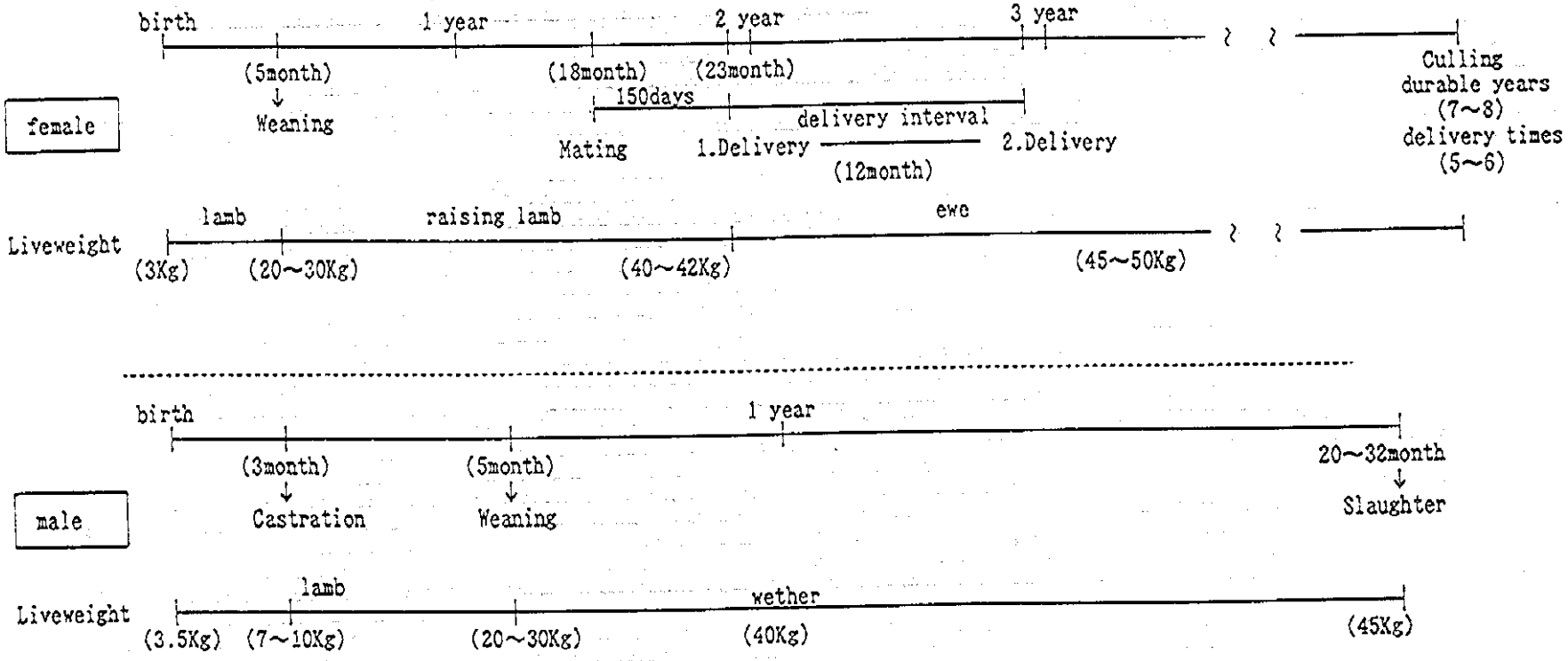
Figure-3.4.3.2 Typical Life-cycle of Cattle



durable years (10~11 years)	length of pregnancy (285 days)	dressing percentage (48~53%)
delivery times (7~ 8 times)	delivery interval (12~15 month)	
mating system (free breeding)	first delivery month (33~36 month)	
mating period (may~Sep.)		

