

**ASIA-PACIFIC FORESTRY SECTOR OUTLOOK STUDY
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COUNTRY REPORT - FORESTRY OF MONGOLIA

by

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INFORMATION NOTE ON ASIA-PACIFIC FORESTRY SECTOR OUTLOOK STUDY

At its sixteenth session held in Yangon, Myanmar, in January 1996, the Asia-Pacific Forestry Commission, which has membership open to all governments in the Asia-Pacific region, decided to carry out an outlook study for forestry with horizon year 2010. The study is being coordinated by FAO through its regional office in Bangkok and its Headquarters in Rome, but is being implemented in close partnership with governments, many of which have nominated national focal points.

The scope of the study is to look at the main external and sectoral developments in policies, programmes and institutions that will affect the forestry sector and to assess from this the likely direction of its evolution and to present its likely situation in 2010. The study involves assessment of current status but also of trends from the past and the main forces which are shaping those trends and then builds on this to explore future prospects.

Working papers have been contributed or commissioned on a wide range of topics. They fall under the following categories: country profiles, selected in-depth country or sub-regional studies and thematic studies. Working papers are prepared by individual authors or groups of authors on their own professional responsibility; therefore, the opinions expressed in them do not necessarily reflect the views of their employers, the governments of the Asia-Pacific Forestry Commission or of the Food and Agriculture Organization. In preparing the substantive report to be presented at the next session of the Asia-Pacific Forestry Commission early in 1998, material from these working papers will be an important element but will be blended and interpreted alongside a lot of other material.

Working papers are being produced and issued as they arrive. Some effort at uniformity of presentation is being attempted but the contents are only minimally edited for style or clarity. FAO welcomes from readers any information which they feel would be useful to the study on the subject of any of the working papers or on any other subject that has importance for the Asia-Pacific forestry sector. Such material can be mailed to the contacts given below from whom further copies of these working papers, as well as more information on the Asia-Pacific Forestry Sector Study, can be obtained:

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ABBREVIATIONS

AAC	Annual Allowable Cut
COMECON	Council for Mutual Economic Assistance
GDP	Gross Domestic Product
IMF	International Monetary Fund
MNE	Ministry of Nature and Environment
T	Mongolian Tugriks, currency unit
US\$	US Dollar, currency unit
USSR	Union of Soviet Socialist Republics (Former)

1. GENERAL INTRODUCTION

1.1 Location

Mongolia is situated in Central Asia and its territory comprises 1.566 thousand square kilometres, which is 1.2% of the land surface in the world. The territory stretches 1,259 kilometres from north to south and 2,392 kilometres from east to west. The most northern point of Mongolia is Mongol Sharyn Davaa 52°09' latitude, 98°57' longitude. The most southern point is Orvog Gashuuny Bor Tolgoi 41°35' latitude, 105°00' longitude. The most eastern point is Mount Maant 48°53' latitude, 87°44' longitude, and most western point is Modtoi Hamar 46°43' latitude, 119°56' longitude. The total length of the border is 8,161.8 kilometres; 3,485.0 kilometres borders with Russia, and 4,676.8 kilometres with China.

1.2 Land surface

Mongolia is a mountainous country. There is a relatively small area of plain. The western part of Mongolia contains the Altai range, the largest mountain range in Mongolia. The Altai mountain range stretches 1,500 kilometres and splits into the Mongol Altai and Gobi Altai ranges. Mongolia is approximately 1,580 meters above sea level. The highest peak in Mongolia is Munh Hairhany Orgil (Altai mountains) at 4,653 meters above sea level and the lowest point is Hoh Nuurny Depression (Dornod Mongol Plain).

Beautiful plains can be seen in the west and east of Mongolia. The largest of them is Dornod plain which is around 250 thousand square kilometres. The Gobi occupies a third of Mongolia territory and is known as the Thirty three Gobies of Zag, Suj and Nomin. Generally, this area is flat and stretches into Dorno Gobi, Altain Ovor Gobi, Zuun Garyn Gobi and Hoid Gobi. The Great Desert of Central Asia joins from the south.

1.3 Climate

Mongolia's geography highly influences the weather. Due to the distance from the sea the climate is continental. The temperature varies not only between seasons, but also within a day. The climate in the northern part of the country is extremely cold, in winter the temperature can reach -50 C, while it is +4C in the south. The warmest July day may be between 10C and 15C in Altai, Hangai, Hovsgol and Hentii, where as temperatures might reach 20C and above in the eastern part of the Dornod plain. Maximum temperatures can reach 35C in Hangai, and 41C in the Gobi. The coldest time in winter is the middle of January when temperatures drop to -25C to -30C in the northern mountains and -15C to -20C in Gobi. Extremely low temperatures of -45C to -53C in the northern part of the country have been recorded. The land is covered in snow for 40-60 days in South, and 150 in the North. The ground freezes down to 3 meters, and the total number of cold days is 160-220 a year.

1.4. Population

Mongolia has a population of 2.3 million. Most of the population (70%) is under 29 years of age. Population density in Mongolia is 1.4 people per square kilometre. The population is 49.9% male and 50.1% female. 56.4% of the population live in cities, and the remainder live in the countryside. 630 thousand people live in the capital city of Ulaanbaatar.

1.5 Land Resources

Mongolia has a huge territory of 1.566 million square kilometres. 80% of total area is for agricultural use; 0.1% is for special use; 11.2% for state forests; 1% for state water reserves and the remainder is state reserve. Total agricultural area is 122,381 thousand hectares, including 1,217 thousand hectares of arable land, 1,364 thousand hectares of working area, 119,434 thousand hectares of pasture.

1.6 Soil

Soil in Mongolia has been divided into the following classifications:

1. Black soil is found in Khangai, Khentii, Khovsgol provinces, Mongol Altai and Ih Hyangan Mountain ranges, and the in the Orhon, Selenge, Onon and Ulz river valleys which are in the forest steppe region. Black soil has 61.2%, 40-70 cm of thick humus.
2. Brown soil is in the forest steppe and steppe region 1,000-1,200 meters above sea level. The content of humus is 35% in dark brown, 23% brown, 1.62% in light brown soil. There is no need irrigate in brown soil.

1.7 Water resources

Mongolia's rivers total 67,000 kilometres in length. There are 4,000 lakes of more than 1 square kilometre and approximately 7,000 hot springs. Also Mongolia has a large resource of underground water. The largest river in Mongolia is the Selenge. The largest fleeting lake is Khovsgol which is the deepest lake in Central Asia and the largest lasting lake is Uvs Nuur (3,350 square kilometres). Fleeting water reserve is 39 cubic kilometres and 88% of it flows within the country. The lake water reserves are 180 cubic kilometres, and the underground water reserve is 12 cubic kilometres. There are many hot springs with varying mineral contents. The climate and geomorphology of the country influence water distribution in Mongolia. Lake and river flows increase due to heavy rainfall during the summer. There are numerous clear (limpid) waters in Mongolia. Water is used by both industry and households. It is, also used for generating electricity and there are possibilities to develop this further. Boats crossing Khovsgol lake are used for commercial and tourist transportation.

There is potential to contract small size hydropower plants on some of the rivers. Using developments in science and technology, water resources can be used widely. The estimated reserve of underground water is considerable which is a reliable source of water supply. However the Gobi is short of water.

1.8 Flora

Passing from north to south, there are four major latitudinal zones; forest-steppe, steppe, semi-desert and desert. There are also high mountains particularly in the forest-steppe zone including taiga and taiga Alpine belts. Depending on geographical zones, belts and topography, territory of Mongolia is divided 4 main botanical geographical districts; Khangai, Khentii, Altai mountains, the Eastern steppe and the Gobi. Although the amount of vegetation and flora of Mongolia is proportionally small. It is distinctive and heterogeneous because of the country's vast territory and geography.

At present, the vegetation of Mongolia comprises 2,251 species of higher vascular plant united in 596 genus and 103 families; 293 species of mosses united in 119 genus and 40 families; 570 species of lichens united in 70 genus and 30 families; 218 species of tungi united in 34 genus and 12 families; and 574 species of algae united in 154 genus, 52 families 8 types. The largest ones among the higher vascular plants are families of *Compositae*, *Leguminosae* Juss, *Grami* Naseous, *Miscanthus*, *Suaeda Glauca* Bunge, *Dianthus* and *Scrophularia incisa* weinm.

