

CHAPTER 2

SOCIO-ECONOMIC STATUS AND NATIONAL & RURAL DEVELOPMENT PLANS OF MONGOLIA

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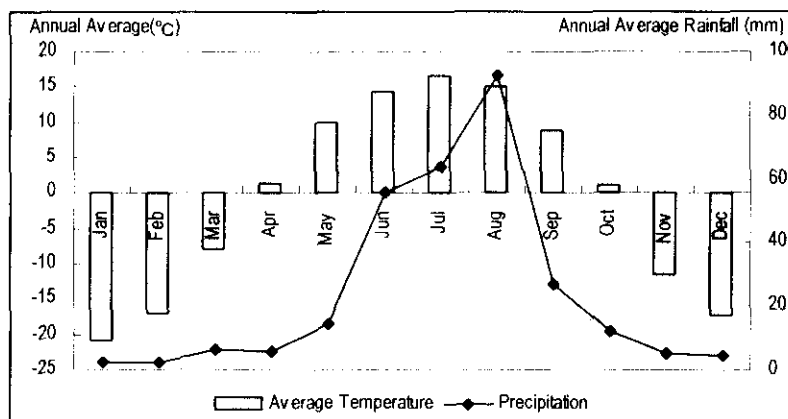
SOCIO-ECONOMIC STATUS AND NATIONAL & RURAL DEVELOPMENT PLANS OF MONGOLIA

2.1 Geographic Situation

(1) Geographic Conditions and Climate

Mongolia is an entirely inland country on the geographic coordinates of 46 degrees north and 105 degrees east, neighbouring on China, Russia and Kazakhstan with the total land boundaries of 8,162 km. Its total area is 1,566,500 square km (about 4 times of Japan), composed of six basic natural types such as 1) Alpine belt, 2) Mountain Taiga, 3) Mountain Forest Steppe belts, 4) Steppes, 5) Arid Steppe zones and 6) Desert zone spreading horizontally in Mongolia. Steppes cover about 65% of the land, while the Govi desert bringing severe climate condition covers the southernmost part of the country. Northern region is mountainous with extensive forests. Central region has comparatively moderate climate due to balanced distribution of highlands without high mountains, grassy steppes and deserts; and in west and southwest vast semi-desert and desert plains, grassy steppes, mountains. Mongolia's average altitude is 1,580 metres above sea level.

Intense high-pressure systems in the region draw cold air from the Arctic and the region has a low total annual rainfall of 220 mm per year, on average, due to the above geographic conditions. These factors contribute to the unique severity of the country's climate as typical desert and continental climate with large seasonal and daily temperature fluctuations.



Source: Tourist Guidebook 2000

Figure 2.1-1 Annual Average Climate Condition of Mongolia

Table 2.1-1 Average Climate Condition by Region

Economic Region	Average Precipitation (mm)	Average Temperature (°C)		
		Winter (Jan)	Summer (July)	Difference
Western	160.6	-22.9	16.5	39.4
Khangai	250.5	-14.2	12.9	27.1
Central	123.1	-13.0	13.8	26.8
Eastern	203.0	-21.8	19.5	41.3

Source: Mongolian Statistical Yearbook 2000

Biodiversity in Mongolia is a significant part of the world's biological heritage, because it contains some unique features in its biosphere and its ecosystems have not been altered much by human activities. Although the number of Mongolian biological species and endemic animals and plants is lower than the numbers of species in many other countries, the particular species and unspoiled ecosystems are very important to keep the country's biodiversity and to avoid over-development due to its vulnerability. Composition of land use in Mongolia is shown in Table 2.1-2.

Table 2.1-2 Land Use in Mongolia

	Composition
Arable Land	5.7%
Pastures	81.0%
Forest, Woodland	11.4%
Other	1.9%
Total	100%

Source: U.S. government, estimates 2000

(2) Natural Disaster

The country is suffering from the adverse effects of desertification and is also apt to natural disasters such as drought, heavy snows, strong winds, flooding, steppe and forest fires, earthquakes, and animal diseases. Extremes of climate and sometimes difficulties caused by the social and economic transition have contributed to the recent serious natural disasters in combination with over-grazing in many areas, soil erosion, poor agricultural practices by unskilled herders, forest fires started due to human causes, illegal logging, etc., as shown in Table 2.1-3.

There are three types of natural disasters of Dzuds; i.e. "white Dzud"(snowfall is too deep for livestock to reach the grass covered by it), "iron Dzud" (an impenetrable ice-cover

forms on the surface of precipitation, also preventing livestock from grazing) and “black Dzud” (lack of precipitation in grazing areas leaves livestock without any water supply). On top of those, there are drought, floods, fires and dust storms. Increased occurrence of those natural disasters is likely to be associated with global climatic change and human activities in recent years.

Table 2.1-3 Natural Disasters by Regions from 1957 to 2001

Economic Region	Damage				Type of Natural Disaster					
	Physical (population)	Number of Aimags	Amount: US\$('000)	Year	EQ	FLD	DZ	DR	DS	FR
Western	1,200 killed	5/5 aimags	n.a	1957, 1993, 1996, 2000, 2001	○	—	●	⊙	⊙	⊙
Khangai	0.10mil /1993	5/6 aimags	10-1990	1990, 1991, 1993, 1996 2000, 2001	—	—	●	○	○	⊙
Central	108 / 1996	6/7 aimags	n.a	1957, 1993, 1996, 2000, 2001	—	—	●	⊙	○	○
Eastern	n.a	3/3 aimags	110-1990	1990, 1991 1993, 1996, 2000, 2001	—	—	●	—	○	⊙
Ulaanbaatar	0.25mil-1996 0.50mil-1990	1/1 aimag	n.a	1966, 1990,1994, 1996	—	⊙	—	—	—	—

Note: EQ= earthquake, FLD= flood, DZ= Dzud, DR=drought, DS= dust storm, FR= Fire, n.a = not available, ● = often suffered, ⊙= sometimes suffered, ○= rare suffered

Source: International Federation of Red Cross and Red Crescent Societies

2.2 Demographic Trends

2.2.1 Past Record

The records of the National Statistical Office of Mongolia (NSO) show the population dynamics for the last five years (1995-2000) as shown in Table 2.2-1:

The population of Mongolia was 2,379.5 thousand at the end of 2000, out of which 54.0% or 1,284.9 thousand stood for the urban residents (Ulaanbaatar & Aimag Centres), while 46.0% or 1,094.6 thousand stood for the residents of rural areas (Sums & Bags). This Master Plan Study deals with the population of rural areas and Aimag Centres in macroscopic socio-economic approach.

Table 2.2-1 Population Dynamics in Mongolia

in thousand persons

		1995	1996	1997	1998	1999	2000
1	Sums and Bags	1,104.9	1,153.8	1,101.2	1,107.4	1,119.9	1,094.6
2	Aimag Centres	517.4	466.8	530.6	531.2	519.6	511.3
	Aimag Centres & Rural (1+ 2)	1,622.3	1620.6	1,631.8	1,638.6	1,639.5	1,605.9
3	Ulaanbaatar	612.1	624.9	638.4	652.2	673.7	773.6
	Total of Urban (2+ 3)	1,129.5	1,091.7	1,169.0	1,183.4	1,193.3	1,284.9
	Total Population (1+ 2+ 3)	2,234.4	2,245.5	2,270.2	2,290.8	2,313.2	2,379.5
	Growth Ratio	1.68%	1.52%	1.44%	1.41%	1.42%	1.39%
	Urbanisation Ratio	50.6%	48.6%	51.5%	51.7%	51.6%	54.0%

(Source) NSO

2.2.2 Forecasting Future Population

For the long-range forecast of population, the study of the Ministry of Finance and Economy (MOFE) and two other studies were examined as reported by the local consultant, and, as a result, the MOFE's study is adopted as the base data with appropriate adjustments made under this Master Plan Study. The base data coincide with the latest long-range forecasts of UNDP and World Bank in principle.

Table 2.2-2 Population Forecast Frame 2001-2020

in thousand persons

		2001	2008	2013	2020	Annual Growth
1	Sums and Bags	1,099.9	1,143.1	1,208.7	1,333.6	0.99%
2	Aimag Centres	516.7	556.0	589.0	643.0	1.15%
	Aimag Centres & Rural (1+ 2)	1,616.6	1,699.1	1,797.7	1,976.6	1.04%
3	Ulaanbaatar	796.2	974.2	1,081.7	1,205.3	2.24%
	Total of Urban (2+3)	1,312.9	1,530.2	1,670.7	1,848.3	1.83%
	Total Population (1+2+3)	2,412.8	2,673.3	2,879.4	3,181.9	1.46%
	Urbanisation Ratio	54.4%	57.2%	58.0%	58.1%	

(Note) Source: MOFE

The forecast framework is finalised by the Study Team with appropriate adjustments.

2.3 Economic Activities

2.3.1 GDP Growth, Inflation and Unemployment

Mongolia is in its process of transition towards the market economy. The government has been closely following sound macro-economic policies, supported by the international donor community. As a result, inflation subsided from 53.1% at the end of 1995 to 8.1% at the end of 2000. Unemployment rate became lowered from 7.7% in 1997 to 4.6% in 2000. In 1994 Mongolian economy began to show positive growth of 2.4% and it could weather the adverse effects of Asian and Russian financial crises of 1998 and 1999, despite the unfavourable conditions in the world commodities markets for exports of Mongolia, such as copper, cashmere, and gold. From 1995 to 2000, GDP grew as indicated in Table 2.3-1.

Table 2.3-1 GDP Growth, Inflation and Unemployment Rates

	1995	1996	1997	1998	1999	2000
Population ('000)	2,234.4	2,245.5	2,270.2	2,290.8	2,313.2	2,379.5
GDP at Current Prices (Tg. mln.)	550,254	646,559	832,636	817,393	925,346	1,044,581
GDP at 1995 Constant Prices (Tg. mln.)	550,254	563,201	585,720	606,410	625,910	632,641
GDP Growth (%)	6.3	2.4	4.0	3.5	3.2	1.1
Inflation (%)	53.1	44.6	20.5	6.0	10.0	8.1
Unemployment (%)	5.4	6.7	7.7	5.9	4.7	4.6
GDP/ Capita Growth (%)		1.9	2.9	2.6	2.2	-1.7

Source: Mongolian authorities, IMF

GDP/Capita Growth Rates are computed at 1995 Constant Prices.

Herding is a traditional way of life of Mongolians and the livestock-breeding sector is occupying about 90% of agricultural products. Percentage ratio of herdsman's households to all households of Mongolia was 35% at the end of 2000. In 2000 agriculture's weight to GDP decreased sharply (by 17%) to 33.4% from the levels of 37 - 38% for the previous years due to the worst zud disasters in living memory. While Mongolia's livestock increased to 33.5 million heads between 1994 and 1999, 4.3 million heads were lost during the winter between 1999 - 2000. Another 3.2 million heads died during the winter between 2000 - 2001 due to the second zud disasters and the numbers of livestock decreased to 26.1 million heads at the end of 2001. Foot and mouth disease caused the decrease in livestock products, too. On the other hand the crops were affected by the drought of June and July in 2000. The

cultivated land shrank by 29% to 209 thousand hectares in 2000 due to shortage of funds. These situations not only caused setback in the agriculture sector, but also affected most of the activities of the population, leading to the increase of unemployment and poverty in rural areas in particular.

Mining sector increased by 9% during the year 2000 to occupy some 14% share to GDP and is expected to grow in the future. Trade and commerce sector and transportation and communications sector began to expand remarkably, while manufacturing and construction sectors picked up steadily. Public services sector made some expansion for the needs of the population.

2.3.2 Comparison of Economic and Human Development Indicators with Selected Countries

In an attempt to quantitatively locate the current socio-economic situation of Mongolia, an international comparison with selected countries in terms of Gross National Income (GNI; formerly GNP) per Capita, Purchasing Power Parity (PPP) per Capita and Human Development Index (HDI) is made in Table 2.3-2.

Table 2.3-2 Comparison of Socio-Economic Indicators among Selected Countries

GNI per Capita in 2000			PPP per Capita in 2000			HDI in 1999		
	in US\$	Rank		in US\$	Rank		Index	Rank
Kazakhstan	1,260	125	Kazakhstan	5,490	101	Armenia	0.747	72
Turkmenistan	750	143	Turkmenistan	3,800	125	Ukraine	0.742	75
Ukraine	700	144	Ukraine	3,700	127	Kazakhstan	0.742	75
Georgia	630	146	Azerbaijan	2,740	142	Georgia	0.742	76
Azerbaijan	600	148	Georgia	2,680	144	Azerbaijan	0.738	79
Armenia	520	155	Armenia	2,580	147	Turkmenistan	0.735	83
Mongolia	390	164	Kyrgyz	2,540	149	Kyrgyz	0.707	92
Vietnam	390	164	Uzbekistan	2,360	151	Uzbekistan	0.698	99
Uzbekistan	360	171	Vietnam	2,000	157	Vietnam	0.682	101
Lao, PDR	290	179	Mongolia	1,760	161	Tajikistan	0.660	103
Kyrgyz	270	184	Lao, PDR	1,540	168	Mongolia	0.569	116
Tajikistan	180	197	Tajikistan	1,090	183	Lao, PDR	0.476	131
Total Countries		207	Total Countries		207	Total Countries		162

(Note) Source: World Bank, UNDP

1. GNI per Capita in 2000

GNI = formerly GNP

High Income Group : US\$ 4,901 and above

Middle Income Group: Upper Middle US\$ 1,201- 4,900

Lower Middle US\$ 411- 1,200

Low Income Group : US\$ 410 and below

2. PPP per Capita in 2000

PPP = Purchasing Power Parity based on international common grounds

High Income Group : US\$ 8,321 and above

Middle Income Group: Upper Middle US\$ 3,961- 8,320

Lower Middle US\$ 1,971- 3,960

Low Income Group : US\$ 1,790 and below

3. HDI in 1999

HDI=Human Development Index (See * below)

High HDI Group : 0.800 and above

Middle HDI Group: 0.500 - 0.799

Low HDI Group : 0.499 and below

*HDI=1/3 life expectancy index + 1/3 education index (2/3 adult literacy + 1/3 gross enrolment) + 1/3 GDP index**

** GDP index for HDI is on the basis of PPP per Capita.

2.3.3 National Budget

The performance of Mongolia's national budget was reviewed under the Master Plan Study, based on the data from the statistical yearbook 2000 of NSO, as shown in Table 2.3-3 below.

Table 2.3-3 Performance of National Budget

	in Tg. mln		
At Current Prices	1995	1999	2000
Revenue	144,623	266,495	350,202
Current Revenue	135,684	247,859	339,665
Income Tax	48,537	39,044	74,089
Social Security	15,765	29,785	38,692
VAT	16,254	60,360	74,975
Customs Duties	9,572	9,013	31,932
Other Taxes	15,382	43,030	54,421
Non-Tax Revenue	30,174	66,627	65,556
Non-Current Revenue	8,939	18,635	10,537
Expenditure	149,350	364,693	412,927
Current Expenditure	101,508	250,860	305,055
Capital Expenditure	26,659	28,313	36,573
Net Lending	21,183	85,520	71,298
Overall Balance	- 4,727	- 98,198	- 62,725
Ratio to GDP (%)	0.9%	10.6%	6.0%
Current Balance	34,176	- 3,001	34,610

(Source) NSO

Other data was secured from the international institutions, such as the IMF. Findings are as follows:

- (a) While the overall balance in each year from 1995 to 2000 showed deficit, mainly because of capital expenditure and lending, there were some signs of improvement. And, in accordance with the consensus of many institutions, this overall deficit would be within a controllable range of around 6% of GDP for the next 4 to 5 years.
- (b) Current expenditures were kept within the limit of current revenues except for 1998 and 1999.
- (c) Collection of taxes was well performed for all kinds of taxes.

2.3.4 Export and Import

Mongolia has a free trade regime. There are no quotas or onerous licensing requirements. The foreign trade records of the country are shown in Table 2.3-4. Major trade partners (as of 2000) are as follows:

For exports: China, USA, Russia, Italy, UK and Japan

For imports: Russia, China, Japan, South Korea, Germany and USA

Table 2.3-4 Foreign Trade Records

	in US\$ mln					
	1995	1996	1997	1998	1999	2000
Exports	473.3	424.3	451.5	345.2	358.3	466.1
Imports	415.3	450.9	468.3	503.3	512.8	614.5
Balance	58.0	- 26.6	- 16.8	- 158.1	-154.5	- 148.4

(Note) Source: NSO

2.3.5 Inflation and Foreign Exchange Rate

As described in Sub-section 2.3.1, the government has been closely following sound macro-economic policies, supported by the international donor community. As a result, inflation subsided from 53.1% at the end of 1995 to 8.1% at the end of 2000.

Table 2.3-5 Inflation and Foreign Exchange Rate

	1995	1996	1997	1998	1999	2000	2001
Inflation %	53.1	44.6	20.5	6.0	10.0	8.1	11.2
Exchange Rate for US\$	Tg. 473.62	Tg. 693.51	Tg. 813.16	Tg. 902.00	Tg. 1072.37	Tg. 1097.00	Tg. 1102.00

(Note) Source: NSO, ADB

The exchange rate of Tugrug to one U.S. Dollar was depreciated from Tg. 473.62 as at the end of 1995 to Tg. 1,097.00 as at the end of 2000. According to the latest information, inflation rate and the exchange rate of Tugrug to one U.S. Dollar at the end of 2001 were 11.2% and Tg. 1,102.00 respectively.

2.3.6 Foreign Direct Investment

Foreign investment into Mongolia is defined and administered by the Foreign Investment Law of 1993. It allows for foreign investment through the establishment of a completely foreign-owned business entity or local subsidiary of a foreign enterprise; the establishment of a business entity with the participation of a Mongolian investor; direct investment by acquiring shares or other securities of an existing Mongolian enterprise; through the acquisition of rights by law or contract to natural resources. The foreign investors receive no less favourable treatment than Mongolian investors under the law. An entity with 20% or more of its registered capital coming from foreign investment is considered to be a business entity with foreign investment.