Source : MOFA

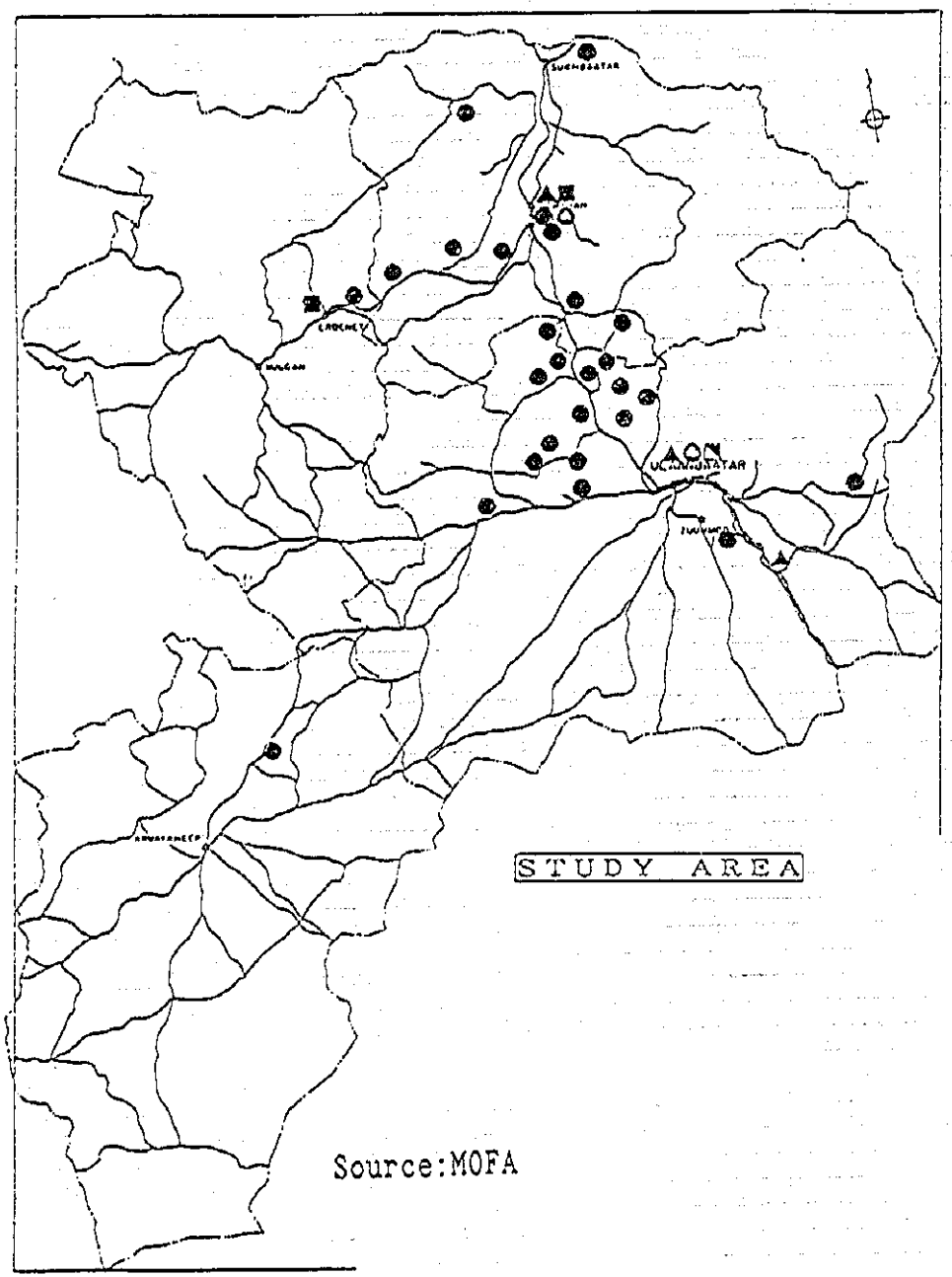
Figure－3.4.3.3 Typical Life-cycle of Sheep



durable years (7～ 8 years) delivery times (5～ 6 times) mating system (free breeding)	mating period (Oct.～Dec.) length of pregnancy (145～150 days) delivery interval (12 month)	dressing percentage (44～48%)

Source : MOFA

Figure-3.4.3.4 Location Map of Big Farm and Processing Plants in the Study Area



Legend

	Dairy farm (mechanized)
	Pig farm
	Poultry farm
	Meat processing plant
	Milk processing plant
	Wool processing plant