The vegetation of Mongolia contents plants of 2 large florist regions; the Siberian taiga in the north and the Central Asian steppe-desert in south. The basic vegetation form in the taiga belt is cedar and larch forests. The prevailing types of steppe plants are various kinds of *Faether grass*; *Miscanthus*, *Artemisia* and *Potentilla*. Most important in Mongolia's desert are *Piptanthus Mongolicus* Maxim, *Convolvulus Gorchacowa* and *Oxytrpic Grubow*. Mongolia has abundant medicinal plants and 700 species are used for traditional medicine. Generally the flowers and leaves of medicinal plants should be gathered in July and September and their roots from October to the spring of the next year.

2. SOCIAL AND ECONOMIC SITUATION

2.1 History

Archaeological finds have established the Mongols as a distinct people as early as the second millennium B.C. The primitive communal system gave way to the formation of the Hun state towards the 3rd century B.C. Between the third and the ninth centuries A.D. sovereign states were formed by a class of feudal lords which had steadily been gaining importance. The Turkish Empire formed during this period disappeared with the death of its leader, Toniukuk, in 730 A.D.

Chinggis Khaan unified the Mongols into a feudal state in 1206, and the Mongolian territory subsequently expended to cover most of modern-day China and reached well into Central Europe. By the mid 1300s, however, the Mongol Empire had disintegrated, and a prolonged period of internecine strife followed. Under the Convention of Dolonnor of 1691, Mongolia became a province of China. The next two centuries were characterized by tribal dispersions,

colonization by foreign powers, especially of the southern lands, and the consolidation of theocratic power in the northern territories.

The 1911 Chinese revolution allowed Mongolia to claim independence until 1915, when it was scaled back to autonomy under Chinese suzerainty, and in 1919 Mongolia was fully reincorporated into China. In March 1921, independence was reasserted, and a brief period of constitutional monarchy followed, ending after the ruler's death. In 1924, the People's Republic was founded. Over the next three years, politics shifted from right to left and civil unrest was prevalent. Over this period, too, Mongolia increasingly aligned itself politically, economically and militarily with the former USSR.

2.2 *Politics and Administration*

The transformation of Mongolia in the last seven decades from a feudal agrarian society to a relatively modern and structurally diverse state was accomplished under a socialist regime and a system of centrally directed allocation of physical and financial resources. Under the Constitution of 1960, supreme political power rested in the hands of the People's Great Khural (upper house), comprised of elected representatives. Executive power was placed in the hands of a Presidium and Council of Ministers, whose election by the Great Khural was assured by the Central Committee of the MPRP, the sole political party. The Parliament, elected by universal suffrage at the national level, consisted of two chambers - the People's Great Khural (upper house) and the State Baga Khural (lower house).

Political reforms, following widespread dissatisfaction with the single-party system, resulted in April 1990 in various amendments to the 1960 Constitution allowing, among other measures, legal formation of political parties. In August 1990 the country held its first parliamentary elections, in which opposition parties gained 40% of the seats in the Baga khural.

The Great Khural was empowered to adopt or amend the Constitution; elect the country's President; and appoint the vice President, Prime Minister and Chief Justice of the Supreme Court on the President's recommendation.

A new Constitution passed by the Baga Khural in May 1991 was adopted by the Great Khural in January 1992. The new Constitution, which took effect on 12 February, changed the name of the country from the People's Republic of Mongolia to Mongolia. It also embraced democracy and a market economy.

The new Constitution makes Mongolia a democratic parliamentary state with independent legislative, executive and judicial branches, and guarantees its citizens freedom of speech, religious tolerance and other basic human rights. Citizens have been given the right to own property (including land) and to engage in business activities of their choice.

Mongolia is divided into 21 administrative units (aimags). Aimags are divided into sums (districts). Sums are comprised of bags. The latter are the lowest rural administrative unit. There are total of 324 sums and 1,600 bags in the country.

2.3 Economic Situation

The change from central planning to a market has over the past five years resulted in a strong contraction of the Mongolian economy. Between 1989 and 1993, GDP in 1986 prices declined 22.3. The only major sectors which escaped the overall downward trend were agriculture, where production remained stable, and the 'other services', which include catering and tourism-related activities, which grew by 18%.

Unemployment, virtually unknown before 1990, increased rapidly, with close to 72,000 persons being registered as unemployed at the beginning of 1994. Estimates however indicate that actual unemployment may be 200,000 out of a working force of approximately one million. In 1994 there were clear signs of an economic recovery. According to IMF estimates, GDP is likely to grow 2.5%. Inflation seems to be under control now, the monthly increase in the consumer price index having slowed down to 3.8% in September 1994. The average for 1993 was 9.1%. Building activity, though only a fraction of its 1988 peak, is increasing for the first time in six years.

Exports still exceeded imports during the first months of the year, but over the whole year exports are expected to equal imports. Unemployment is still increasing, but the increase was down to 5% during the first nine months of the year compared to 13% in 1993. The industrial sector accounted for 32% of gross domestic product in 1993, making in the largest single contributor to the national economy. It was followed by agriculture and 'other services' each 23%, and trade with 19%. As indicated above the 'other services' sector has grown rapidly in recent years. Its share in GDP has increased by 10% points since 1989.

The state budget condition remains weak. Total expenditure was projected at US\$0.23 billion while the total revenue was projected at US\$0.20 billion in 1994. The government has introduced a number of new taxes and customs duties, e.g. duties on imported products such as petrol and private cars to increase its income.

Before the year 1990 Mongolia's currency was not convertible. There were different rates for commercial and non-commercial transactions. Its value was artificially high at both rates. In 1990 the government, after deciding that the Tugrik (T) should eventually become convertible, pegged it to the US dollar at a rate of T 5.63/1 US\$. Since then it has been devalued several times. The exchange rate was adjusted from T 40/1 US\$ to T 150/1 US\$ early in 1993, and a unified exchange rate was established. In early 1994 the rate was T 410/1 US\$. After that the foreign exchange rate has more stable.

Macroeconomics policy in 1994 was directed at a legal basis for market economy relations, the implementation of an integrated package of fiscal and monetary policies, adjustments in key tariffs and prices and checking economic decline.

As a result of this policy a number of positive developments were achieved in the national economy. Substantial progress was made toward macroeconomics stabilization and a basis was laid for the implementation of the key tasks of the Government's Program of Action. The main economic indicators are given in Table 1

Table 1 - Main economic indicators

	1989	1990	1991	1992	1993	1994
GDP growth rate *	4.2	-2.5	-9.2	-9.5	-3.0	2.1
Of which						
-industry	11.4	-0.3	-13.1	-11.5	-10.6	2.7
-agriculture	13.8	-2.0	-5.1	-4.0	-7.1	7.1
inflation (CPI)	-	-	54.4**	321.0	183.0	66.3
Registered unemployment (thous)	-	-	55.4	54.0	71.9	74.9
Imports (US\$m)	963.0	924.0	360.9	418.0	379.0	362.7
Exports (US\$m)	721.5	660.7	348.0	388.4	382.6	360.5
Foreign credits, aid	-	-	63.4	182.5	187.1	111.4

*In constant 1986 prices

** Prices increase after the exchange rate reform on 16 Jan, 1991

For the first time since 1989 there was an increase in Mongolian GDP. In 1994 GDP grew in real terms by 2.1%, including 2.7% growth in industry, 7.1% in agriculture, 3.7% in capital construction and 2.5% in the service sector. For the first time in recent years industrial production increased, and there was substantial improvement in agriculture. These contributed to the achievement of positive overall economic growth. Consumer price inflation in 1994 was 66.3%, which is one fifth of the 1992 rate and 36.5% of the 1993 level. The average monthly inflation rate in 1994 was 4.3%. That is three times down against the 1992 level.