Table 2.3-6 Cumulative Foreign Direct Investment (1990 - 2002.5)

	No. of Investments	in US\$ mln.	Share %	Average Amount
Mining Researches	192	131.5	26.8	0.685
Light Industry	146	78.3	15.9	0.536
Processing of Livestock Materials	141	45.1	9.2	0.320
Construction	245	42.2	8.6	0.172
Trade	394	34.4	7.0	0.087
Bank/Financial	27	27.2	5.5	1.007
Transportation	92	16.9	3.4	0.184
Communications	32	16.4	3.3	0.513
Others	866	99.3	20.3	0.115
Total	2135	491.3	100	0.230

(Note) Source: Ministry of Industry and Trade

2.4 Future Socio-Economic Trends

The long-range socio-economic framework has been formulated under this Master Plan Study, consisting of the forecasts of population and GDP, after reviewing and analysing the data secured from MOFE and other sources such as UNDP, World Bank, Professor T. Dorj of Mongolia and Professor J. Zags of Harvard University. While the outline of population forecast is explained in Sub-section 2.2.2, the Study Team has applied the annual growth rates of 1.1%, 3.9% and 5% for 2001-2003 as used by MOFE and IMF, and has adopted the annual growth rate of 5% for 2004-2008, 5.2% for 2009-2013 and 5.5% for 2014-2020 that are selected as medium growth rates, having reviewed the three alternative source data of growth rates (low growth: 2.2% for 2002-2008, 3.7% for 2009-2013, 5.2% for 2014-2020, medium growth: as stated and high growth: 5% for 2003-2008, 6% for 2009-2013, 7.5% for 20014-2020). The framework is summarised in Tables 2.4-1:

Table 2.4-1 Summary of Population Forecast Frame 2001-2020

in thousand persons

	2001	2008	2013	2020	Annual Growth
Total Population	2,412.8	2,673.3	2,879.4	3,181.9	1.46%
o/w					
Aimag Centres and Rural areas	1,616.6	1,699.1	1,797.7	1,976.6	1.04%
Ulaanbaatar	796.2	974.2	1,081.7	1,205.3	2.24%

Table 2.4-2 Population Growth Rate 2001-2020 by Aimags

Region	Aimag	%/year	Region	Aimag	%/year
Western	Bayan-Ulgii	1.96	Central	Dundgovi	0.66
	Govi-Altai	-0.13		Govisumber	1.64
	Khovd	1.15		Selenge	1.61
	Uvs	-0.17		Tuv	0.80
	Zavkhan	0.04		Umnugovi	1.45
	<i>Region Growth</i>	<i>0.70</i>		<i>Region Growth</i>	<i>1.37</i>
Khangai	Arkhangai	0.54	Eastern	Dornod	0.72
	Bayankhongor	0.84		Khentii	0.92
	Bulgan	0.81		Sukhbaatar	0.72
	Orkhon	2.73		<i>Region Growth</i>	<i>0.79</i>
	Uvurkhangai	0.98	Ulaanbaatar	Ulaanbaatar	2.24
	Khuvsgul	0.94		Nalaikh	2.24
<i>Region Growth</i>	<i>1.12</i>	Baganuur		2.24	
Central	Darkhan-Uul	1.94	<i>Region Growth</i>	<i>2.24</i>	
	Dornogovi	1.51			

Table 2.4-3 GDP/GRDP Forecast Frame 2001-2020

	2001	2008	2013	2020	Annual Growth
	in Tg. mln				
GDP	639,600	890,553	1,147,462	1,669,189	4.97%
GRDP	321,079	436,371	562,256	817,903	4.45%
GDP per Capita in Tg	265,084	333,134	398,511	524,582	3.46%
in US\$	590.9	742.6	888.3	1,169.3	
GRDP per Capita in Tg	198,612	256,831	312,769	413,783	3.37%
in US\$	442.7	572.5	697.2	922.4	

(Note) Source information: MOFE, Prof. T. Dorj, *Development Economics, 2000* and Prof. J. Zags, Harvard University, *Economic Strategies of Mongolian Rapid Development, 1997*
All data are at 1995 Constant Price.

Exchange Rate: Tg. 448.61 for one US Dollar, which is an average of exchange rates in 1995.
GRDP is the total amount of Gross Regional Domestic Products of 21 Aimags for the year.

Table 2.4-4 GRDP Growth Rate 2001-2020 by Aimags

Region	Aimag	%/year	Region	Aimag	%/year
Western	Bayan-Ulgii	4.30	Central	Dundgovi	7.17*
	Govi-Altai	4.39		Govisumber	3.34
	Khovd	2.88		Selenge	5.04
	Uvs	3.55		Tuv	3.96
	Zavkhan	3.70		Umnugovi	4.57
	Region Growth	3.74		Region Growth	5.05
Khangai	Arkhangai	3.33	Eastern	Dornod	3.04
	Bayankhongor	5.78		Khentii	3.80
	Bulgan	3.74		Sukhbaatar	3.37
	Orkhon	4.97		Region Growth	3.46
	Uvurkhangai	5.16	Ulaanbaatar	Ulaanbaatar	5.53
	Khuvsgul	4.54		Nalaikh	5.53
	Region Growth	4.70		Baganuur	5.53
Central	Darkhan-Uul	4.37	Region Growth	5.53	
	Dornogovi	4.82			

(Note) * Dundgovi is only one exceptional case of high growth rate that the Aimag is in the process of recovery from the minus position of GRDP; Tg. 14.5 bln (1999), - 0.8 bln (2000), 4.5 bln (2001), 16.7 bln (2020)

2.5 National Development

2.5.1 General

The establishment and development of Ulaanbaatar, Darkhan and Erdenet as well as of the respective Aimag Centres since 1930's enriched lifestyle of Mongolians by making them settled there and contributed to expedite the national economic and cultural development. On the other hand, the activities of industrialisation and urbanisation processes were carried out without paying careful attention neither to protection and preservation of the environment nor to the concerted territorial allocation with nomadic lifestyle of the population. Thus, many rural settlements were left without any purposes or objectives and the balance between the environment and socio-economic development is threatened. As the comfortable living conditions are not provided to the inhabitants living spread in the large territory, the migration movement is increasing constantly and resulting in excessive concentration of population in Ulaanbaatar, Darkhan, Erdenet and the regions along the main railway line that aggravates social issues such as unemployment and poverty.

The above stated issues are still awaiting effective solutions. It should be needed to create relatively similar living conditions across the whole territory of Mongolia. On 14 June 2001 the Mongolian parliament approved the regional development policy paper "Policy of Regional Development of Mongolia" that contained the following points for the elaboration of the regional development:

- (a) To establish the development balance throughout Mongolia by the regional way of development
- (b) To create the appropriate environment for the government structure, economy, society, culture, allocation of population, city construction, international cooperation, state policy coordination structure and operational guidelines promoting rural development in the economic regional areas

The policy paper defines that in order to efficiently utilise the country's territory, natural resources, crops, raw materials from livestock husbandry and intellectual capability in harmony with the environmental capacity, there should be established in Mongolia the four economic regions composed of Western, Khangai, Central and Eastern regions and Ulaanbaatar city as the fifth independent region under the long-term regional development policy. Such regions, which are further composed of Aimags, Sums, districts and other settlements within their territories, should be set by the respective regional ways of

development, based on an integrated but comparatively independent structure among regional, urban and rural areas as follows:

- (a) Western region: Bayan-Ulgii, Govi-Altai, Zavkhan, Uvs and Khovd Aimags
- (b) Khangai region: Arkhangai, Bayankhongor, Bulgan, Orkhon, Uvurkhangai, and Khuvsgul Aimags
- (c) Central region: Govisumber, Darkhan-Uul, Dornogovi, Dundgovi, Umnugovi, Selenge and Tuv Aimags
- (d) Eastern region: Dornod, Sukhbaatar and Khentii Aimags
- (e) Ulaanbaatar region: Capital city, districts and satellite cities

2.5.2 Priority Area of Industrial Development and Objectives

The priority area of industries and services to be developed in each region is shown in Table 2.5-1.

Table 2.5-1 Priority Area of Industrial Development by Regions

Regions	Priority Area of Industries and Services
Western	Livestock husbandry using natural herding pasture, cropping with irrigation system, small and medium processing plants
Khangai	Livestock husbandry using natural herding pasture, cropping with irrigation system, tourism, health centres, vacation camps, small and medium industries, mining, processing plants
Central	Livestock husbandry using natural herding pasture and farming, cropping with irrigation system, tourism, health centres, vacation camps, small and medium industries, mining, processing plants, other high intellectual capacity manufacturing and services
Eastern	Livestock husbandry using natural herding pasture and farming, cropping with irrigation system, tourism, small and medium industries
Ulaanbaatar	All high intellectual capacity manufacturing and services, international banking and financial networks

Source: Government Resolution 161 "Policy of Regional Development of Mongolia" 2001

The objectives for regional development by the relevant standpoints are shown in Table 2.5-2.

2.5.3 Review and Elaboration of National Development Program

The review of the National Development Program having the target year of 2021 was ordered by the presidential decree of Mongolia dated 20 March 2002. It includes the review of all programs concerning the National Development that are currently being implemented and those being deliberated for finalization.

Table 2.5-2 Objectives of Regional Development by Standpoints

Standpoints	Objectives
Government Administration	<ol style="list-style-type: none"> 1. Setting legal environment 2. Defining strategies and improving planning, management & organisation structures for implementation 3. Support through budget, tax, investment & credit policies 4. Creating banking, financial & insurance structures 5. Promoting participation of economic entities, citizens & foreign investors 6. Expanding cooperation between/among Aimags, UB & villages 7. Coordination between government organisations & local governments 8. Promoting research, training, etc. 9. Improving local administration authorities' ability for policy implementation
Economic Organisations	<ol style="list-style-type: none"> 1. Setting network of small & medium production for full utilisation of capacity of regional nature, improvement of skills/ability of local people 2. Promoting ecologically clean products/services of international standards replacing imports, competitive on foreign markets 3. Elaborating the national development program of Govis & other underdeveloped areas 4. Developing cooperation between industries, cities, capital & villages in the same region 5. Elaborating Sums' development programs 6. Supporting activities of newly established domestic & foreign entities in the region 7. Supporting government on establishment of infrastructures & wholesale networks connecting regional centres & other cities/villages 8. Joining construction of the horizontal main road connecting regions with each other / with foreign countries
Environmental	<ol style="list-style-type: none"> 1. Provision of financial support for implementation of important regional/local projects 2. Creation of regional network monitoring information on changes in climate & natural disasters 3. Investigation/solution on the financing of Aimags/Sums regarding environmental issues 4. Promoting introduction of advanced technologies for preservation of natural resources 5. Improving management of special protected areas from development tendencies of regions, cities & villages 6. Creating appropriate conditions for revenue sharing of natural resources to Aimags/Sums in the same region 7. Setting independent regional environmental planning & management structures 8. Provision of complete solution of environmental development issues with foreign countries/investors
Social and Cultural	<ol style="list-style-type: none"> 1. In coordination with regions by supporting establishment of branches of universities/colleges, research & training centres 2. Elaboration for improvement of quality/accessibility of inter Sum hospitals by establishing regional diagnostic/treatment centres
Social and Cultural	<ol style="list-style-type: none"> 3. Creating inter Sum financial mechanisms in support of poverty relief and promoting creation of job opportunities by investors in Govis/remote areas by tax policy 4. Defining minimum level of life & insurance fees 5. Provision of additional salaries to government employees 6. Improvement working in Govis/remote areas of food supply and support for food safety by regional policies 7. Establishing professional cultural & art organisations to keep traditions & cultures of the nation and ethnic branches 8. Promoting cooperation in between local organisations and non-government organisations by exchanging working experiences in cities and countryside
Settling down population and Urban Development	<ol style="list-style-type: none"> 1. Elaboration/implementation for creation of the integrated establishment of regions, cities and towns 2. Elaborating appropriate scale/structure of cities & villages by considering basic directives, nature & climate, historical/cultural heritages, etc. 3. Elaborating general plan of cities to become centres of regions 4. Elaboration/implementation for development strategy & general plan of capital city & other regions for easing the excessive concentration of population, production & services in Ulaanbaatar city 5. Study of relocation of capital city to the central part of Mongolia by 2020 6. Creating integrated strategic management & planning structure for economic regions and urban establishment
International Cooperation	<ol style="list-style-type: none"> 1. Eastern region: Asian network of roads/railways:, Choibalsan-Ereentsav, Choibalsan-Sumber-Rashaant 2. Central region Asian-European trade-transportation relations:, Altanbulag-Sukhbaatar-Ulaanbaatar-Sainshand-Zamyn Uud 3. Western region: Trade-economic networks with Russia & China:, Tsagaan , Handgait, Arts Suuri, Bulgan and Burgastai Study for the connection to main horizontal axis towards Central Asia: Tavan Bogd 4. Khangai region: Trade-economic networks with Russia & China:, Baga-Ilenkhi, Khanikh, Teshig and Shivee Khren

Source: Government Resolution 161 "Policy of Regional Development of Mongolia" 2001

Also the decree has given ministries the instruction to clarify the ideology of the development of Mongolia and elaboration of each program. For conducting the review work the decree directed ministries to actively involve the political parties, scientific organisations and non-government organisations and representatives of the public in the process of elaboration, discussion and agreement on the draft program, as it is important that to monitor and reflect their opinions and suggestions towards the elaboration work. The review and elaboration works of the national development programs at most of the ministries have already been started and continuing.

2.6 Rural Area Overview and Development Issues

The sections from section 2.6 to 2.8 aims at seeking possibilities and position of rural telecommunication development from rural development needs point of view, through examination of sector development needs in consideration with social services improvement and economic development potentiality. The following shows the overview of existing conditions in rural area of Mongolia in conjunction with the rural development by effective telecommunication supports. The rural area in this section is defined as areas including aimag centres with some urban villages (towns) named as *urban* except Ulaanbaatar, sum centres and other nomad areas named as *rural* by the definition of Mongolia National Statistical Office (NSO).

Table 2.6-1 Definition of Rural Area

Definition	Category	Type of Settlement					
		Capital of UB	Aimag Centre	Village* (Town)	Sum Centre	Bag Centre	Others**
NSO	Urban	●	●	●	–	–	–
	Rural	–	–	–	●	●	?
This chapter	Rural Area	–	●	●	●	●	●

Note: * = According to NSO, "Village" is defined as settlement in which 500-15,000 people live by working for agriculture, tourism, industry and resort with independent governance.

** = Some settlements are observed in other area such as railway station surroundings without clear administrative position.

Source: Mongolian Statistical Yearbook 2000

2.6.1 Socio-economic Conditions in Rural Area

(1) Population and Settlement

(a) Population Growth and Rural Distribution

According to the report of "2000 Population and Housing Census of Mongolia", recent annual growth rate of population between 1989-2000 was lower position in the past 80 years while the highest growth rate was between 1969-1979 before revolution of former Soviet Union involving with many residents of

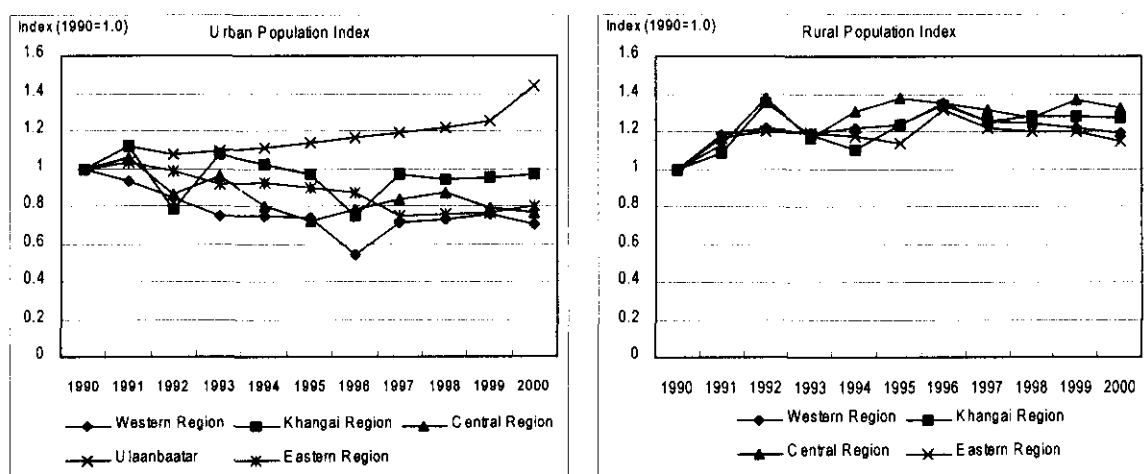
Russian citizen. Population of Mongolia increased some 330,000 to 2.4 million in 2000 from 1990 at an average annual growth rate of 1.5%. There were various changes between urban and rural area because of the revolution and economic conflict. Except Ulaanbaatar where economic immigrants from rural areas have been absorbed continuously, population of urban areas mostly decreased until 1996 and 1997 while rural population has constantly increased till 1997. Annual growth rate in urban area in Mongolia is 0.9% as total urban population in the past decade (1990-2000), in parallel rural area has increased its growth rate as 2.2%. Ulaanbaatar is only urban area where growth rate has increased constantly

Table 2.6-2 Growth Rate of Urban and Rural Population by Regions 1990 – 2000

Population	Region	1990-1993	1993-1997	1997-2000	1990-2000
Urban Area	Western	-9.2%	-1.8%	-2.0%	-3.5%
	Khangai	2.4%	-2.0%	1.1%	-0.3%
	Central	-1.3%	1.6%	-6.3%	-2.7%
	Ulaanbaatar	3.1%	2.3%	8.9%	3.7%
	Eastern	-3.0%	-6.7%	3.1%	-2.2%
	total	0.2%	0.5%	3.2%	0.9%
Rural Area	Western	5.9%	0.9%	-2.2%	1.7%
	Khangai	5.8%	4.4%	-0.5%	2.4%
	Central	5.2%	0.4%	2.1%	2.9%
	Eastern	6.0%	1.4%	-2.2%	1.4%
	total	5.7%	2.0%	-0.6%	2.2%

Note: Figures are annual average growth rate of 4 years.

Source: NSO



Source: NSO

Figure 2.6-1 Urban and Rural Population Change by Regions 1990 – 2000

(b) Dispersed Settlement

Mongolia is one of the most sparse settlement countries in the world. Average population density of the country is 1.52 persons/km² (p/km²) while Umnugovi aimag as the lowest density is 0.27 p/km². In rural areas Eastern region is the lowest density region (0.69 p/km²) followed by Central Region (0.92 p/km²) while Khangai region (1.42 p/km²) has higher density with a big city of Erdenet in Darkhan-Uul aimag.

(c) Local Administration and Urban Services

The local administration consists of 21 Aimags as provinces and 356 Sums and 1,634 Bags (or Khoros) as towns or rural districts including special township of mining urban area and other urbanized area. The settlements in the hierarchy are Aimag with an average population of 24,000. 331 Sums except Ulaanbaatar with an average population of about 3,300 cover the rural and nomadic populations. In Sums, urbanized settlements are considered as Sum Centres with an average population estimated at 1,100. Each rural district is further divided into smaller administrative units, usually 4 to 6 sub-districts as Bag, each consisting of 70 to 120 families.

Long distance among administrative and economic service towns such as Aimag Centres, Sum Centre and Bag Centre is also essential issues to overcome their inconvenient communication and economic activities in terms of accessibility. Average distance between Aimags and Sums Centres is 13.1 km (4 hours by car) from each other, and between Sum Centres and Bag Centres is 45km (1.3 hours by car). Some social survey indicates that possible distance for commute of pupils by horses is within 50 km to a school.

(d) Urban and Rural Settlement Pattern in Rural Area

The population in the rural area has different compositions of aimag centres (urban) and sum centres with other rural settlements (rural) depending on each region's character. Rural population defined by NSO in the Western and Khangai region have majority of total population. Urban population of aimag centres in the Central and Eastern region occupies more settlement than others. This implies that especially sum centres in the Western and Khangai region are burdened with heavier role of urban services for other rural settlement than the Central and Eastern regions.