3. MONGOLIAN FORESTRY SECTOR

3.1 Forest resources

The total forest area of Mongolia is 17.5 million ha or 11.2% of the total land area. The area of potentially exploitable forest is estimated to be between 5 and 6 million ha. The average growing stock in the northern forests vary between 54 and 79 cubic meters/ha in the whole forest area, and between 100 and 154 cubic meters/ha in the exploitable forests by regions. The total growing stock is 1.3 billion cubic meters and the exploitable volume 6 million cubic meters. The average tree size in exploitable forests varies between 0.45 and 0.58 cubic meters. Shares of Tree Species gives in Table 2. The forests are mainly located in the northern parts of the country along the Russian border forming a transition zone between the Siberian taiga forest and the Central Asian steppe zones. The forest areas of Mongolia are given in Map 1.

Table 2 - Shares of Tree Species by Main Regions.

Tree species	Region		
	Central	Western	Eastern
Larch (<i>Larix Sibirica</i>)	54	94	66
Pine (<i>Pinus Silvestris</i>)	16		10
Cedar(<i>Pinus cembra</i> , var. <i>sibirica</i>)	12	6	12
Spruce (<i>Picea obovata</i>)	3		
Birch (<i>Betula spp</i>)	13		12
Total	100	100	100

There are also significant areas of arid forest and shrub land in the southern and south-western parts of the country. According to the year 1987 estimates this area consists of 90% Saxaul forest and 10% *Tamarix spp.* This forests are strictly protected and subject only to limited exploitation to meet local needs for fuelwood. The forest zone is located 800-2,500 m sea level. The forest area is divided into following slope classes;

Slope class	Percent of forest area
0- 10o	5
11- 20o	55
21o +	40

All forests and land in Mongolia are state owned. The Ministry of Nature and Environment (MNE) has the main responsibility for the management of forests. The Forestry and Wildlife Research Institute under the MNE is responsible for forest resources inventory, and scientific and technological development in forestry. The Units of forest and Hunting under the provincial governments are responsible for forest management at local level.

The annual logging volume was on the level of 2.5 million cubic meters in the 1980s. The MNE reduced the annual allowable cut (AAC) to one million cubic meter to control deforestation in 1990.

According to MNE the forest area has decreased by 1.2 million ha during the last 20 years. Forest fires are damaging some 200,000 ha of forests annually. About 50,000 ha have been planted during the last 20 years, but parts of the cut-over and burned areas are regenerating naturally reducing the total losses.

The main objective of forest resource management would be to protect and develop the existing forests of Mongolia so that they make maximum contributions to soil and watershed protection, and conservation of existing ecosystems. At the same time the forests would produce, on a sustainable basis, increased volumes of industrial wood, fuelwood and minor forest products to the needs of people, and earn highly needed foreign currency through the export of wood products. The proper management and utilization of forests would create employment and income to people in the less developed parts of the country.

It is expected that the production of commercial wood and fuelwood could be increased from the current level of 1.0 million cubic meter a up to 3.0 million cubic meter a by the year 2010 by more intensive management forests, by regenerating the cut-over and burned areas effectively, by reducing logging waste, and by opening new forest areas for development

though building and upgrading roads. However, this must be verified by forest management plans.

Forestry is a long-term activity which must be guided by far-sighted strategy and planning to ensure the balanced development of resources. Proper planning takes into account e.g. forestry, institutional, economic, environmental and social objectives of the country. Without an overall plan the different subsections will be developed without adequate integration.

There are some evident and urgent development needs which should be started immediately. Such urgent tasks include:

- Continuation of the national forest inventory
- Preparation of forest management plans for major forest areas
- Development and use of more effective regeneration methods
- Development of wood harvesting methods
- Construction and upgrading of access and forest roads
- Development of forest policies and institutional framework (including human resource development).

3.2 *Regeneration of forests*

It is estimated that during the period 1975-1995 only 10% of the harvested areas were regenerated by planting. The annual rate of new planting has increased from 4,000 hectares in 1991 to 5,000 hectares in 1994. In 1995 the Forestry and Wildlife Research Institute prepared a report forecasting new areas of planting to 2010. The report provides a medium term forecast describing the five years out to the year 2000. The report estimates new planting to be between 6,000 hectares and 8,000 hectares per year during this period with a best estimate of 7,000 hectares.

In the longer term, from the year 2001 to the year 2010, the report expects new planting to be between 8,000 hectares and 40,000 hectares with a best estimate of 24,000 hectares per year¹.

Even if some areas regenerate naturally after logging the situation is not satisfactory. Without artificial regeneration the share of birch and aspen will increase, and some areas may be converted into grassland in the harsh climate. According to the Forest law of Mongolia the logging enterprises are responsible for the regeneration of cutting areas, but only the biggest logging companies have taken care of the regeneration, while the smaller ones have ignored it. It is still unknown, if the new Forest law will improve the situation, but in general the laws and regulations are ineffective if the economic base is missing.

The current regeneration method consists of piling and burning of logging waste, manual site preparation and planting of bare-root seedlings. The nursery grown seedlings are 2-3 years old. The most common planted species are pine and larch. The survival rate of seedlings is reported to be only 30-65%. The low survival rate is due to the following reasons:

¹ This would be a major jump from the average of only 2,500 ha/year over the past 20 years (Editor).

- harsh and dry climate
- poor quality of seedlings produced in nurseries
- inadequate site preparation and poor planting techniques
- neglected maintenance of plantations
- uncontrolled grazing.

As the areas requiring reforestation are much larger than the available resources, the optimum working methods should be developed. In the first phase the whole regeneration system should be thoroughly analyzed. The conditions where natural regeneration gives acceptable results should be clarified, and natural regeneration be used in such conditions. Where natural regeneration of desired species cannot be achieved, planting or sowing should be used. The development of planting methods includes the following:

- seed selection and genetic improvement of planting material
- improved nursery techniques
- site preparation
- planting techniques
- maintenance of plantation.

The development of forest regeneration will require extensive research, which should be done simultaneously with the development. Foreign know-how and financing would be necessary to get the development started

3.3 *Forest Industries*

Under the centrally planned system most industries were state-owned or joint ventures with the former COMECON countries. The industrial development took place mainly in the north-central region where part of the forest resources are located and which had easy access to the Soviet Union which, at time, was the main trading partner of Mongolia. Mongolia's most important forest industry regions are the Selenge province and Ulaanbaatar.

Industry was strongly import-dependent in technology, industrial consumable and chemicals, and it was highly subsidized. The USSR, Romania and Poland were the joint venture partner in wood industry. Towards the end of the 1980s the forest industry production, with the help of the mentioned countries, grew rapidly. The collapse of cooperation arrangements and the subsequent recession in Mongolia, caused an economic crisis in the industry with decline in production volumes and investments. Currently the forest industry is utilizing less than 30% of its previous production capacity.

The forest industry was controlled before year 1987 by the Ministry of Forestry and Wood Industry. After that the management of natural resources was under the responsibility of the Ministry of Nature and Environment.

The management of the wood working sector was under the responsibility of the Ministry of Agriculture and Industry. In the beginning of the 1990s the government formulated a reform programme for transition from centrally-planned economy to the free market economy. In the very beginning of the reform the forest industry was left aside, and attention was paid to more

critical sectors of the industries. However, later on the reform was extended also to forest industries. This included the privatization of state-owned enterprises and many reforms in industry. Large industrial enterprises were divided into smaller production units of individual factories. These units and other previously state-owned enterprises have been reorganized into joint stock companies.

The number of wood working companies operating in Mongolia, according to the 1994 statistics, is 49 of which most are sawmills and small scale joinery or furniture factories. The other mills include one veneer slicing unit, one plywood mill and two particleboard factories. Besides these there is one tissue paper mill, one cardboard paper mill and one match factory. The locations of the main wood industry units are given in Map 2. The division of big mill complexes into smaller units for privatization caused an increase in the number of wood working enterprises. The number of enterprises has increased also through new companies established by private capital. The number of employees has decreased rapidly in forest industry after the restructuring and privatization program was started. During the last three years the number of employees has come down from 10,500 people to about 7,000 people. The number wood working units employees given in Table 3.

Table 3 - Number of Wood Working Units and Their Employees

item	1991	1992	1993	1994
units	34	23	51	49
employees	9,053	10,500	8,150	6,980

There is substantial difference between the operations of privatized companies and the new private enterprises established after the year 1990. One reason for the difference is that the privatized companies have still as a burden the old operating systems of the centrally planned economy. It takes time to reorganize the management, labour force and operations of the companies to cope with the market economy. The new private enterprises seem to have better organized management and operations than the privatized companies. The condition of private companies seems to be better financially as well as technically. These companies also achieve better productivity and product quality than the privatized companies. The production of main forest industry products in 1990-1994 is given in Table 4.

Table 4 - Production of Main Forest Industry

item	unit	1990	1991	1992	1993	1994
Sawnwood	1000 cubic metre	509	270	124	98	129
Plywood	1000 cubic metre	3.4	1.9	1.0	-	-
Particleboard	1000 cubic metre	5.5	1.1	0.8	-	-
Windows and doors	1000 cubic metre	398	98	15	14	16
Furniture	Million T	31	-	45	42	98
Matches	Mill boxes	26	29	17	25	25
Cardboard	t	819	968	-	-	-

The consumption of industrial forest products per capita in Mongolia is very low. The consumption of sawnwood, which is the main industrial forest product, was 0.04 cubic metre per capita in 1994 while the average consumption in Europe is far higher. The consumption of other products such as plywood or particleboard is also low. The current economic situation in the country has hit hard the building industry which is one of the main consumers of wood products. Low contraction activity has a direct effect to the demand of forest products especially when the export of the products is small compared to the available production capacity.

3.4 Export and import of Processed Wood Products

The landlocked position of the country and the transport /transit problems are an obstacle to foreign trade, and the forest industry serves mainly home markets. Some trade, anyway, is existing. Previously the Soviet Union used to be the main trading partner, but recently China has taken its place as destination for export.

After the export of roundwood was banned in the beginning of 1995, the only export product, by volume and value, has been sawnwood.

The export volume of sawnwood was over 120,000 cubic metres in the middle of the 1980s, and declined to average level of 80,000 cubic metres a towards the end of the decade and in the beginning of the 1990s. In 1994 the export dropped down to 46,000 cubic metres.

The import of wood-based products consists of paper and wood-based panels which are currently not produced in the country. Some furniture is imported too. The import volumes of panels for construction or furniture manufacturing are rather small compared with the previously produced volumes. There is a big demand for imported products but high transportation costs and inflation in the country strongly limits the imports to the most critical needs and to some luxury furniture. The volumes and values of export and import of wood industry commodities are presented in Tables 5-6.

Table 5 - Export Volumes and Values of Forest products

item	unit	Volumes			values (1000 US\$)		
		1992	1993	1994	1992	1993	1994
Logs	1000 cubic metre	0.8	11.5	25.5	50	555	2,093
Sawn Timber	.-	87.4	74.6	46.3	13,127	8,684	5,201
Plywood	.-	-	0.05	0.02	-	5	3
Sliced Veneer	.-	0.1	-	-	-	-	-
Wooden furniture	set	-	1.1	1.6	28	22	102
Paper and Paper Products	t	0.5	-	0.1	36	29	9
Total	-	-	-	-	13,241	9295	7,408

Table 6 - Import volumes and values of forest products

Item	Unit	Volumes			Values (1000 US\$)		
		1992	1993	1994	1992	1993	1994
Logs	m ³	-	750	-	-	-15	-
Sawn timber	m ³	3,822	2,674	449	113	351	24
Particleboard	m ²	26,827	6,564	60,940	20	10	69
Plywood	m ²	30	183	2,737	-	1	67
Sliced Veneer	m ²	-	-	141	-	-	8
Wooden matchbox	1000 box	-	14,400	3,062	-	172	25
Windows and doors	m ²	-	-	1,140	-	-	4
Wooden furniture	set	-	98,862	8,006	1,460	1,023	705
Paper and paper products	t	1,369	-	3,480	1,053	631	558
Cardboard products	pcs	21,691	85,949	11,593	21	34	4
Total	-	-	-	-	2,667	2,237	1,464

3.5 Sawmilling

Sawmilling is the main forest industry activity in Mongolia. The highest achieved production in the middle of 1980s was close to 600,000 cubic metres annually which could be considered as the capacity of the industry at the time. That production consumed 1.2 million cubic metres of sawlogs. Currently sawmills are running below 30% of the capacity utilization rate. Production of 1994 shows some increase in output volume, and it is estimated that the growth will continue slowly in 1995 and a little faster during the following year boosted by the recovering economy of the country.

After the export ban of roundwood, sawnwood is and will be the only exportable forest industry product in the nearest future. To meet the domestic demand for sawnwood, and to earn urgently needed foreign currency the rehabilitation and development of sawmilling industry is most important. In the first state the rehabilitation should include the general overhaul of the equipment and small investment to remove bottlenecks in production and to improve product quality. In the second stage, sawmills should start to invest in new production technology to expand the capacity, to reduce production costs and to improve the efficiency.

The use of modern portable sawmills could be a solution for sawnwood production in remote areas or at harvesting far from industrial units. This approach would reduce the transport problems and profitability, as only the finished or semi-finished products need to be transported.

3.6 Sliced veneer

There is one production unit of sliced veneer in Ulaanbaatar. This unit was closed down some years ago because of too high operating costs and difficulties to obtain raw material and team for heating of logs. Another reason for the closure was decreased demand for sliced veneer during the recession. Pine and larch were the main wood species used as raw material. The main machinery of the unit consists of one vertical and one horizontal slicer. The installed capacity of the unit is 2 million square metres of sliced veneer annually.

Production of sliced veneer could be restarted either at its current or completely new location, assuming that raw materials, steam and other production elements will be available at reasonable costs. The estimated production capacity would be 2 million square metres.

3.7 Plywood

The only plywood mill producing plywood from rotary cut veneer is located in Sykhbaatar in the Selenge province. Pine has been the main raw material. The production of the mill was stopped in 1992 due to shortage of production chemicals. The mill has an installed capacity of 9000 cubic metres annually. The highest achieved production has been 7,000 cubic metres annually. The production line consists of log storing and heating vats, and dryer lines with clipping and jointing facilities. For pressing there is a 15 dalights press producing panels of 1515 mm x 1515 mm in size. For the finishing of plywood there are trimming and sanding facilities.

The production machines of the plywood mill are old and worn out, but they could be restarted after major overhaul. The mechanization level of the mill is low, but there might be possibilities to increase the production volume to 10,000 cubic metres annually by further mechanization and reorganization of production operations. The expansion of the production capacity of the existing mill or the construction of a second plywood mill may also become actual in the future.

3.8 Particleboard

There are two particleboard factories in Mongolia. One is located in Ulaanbaatar and the other in Sykhbaatar. The mill in Ulaanbaatar has an installed capacity of 5,000 cubic metres annually but the production has varied between 1,000 and 3,000 cubic metres. The mill was established in 1983, and no reinvestments have been done since then. The machinery of the mill is worn-out and obsolete and apparently beyond repair. The mill in Sykhbaatar has Policy machinery, and it was built in 1985. The installed capacity of the mill is 18,000 cubic metres annually. The factory used wood waste from sawmills as raw material. The product is one layer board, 16 mm thick, 1,850 mm wide and 2,750 mm long. The existing particleboard

mill in Sykhbaatar could be restarted after complete overhaul, and when chemicals are made available. Achievable production could be about 15,000 cubic metres annually. The board quality could be improved by adding equipment for manufacturing of three layer boards. The construction of a new particleboard mill may also become actual by the end of this century.

3.9 Furniture and joinery products

The further processing of sawnwood and panel products includes furniture and joinery products. Furniture include solid wood products or upholstered furniture sets with wood framework. Joinery products consists of doors and windows. Previously a remarkable portion of products were manufactured in factories established in the connection of large mill complexes. During privatization, factories were divided into smaller units which are now privately owned and operated. There is large variation in technical condition of the enterprises. The quality of most products is low, and many buyers prefer imported furniture, which have better quality. Only few enterprises can achieve an acceptable quality level.