Table 2.6-3 Administration Units and Geographical Conditions

	Aimags	Aimags Centre	Number of Units		Population Density per km ²	Average Time Distance	
			Sums	Baghs and Khoroods		Aimags C – Sum C – km (hours)	Sum C – Bag C – km (hours)
Western Region	1. Bayan-Ulgii	Olgii	14	81	2.06	119 (3.4)	50 (1.4)
	2. Uvs	Ulaangom	19	89	1.26	153 (4.4)	49 (1.4)
	3. Khovd	Khovd	17	85	1.17	124 (3.6)	53 (1.5)
	4. Zavkhan	Uliastai	24	113	1.06	117 (3.4)	67 (1.9)
	5. Govi-Altai	Altai	18	83	0.47	169 (4.8)	73 (2.1)
	sub-total		92	451	1.03	136 (3.9)	59 (1.7)
Khangai Region	6. Khovsugul	Muren	24	119	1.17	185 (5.3)	59 (1.7)
	7. Arkhangai	Tsetserleg	19	99	1.77	178 (5.1)	47 (1.3)
	8. Bayankhongor	Bayankhongor	20	97	0.73	119 (3.4)	65 (1.4)
	9. Bulgan	Bulgan	16	74	1.24	148 (4.2)	31 (0.9)
	10. Orkhon	Erdenet	2	11	85.22	176 (5.0)	25 (0.7)
	11. Uvurkhangai	Arvaikheer	19	107	1.81	136 (3.9)	45 (1.3)
	sub-total		100	507	1.42	155 (4.4)	50 (1.4)
Central Region	12. Selenge	Sukhbaatar	17	47	2.30	92 (2.6)	12 (0.4)
	13. Darkhan-Uul	Darkhan	4	24	25.71	245 (7.0)	4 (0.1)
	14. Tuv	Zuunmod	27	102	1.33	44 (1.3)	31 (0.9)
	15. Dundgovi	Mandalgovi	15	72	0.69	154 (4.4)	54 (1.5)
	16. Umnugovi	Dalanzadgad	15	54	0.27	176 (5.0)	36 (1.0)
	17. Govisumber	Choir	3	9	2.18	3.12 (11.8)	29 (0.8)
	18. Dornogovi	Sainshand	14	50	0.45	124 (3.6)	56 (1.6)
	sub-total		95	358	0.92	123 (3.5)	36 (1.0)
Ulaanbaatar	UB-capital	Ulaanbaatar	9	117	164.60	-	-
Eastern Region	19. Khentii	Undurkhaan	17	79	0.85	197 (5.6)	45 (1.3)
	20. Sukhbaatar	Baruun-Urt	13	66	0.67	189 (5.4)	37 (1.1)
	21. Dornod	Choibalsan	14	56	0.60	171 (4.9)	54 (1.6)
	sub-total		44	201	0.69	186 (5.3)	45 (1.3)
Total			340	1634	1.52	141 (4.0)	45 (1.3)

Note: Time distance is calculated by average car speed of 35 km/hr.

Source: NSO 2000, PTA (Post and Telecommunication Authority) 2001

Aimags centres and sum centres play an important role in offering urban services for local economic activities and daily life commodities to rural settlements. Typical aimags centre with 3,000 - 4,500 households has central function of satisfied urban services with commercial, business and administrative facilities in the aimags. On the other hand, many of sum centres embracing 200 - 300 households without sufficient infrastructure and urban service in spite of existence of rich skeleton developed by former socialism administration such as central heating facilities and big factories for agriculture. Bag areas sometimes

with conventional housing having limited community's services as Bag centres consist of vast pasture and scattered Gers for herders of livestock.

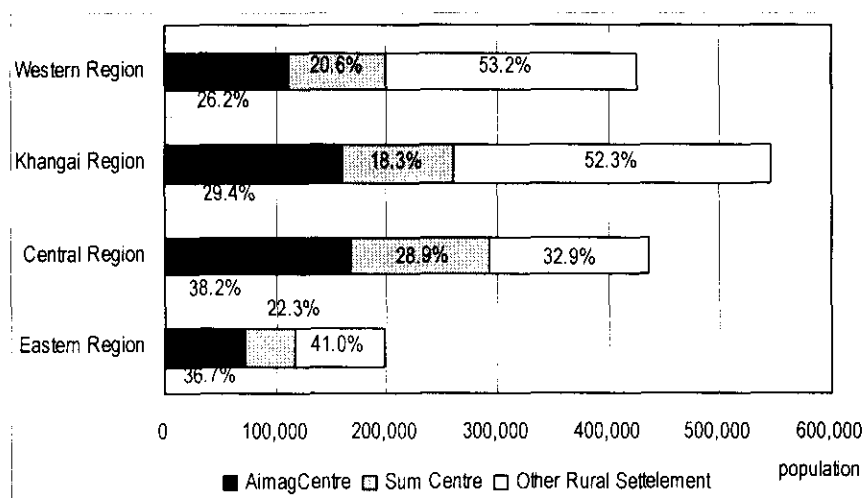
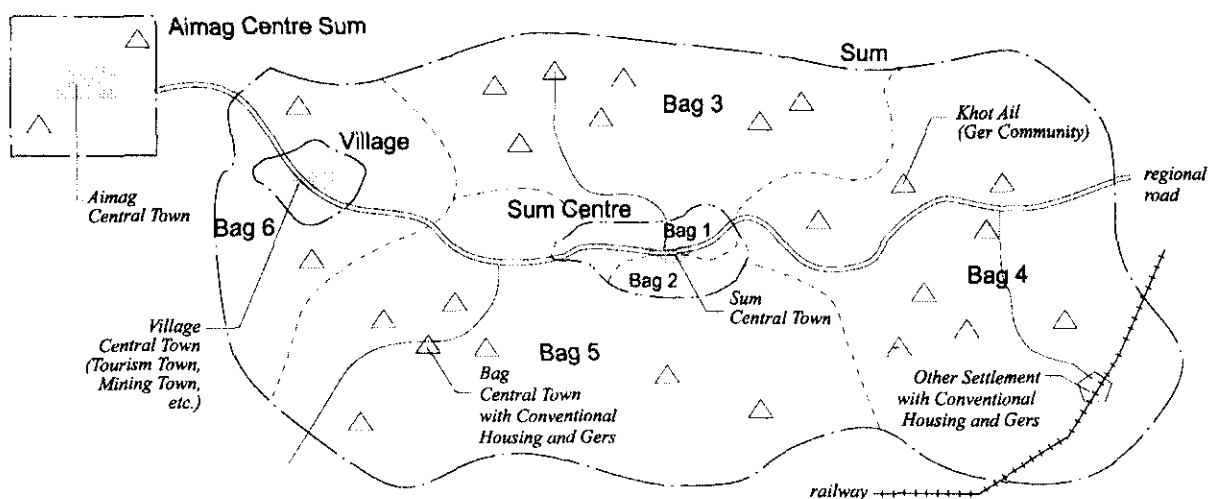


Figure 2.6-2 Rural Area Population by Settlement Type in 2000



Source: JICA study team

Figure 2.6-3 Typical Spatial Structure of Rural Area in Mongolia

Table 2.6-4 Typical Settlement Pattern and Urban Services

Settlement Hierarchy	Typical Urban Services		Typical Settlement
	Public	Private	
Aimag Centre (AC)	<ul style="list-style-type: none"> Local administrative office, central branch, institutions Social Services (school, kindergarten, hospitals, security, social-welfare facilities, culture, etc) Utilities (elec., water, heating system, post & telephone, waste) 	<ul style="list-style-type: none"> Commercial (retail, wholesale, restaurant) Business (bank, business services, etc) Manufacturers and factories Transportation, gas station 	<ul style="list-style-type: none"> Conventional Housing (CH): 1,000 – 2,000 households Traditional Ger (TG): 2,000 – 2,500 households Total: 3,000 – 4,500 households
Village (Town)	<ul style="list-style-type: none"> Ditto 	<ul style="list-style-type: none"> Ditto 	<ul style="list-style-type: none"> CH: 100 – 300 households TG: 50 – 300 households Total: 150 – 600 households
Sum Centre	<ul style="list-style-type: none"> Local administrative office Social Services (school, kindergarten, hospitals, security, social-welfare facilities, culture, etc) Utilities (elec., water, post & telephone, waste) 	<ul style="list-style-type: none"> Commercial (retail, restaurants) Business (bank, business services, etc) Manufacturers and factories Transportation, gas station 	<ul style="list-style-type: none"> CH: 100 – 140 households TG: 100 – 160 households Total: 200 – 300 households
Bag Centre and Khot Ails	<ul style="list-style-type: none"> Kindergarten, Social-welfare facilities Wells, etc 	<ul style="list-style-type: none"> Small retail shops Manufacturers and factories Transportation, gas station 	<ul style="list-style-type: none"> CH: 15 – 50 households TG: 50 – 1,600 households Total: 70 – 1,700 households

Source: JICA study team, Population and Housing Census 2000/ NSO

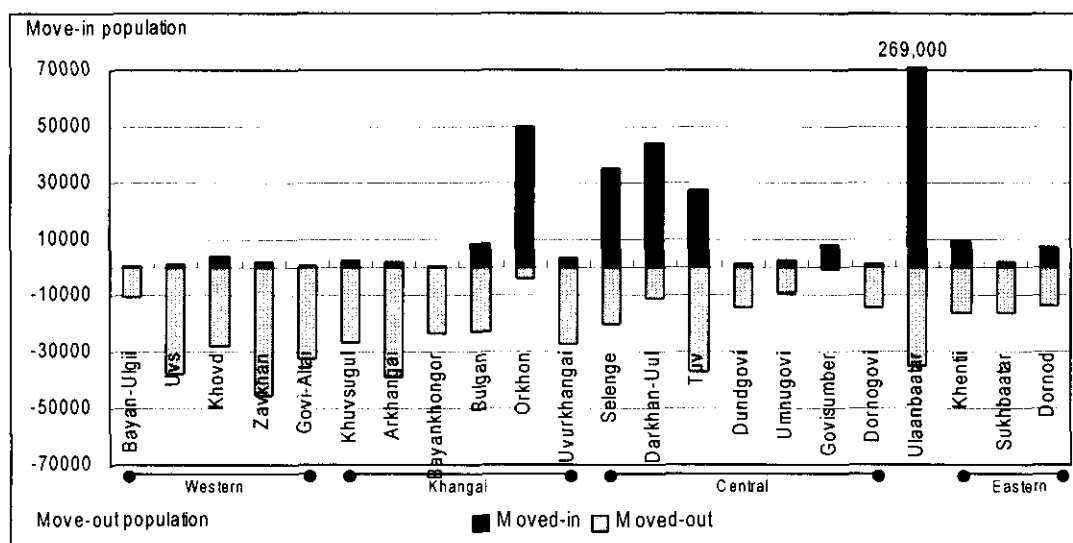
(e) Regional Migration in Mongolia

One of the big issues of settlement in Mongolia is internal migration of rural people, especially to the capital of Ulaanbaatar and other major cities due to various opportunities of employment and attractive urban service in Ulaanbaatar and other major cities. The rapid growth of Ulaanbaatar in recent two years with heavy in-migration from the rural area makes unbalanced economic activities and accumulation of wealth. The Western region lost the largest population to migration shown in both case of one-year migration (Table 2.6-5) and lifetime migration (Figure 2.6-4) defined as of migrants from place of birth at any time during lifetime. The Central region was clearly affected by migration in both case of move-out and move-in population such as Tuv and Selenge aimags.

Table 2.6-5 One-Year (2000) Migration in Mongolia

Region	Moved-in	Moved-out	Migration	Rate*
Western Region	4,489	-16,476	-11,987	-2.8 %
Khangai Region	12,455	-18,429	-5,974	-1.1 %
Central Region	19,776	-21,759	-1,983	-0.5 %
Ulaanbaatar	41,985	-9,307	32,678	4.2 %
Eastern Region	3,248	-8,077	-4,829	-2.4 %
Total	81,953	-74,048		

Note: Migration rate = migration population per total population 2000, Unit: person
 Source: 2000 Population and Housing Census of Mongolia



Note: Life time migration = number of migrants from place of birth at any time during life time
 Source: 2000 Population and Housing Census of Mongolia

Figure 2.6-4 Life Time Migration Condition by Aimags in 2002

(2) Poverty in Rural Area

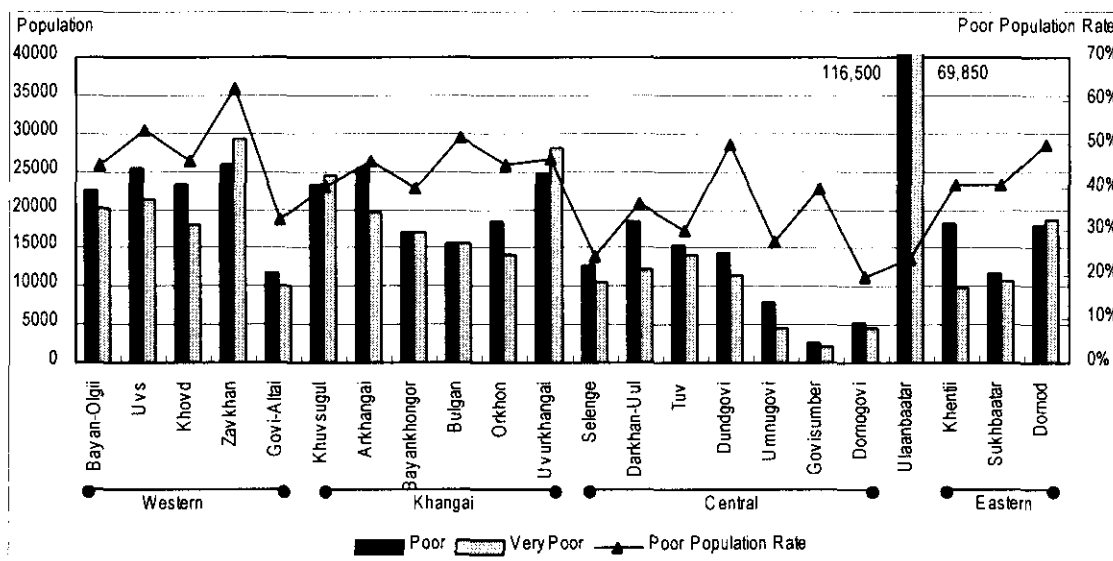
The Living Standards Measurement Survey (1998) indicates that number of poverty people tend to increase in urban areas of remote regions as well as in Ulaanbaatar. Also, rural areas face the problems of the rural poor including limited access to social services and fewer opportunities to work the jobs, while aimag centres especially related to industrial towns and Ulaanbaatar face serious problems of the urban poor as jobless people including dole-drawers. According to the Ministry of Social Security and Labour, poor population was surveyed in 2001 based on the poverty line settled by the living standard measurement of NSO shown in the following table. As the result, total poor people have 36% share of total population. People who live in the Western and Khangai regions are comparatively poorer than the central and eastern regions. Zavkhan aimag indicates the highest share of poor people followed by Uvs, Bulgan, and Dundgovi aimags.

Table 2.6-6 Poverty Line Definition of NSO by Household Expenditure

Unit: Tugluk / month / person

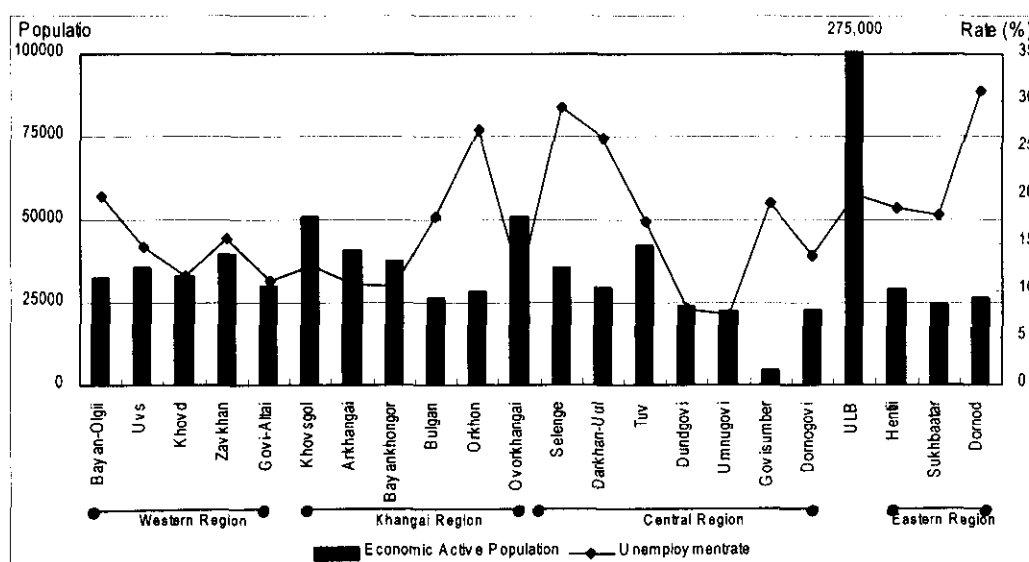
Year	Household Expenditure
1997	10,400
1998	14,700
1999	17,600
2001	19,300

Source: Ministry of Social Security and Labour



Source: Ministry of Social Security and Labour

Figure 2.6-5 Poor Population by Aimags



Source: 2000 Population and Housing Census of Mongolia, NSO

Figure 2.6-6 Economic Active Population and Unemployment by Aimags

2.6.2 Economic Region for Regional Development of Mongolia

According to the resolution No.57 “Approval of Directives for the Regionalized Development of Mongolia” as a policy on regional development which is a legal basis and the implementation of the objectives approved on June, 2001 by the State Great Hural, the economic regions to promote economic development with united and differentiated policy in consideration with socio-economic relationship among aimags. Aimags are allocated as following five economic regions in Table 2.6-7. And urban centres and sub-centres that will play an important role in serving others towns and rural areas for public services and leading economic development for five economic regions have been proposed by Ministry of Infrastructure as follows.