There is a huge need to reorganize the furniture and joinery industry to make them capable of producing saleable products and to increase the variability of the companies. Professional and training assistance is needed to rehabilitate the industry. The rehabilitation should concern all operations of the companies from management to production planning, production processes and quality control.

3.10 Ger production

One less known, but nationally important, industry sector which uses sawnwood and wood-based panels is “ger” production. “Gers” are traditional Mongolian houses, where people are used to live. There are 6 factories in Mongolia producing wooden components and furniture for “ger”. The biggest manufacturer produces about 1,200 “gers” and the others 300 “gers” each annually. Although the sawnwood consumption of “ger” industry is only about 3,000-4,000 cubic metres annually, the “ger” production is important to the country because it is estimated that more than half of Mongolians live in “gers”. In addition, “ger” production is an excellent sample of cooperation and network of different kind of producers.

3.11 Development programme

A development plan for the Mongolian forest industries up to the year 2005 was prepared in cooperation with planning institutes of the Soviet Union and Mongolia in 1988. The plan was based on higher annual cuts than is now regarded feasible, and after the change from centrally planned economy to free market economy was started, the basic assumptions behind this study became invalid. As a result, the plan has never been implemented.

The other recent programmes are the “Forest resources protection Programme up to 2005” and the “Reforestation Programme” developed by the Forest and Wildlife Research Institute of MNE.

The overall development and the growing population in Mongolia will require that increasing volumes and higher quality forest industry products like sawnwood, wood-based panels and further processed will be available.

The main objective of forest resource management would be to protect and develop the existing forests of Mongolia so that they make maximum contributions to soil and watershed protection and conservation of existing ecosystems. At the same time, the forests would produce on a sustainable basis, increased volumes of industrial wood, fuelwood and minor forest products to the needs of people and earn highly needed foreign currency through the export of wood products. The proper management and utilization of forests would create employment and income to people in the less developed parts of the country.

It is expected that the production of commercial wood and fuelwood could be increased from the current level of 1.0 million cubic meters up to 3.0 million cubic metres by the year 2010 by more intensive management of forests, by regenerating the cut-over and burned areas effectively, by reducing logging waste and by opening new forest areas for development through building and upgrading roads. However, this must be verified by forest management plans.

Forestry is a long-term activity which must be guided by far-sighted strategy and planning to ensure the balanced development of resources. Proper planning takes into account, e.g. forestry, institutional, economic, environmental and social objectives of the country. Without an overall plan the different subsectors will be developed without adequate integration.

There are some evident and urgent development needs which should be started immediately. Such urgent tasks include:

- continuation of the national forest inventory
- preparation of forest management plans for major forest areas
- development and use of more effective regeneration methods
- development of wood harvesting methods
- construction and upgrading of access and forest roads
- development of forest policies and institutional framework (including human resource development).

The current condition of the industries is not sufficient to satisfy the future demand and quality requirements of all forest industry products.

The industrial development programme is proposed to be implemented in two phases. The first phase would include the preparation of rehabilitation plans for the existing industries. The second phase would include investments in new technology and equipment in the existing mills and construction of new production capacity.

The rehabilitation and development of industries will require know-how and capital, both of which are not adequately available in the wood industry enterprises. A supporting project/organization would be needed for the start-up period to prepare the development plans, to assist the companies in preparing the feasibility studies and to assist in the financial arrangements.

The total costs of the proposed development programmes are estimated to be US\$19-25 million for forestry development and US\$131-165 million for the development of forest industries during the period 1997-2010. In forestry, the biggest investments would be on roads. In forest industries, the main investments would be the rehabilitation of existing wood industries. The investments requirement in forest industries is very high and it may take time before funding can be found for all projects. The feasibilities of different development projects can be determined only through detailed feasibility studies and in the first stage the emphasis should be in making such studies and in financing arrangements.

The investment requirement in forest industries is very high and much work will be required to find funding. The capability of the domestic sector to finance and guarantee the economic growth and investment projects is at the moment limited. Foreign financial support would be needed to employ foreign experts into the development projects and to establish risk capital funds for the development of the wood working industry sector.

International cooperation and support of donor agencies in implementation of development programmes and projects would be for great help to Mongolia

3.12 Forest legislation

The new Forest law was approved in June 1995. The new law includes the following principles and regulations:

- the protection of forest resources and environment has especially been emphasized
- clearcutting of forests is not allowed; the regulations concerning selective cuttings are still under preparation
- the MNE gives the annual logging quotas to the provinces and the provinces select the cutting areas
- logging companies have to plant 3-5 seedlings per felled tree
- the law gives the possibility of increasing royalties considerably from the present levels.

The protection of forests has been emphasized in the new forest law. In addition to the national parks and reserved areas, the following measures are followed:

- around big cities the protection zone has 80 kilometres radius and smaller towns 30 kilometres
- the protection zone is 2 kilometres from major rivers
- logging is prohibited on slopes steeper than 30 degrees
- logging in forests less than 100 hectares in size and 50 metres from forest boundary is prohibited.

The commercial forest area transferred to protected or regulated areas in 1970-1974 is about 3.0 million hectares. There are plans to include the following forest areas in protection zones and reserves:

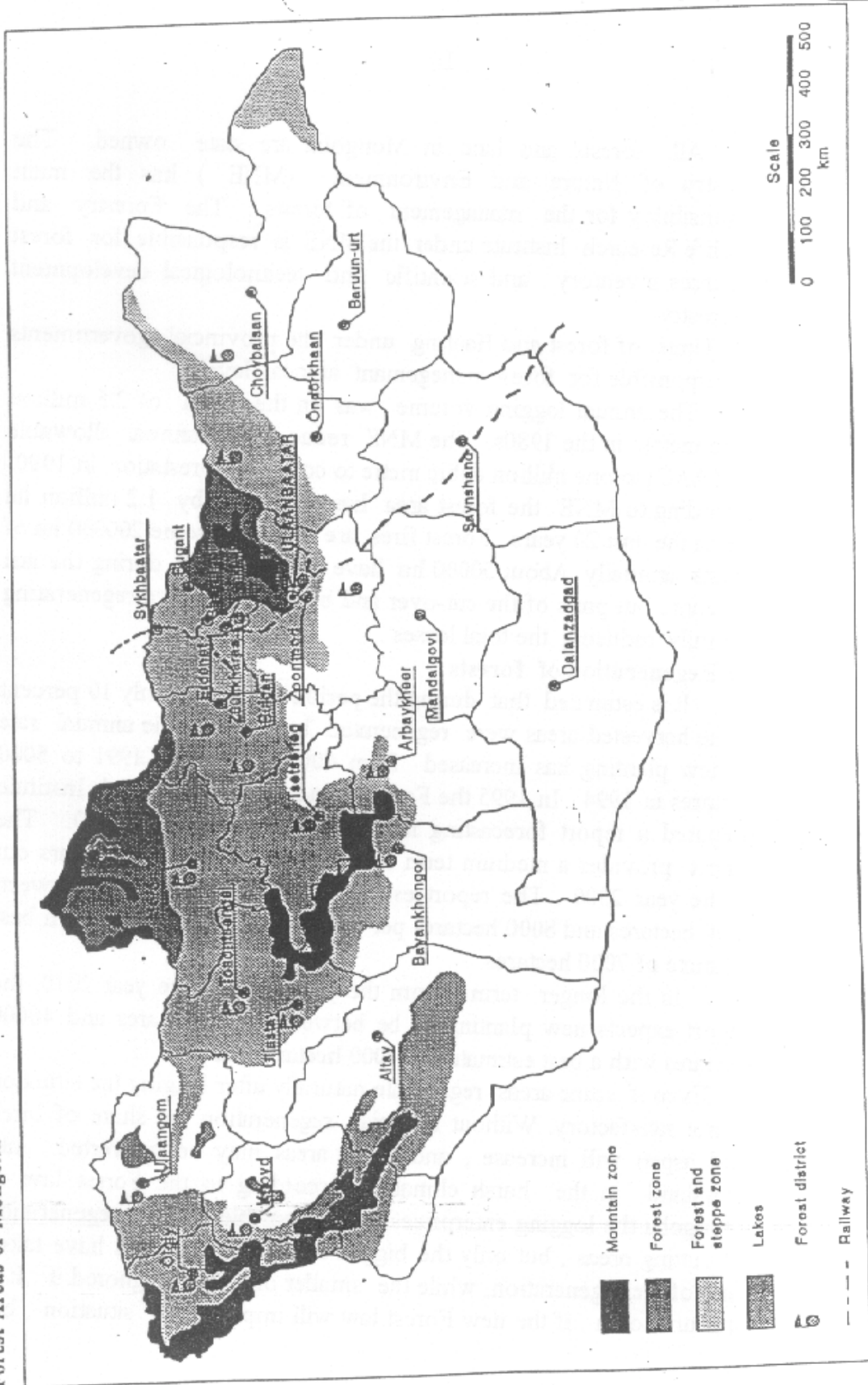
- area rich in biodiversity
- areas important for endangered species