Table 2.6-7 Economic Regions and Function for Regional Development

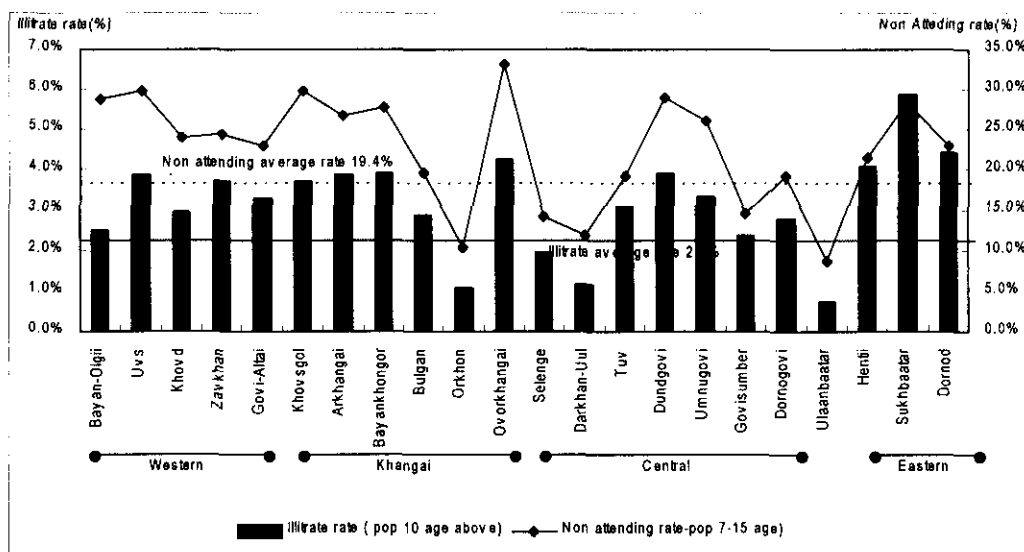
Region	Aimags	Regional Centre	Sub-Centre	Population (,000 pop)	Economic GRDP/bil.Tog
Western Region	Bayan-Ulgii, Uvs, Khovd, Zavkhan, Govi-Altai	Uliastai	Khovd	421.6	149.78
Khangai Region	Khuvsugul, Arkhangai, Bayankhongor, Bulgan, Uvurkhangai	Kharkhorin (historical centre)	Erdenet, Muren	545.7	253.25
Central Region	Selenge, Tuv, Govisumber, Dundgovi, Umnugovi, Dornogovi	Ulaanbaatar	Darkhan, Baganuur, Sanishand	443.6	135.98
Ulaanbaatar Region	Ulaanbaatar sum as Capital of Mongolia		–	760.1	570.27
Eastern Region	Khentii, Sukhbaatar, Dornod	Choibalsan	Baruun-Urt	202.4	87.72

Source: A Planned Objective to Promote Population Location and Settlement/ MOI, 2000, Resolution No.57 “Approval of Directives for the Regionalized Development of Mongolia”, NSO

2.6.3 Sector’s Position and Development Issues

(1) Education

Although Mongolian education system had been developed by government policies and programmes with successful achievement represented as high literacy rate, rapid changes by social transition to democracy and free market system since 1990 has created difficulties and hardships involving the whole education system.



Source: 2000 Population and Housing Census /NSO

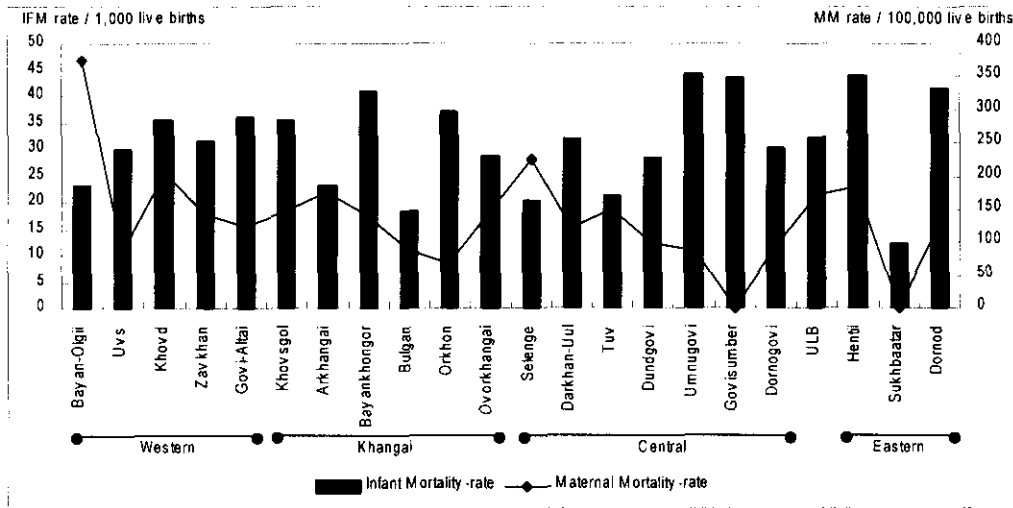
Figure 2.6-7 Illiterate Rate and Non-attending Rate of School by Aimags

The following are major issues of educational sector of rural areas to be improved focusing on improvement of education quality, capacity building and non-formal education encouragement.

- Establishing rational educational management system with modern technology facilities, training program and cost reducing in this sector in Mongolia.
- Enhancing fundamental education system such as teachers training, pre-school improvement, primary and secondary education improvement.
- Ensuring technical education and vocational training (TEVT) through teachers training, facilities improvement and curriculum development
- Expanding educational opportunities in remote rural area by introducing *Distance Education* system as non-formal education sector including adult education and school students through radio, TV, and other telecommunication systems.

(2) Health and Social Welfare

Although Mongolia has an extensive medical and public health system, Government has promoted to downsize, decentralize and privatise some elements of health care system in order to improve cost-effectiveness and quality of care. This may affect rural health care system due to difficult transport and communication links.



Source: Population and Reproductive Health in Mongolia/NSO-UNFPA

Figure 2.6-8 Infant Mortality Rate and Maternal Mortality Rate by Aimag

Issues in the health sector include various needs such as strengthening primary health care, encouraging private sector participation in health service delivery, upgrading the health referral network, etc. The followings are major issues of health sector of rural areas to be tackled and improved.

- Improving and securing adequate medical equipment and medicines via fulfilling present shortage as well as renovation of the existing inventory, especially for emergency medical care or removable physical clinic in rural area with telecommunication system
- Improving overall management of the health system and quality of personnel in Aimag and Sum centres in rural areas
- Improving quality of and access to drinking water – as well as control over the safety and quality of food products
- Creating specialized regional medical centres with improved distribution of health services in combination with remote medical care system connecting with experts and staffs of central
- Enhancing social welfare services to look after health of the vulnerable groups by social insurance system or social fund to support them financially

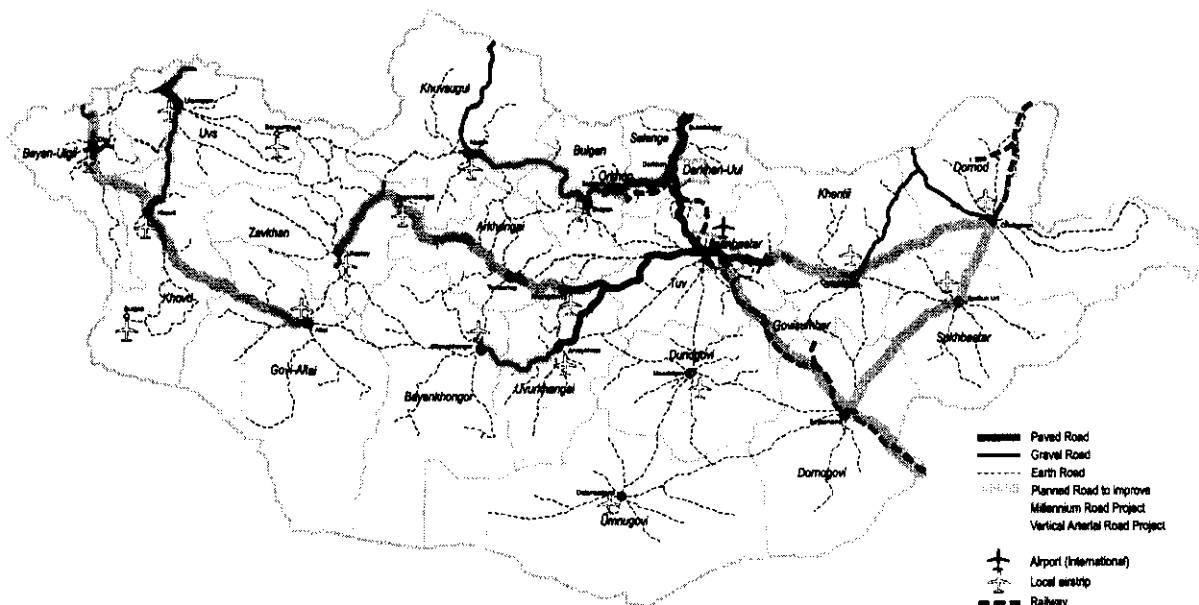
(3) Infrastructure

Infrastructure of Mongolia is essential elements to support people’s daily life, economic activities and social services. However, Mongolia has faced difficulties of

infrastructure improvement and development due to its vast land and dispersed settlements since 1990 after transition years with withdrawal of Soviet aid. The government intends to launch several programmes and projects to improve infrastructure in rural area as a priority sector in accordance with regional development strategy financed by international donors. The issues of infrastructure of transportation and utilities in rural areas can be briefly summarised as follows.

(a) Transportation Issues

- Consolidating freight capacity of railway in order to support export industry between Mongolia and China with seaports.
- Securing and supporting road construction system by adequate construction material and equipment in order to improve road network that supports efficient transport of goods and commodities.
- Establishing regional road network to connect major Aimag centres in the country through development of “Millennium Road” as the east-west corridor and each horizontal roads in the economic region connecting with the Millennium Road
- Improving airport facilities including navigation and operation system for civil aviation focusing on important airports contributing tourism sector.



Source: MOI

Figure 2.6-9 Infrastructure and Road Development Programme in Mongolia

(b) Utilities in Rural Area

The followings are major issues for utilities improvement or development of rural settlement areas based on the survey result of “2000 Population and Housing Census- Statistical Booklet: Housing”.

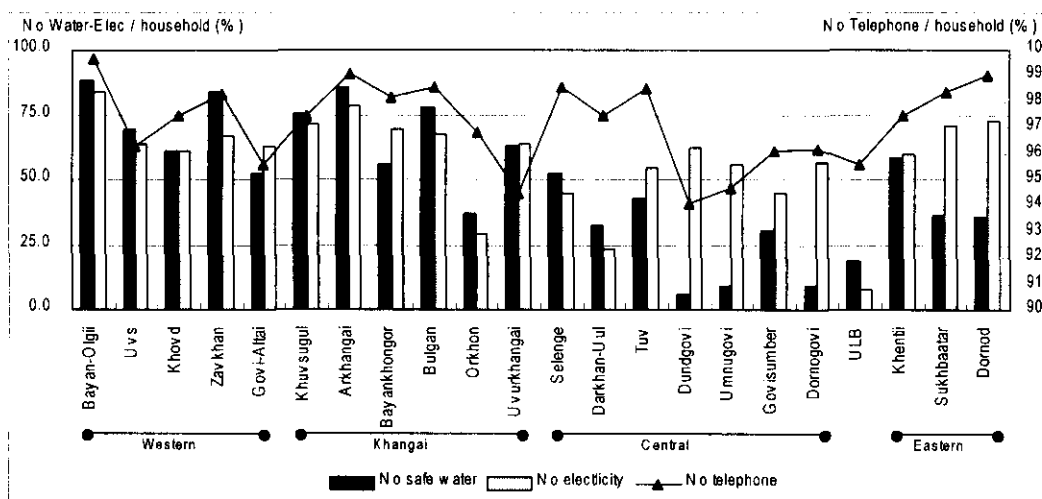
- Improving basic urban services in aimag and sum centres such as safe water, sanitary system and electricity to secure basic living environment taking account of efficient and effective investment on strategic area (e.g. Western and Khangai regions) and of guiding desirable settlement.
- Providing effective utilities services as common places in strategic area of integrated sum centres or other communities with wells, in parallel universal basic utilities such as solar energy system and other necessary utilities with cheap investment costs.
- Formulation of public awareness for water resource, sanitary method in rural area settlement, mainly Ger house area in order to promote hygienic improvement.

Table 2.6-8 Utilities Condition of Conventional Housing and Traditional Ger

Area*	Share in total households of conventional housing (%) (49.1%)				
	Household	No safe water access	No toilet inside of house	No electricity access	No telephone
Urban	71.7	7.0	42.1	1.5	62.0
Rural	28.3	44.5	97.1	32.0	93.2
Total	100.0	14.5	53.1	7.6	68.4
Share in total households of traditional Ger (%) (50.9%)					
Urban	21.7	26.3	93.9**	15.1	92.5
Rural	78.3	63.8	66.9**	75.2	98.9
Total	100.0	52.4	75.1**	56.9	96.9

Note: * = Area of NSO definition, ** = In case of Ger, no toilet outside of Ger.

Source: 2000 Population and Housing Census /NSO



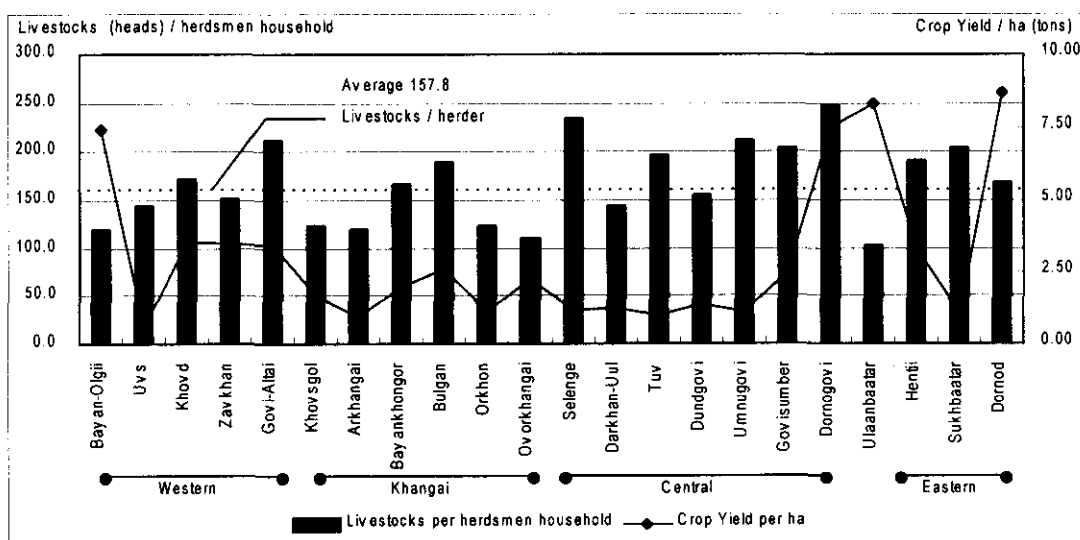
Source: 2000 Population and Housing Census /NSO

Figure 2.6-10 Utilities Condition of Traditional Ger by Aimag

(4) Livestock and Agriculture

The primary focus of agricultural production in Mongolia is on livestock husbandry with some limited crop farming of wheat, barley, oats, and vegetables in wetter northern areas of the country. Crop farming is relatively new activity in the country, and was developed primarily through large state farms. The major constrains undermining the performance including undeveloped agricultural marketing system, relatively low activity level of cooperatives, limited institutional capacity of sectoral agencies and ill-management of the livestock disaster in winter. Economic activity in rural areas includes small-scale agro-processing and micro-enterprises in areas such as trading, retailing. On the other hand, micro-enterprises of agriculture sector are small family concerns that operate on a part-time, informal basis as a result of constraints caused by a lack of access to raw materials and credit for both investment and working capital. The followings are major issues of agriculture sector of rural areas to be tackled and improved.

- Establishing stable and competitive livestock and agricultural industry with modern production technology, effective marketing and efficient logistic system (storage and processing centre) as a core industrial sector in Mongolia.
- Securing and supporting livestock industry by safe and hygienic production system with adequate disease protection measures and veterinary services.
- Ensuring management and production system by adequate organization or institution for technical and financial cooperation with herders and farmers.
- Creating and developing added value of livestock industry against less competitive condition of processing and export oriented production.



Source: Mongolian Statistical Yearbook 2000/NSO

Figure 2.6-11 Livestock per Herder and Crops Yield per Sown Area (ha) by Aimags

(5) Mining Sector

At present, the mining sector is the largest industry of Mongolian industry having 54.7% share of industrial sector output (8.5% of total GDP) of which share area gradually increased and more than 40.5% of total export earnings in 2000. However, each output of selected mining commodities indicates a little increase or decrease number within 5 years from 1995, and seems to reach the limit of production. The Government has made efforts to take several measures for supporting mining industry and its business environment and conditions including institutional measures (tax and licence system, etc), development and improvement of major plants for Erdene/Orkhon, Tumor Tiin-Ovoo/Dornod and Tsagaan Els/Dornogovi, and potential mineral deposits remain several issues to be improved shown in the following issues.

- Establishing stable and competitive mining industry with modern technology as one of the most stable and important industrial sector in Mongolia.
- Securing and supporting mining industry by efficient infrastructure such as power supply and access road with adequate environmental protection measures.
- Ensuring management and operational system in order to meet international market requirement such as quality control, payment system, by adequate support by the Government for foreign investment.
- Creating and developing added value of mining industry against less competitive condition of accessibilities to resources.

Table 2.6-9 Major Mineral Resources and Fields/Deposits

Resource	Western Region	Khangay Region	Central Region	Ulaanbaatar Region	Eastern Region	World Ranking*
Copper	–	Erdene/OR	SurvenSukhait / DG	–	–	18
Lead-Zinc	–	–	–	–	Ulaan,TumorTiin-Ovoo/DD	Under 45
Tu&Ti, Mol	–	–	–	–	OndorTsagaan/HE, Yogodzer/DD	Tu-11, Mol-10
Gold, Silver	Asgat/BO	–	Boro/SE, Hailast/TU	–	–	Gold-24, Sil-28
REE & Metal	Halzan-Buregtei/KH	–	Lugeengol/DG	–	–	Under 7
Fluorspar	–	–	UrgenOre/DG	–	BorUndur/HE	4
Coal	–	–	TavanTolgoi/UM, Baganuur/TU	–	–	–
Oil	Western Block /KHD, BO, UV	–	Zuunbayan, TsagaanEls/DG,	–	Tamtsgag/DD	–

Note: Tu&Ti, Mol = Tungsten, Tin and Molybdenum, REE = Rare Earth Elements, Ranking = World production of mining ranking 2000, BO-BayanOlgii, DG-Dornogovi, DD-Dornod, DU-Dundgovi, ZA-Zavkhan, OV –Ovorkhangai, UM-Umnugovi, SE-Selenge, TU-Tuv, UV-Uvs, KHD-Khovd, HE-Hentii, OR-Orkhon

Source: Mineral Resources Authority of Mongolian/MOI, Mineral Commodity Summaries 2002/USGS

(6) Manufacturing Sector

Manufacturing sector is playing an important role in supplying commodities for domestic consumption of livestock and agriculture production in Mongolia and earning foreign currency by exports of agro-processing products such as cashmere and wool industry, of which production is currently the largest export item (31.3% of exports) from Mongolia.

However, major manufacturing industries utilizing livestock and agricultural products face several development problems not to able to improve their productivities shown in Table 2.6-10, due to limitations in management and international marketing skills, shortages in operating and investment capital, managing technology, inefficient production processes and trading issues between neighbouring countries such as tax and unbalanced trade.

Table 2.6-10 Manufacture Product Share and Selected Products Index

Major Manufactures	1995	1996	1997	1998	1999	2000
share/Total GDP	33.9%	39.1%	34.4%	33.2.%	33.6%	32.4%
Index of Selected Manufacturing production (1995=100)*						
Food & beverages	100	76.4	76.1	73.4	64.9	63.7
Textile	100	113.3.	90.0	98.8	103.1	88.0
Apparel (dressing, fur)	100	64.6	83.3.	83.6	95.4	110.1
Leather products	100	46.4	18.1	15.2	5.8	10.2
Wooden products	100	113.1	91.6	88.5	63.9	62.0

Note: Index is based on Gross Industrial Product by constant prices of 1995

Source: Mongolia Statistical Year Book 1999, 2000

For local manufacturing industry, the Government is planning to implement several development programs to enhance manufacturers in rural area through “*Wholesale Network Program*” including rural trade improvement programs. The followings are major issues for local manufacturing industry.

- To impose adequate export tax for raw material of livestock and agricultural products in order to reduce raw material export
- To secure raw material reserve to support local manufacturers
- To renovate manufacturing equipments and introduce modern technology
- To enhance market and promotion for manufacturing products to the world through research and design development for competitive quality of products
- To establish “*Wholesale Network Program*” through;
 - Establishing procurement points in rural area for cashmere, wool, etc.
 - Developing primary processing points for raw materials of livestock and crop products in urban centres such as Aimag centre or integrated Sum centre
 - Improving procurement system (standard, price, quality control, training, etc)

(7) Tourism

Mongolia tourism is underdeveloped in spite of rich and attractive tourism resources, especially unspoiled nature and unique Mongolian culture of the nomads. The government of Mongolia has identified tourism industry as a priority sector to enable to contribute to the local economy by earning foreign currency in rural area. The Government has several investment plans to promote and upgrade tourist services facilities and infrastructure in major destinations of Harhorin and South Govi desert based on the Tourism Master Plan. In parallel, Mongolian Tourism Board with Tourism Foundation has launched recently international marketing and promotion activities targeting Asian countries. Although other tourist areas are expected to develop or improve their tourist services and facilities, many issues show in below remain to be solved.

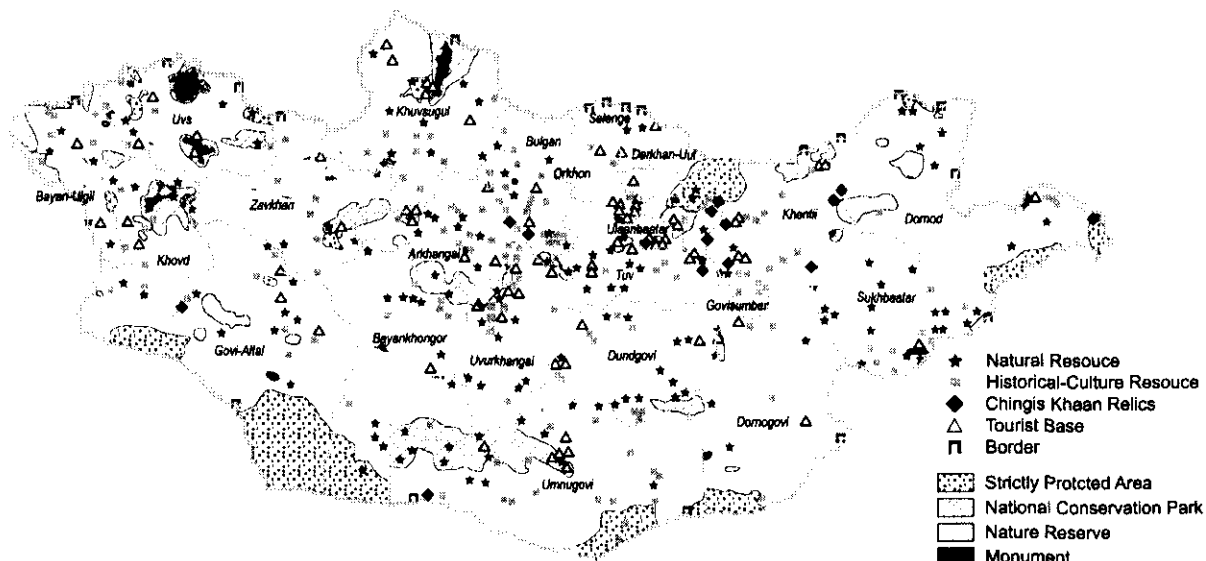
- Improving basic tourism infrastructure such as air access, electricity and telecommunication system, land transportation and other utilities and sanitary to meet international tourism standards and future increase of tourists
- Providing proper tourist service staff through development of human resource
- Preparing adequate tourist facilities to facilitate tourist area attractiveness
- Establishing “Mongolian Tourism Image” as nature and people friendly tourism without any deterioration of attractive nature.

Table 2.6-11 Potential Tourism Resources and its Distribution by Tourism Areas

Economic Region	Tourism Zone	Tourism Area	Character	Number of Attractions		
				Resources		Tourist Base*2
				Nature	H&C*1	
Western Region	Zone A	Ulgii	Glacial rivers and freshwater mountain lakes	48	32	12
		Khovd	Snow covered mountains			
		Ulaangom	Uvs lake, Tes river valley and Altan Els			
	Zone B	Uliastai	Uliastai river and Telemen lake and forest			
		Govi-Altai	Sand dunes, Oasis rare plants and animals			
Khangai Region	Zone C	Moron	Khuvsgol lake	66	61	42
		Bayankhongor	Galuut canyon			
		Harhorin	Kharakhorum and Orhon river			
Central Region	Zone D	Dalanzadgad	South Govi desert	62	54	33
Sukh&Darhan		Northern Cities				
Ulanbaatar		Ulaanbaatar	Gateway as Capital city	4	13	30
Eastern Region	Zone E	Chinggis Khaan	Birth place of C. Khaan	41	41	8
		Shilinbogd	Ganga lake and Taliin cave			
		Choibalsan	Menen steppe and Buyr lake			

Note: H&C = Historical and cultural resources, Tourist base includes tourist camp and holiday sanatoria

Source: Tourist Map of Mongolia 2000, Mongolia in the Steppes of Chinggis Khan / MOI



Source: Tourist Map of Mongolia 2000, Mongolia in the Steppes of Chinggis Khan / MOI

Figure 2.6-12 Potential Tourism Resources and its Distribution in Mongolia

(8) Environment

Because of the disregard for environmental concerns prior to 1990, environmental pressures have risen. Water and air pollution, deposits of toxic wastes, desertification, deforestation, groundwater depletion, soil erosion, and overgrazing have become considerable problems. Since 1990 the policy of the Government with respect to environmental issues has changed. There is now greater concern for the environment and new legislation has been adopted. However, the institutional, monitoring and enforcement framework are still weak and recent Dzuds have highlighted the vulnerability of the economy to natural disasters and the importance of improving disaster preparedness. Major issues are;

- Providing proper service and facilities to prevent environmental deterioration and water resources from environmental pollution in urban and industrial areas with adequate monitoring system and institutional arrangements
- Managing and protecting the land in combination with natural environment, livestock utilization and crop farming without any deterioration of the land.
- Protecting biodiversity involving rural communities, especially in sensitive nature area such as buffer zones around protected areas with adequate services and public awareness
- Controlling the effect of natural disasters by enforcement of the law on natural disasters, emergency system for disaster mitigation and management

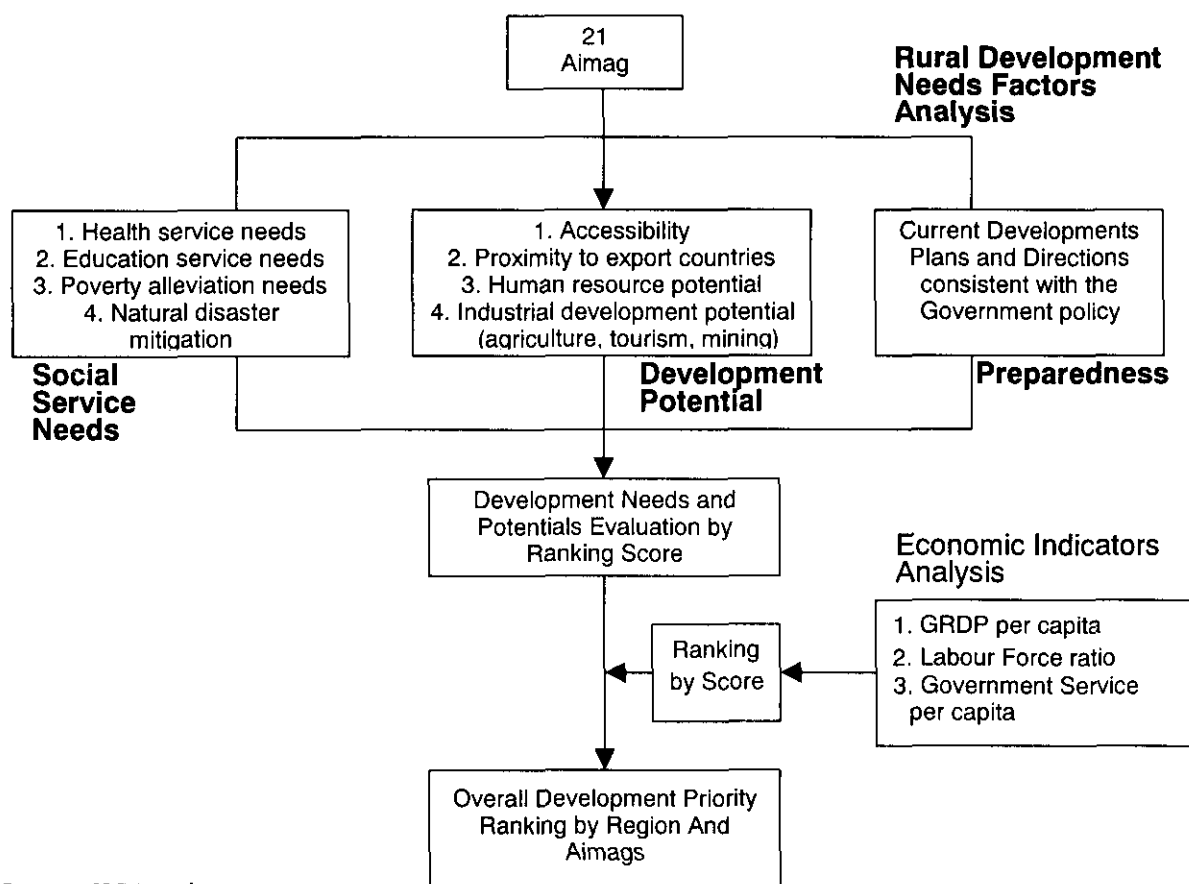
2.7 Rural Area Development Strategy

2.7.1 Diagnosis for Rural Development Needs and Potentials

In order to define potential and necessary areas for the rural development in conjunction with the study for the priority development analysis for rural telecommunication network, diagnosis for this purpose has been done as relative analysis among 21 Aimags from social services needs and economic development potential points of view.

(1) Methodology

The rural areas consisting of 21 aimags except Ulaanbaatar are analysed by agglomerate factors evaluation quantified by correlative scores in conjunction with rural development elements of “Rural Development Needs Factors” and “Key Economic Indicators Factors”. For this analysis the following component and steps has been done.



Source: JICA study team

Figure 2.7-1 Analysis Flow for Development Potential and Needs in Rural Area

- (a) **Step 1 Rural Development Needs Factors I analysis: *Social service needs***
Health and educational services, poverty alleviation and social security that are urgent issues for the rural development to fill the gap between Ulaanbaatar and other rural areas as soon as possible are applied to social services needs analysis.
- (b) **Step 2 Rural Development Needs Factors II analysis: *Development potentials***
This analysis seeks the potentials of economic development in terms of magnitude of existing production and future potential resources for livestock-agriculture, tourism and mining industry in consideration with accessibilities to markets (e.g. population distribution).
- (c) **Step 3 Rural Development Needs Factors III analysis: *Preparedness***
Taking account of implementation and effectiveness of rural development, analysis for preparedness by governmental plans in terms of telecommunication supports is an important factor. Development plans of all sectors for rural areas as evaluation factors are analysed whether rural development will be supported effectively and sufficiently by the governmental sector or not.
- (d) **Step 4: Development needs and potentials evaluation by ranking**
In order to define Aimags for rural development needs and potentials totally among three analysis components above mentioned, overall evaluation is scored by ranking points.
- (e) **Step 5: Economic indicators analysis**
Key economic indicators show present magnitudes of each Aimag economic activities reflecting on economic development maturity grade. Key economic indicators including GRDP/capita, labour force ratio, etc. are selected as evaluation factors are analysed additionally to seek active aimags economically. This evaluation is also scored by ranking point.
- (f) **Step 6: Overall Development Priority Ranking by Region And Aimags**
The result is evaluated as the development priority ranking of Aimags in conjunction with the study for priority projects selection analysis from rural development needs point of view, however it should be considered that this evaluation result gives only the view of rural development by equal conditions among factors of social service, economic development potentials and the government plans and programmes without weighting consideration.

Each analysis component above mentioned is assessed by the following criteria based on evaluation factors with several attributes in consideration with quantitative data available to be obtained by each Aimag level.

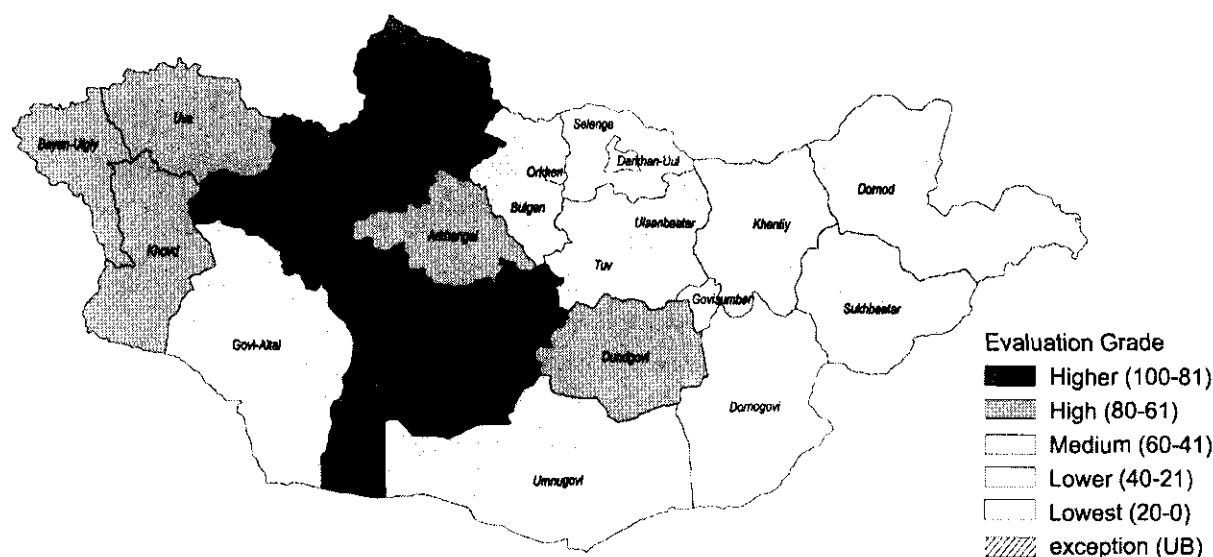
Table 2.7-1 Evaluation factors and criteria

Component	Evaluation Factors	Evaluation Criteria by Aimags
Social Service Needs	Health service needs	Infant mortality rate, doctors & nurse rate index
	Education service needs	Distance education needs by students ratio of dormitories' and herdsmen's student index
	Poverty alleviation needs	Poor population ratio index
	Natural disaster mitigation	Livestock lost rate index
Development Potentials	Accessibilities to cities	Distances to UB, distances between Aimag & Sum Centres
	Proximity to borders	Railway distances ratio index to Russia, China borders
	Potential natural resources	Livestock ratio per herder & crop yield rate per sown, number of tourism resources index & accommodation capacity index, number of mining licences index
	Potential human resources	Rural population rate index by aimags
Preparedness	Consistency with government development policies	Number of government projects and programmes by sectors from Action Programmes and other future visions, projects
Key Economic Indicators	Gross regional domestic products	GRDP per capita
	Labour force	Economically active population ratio by total population
	Public service magnitude	Government budget expenditures per capita (all public service sectors)

Source: JICA study team

2.7.2 Evaluation of Rural Development Needs and Potential in Rural Area

(1) Social Services Needs



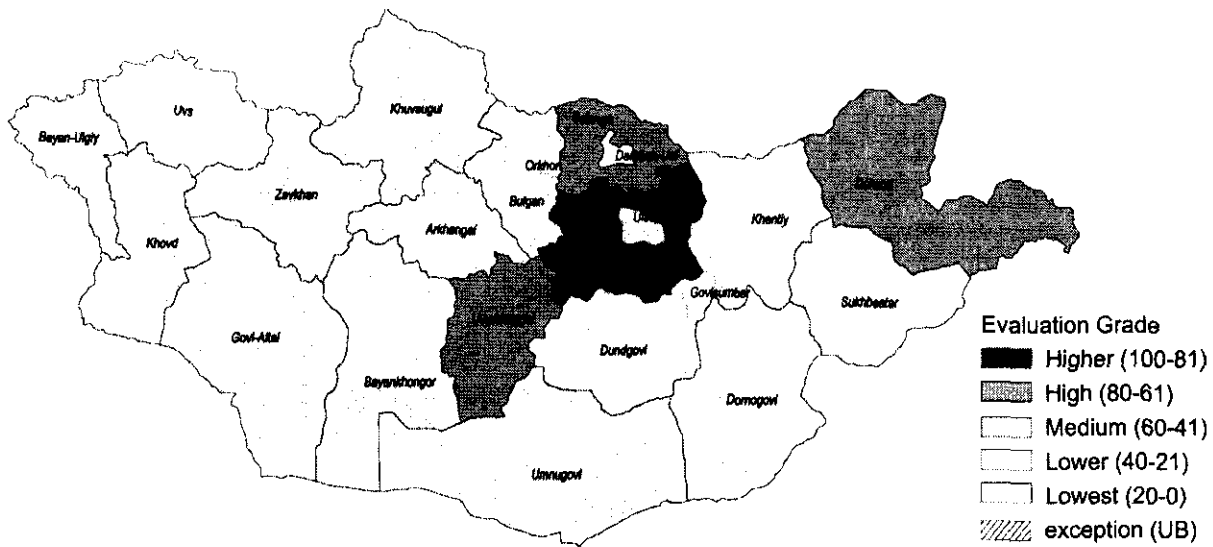
Source: JICA study team

Figure 2.7-2 Social Service Needs Evaluation

According to this analysis, aimags in the Western, Khangai region made relatively higher scores such as Khuvsgul, Uvurkhangai, Zavkhan, Bayankhongor, which are necessary to improve and develop their level of health care and educational services in comparison with others due to lack of medical staffs against many potential patients, potential numbers of children having opportunity for distance education and natural disaster's damage. On the contrary, aimags of Dalkhan-Uul and Orkhon with major cities and Selenge aimag made lower score as developed aimags having good social services comparatively.

(2) Development Potential

Some Aimags in the Khangai, Central and Eastern regions such as Uvurkhangai, Tuv, Selenge, Khentii, Dornod made higher scores as potential Aimags for economic development opportunities to develop their natural resources for livestock-agriculture, tourism and mining sector in comparison with others in terms of magnitude of resources potentials with their accessibility and productivity of agriculture. Tuv aimag close to Ulaanbaatar as a big market takes up a good position for trading products with potential resources for tourism and mining, also Selenge aimag proximity to the capital and Russian border with mining potential made high score.