- ecologically sensitive areas
- areas important for watershed protection
- areas prone to erosion and landslides
- areas important for hunting and recreation

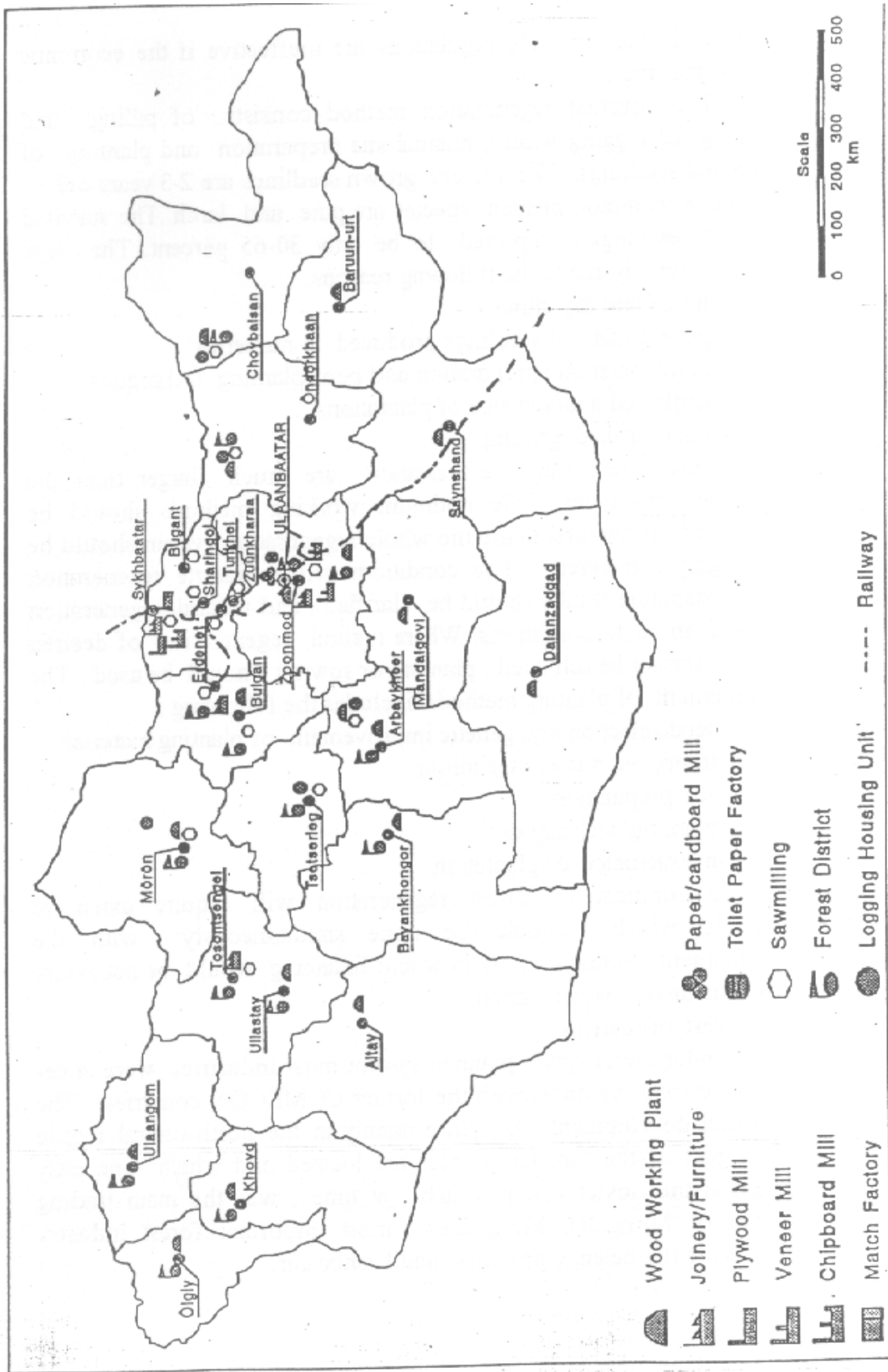
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Map 1
Forest Areas of Mongolia



Map 2
Wood Working Industry in Mongolia



OFFICIAL TRANSLATION

FOREST LAW OF MONGOLIA

Adopted: March 31, 1995

Ulaanbaatar, Mongolia

CHAPTER ONE**GENERAL PROVISIONS**Article 1 Purpose of this Law

The purpose of this law is to regulate the protection of forests, the proper utilization and regeneration of forests.

Article 2 Legislation on Forests

The legislation on forests shall consist of the Mongolian Constitution, the Mongolian Law on Environmental Protection, the present and other legislative acts issued in conformity with them.

Article 3 Possession and Utilization of Forests

1. Forest resources are the property of the State as stipulated in the Mongolian Constitution.
2. The state has the power to grant ownership rights of the forests to the capital city, aimags, and soums and the citizens' representatives khurals has the power to grant citizens, economic entities and organizations the use of forests and forest side-line products for certain periods, costs, conditions on the basis of a contract or license.
3. According to legislation, contract and licenses, after paying the relevant charge, citizens, economic entities and organizations shall have the right to own timber and other side-line products of the forests. If these citizens, economic entities and organizations plant trees on land leased by them using their own money, then these trees will be their own property.

Article 4 The Forest Fund, its Classification and Lands with Forest Funds

1. The forest fund consists of the areas covered by forests including all species of trees and scrub replanted forests, and saxauls.
2. The forest fund is divided into the following categories according to its ecological and economic importance:
 - 1/ Special forest zone
 - 2/ Protected forest zones
 - 3/ Industrial forest zone

3. Forest land, glades, logged areas, forest damaged by fire, harmful insects and disease, the area within 100 metres from the forest edge, seedlings and nurseries all form the forest resource.

Article 5 Forest Information Databank

1. The forest databank shall include the following information: forest monitoring and evaluation, total forest territory, resources, composition, quality, assessment of value, assignment of forests to users according to contract, forest protection, utilization, indices or reforestation work in the country, capital, aimags and soums.
2. Compilation of the databank, registration and report forms and the rules applying to their recording shall be approved by the Central State Administrative Organization in charge of nature and environment (hereinafter referred to as “Central State Administrative Organization”).
3. The Mongolian Law on Environmental Protection shall regulate the formation of the forest information databank.

Article 6 Forest Inventory, Management and Financing

1. Forest management shall consist of studies of forested lands, resources, expansion of forests, composition, quality, monitoring, changes and defining grounds for the protection and rational usage of the forests and determining the need for reforestation.
2. Forest management shall be carried out by professional organizations as authorized by the Central State Administrative Organization.
3. Determination of the forest fund volume and forest inventory and management planning shall be carried out once every 10 years.
4. Forest management shall be financed in the following ways:
 - 1/ Forest management concerning the determination of the extent of forest fund and its potential for development of the region, or forest management of special forest zone shall be financed from the State Central Budget.
 - 2/ Forest management for establishing protective zones and forest management carried out at the discretion of governors of the capital city aimag, soum and duureg centres shall be financed from the local budget.
 - 3/ Citizens, economic entities or organizations shall finance the management of the forests which they use pursuant to contract.
5. Forest management procedures shall be approved by the government.