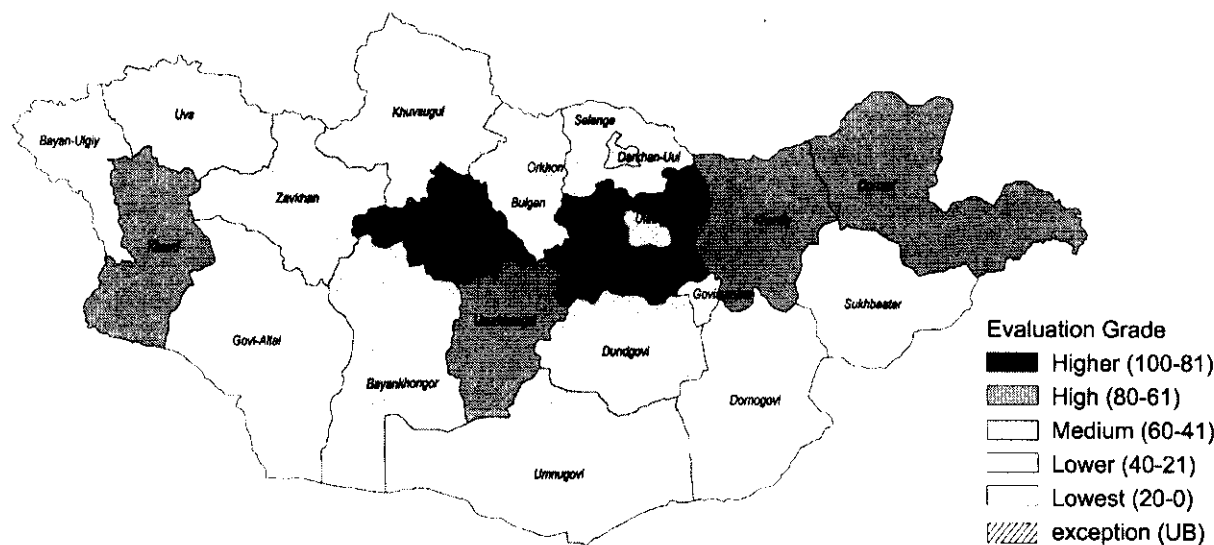
Source: JICA study team

Figure 2.7-3 Development Potential Evaluation

(3) Preparedness for Development

This analysis taking account of possibilities with the Governmental support because of its plans and programmes, gave higher scores to Aimags in the Khangai, Central and Eastern regions such as Arkhangai, Uvurkhangai, Tuv, Khentii and Dornod compared with

other Aimags. Also higher preparedness evaluation scores were given to the remote aimag of Khovd. Various sector's development will be prepared for these aimags based on the Government Action Program and other plans supported by international financial groups. Rural development will be effectively accelerated by these plans. Telecommunication support is expected to play important role in the rural development.



Source: JICA study team

Figure 2.7-4 Preparedness Evaluation

(4) Rural Development Needs Factors Evaluation

In combination with each analysis abovementioned, overall development potential and development needs for rural area is evaluated as aggregated index score. This evaluation is concerned by equal condition of the weighting among each factor of three analyses of Social Service Needs, Development Potential and Preparednes. After index scoring, all scores are ranked by points from one (lowest) to five (highest), taking account of deviation points.

Table 2.7-2 Ranking Score Points

Deviation Points	Ranking Scoring
Over 61	5
26 ~ 60	4
-13.6 ~ 25	3
-52 ~ -13.5	2
Under -53	1

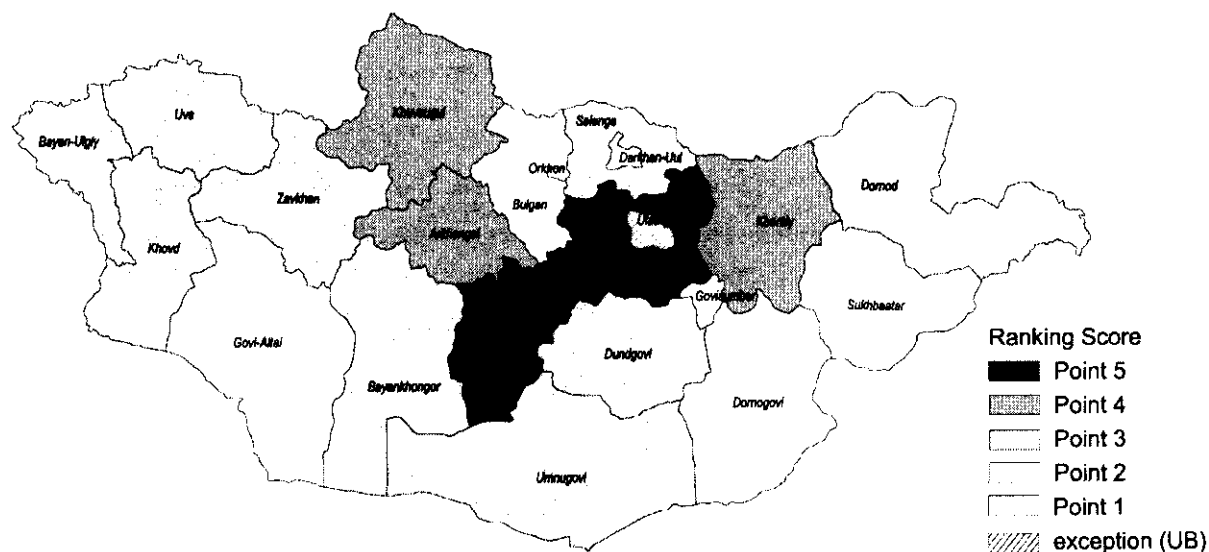
Source: JICA study team

Table 2.7-3 Rural Development Needs Factors Ranking Scores by Aimags

	Aimags	Social Service Needs	Development Potential	Preparedness Index	Total Index Points	Ranking Score	Deviation points
Western Region	1.Bayan-Ulgii	61	47	39	148	3	-14
	2.Uvs	73	38	46	157	3	-4
	3.Khovd	71	46	63	179	3	18
	4.Zavkhan	91	43	52	185	3	24
	5.Govi-Altai	60	44	31	135	2	-26
Khangai Region	6.Khuvsgul	100	52	41	193	4	32
	7.Arkhangaig	77	51	91	219	4	57
	8.Bayankhongor	81	54	47	182	3	21
	9.Bulgan	56	53	38	147	2	-14
	10.Orkhon	39	14	15	68	1	-93
	11.Uvurkhangai	95	64	71	230	5	69
Central Region	12.Selenge	36	72	60	168	3	6
	13.Darkhan-Uul	36	26	46	108	1	-53
	14.Tuv	59	100	100	259	5	98
	15.Dundgovi	78	41	45	164	3	3
	16.Umnugovi	58	49	45	151	3	-10
	17.Govisumber	38	19	21	79	1	-82
	18.Dornogovi	40	59	21	120	2	-42
Eastern Region	19.Khentii	54	60	68	183	3	21
	20.Sukhbaatar	44	48	36	128	2	-33
	21.Dornod	54	61	67	182	3	21

Note: The highest score is 100 points for index scores, and 5 points for ranking scores.

Source: JICA study team



Source: JICA study team

Figure 2.7-5 Rural Development Needs Factors Ranking Scores by Aimags

(5) Key Economic Indicators Evaluation

This analysis taking account of economic performance and the Governmental services for each aimag, gave high scores to aimags in the Khangai, Central and Western region such as Bulgan, Orkhon, Umnugovi, Tuv, and Sukhbaatar prior to other aimags comparatively. And Zavkhan, Arkhangai and Khentii as remote aimags made higher evaluation scores. These higher performances of economic activities of each aimag should be supported and accelerated by telecommunication network expected to play important roles in effective rural development.

Table 2.7-4 Ranking Score Points

Deviation Points	Ranking Scoring
Over 3	5
1 ~ 2	4
-1 ~ 0	3
-2 ~ -3	2
Under -4	1

Source: JICA study team

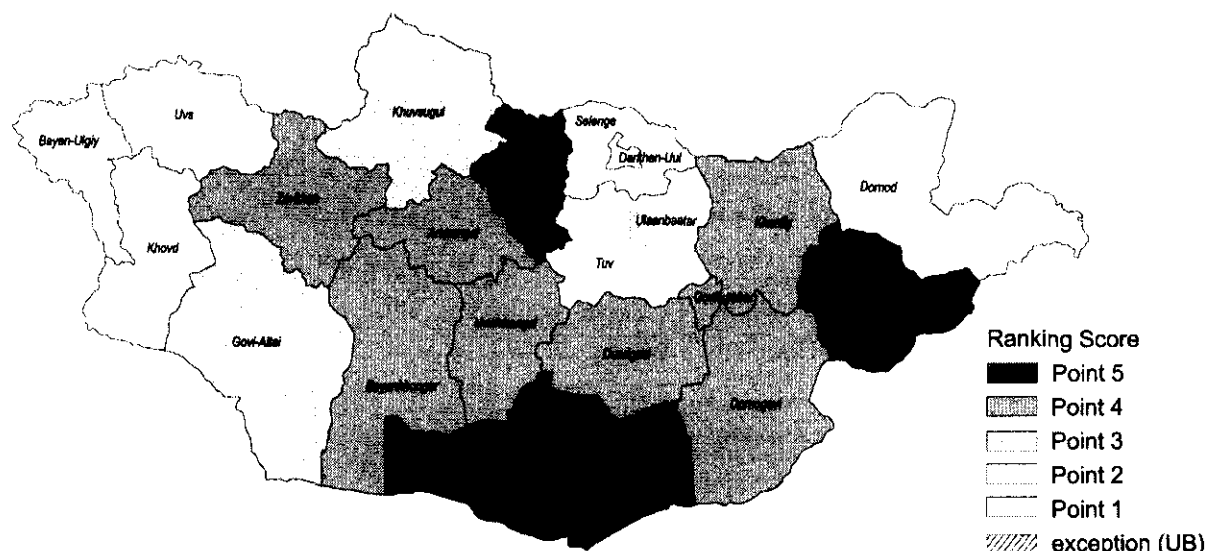
Table 2.7-5 Key Economic Indicators Ranking Scores by Aimags

	Aimag	GRDP Index	Labour Force Index	Government Service Index	Total Score	Ranking Score	Deviation points
Western Region	1. Bayan-Ulgii	1	1	2	4	1	-5
	2. Uvs	1	3	2	6	2	-3
	3. Khovd	3	2	2	7	2	-2
	4. Zavkhan	2	5	3	10	4	1
	5. Govi-Altai	2	5	2	9	3	0
Khangai Region	6. Khuvsgul	3	4	2	9	3	0
	7. Arkhangai	4	5	2	11	4	2
	8. Bayankhongor	3	5	2	10	4	1
	9. Bulgan	5	3	4	12	5	3
	10. Orkhon	5	3	4	12	5	3
	11. Uvurkhangai	1	5	3	9	3	0
Central Region	12. Selenge	2	1	4	7	2	-2
	13. Darkhan-Uul	1	1	1	3	1	-6
	14. Tuv	2	3	1	6	2	-3
	15. Dundgovi	1	5	5	11	4	2
	16. Umnugovi	4	5	5	14	5	5
	17. Govisumber	2	1	5	8	3	-1
	18. Dornogovi	4	1	4	9	3	0
Eastern Region	19. Khentii	5	1	4	10	4	1
	20. Sukhbaatar	5	5	3	13	5	4
	21. Dornod	1	1	4	6	2	-3

Note: The highest score is 5 points as index scores.

1. GRDP index = (GRDP per capita ratio - \hat{a} / GRDP per capita ratio - max) divided into 5 grades points based on deviation average score
2. Labour Force index = (Economically active population ratio - \hat{a} / E- active population - max \times 100) divided into 5 grades points based on deviation average score
3. Government Service index = (Local budget per capita ratio - \hat{a} / Local budget ratio - max \times 100) divided into 5 grades points based on deviation average score

Source: JICA study team



Source: JICA study team

Figure 2.7-6 Key Economic Indicators Ranking Scores by Aimags

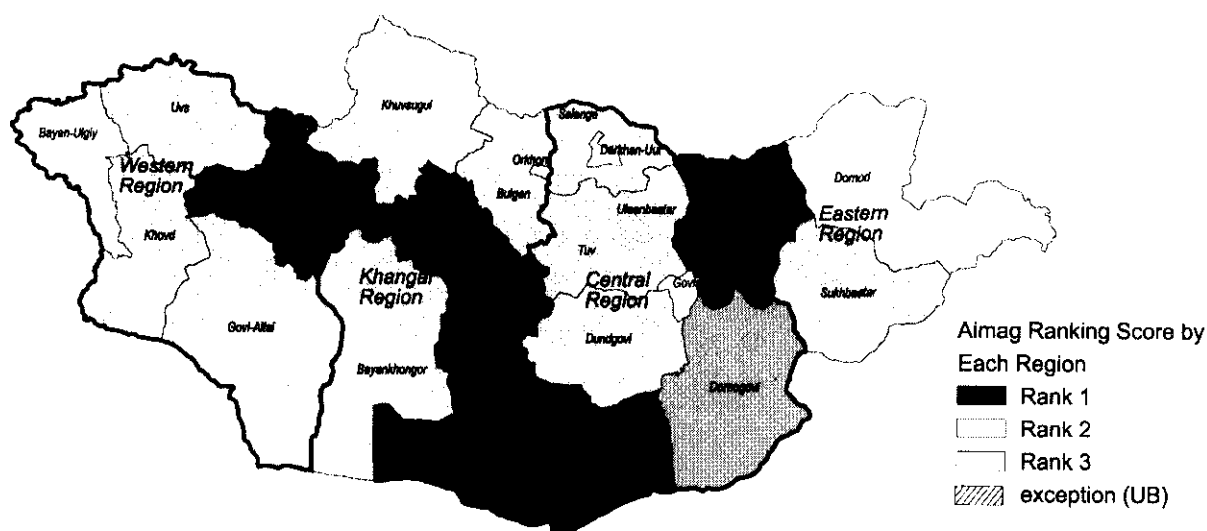
(6) Overall Development Priority Ranking of Regions and Aimags

In combination with each result of the rural development needs factor’s score and key economic indicator’s score, overall development priority for each region is ranked as weighted average score index of each region in consideration with number of Aimags within each Aimag, giving points from one (top ranking) to three (lowest). On the other hand, scores for each aimag are ranked by points within each region at same points from one (top ranking) to three (lowest).

Table 2.7-6 Overall Development Priority Ranking by Regions and Aimags

Region	Ranking	Aimag	Ranking
Western Region	3	1. Bayan-Ulgii	3
		2. Uvs	2
		3. Khovd	2
		4. Zavkhan	1
		5. Govi-Altai	2
Khangai Region	1	6. Khuvsgul	2
		7. Arkhangai	1
		8. Bayankhongor	2
		9. Bulgan	2
		10. Orkhon	3
		11. Uvurkhangai	1
Central Region	2	12. Selenge	2
		13. Darkhan-Uul	3
		14. Tuv	2
		15. Dundgovi	2
		16. Umnugovi	1
		17. Govisumber	3
		18. Dornogovi	2
		19. Khentii	1
Eastern Region	3	20. Sukhbaatar	2
		21. Dornod	3

Source: JICA study team



Source: JICA study team

Figure 2.7-7 Overall Development Priority Ranking by Regions and by Aimags within Each Region

(7) Need for Formulation of Rural Development Orientation by Regions

Total scores of each Aimag or region as the evaluation results do not directly represent development needs and potential owing to aggregated scoring of various factors. For instance, while Umnugovi Aimag that is evaluated as a potential Aimag in terms of economic indicator does not get high score as to development potential and preparedness, and Zavkhan Aimag gets high score as to social service, but it gets low score as to development potential. Thus, as each of Aimag and region has its inherent contents of priority in telecommunication network development, the following rural development orientation will have to be formulated. Details are shown in Table 2.7-7.

2.7.3 Rural Development Strategy with Information and Telecommunication Technologies Supports

Rural development of Mongolia has become a key issue to tackle alleviation of imbalanced economic development, public services and poverty between Ulaanbaatar and other rural areas. On the other hand, rural areas having potential resources for livestock, mining and tourism, have not been enabled to educe them sufficiently due to lack of infrastructure especially, road and telecommunication, and human resources development, etc. The followings illustrate the rural development strategy taking account of the necessity and importance of rural telecommunication network development from rural development point of view.

Table 2.7-7 Suggestive Rural Development Orientation by Regions

Region	Rural Development Orientation			Role of ICT (Telecommunication) Supports
	Comparative Development Conditions	Priority Development	Considerable Aimags	
Western Region	<ul style="list-style-type: none"> • Most remote area with inefficient government support from Ulaanbaatar • Most severe climate condition area with frequent natural disaster • Higher average infant mortality rate • Area desirable to give distance education 	<ul style="list-style-type: none"> • Social service development focusing on medical health care improvement and distance education • Intensive crop-farm development having the advantage of border region 	Zavkhan, Khovd, Govi-Altai	<ul style="list-style-type: none"> • Telecommunication is most desirable and effective for this region as furthest remote area • Pilot system for remote medical support and distance education by ICT is effective and necessary
Khangai Region	<ul style="list-style-type: none"> • Higher density population area • Higher infant mortality area without enough medical services and staffs • More students who are desirable to get distance education opportunity 	<ul style="list-style-type: none"> • Social service development focusing on medical health care improvement urgently • Intensive poverty alleviation programme • Tourism development utilizing potential natural and historical resources gradually 	Arkhangai, Uvurkhangai, Bayankhongor, Bulgan	<ul style="list-style-type: none"> • Universal service by available and affordable system will be most effective due to many beneficiaries in rural area • Efficient support will be needed on agriculture and tourism development
Central Region	<ul style="list-style-type: none"> • Better living conditions compared with others caused by existence of industrial cities and proximity to Ulaanbaatar except Dundgovi, Tuv • Potential area for all sector of livestock-agriculture, tourism and mining industry 	<ul style="list-style-type: none"> • Intensive medical care improvement in worse condition of Dundgovi, Tuv and Umnugovi • Effective and strategic improvement for all sector having advantage of proximity to Ulaanbaatar market 	Umnugovi, Tuv, Selenge, Dundgovi,	<ul style="list-style-type: none"> • Most desirable area to improve ICT for industries' support • Sufficient ICT system will be most effective to prevent from migration of rural population to UB
Eastern Region	<ul style="list-style-type: none"> • Most lowest population density area without sufficient health care and least education opportunity • Potential area for livestock and mining development with governmental supportive plans, budgets 	<ul style="list-style-type: none"> • Intensive distance education on this area • Concentrating on livestock and mining development with advantage location of proximity to China 	Khentii, Sukhbaatar	<ul style="list-style-type: none"> • Pilot system for remote medical support and distance education by ICT is effective and necessary • Most desirable ICT with China cooperation

Source: JICA study team

(a) Strategic Rural Development for effective Universal Services Achievement

In terms of magnitude of beneficiary for rural development, sum centres or inter-sum centres will play key roles in supporting rural communities as urban centres offering primary social service and rural economic development centres. Sum centre's development with sufficient ICT supports will be an important bridgehead to expand the range of universal service toward rural area. And ICT development will be expected to be effective and necessary supports by giving priority to Khangai and Central regions in terms of social service need and economic development potential.

(b) **Sectoral Development in need of mutual ICT Support**

Addressing to fundamental issues of access gap for information and communication in each development sector such as remote area education, health and business services, the government is beginning to introduce ICT infrastructure to each sectoral development. Telecommunication should support and coordinate each development programme separately and effectively in order to parlay each other maximally such as extended IT school for local communities awareness with adequate technologies and management rather than the multi-purpose community telecentre (MCT).

(c) **ICT Supports Three Dimensions for Rural Development**

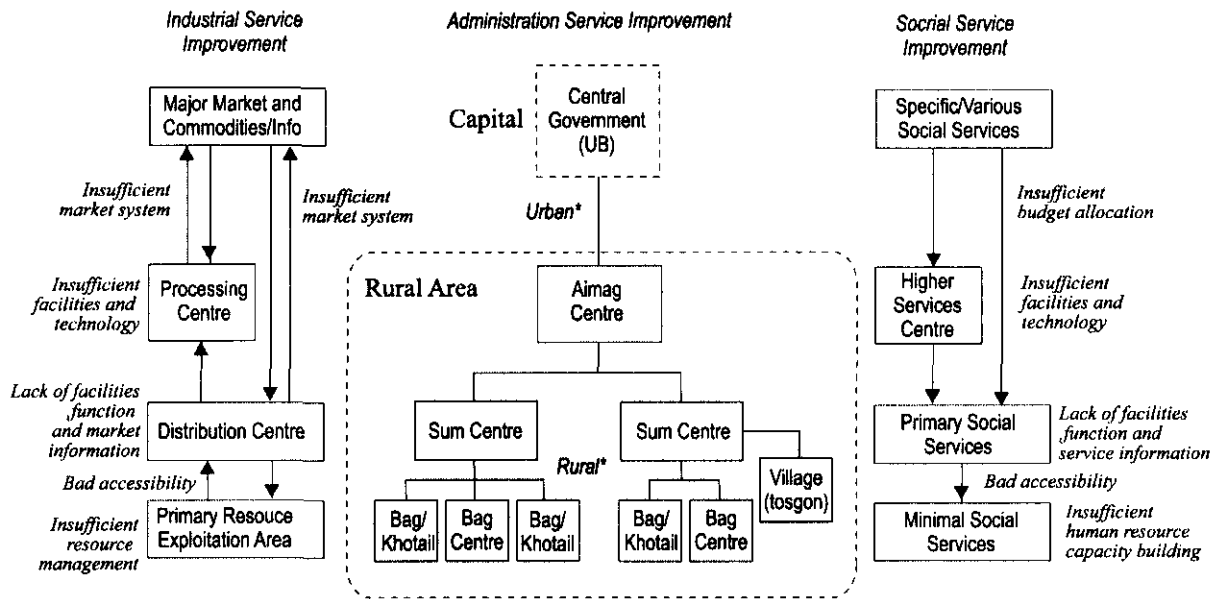
Rural development needs to be supported by three dimensions of ICT supports from urgent service to stable and continuous service level in every sector. Emergency ICT Support for medical care, incident or disaster management should be given priority to urgent programmes, and Public Access ICT Support for health, education and administrative service should be pushed ahead in conjunction with poverty reduction programmes added on financial schemes for ICT. Business ICT Support for industrial trade and communication and business opportunities development should be sustained by institutional arrangements and infrastructure provision for private sectors such as SME or corporative organisations.

2.8 Rural Area Structure and Development Needs

2.8.1 Town Functions and Services for Rural Communities

(1) Existing Rural Area Structure and Development Issues

Most of all socio-economic activities and administrative services depend upon the hierarchy and functions of rural structure of each aimag consisting of aimag centre and other town as urban settlements, sum centres and bag centres covering vast pastures with khot ail communities of Gers as rural settlements. In order to achieve rural development in line with the Action Program of the Government, it is important to formulate efficient and rational measures with clear function and services of development component and structure consisting of service towns serving industrial and social services to rural communities.



Note: "Urban and Rural" is defined by NSO.

Source: JICA study team

Figure 2.8-1 Existing Rural Area Structure and Development Issues

In this context, service town centres of Aimag and sums covering rural communities are key issues concerning how to support rural development and where it should be focused on. In order to improve and develop rural areas, the directions of desirable development between those town centres and rural settlements can be itemised as follows:

- *Improving accessibility* to all services (social-public, industrial, commercial, information, etc) for local communities by possible measures such as telecommunication system or movable service facilities
- *Formulating rural-urban linkages* among administrative, industrial and trade centres taking account of their function and role with urban services in terms of collection and distribution system
- *Generating manufacturing and service industries* to support livestock and crop farming development and other industrial development with adequate infrastructure and institutional supports in order to create job opportunities especially in urban area with poor communities
- *Improving the quality and effectiveness of social services* to secure basic living standards and local economies by capacity building of skilled staff and provision of adequate facilities, equipment and management system

- *Sustaining natural environment in rural area* to prevent living area and productive land from overuse and its deterioration, in parallel with natural disaster risk
- *Establishing effective financial mechanism* to secure necessary rural development project by central government supports and financial resources
- *Encouraging local communities participation* on rural development including poverty alleviation, environmental awareness.

Table 2.8-1 Sectoral Rural Development Directions

Direction	Social Service	Infrastructure	Agriculture and Industry	Admini-Services
Accessibility improvement	<ul style="list-style-type: none"> • Emergency support improvement by ICT • Movable service offer • Local participation • Service information offer by possible ICT 	<ul style="list-style-type: none"> • Selective road improvement • Selective and strategic urban area development 	<ul style="list-style-type: none"> • Trade logistic (storage, distribution, etc) development • Transportation system improvement 	<ul style="list-style-type: none"> • Convenient public ICT centre provision • E-Government with information and data disclosure
Rural urban linkage	<ul style="list-style-type: none"> • Remote service by ICT • Inter-organization communication (ICT) between urban-rural 	<ul style="list-style-type: none"> • Telecommunication improvement • Public transport development 	<ul style="list-style-type: none"> • Inter-market information service improvement (ICT) • Direct-sale promotion 	<ul style="list-style-type: none"> • Inter-governments information communication
Industry generation	<ul style="list-style-type: none"> • Promotion of social service privatisation and community involvement 	<ul style="list-style-type: none"> • Adequate and attractive infrastructure provision (ICT, elec.) 	<ul style="list-style-type: none"> • Adequate consultation promotion program • Community involvement program 	<ul style="list-style-type: none"> • Promotion of rural investment • Financial supports and incentives on strategic industry
Service quality improvement	<ul style="list-style-type: none"> • Facilities improvement • Capacity building and skill upgrading for social service staff 	<ul style="list-style-type: none"> • Minimum and sustainable infrastructure offer 	<ul style="list-style-type: none"> • Adequate technology development • Capacity building and skill upgrading 	<ul style="list-style-type: none"> • Facilities upgrading • Capacity building and skill upgrading for official staff
Environment Protection	<ul style="list-style-type: none"> • Public awareness promotion 	<ul style="list-style-type: none"> • Adequate facilities control, regulation 	<ul style="list-style-type: none"> • Land and facilities management 	<ul style="list-style-type: none"> • Risk management for natural disaster

Note: ICT = Information and Communication Technologies, Source: JICA study team

(2) Rural Development Direction and Town Centres' Role

According to the Government Action Program, desirable direction for rural development can be illustrated as follows taking account of each town centres of aimags, sums and bag administration and other specific towns such as tourism town, mining town and other industrial towns. Details are shown in Table 2.8-2.

(3) Regional System and Development Direction

In terms of beneficiary magnitude of rural area, sum centres and other rural settlements having 46% share of rural area population with aimag centres (32%) at present

will be important for the rural development. Especially sum centres embracing their rural settlements will play a key role in improving daily life services and economic activities for rural settlements in combination with high level urban service of aimag centres.

Table 2.8-2 Rural Development Directions and Town Centres' Role

Services Sector		Rural Development Direction and Programme	Town Centres			
			Administrative			Specific Town
			Aimag	Sum	Bag	
Social Services	Education Service	• Computerize all secondary school	●	●		◎
		• Improve rural schools facilities	◎	●		
	And Vocational Training	• Enhance pre-school education	●	●	◎	◎
		• Introduce home school system	○	○	●	◎
		• Introduce "Distance Education" system	○	○	●	◎
		• Train teachers and build capacity	●	◎		○
		• Enhance skill in industry and business	●	◎		○
	Health Service	• Enhance primary health care service	○	●	◎	◎
		• Provide medical care car service	●	◎		◎
		• Improve ambulance car service	●	●		◎
		• Set up diagnosis and therapeutic centres	●			
		• Improve Sum hospital service and its quality		●		◎
		• Introduce "Remote Medical Service"	●	◎		◎
	Culture	• Improve Cultural Centre services	●	●		○
Infra-structure Services	ICT Services	• Establish "IT spot (Tele-Centre)" *	◎	●	○	◎
		• Expand broadcast network (TV, FM, radio)		●	●	●
		• Introduce digital postal service	○	●	○	◎
	Utilities	• Improve safe water supply service	●	◎	○	◎
		• Improve sewerage and disposal system	●	◎	○	◎
		• Improve energy centre with heating system	○	●	◎	◎
Industry Services	Livestock Agriculture	• Develop distribution centres for farm products	○	●	◎	
		• Develop processing centres for farm products	●	◎	○	
		• Enhance animal protection and diseases care	◎	●	○	
	Tourism	• Improve services (booking, procuring, etc)	●	○		◎
		• Establish emergency services	●	◎		
		• Enhance market and sales promotion	●	○		◎
	Trade/SME	• Set up "Whole-sale Network" in rural area	●	●	○	○
		• Establish "Free Economic Zone"				●
	Mining	• Improve major mining deposit productivities				●
Admini- stration Services	Security Service	• Establish natural hazard mitigation system		●	◎	◎
		• Establish livestock disaster relief network		●	●	
	Public Services	• Establish state information network	●	◎	○	
		• Improve administration service to public	●	◎	○	

Note: Necessity of service development : ●= important, ◎= desirable, ○= possible, = not necessary
 *=The Study team proposes "IT spot". Source: JICA study team

However, 340 sum centres are facing the difficulties of improving all sum centres due to lack of financial support and comparatively small settlements with poor infrastructure. The government is reorienting regional system for rural development in terms of rational and effective public services development. Ministry of Infrastructure has represented the regional settlements system with cascade hierarchy to improve urban functions for existing settlements taking account of future structure with balanced development of the country.

The urban functions for which rural development in Mongolia will be required to follow this strategic direction according to the government orientation can be illustrated as follows.

Table 2.8-3 Reorientation of Town Centre’s Functions in Economic Regions

Existing System	Urban Service Function		New Direction	Desirable Service Function	
	Social Service	Industrial Services		Social Service	Industrial Services
Aimag Centres	• Higher Service Centre	• Processing Centre • Distribution Centre	Regional Centre*	• Specific/Various Social Services	• Regional Market Centre
			Sub Centre*	• Higher Service Centre	• Regional Distributions
			Aimag Centre*		• Regional Processing Centre
Sum Centre	• Primary Social Service Centre	• Lack of function	Integrated Sum Centre	• Secondary Social Service Centre	• Sum Processing Post
			Sum Centre	• Primary Social Service Centre	• Distribution Post
Bag Centres /Khotail	• Minimal Social Service	• Primary Resource Exploitation Area	Bag Centres	• Minimal Social Service	• Primary Resource Exploitation Area

Note: * mark based on MOI suggestive plan.

Source: JICA study team

2.8.2 Rural Development Needs and Desirable ICT Supports

Rural development in Mongolia with distinct character of scattered settlement in the wide range country can be accelerated effectively by information and communication technology (ICT) system. Desirable support components of ICT for rural development are categorized into the followings.

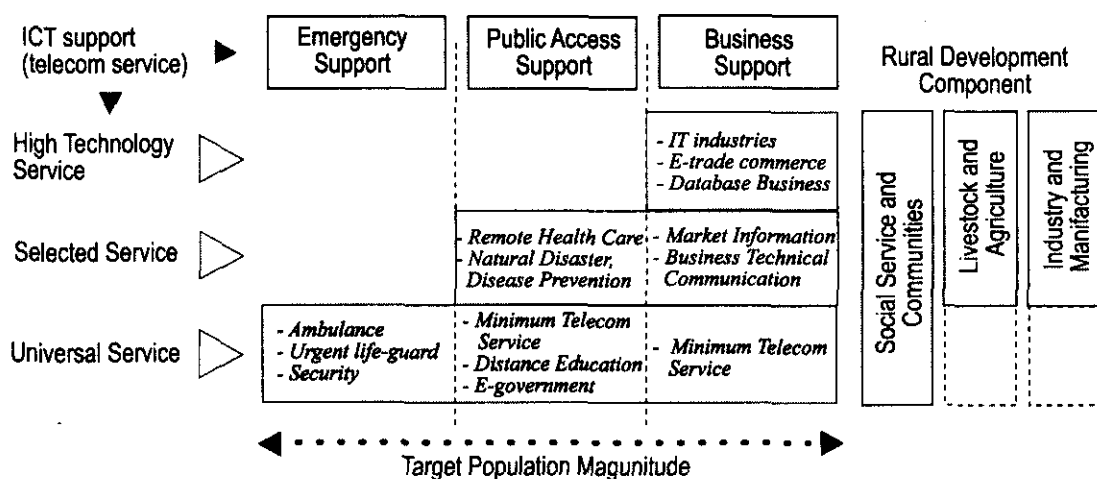
- *Emergency support*

This supports all communities, especially remote Khot Ails in securing social safety and guarding human life by emergency and instant telecommunication system from natural disaster, serious incidents and other troubles.

- Public access support*

ICT can support effective and efficient access not only for remote Khot Ails level but also urban settlements to public services in order to achieve better living conditions, convenient social activities including health care, education and administration services including public awareness for environment protection.
- Business support*

Livestock and agricultural sector and other manufacturing business need sufficient market information and new technological information to improve their productivities. ICT helps those business activities to manage effectively and efficiently for all business peoples.



Source: JICA study team

Figure 2.8-2 Rural Development and Possible ICT Support

On the other hand, rural development composed by three sectors of social service, livestock-agriculture and industry manufacturing has various levels of support needs by ICT from high-technology service level for medical care or e-commerce, selective service level for specific area like natural disaster prevention system with GIS or market information, and universal service level for general telecommunication system for all local communities. Details for the key sector’s rural development direction with ICT supports are shown in Annex 2.

Table 2.8-4 Rural Development and ICT Support Needs

Rural Development Component		ICT Support Needs		
		Emergency Support	Public Access Support	Business Support
Social Services	Education Service	—	<ul style="list-style-type: none"> Distance education IT school education Teachers training Higher education inter-study-research support 	—
	Vocational Training	—	<ul style="list-style-type: none"> Distance education ICT training 	<ul style="list-style-type: none"> Database service for human resources and industries
	Health Service	<ul style="list-style-type: none"> Ambulance system Urgent consultation 	<ul style="list-style-type: none"> Tele-medicine Medical care car with ICT Voice service for health care and facilities Health database system 	<ul style="list-style-type: none"> Private health care business Volunteer health care support
	Culture	—	<ul style="list-style-type: none"> Cultural information E-Library system 	<ul style="list-style-type: none"> Daily life cultural activities information by volunteer support
Infrastructure Services	Utilities Service	<ul style="list-style-type: none"> Accident prevention Running repairs 	<ul style="list-style-type: none"> IT-Spot establishment Ombudsman support Facilities management 	—
Industry Services	Livestock Agriculture	<ul style="list-style-type: none"> Natural disaster prevention Urgent consultation 	<ul style="list-style-type: none"> Veterinary support for animal disease Agriculture technology information service 	<ul style="list-style-type: none"> Voice service for market and weather information E-association for business information exchange
	Tourism	<ul style="list-style-type: none"> Accident contact for tourist customers 	<ul style="list-style-type: none"> Official tourist information support on web-site Tourism database establishment 	<ul style="list-style-type: none"> Internet booking for travel agents and hotels Promotion of tourism industries on website
	Trade/SME	—	<ul style="list-style-type: none"> Official investment (local and international) promotion on web-site Industry technology information service 	<ul style="list-style-type: none"> Voice service for market information Database service for resources and trade
	Mining	—		<ul style="list-style-type: none"> Internet website for market information Database service for resources and trade
Administration Services	Security Service	<ul style="list-style-type: none"> Natural disaster prevention Man-made disaster mitigation 	<ul style="list-style-type: none"> Documentation and database Inter-local government communication Facilities management Monitoring and management by ICT 	—
	Information Services	—	<ul style="list-style-type: none"> IT-Spot establishment Administrative information service on website Public information disclosure 	—
	E-government	—	<ul style="list-style-type: none"> Documentation and database Inter-local government communication Ombudsman support Facilities management 	<ul style="list-style-type: none"> Voice service for market information Electric permission system for business

Source: JICA study team

CHAPTER 3

PRESENT TELECOMMUNICATIONS SECTOR

CHAPTER 3

PRESENT TELECOMMUNICATIONS SECTOR

3.1 Present Status of Telecommunications Administration

The administrative authorities supervising the telecommunications business and services in Mongolia is Ministry of Infrastructure (MOI). As an implementing agency, Post and Telecommunications Authority (PTA) is placed under the policy making body MOI. Figure 3.1-1 shows the structure of MOI.