Article 7 Forest Fund User's Fee

1. Every citizen, economic entity and organization shall pay the forest resource users fee for the use of the forest, its trees and side-line products.
2. The maximum and minimum fees, discount rates and free use procedures shall be determined by law.

CHAPTER TWO

FORESTS WITHIN SPECIAL ZONES AND PROTECTIVE REGIMES

Article 8 Forests Within Special Zones

1. "Forests Within Special Zones" consists of sub-alpine forests, virgin zones and protected zones with National Conservation Parks.
2. To maintain the ecological balance of mountain ranges and to prevent soil degradation a sub-alpine forest borderline shall be established by the Central State Administrative Organization.

Article 9 Protective Regime for Forests within Special Zones

1. In forests within special zones, measures shall be taken only to maintain the wildness of nature and ecological balance, to protect from forest fire and from harmful insects and disease.
2. In subalpine forests, all actions are forbidden except the gathering of fallen trees and branches and the use of side-line products stipulated in the list approved by the Central State Administrative Organization.
3. Protection regimes for forests within virgin zones, protected zones of preserved areas and the National Conservation Parks shall be regulated by the Mongolian Law Specially Protected Areas.

CHAPTER THREE

FOREST WITHIN PROTECTED ZONES AND RULES FOR THEIR PROTECTION AND USAGE

Article 10 Forests within Protected Zones

Forests within Protected Zones include forests of the specially protected areas (excluding forests specified in paragraph 1 of Article 8 of this law), the green zone, prohibited strips, saxaul forests, oases, forest areas covering up to 100 hectares, small tree groupings, scrub, sun-exposed forest areas and forests at slopes greater than 30 degrees. They do not include the forests which are listed in paragraph 1 of article 8 of this law.

Article 11 Forests within Special Protected Areas

Rules protecting the forests within special protected areas provided for in article 10 of this law shall be regulated by the Law of Mongolia on Specially Protected Areas.

Article 12 Green Zone Forests

1. Green zones shall be established around towns and villages in order to maintain the ecological balance and to provide a clean environment for the population.
2. The government shall determine the borderline of the green zone forest around the capital city.
3. The border of green zone forests around town and villages (not the capital city) within a radius of 30 km shall be determined by the Citizens Representatives' Khurals of aimags and soums on the basis of the proposals of the Central State Administrative Organization.

Article 13 Prohibited Strip Forest

The following forests which prevent soil degradation and are important for regulating the balance of underground and surface water are classified as prohibited strip forests:

- 1/ forests which are located at a distance of up to 5 km around lakes and sources of rivers;
- 2/ forests which are located at a distance of up to 3 km along river banks and up to 3 km around sources of mineral water and springs
- 3/ forests which are located up to 1 km along both sides of railways and roads of national importance.

Article 14 Forests within Other protected Zones

Borders of forests within other protected zones, except those listed in articles 11, 12 and 13 of this law shall be established by the Citizens Representatives' Khurals of the capital city and aimags on the recommendation of the Central State Administrative Organization.

Article 15 Forest Regimes within Protected Zones

1. The forests shall be cleaned and cared for in order to protect them, maintain normal growth and improve regeneration.
2. All other activities except those listed in article 27 of this law, such as the fuelwood collection for household use, and, in article 29 of this law, the utilization of side-line products from the forest, are prohibited.

CHAPTER FOUR

INDUSTRIAL ZONE FORESTS AND ITS USE REGIMES

Article 16 Industrial Zone Forest

All other forests except those listed in articles 8 and 10 of this law are classified as industrial zone forests.

Article 17 Regime for Industrial Zone Forests

1. Citizens, economic entities, and/or organizations may harvest merchantable wood and fuelwood industrial purposes within the permitted period according to applicable legislation upon the condition that they pay harvesting fees.
2. Citizens, economic entities and/or organizations possessing the appropriate license may harvest fuelwood and merchantable wood and utilize side-line products for household purposes within the industrial forest zone.

CHAPTER FIVE

PROTECTION AND REGENERATION OF FORESTS

Article 18 Measures for Forest Protection

1. Forest Protection Measures shall include care-taking, cleaning of forests, maintaining normal growth and regeneration of forests, and a positive genobank, as well as protection of forests from fire, disease and harmful insects, and from the negative impacts of human activity.
2. The Citizen's Representatives Khurals of the capital city, aimags and soums may prohibit the utilization of forests and their side-line products in their own territory for up to 3 years.

Article 19 Forest Fire Protection

1. Governors of the capital city, aimags, soums and duuregs shall design a fire prevention programme and allocate the required financing from the annual local budget in order to implement the above mentioned activity.
2. Citizens, economic entities, and/or organizations using forest pursuant to contract shall finance fire prevention operations for such forests.
3. Determining the causes of fire outbreak and assessment of the damage and expense to put out the fire shall be carried out by a working group appointed by the governors of the capital city, aimags, soums and duuregs.
4. Citizens, economic entities and/or organizations shall abide by the following requirements for prevention and fighting forest fires:

- 1/ In the period from 20th of March until the 10th of June and from the 20th of September until the 10th of November - the period of the highest probability of fire outbreaks, it is forbidden to make camp fires. In unavoidable circumstances, they must properly extinguish burning cigarettes, sparks, hot cinders or lit matches.
 - 2/ Before harvesting fuelwood, gathering side-line products, going on an excursion or picnic, or other activities within the dangerous period, they must inform the territory's ranger in advance and take measures for fire prevention.
 - 3/ Fuel and exhaust systems for vehicles used either to pass through or work in the forest shall be equipped according to fire safety requirements.
 - 4/ Abide by regulations in the storage and use of flammable materials, explosives, and lubricants.
 - 5/ If they discover or receive information on forest fire danger, they shall immediately inform the relevant agencies and governors of the soums, duuregs, bags and khoros and take measures to fight the fire using any means available to them.
5. Governors of all levels, pursuant to the competence, shall mobilize people, vehicles and equipment to put out any fire immediately and the orders of the governors shall be executed by citizens, economic entities and/or organizations.
 6. Regulations for fire prevention in the forests shall be approved by the government.

Article 20 Protection of Forests from Disease and Harmful Insects

1. A programme to control damage caused by harmful insects and diseases shall be developed by the governors of the capital city, aimags and soums. Financing for the implementation of the programme shall be allocated from the annual local budget.
2. If harmful insect damage and disease epidemic cover the territory of several soums of more than one aimag, measures against the harmful insects and diseases shall be taken by a professional organization and financed by the state central budget.
3. Citizens, economic entities and/or organizations shall, with their own financing, carry out preventative measures against harmful insects and disease in the forest which they are using.
4. Research work on the prevention of fighting diseases and harmful insects shall be carried out by professional organizations.
5. It is forbidden to use chemical substances to fight diseases and insects, except those permitted by the Central State Administrative Organization.

Article 21 Caretaking and Cleaning of Forests

1. Caretaking and cleaning of forests in order to improve growth and protect them from fire, harmful insects and diseases shall be done by professional organizations and financed by the local budget.
2. Regulation of caretaking and cleaning shall be approved by the Central State Administrative Organization.

Article 22 Activities Prohibited in Forests

1. To provide for the normal growth and regeneration of the forest and to protect it from the negative impacts of human contact, the following activities are prohibited:
 - 1/ to cut or violate forests up to the fifth age class, all species of young trees, as well as rare species such as: Siberian fir, rhamnus, Asiatic poplar, elaeagnus, cornel, tamarisk, Siberian alder, mountain ash, sea-buckthorn, fruit bearing trees and certain shrubs.
 - 2/ to cut and use cedar, spruce and elm without a permit from the Central State Administrative Organization.
 - 3/ to harvest trees using clear cutting technology.
 - 4/ hay making in the forest fund area without a permit.
 - 5/ to cut trees and to pasture livestock in the area where seedlings are planted.