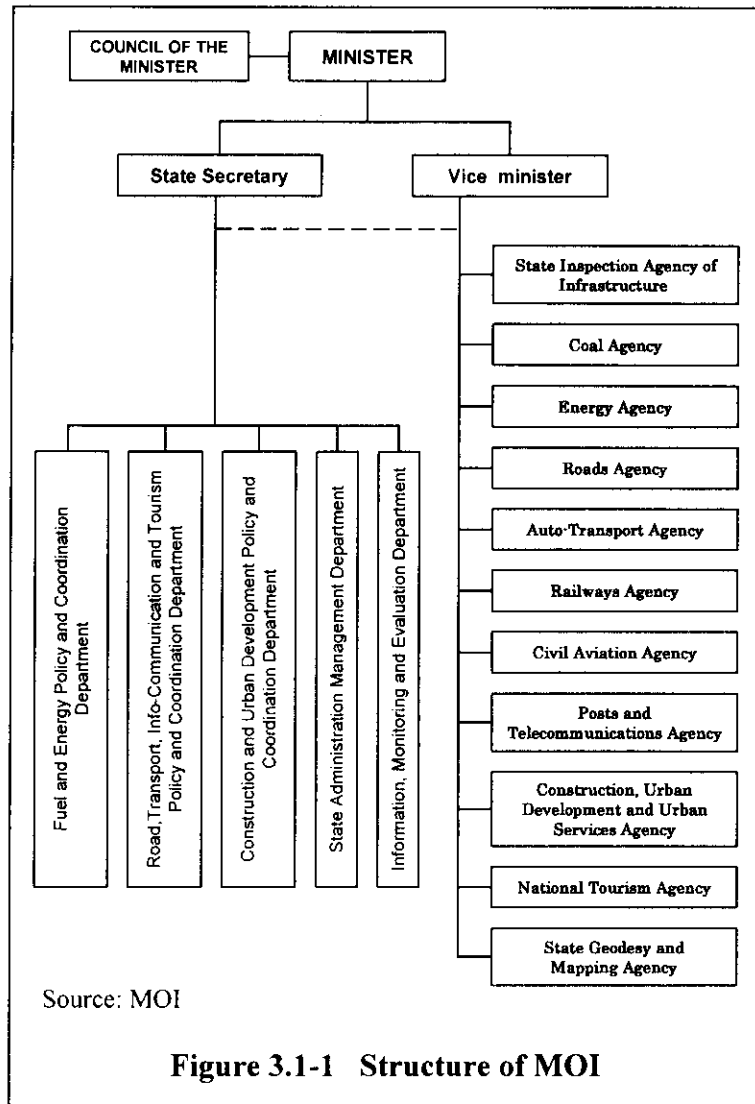
Ministry of Infrastructure
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1104 Ulaanbatar, Mongolia
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The Ministry of Infrastructure (MOI), the administrative organisation incumbent at present time, was formed through various stages since an amendment realised in January 1994. The mission of MOI is defined as "Develop an infrastructure network stimulating the growth of the economy".

In accordance with the Resolution #32 on "Renovation of structure and general structural scheme of the Public Administration organisations" of the State Ih Hural /Mongolian Parliament/, 01 September 2000 and by the Government resolution #139, 06 September 2000, in areas of activity of the Minister of Infrastructure the following coordination and implementing agencies have been established.

- State Inspection Agency of Infrastructure
- Coal agency
- Energy Agency
- Roads Agency
- Auto-Transport Agency
- Railways Agency
- Civil aviation Agency
- Posts and Telecommunications Agency
- Construction, Urban Development and Public Utilities

- Tourism Agency
- State Geodesy and Mapping Agency



In regard to the telecommunications regulatory agency, the Communications Regulatory Council (CRC) was established by an Order of the Minister of Infrastructure Development, Mongolia in October 1995. The Telecommunications Law was revised on 18th October, 2001 and the power of Regulatory Committee for Communications (CRC) Affairs was confirmed by Government decision on 25th January 2002.

CRC has the following rights and responsibilities:

- To furnish authorised organisations with information and develop proposals on the State policy on communications;

- To grant, suspend and revoke licenses, monitor applications of license conditions and requirements, establish contracts within the framework of policies on communications;
- To determine technical conditions and requirements for equipment of communications network and customers, and certify them;
- To approve general terms of interconnection agreements between networks and procedures of revenue distribution;
- To approve accounting methodologies for service tariffs, monitor service tariffs dominating a market;
- To create conditions for fair competition in communications sector;
- To ensure implementation of universal service obligations;
- To work out communications standards, have them duly approved by relevant authorities, and monitor their applications;
- To elaborate an integrated numbering plan of networks and implement it; and others.

3.2 General Trend of Telecommunications Sector

The telecommunications sectors of Mongolia is developing in keeping with the basic policy which was set forth in the Mongolian Telecommunications Policy Statement of 1994, and updated by the 1998 Mongolian Telecommunications Sector Policy Statement (MTSPS), based on the Network Master Plan to 2010. The Statement was amended in December 2001. See Annex 3-3.

The MPTSPS set forth in 1994 clearly defines the policy and investment actions required over the medium term as being upgrading of existing assets as the basis of further expansion, improving services, and structural and institutional reform based on competition, increased foreign investment and improved regulation of telecommunications.

Since 1995, extensive changes to the structure and delivery of telecommunications services have been completed. These include establishment of the Communications Regulatory Commission (CRC) based on the Telecommunication Act of 1995; the partial privatisation of the Mongolian Telecommunications Company (MTC) with the establishment of the asset holding agency Post and Telecommunications Agency (PTA) and the telecommunications provider, Mongolian Telecommunications (MT). A comprehensive set of investments has been implemented with the support of ADB, Norway, Germany, and the Nordic Development Fund (NDF), the MTC, and the others.

The MPTSPS amended in 2001 set its main purpose in managing the transition process of the telecommunications market into the open or competitive environment, ensure sector's efficient working conditions, implement functions related to the universal service obligations, control market entrants activities and standard application, utilise radio spectrum properly, furthermore, expand customers daily demands and participation in global economy, business relations, increase significance of the telecommunication sector's role for implementing the country's economy and society.

In line with the directions guided in the basic policy, the telecommunications sector of Mongolia is in the midst of competition of various telecommunications service providers. Major service providers or operators are Railway Communications Company, Micom, Datacom, MCS, Skytel, Mobicom, Bodicom, etc. The Railway Communications Company offers fixed line telephony service, Mobicom offers the Internet services, Mobile communications services, and Wireless Local Loop (WLL) communications services, and the others so do also. The telecommunications service providers have already started various services supported by the Internet Protocol (IP), such as the data communication on IP, voice on IP (VoIP), etc. There are 140 licensed communication providers in total in Mongolia as of 2001.

3.3 Present Status of Telecommunications Services and Operators

Telecommunications sector in Mongolia counts two (2) fixed telephony service providers, two (2) mobile service providers, eight (8) Internet service providers, in addition to more than 10 cable TV operators, as far as major operators are concerned. Some of the telecommunications service providers offer the telecommunications services through wireless local loop (WLL) network.

The leading fixed line telephony service providers are:

- Mongolia Telecommunication Company
- Mongolian Railway Communications Company

The leading mobile telephony service operators are:

- MobiCom
- Skytel

The leading Internet service providers are:

- Micom
- Magicnet
- MCS
- Bodicom
- Mobinet
- Erdemnet

The leading network operator in Mongolia is Mongolia Telecommunication Company (MT). The assets of MT are owned by Post and Telecommunication Authority (PTA) which is in charge of the rehabilitation and expansion of the telecom network. MT provides basic telecommunications services to the public by operating the network leased from PTA for a term of 20 years. The Government of Mongolia (GOM) has sold the share of 40% of MT to Korea Telecom and 5.56% to the public.

The Mongolian Railway Company (MRC) provided public domestic and long-distance telephone services before it established a business service centre in March 2002 to add the Internet service and the international call services. It leases cores of optical fibre to MT.

Mobile telephone service is available in Ulaanbaatar and major cities of eight (8) Aimags (Province, in English). Various data transmission services are offered by Data Communications Systems Company.

Telecommunications network service data are summarised (estimated by JICA Study Team) as:

Fixed line subscribers:	130,000	(End of 2001, WLL excluded)
Mobile subscribers:	228,000	(End of 2001, WLL included)
Internet subscribers:	9,000	(End of 2001)
Internet users:	30,000	(End of 2001)
Cable TV Household:	25,000	(2nd Quarter of 2000)

The number of Internet hosts is estimated at 171, as of January 2001. It is only 4.5 hosts per 10,000 people, as the population of Mongolia was enumerated at 2,379 thousand in 2000.

3.4 Present Status of Telecommunications Networks Operated by MT

3.4.1 Services Rendered by MT

Telecommunications services in Mongolia had been provided by the Ministry of Telecommunications (MOT) until 1989. In 1990, the Mongolian Telecommunications Authority (MTA) was established to render telecommunications services in succession of MOT, under the political reform of Mongolia. In 1992, Mongolian Telecommunications Corporation (MTC) was formed to provide all the basic telecommunications services under the control of Ministry of Infrastructure Development (MOID).

Mongolian Telecommunications (MT) took over the MTC's mission to render telecommunications services in the country, since it was found when the Mongolian Telecommunications Company (MTC) was partially privatised with the establishment of the Communications Regulatory Commission (CRC) based on the Telecommunications Act of 1995.

MT now provides all the basic telecommunication services and is prohibited from providing value-added services.

MTC offers the following services:

- a) International telephone call service
- b) International direct dialling call service
- c) International operator assisted call service
- d) Home country direct call service
- e) International leased circuits service
- f) High speed digital leased circuits (HSDLC) service
- g) Voice grade transmission (VGT) service
- h) International TV transmission service
- i) Domestic long distance call service
 - Domestic direct dialling (DDD)
 - Long distance operator assisted calls
- j) TV broadcasting network service
- k) Local telephone service
- l) Cable TV service

MT's major services other than the normal telephone service, as of the end of the Fiscal 2000, are summarised as:

(a) International calls

The international telephone traffic increased in 2000 by 15.7 per cent as compared with 1999 while majority of the international telephone calls was made through International Direct Dialling (IDD). IDD traffic occupied 96.8 per cent in the total international telephone traffic in the year 2000.

MT's operators assist customers to place international telephone calls to about 160 countries of the world.

Home country direct service is available to Japan, Singapore, Republic of Korea, and USA.

(b) International leased circuits

High speed digital leased circuits (HSDLC) for the Internet is offered on different spectrum of transmission speeds. The leased circuits of voice-grade transmission (VGT) are available for voice-grade transmissions, compatible with telephone standards and convenient for use as telephone, facsimile, teletype and data transmission.

3.4.2 General View of MT Network

The network operated by Mongolia Telecom (MT) covers whole the country, while other networks cover limited spots or areas. The MT network is a complete network consisted of transmission links, switching systems, and subscriber access facilities.

The transmission links are made up with various technologies as analogue micro-wave transmission system, digital micro-wave transmission system, very small aperture satellite (VSAT) system and open wire transmission system. The micro-wave transmission systems link major Aimag centres in the central part of the country, in addition to those situated along the line leading from Ulaanbaatar to the western border Aimag Bayan Ulgii, to eastern Aimag Dornod, and to southern Aimag Umnugovi. The VSAT system links Aimag centres scattered in the rest of the country. The open-wire transmission system connects Sum

centres to their Aimag centre. The open-wire transmission system is functioning in Mongolia, but outmoded nowadays.

The switching systems are digital in the national capital Ulaanbaatar, Aimag centres and District centres, while those in Sum centres are mostly analogue and manual. The switching system in Sum centres are private branch exchange (PBX) which requires operator assistance to make trunk calls in most cases. Analogue switching systems now in use in Mongolia are not suitable for digital signal transmission.

The subscriber access network is made up with metallic cable. The cables are laid underground in the urban area. The cables in the Sum centres are laid aerial running along the lane except few cases. Many deteriorated cables are still in use in Sum centres.

3.4.3 Telephone Service

(1) Share of MT in the National Total

Since the adoption of the Telecommunications Law in 1995, major advancements were made in bringing telecommunication services' quality closer to the international standards especially in urban area. The fixed telephone land lines, which are mostly of MT network, counted 130,000 for 2.4 millions population, or 5.5 lines per 100 inhabitants as national average as of 2001. The total of land lines and mobile/wireless telephones came up to 358,000. So the national telephone density recorded 15.0 lines per 100 inhabitants as a total. Attention should be paid to the fact, however, that the majority of mobile phones are registered in Ulaanbaatar, Darkhan, Erdenet, and surrounding cities.

Table 3.4.3-1 National Telephone Density

Population and telephone terminals		Telephone density	Note
Population	2,379,500	---	
Telephone terminals	Land line	130,000	5.5% MT + MRC
	Mobile and WLL	228,000	9.6% Mobicom + Skytel
	Total	358,000	15.0%

Note: MRC means Mongolia Railway Company, and WLL stands for wireless local loop.

(2) Growth of Telephone Lines

The number of fixed telephone line telephone sets recorded 130,000, while the mobile and wireless local loop (WLL) phone sets recorded 228,000, respectively in 2001. The total

number of telephone sets was only 85,989 in 1996 and grew up to 358,000 sets in 2001. The rapid growth was brought about with very rapid increase of mobile phone users. It was only 889 sets in 1996, and reached 228,000, including 10,000 lines of MobiCom WLL users, in four (4) years. Table 3.4.3-2 shows the growth by year.

Table 3.4.3-2 Telephone Facilities Summary 2001

Year	Number of subscribers telephone sets				Total
	Fixed		Mobile and WLL		
	MT	MRC	MobiCom	Skytel	
1996	82,100	3,000	889	---	85,989
1997	86,800	3,000	2,416	---	92,216
1998	93,800	3,500	5,365	---	102,665
1999	104,100	3,700	22,578	10,000	140,378
2000	113,000	4,000	80,000	23,000	220,000
2001	120,000	10,000	190,000	38,000	358,000

Note 1: Data of MRC of 1996 to 2000 indicate the number of lines in Ulaanbaatar only.

Note 2: Data of MRC and MobiCom in 2001 areas of March 2002 and that of Skytel is estimation as of March 2002.

(3) Main Telephone Lines

MT's Telephone main lines were 5.0 lines per 100 people on the national average, and 9.7 lines per 100 people in Ulaanbaatar (including Baganuur and Nalaikh), the national capital, in 2001. In 1998, the national total was 93,801 lines while that of National Capital Ulaanbaatar was 56,412 lines. Table 3.4.3-3 shows the detail in 2001.

In addition to the traditional land lines, MT started the Wireless Local Loop (WLL) service called "MY PHONE" on 8th October, 2002. The MY PHONE services covers the capital city centre and its suburban area shown below.

Ulaanbaatar city center, Denjiin myanga, 100 ail, Chingeltei, Dambadarjaa, Dari Ekh, Doloon Buudal, Bayankhoshuu, Khaniin Materialiin kombinat, Tolgoit, Yaarmag, Nisekh, Orbit, Televiz, Downtown behind 4th Khoroolol, 16th Khoroolol, Sharkhad, Amgalan, Uliastai, Khailaast.

Table 3.4.3-3 MT's Main Telephone Lines by Aimag in 2001

Aimags and capital city	Population in 2000 ('000)	Number of Telephones (2001)	Telephone Density per 100 people
Total	2,379.5	119,858	5.0
Arhangai	97.6	1,187	1.2
Bayan Oigii	94.1	1,755	1.9
Bayanhongor	85.1	1,320	1.6
Bulgan	60.5	1,741	2.9
Govi Altai	67.0	1,737	2.6
Dornogovi	49.2	1,542	3.1
Dornod	73.9	1,687	2.3
Dundgovi	51.6	1,726	3.3
Zovkhan	87.7	1,587	1.8
Uvurkhangai	113.6	2,979	2.6
Umnogovi	45.4	1,618	3.6
Sukhbaatar	55.5	929	1.7
Selenge	94.8	3,225	3.4
Tuv	98.4	1,800	1.8
Uvs	87.6	1,883	2.1
Khovd	89.3	1,456	1.6
Khuvsgul	117.9	2,490	2.1
Khentii	68.6	1,609	2.3
Darkhan Uul	84.3	5,871	7.0
Ulaanbaatar	773.6	70,611	9.7
Orkhon	71.6	6,323	8.8
Govisumber	12.1	643	5.3
Baganuur	(Included in Ulaanbaatar)	2,649	(Included in Ulaanbaatar)
Nalaikh	(Included in Ulaanbaatar)	1,490	(Included in Ulaanbaatar)

Source: PTA.

(4) Service in Urban area

The telephone service in the national capital Ulaanbaatar is coming near to the international level, as the conventional normal telephone lines, wireless local loop (WLL) lines, and mobile telephones are available. The capital city, including two (2) district cities, is estimated to have a total of 270,000 telephone lines for around 774,000 inhabitants, counting 75,000 fixed telephone lines of MT, 5,000 fixed telephone lines of Railway Communications Company, 160,000 mobile terminals of Mobicom, and 30,000 mobile terminals of Skytel. The telephone density is estimated to be 34.9 percent, when the mobile terminals are included. See Table 3.4.3-4.

Table 3.4.3-4 Telephone Lines in Ulaanbaatar Area

Population				773,600	
Telephone terminalls					
	Land line (wired)				
		MT	Ulaanbaatar	71,000	
			District cities	4,000	
		MRC		5,000	
			Subtotal		80,000
	Mobile and WLL				
			Mobicom	160,000	
			Skytel	30,000	
			Subtotal	190,000	70.4%
	Total				270,000
Telephone density				34.9	

*Note: District cities are Baganuur and Nalaikh.
 MT = Mongolia Telecom, MRC = Mongolia Railway Company*

It should be noted that the land lines yielded the first position completely to the mobile terminals, that is, the land lines occupy only one-third of the total in Ulaanbaatar area. See Figure 3.4.3-1.

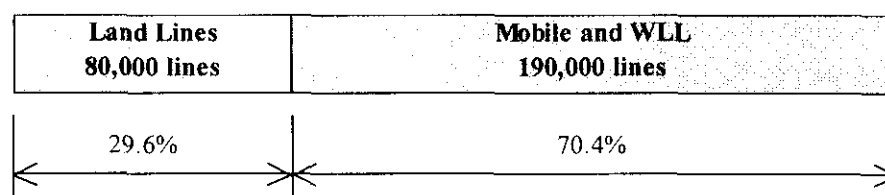


Figure 3.4.3-1 Ratio of Land Lines and Mobile-WLL

The Aimag (Provincial) centres have less telephone density than the national capital Ulaanbaatar. Among them, Darkhan and Erdenet record a higher telephone density than other Aimag centres, that is, 7.0 per cent in Darkhan and 8.8 per cent in Erdenet, excluding mobile terminals. A fairly large number of mobile subscribers are registered in those cities.

In the urban area, local call service is offered on subscriber dialling, for all the Aimag centres have automatic switching system as well as the national capital Ulaanbaatar. The distant direct dialling (DDD) by subscriber or subscriber trunk dialling (STD) is available. International direct dialling (IDD) service is also available.

(5) Service in Rural area

The telephone service in the areas other than Ulaanbaatar and the Aimag centres is far low than the service level in the urban area. The telephone lines are led mainly to public

institutes, except the case of limited number of economically active Aimag centres. Private use lines are very small in number. Mobile telephone service is available in a few number of Sum centres and the subscriber is very few.

The local calls within the Sum centre is of automatic connection by subscriber dialling, where the Sum centre has an automatic switching equipment. Around 70% of the Sum centres are furnished with automatic switching equipment, but the rest are served with manual connection.

The subscribers in Sum centre are not allowed to place DDD (or STD) in most cases, even in the case served with automatic exchange, because of the limited function of the switching equipment and transmission quality. The switching equipment in Sum centres are mostly PBX. For placing the trunk call, the subscribers call the operator, and the operator establishes a speech path between the calling party and the called party through long distance subscriber line from Aimag centre .

The speech quality of the calls going out of the Sum centre is very poor, for the transmission link is made up with open-wire transmission system. The Sum centre has a distant subscriber line, usually, from the Aimag centre. The speech path between the Sum centre and the Aimag exchange is established through the distant subscriber line.

3.4.4 Tariff System

(1) Land Line Telephone Tariff of MT

MT's tariff system is as shown in Tables 3.4.4-1 to 3.4.4-9, according to the latest information collected from CRC.