Article 23 Regeneration of Forests

1. In order to enrich forest resources, to protect the genobank of the forests and to ameliorate the climate, trees shall be planted in areas damaged by fire, diseases and harmful insects and in deforested areas. These measures shall be financed by the local budget, citizens, economic entities and organizations on their initiative.
2. Citizens, economic entities and/or organizations who harvest timber for industrial purposes shall reforest the area and the reforestation shall be evaluated by forestry services. After 2 years, the planted forest must be returned to the Governors of the soums and duuregs. For each harvested tree, three to five seedlings must be planted.
3. The Central State Administrative Organization shall establish a programme to reforest the treeless areas of the forest fund, steppe, gobizone and areas near the source of rivers, springs and streams, as well as to protect rangelands from soil erosion and degradation by setting up forest strips financed from the state budget or from other sources of funding.
4. Allocation from the state budget for protection of forests and regeneration of forests shall be not less than 70% of fees for the trees harvested in that year.

Article 24 Organization of Reforestation

1. The aimag and capital city governors shall establish one day each year and for reforestation work with their territory.
2. Governors of soums, duuregs, bags and khoros, in cooperation with professional organizations, shall organize forestry work on the supply of seedlings, the location for tree planting, soil cultivation, watering and the care taking of newly planted trees involving local people in these activities.

CHAPTER SIX

FOREST UTILIZATION

Article 25 Determination of the Volume of Harvest

1. The Central State Administrative Organization shall determine the maximum limit of available harvesting in the industrial forest zones for the aimag and capital city that year.
2. The Citizen Representatives' Khurals of aimags and the capital city shall determine the volume of permissible harvest on their territories according to the Central State Administrative Organization decision.
3. The Citizens Representatives' Khurals of soums shall determine the volume of permissible harvest on its territory according to the volume determined by the Citizens Representatives' Khurals of aimags.

Article 26 Timber Contracts

1. Citizens, economic entities and/or organizations who intend to harvest trees for an industrial purpose shall submit a request to the governors of the soum and capital.
2. The governors of the soum and capital city shall make a decision on the trees to be harvested at the request of a citizen, economic entity or organization taking into consideration the economic efficiency of the activities of the citizen, economic entity or organization, the cutting technique and processing technology, level of utilization, amount of funding for the protection and regeneration of the forest and evaluation by professional organizations, bearing in mind the volume of trees permitted for harvest.
3. On the basis of the decision provided for in paragraph 2 of this article, a citizen, economic entity or organization must enter into a contract with a professional organization for tree harvesting in a certain territory.
4. In the contract the following points shall be stipulated:
 - 1/ Reason for the harvest (appropriate decision).
 - 2/ Purpose of the cutting, species of trees, volume and duration.
 - 3/ Forest management, border of cutting area, standing volume of the harvest site in which work is to be done.

- 4/ Technological scheme, harvest proposal and the implementation period.
 - 5/ Tree harvest fees and payment deadlines.
 - 6/ Programme for protection of forests from fire, disease, harmful insects and regeneration and the implementation expenses.
 - 7/ Conditions for returning the deforested area.
 - 8/ Responsibilities, obligations and rights of the parties to the contract.
5. Implementation of the timber contract shall be evaluated annually.
 6. If the forest area used is taken under state protection or if the utilization of the forest stipulated in the contract is prohibited by paragraph 2 of article 18 of this law, the user shall be given another area to cut with the same permitted volume of wood as in the first contract.

Article 27 License for Cutting Trees

1. Citizens, economic entities and/or organizations may be given a license for cutting trees for household consumption by governors of bags and khoros. The license for cutting trees for fuel may be given by the forest ranger of the locality.
2. The license for tree harvesting as provided in the first paragraph of this article, shall state the name and address of the license, the species of trees which are going to be cut, the volume of wood, the duration of cutting, transportation method and the name of the location.
3. Citizens, economic entities and organizations are prohibited from transferring the license to cut trees to others under any circumstances.

Article 28 Obligations of the Forest User

1. Citizens, economic entities and/or organizations which use the forest shall assume the following obligations:
 - 1/ abide by forest legislation
 - 2/ use trees and side-line products of the forest according to contract and license provisions.
 - 3/ pay fees for forest utilization on time as stated in the contract.
 - 4/ cut and transport timber within the time fixed by the contract and license.
 - 5/ return the harvest area to the professional organization after clearing pursuant to the established rules.
 - 6/ the height of the stump must be not more than one third of the diameter of the tree.

Article 29 Utilization of Side-line Forest Products

1. To utilize side-line forests products, citizens, economic entities, and/or organizations shall obtain a license from the forest ranger of the locality.
2. The license shall state the name and address the licensee, the species of the side-line products, volume, utilization period and the name of the harvest area.
3. Local residents may utilize side-line forest products for household consumption free of charge within the volume determined by the Central State Administrative Organization.

Article 30 Tree Harvest in Territory of Other Aimags and Soums

1. Governors at the relevant levels shall agree in advance and create a contract with the concerned economic entity and/or organization on tree harvest, in accordance with article 26 of this law, to supply citizens, economic entities and/or organizations located in an aimag, soum or the capital city without forest or with little forest resources.
2. Where governors are unable to agree regarding the tree harvest or there is national and important need for harvesting trees, the decision shall be made by the Central State Administrative Organization.

CHAPTER SEVEN**MISCELLANEOUS**Article 31 Liability for Violation of Forest Legislation

1. For non-criminal offences, the judge, environmental protection inspector or ranger shall impose on the violator the following administrative punishments:
 - 1/ For failure to clean the harvest area or violation of technological regimes in harvesting and utilization of side-line forest products, the responsible citizen shall be fined 500-5,000 tugrigs and an economic entity or organization - 50,000 tugrigs.
 - 2/ for failure to take preventative measures against forest fire, harmful insects and diseases, as stipulated by contract, an economic entity and/or organizational shall be fined 50,000 tugrigs.
 - 3/ For failure to follow forest fire prevention requirements as established in paragraphs 4 and 5 of article 19 of this law or for carrying out activities as prohibited in article 22, citizens shall be fined 1,000-10,000 tugrigs and economic entities or organizations from 50,000-75,000 tugrigs.
 - 4/ For harvesting timber and fuelwood and for the harvest of side-line forest products without required licenses or for the violation of conditions stated in the license, all illegally harvested materials and illegal income shall be confiscated and citizens shall be fined from 3,000-10,000 tugrigs and economic entities or organizations from 50,000 - 75,000 tugrigs.
 - 5/ For harvesting timber or fuelwood for an industrial purpose without a contract or for violation of contract provisions and conditions, the illegally harvested materials and

illegal income shall be confiscated and citizens shall be fined 5,000-20,000 tugrigs and economic entities or organizations 100,000-150,000 tugrigs.

- 6/ For engaging in actions prohibited by articles 12, 13 and 14 of this law, the illegally harvested materials and illegal income shall be confiscated and citizens shall be fined 5,000 to 20,000 tugrigs, economic entities and organizations 150,000-200,000 tugrigs.
 - 7/ For engaging in prohibited actions in the sub-alpine zone forests, the illegally harvested material and illegal income shall be confiscated and citizens shall be fined 10,000-25,0000 tugrigs and economic entities and organizations 200,000-250,000 tugrigs.
2. In the case of extreme loss caused by illegal tree cutting and damages due to violation of the forest legislation, guilty persons shall be penalized criminally according to the relevant legislation.

Article 32 Compensation for Losses Caused to the Forest Fund

1. In the case of damages caused by the illegal activity of citizens, economic entities and/or organizations, the loss shall be compensated by the guilty person.
2. The amount of compensation shall be five (5) times the tree harvest fees and the amount of compensation for side-line forest products shall be evaluated according to its monetary value.

Article 33 Effective Date of this Law

This law shall take effect on June 5, 1995.

Chairman of the Sate Great Khural of Mongolia
N. Bagabandi

This copy is genuine

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APFSOS/WP/40(A)	FAO Outlook Study On Wood Based Panels Production, Consumption and Trade in the Asia Pacific Region 1996 to 2010
APFSOS/WP/40(B)	FAO Outlook Study On Wood Based Panels Production, Consumption And Trade In The Asia Pacific Region - 1996 To 2010 - China Section Study On China's Wood-Based Panel Market <i>Outlook For The Years 2000-2010</i>
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