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FOREST AND FOREST PRODUCTS COUNTRY PROFILE:

Republic of Armenia:

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NOTE

The designation employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

ABSTRACT

The country profile, prepared by national experts, includes statistical data and a brief analysis of the situation and the outlook for the forest and forest products sector of Armenia, including the forest resource, industry structure, production, trade and prices of forest products, and trends in consumption. There is also a list of relevant official and private organizations and publications, with addresses.

STATISTICS

It should be noted that the data presented in this profile are for the years before 1991, based on statistical collection systems employed in the Former Soviet Union and that since then, new systems have not been fully put in place. Accordingly, the accuracy of some information may be open to doubt. It is hoped that by the time this profile is updated in some years time, these problems will have been overcome.

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**FOREST AND FOREST PRODUCTS COUNTRY PROFILE:
REPUBLIC OF ARMENIA**

Table of contents

	Page
Preface by the secretariat	v
Symbols and abbreviations used	vi
 COUNTRY PROFILE	
1. General economic information	1
2. Forest resources	3
3. The structure of the wood-processing industry and its capacity	7
4. Trade	8
5. Prices	9
6. Production and consumption	10
7. Outlook	11
8. Forestry policy, legislation and institutions	12
 TABLES	
1. General economic and other information	15
2. The forest resource	16
2.1 Main land-use categories, 1993	16
2.1.1 Closed forest area changes by species, 1956-1988	17
2.2 Forestry situation on exploitable closed forest, 1993	18
2.3 Age group distribution in stocked forest, 1993	19
2.3.1 Closed forest area by age groups and species	22
2.3.2 Closed forest area and volume changes by age groups, 1966 to 1988	23
2.4 Comparative data: land use and forestry situation, 1993	24
3. Forest damage	25

3.1	Reported information on forest fires, illegal cutting and illegal grazing, 1980 to 1993	25
4.	Removals and industrial output	26
4.1	Reported annual roundwood removals by species and assortments, 1980 to 1993	26
4.2	Annual production data by product	27

5.	Structure of the forest industries	28
5.1	Enterprises, labour force and turnover	28
5.2	Structure of the forest industries, 1991	29
5.3	Structure of the wood-processing enterprises by different size groups, 1991	30
5.4	Structure of FSU and Republic's wood-processing enterprises, 1991	31
6.	Raw material consumption	32
6.1	Utilization of sawlogs and veneer logs, 1980 to 1993	32
6.2	Conversion factors	33
7.	Forest products trade	34
7.1	Annual export-import data by product, 1980 to 1993	34
8.	Prices	35
8.1	Trend in prices for forest products	35

SUPPLEMENTARY INFORMATION ON FORESTRY AND FOREST INDUSTRIES

A.	Government bodies dealing with forest and forest industry sectors	36
B.	Selected industry and trade organizations	36
C.	Universities and technical colleges	37
D.	Research institutes	37
E.	Publications/periodicals	37
	Some facts about the Timber Committee	38
	UN-ECE/FAO Timber Section Publications	39

Preface by the secretariat

For over 10 years, the Timber Section of the ECE/FAO Agriculture and Timber Division has been preparing and issuing profiles of the forest and forest products sector in its member countries, prepared in consultation with national experts, which essentially brought together in a single volume the statistical and other information available in Geneva. The emergence of the countries in transition from a centrally planned to a market economy brought a new urgency to the work. It is widely recognized that there is a need to make available internationally a complete and comparable data set for these countries, which would include basic statistical data, with a long-term time element where possible, as well as up to date and reliable information on the status of institutional reform. Among other things, these country profiles will provide the starting point for the analysis of the outlook for these countries in the context of the forthcoming fifth study of European timber trends and prospects (ETTS V).

Profiles have already been issued for Albania (ECE/TIM/73), Bulgaria, (ECE/TIM/SP/1), Belarus (ECE/TIM/SP/5), Estonia (ECE/TIM/74), the Czech and Slovak Federal Republic (ECE/TIM/64), Hungary (ECE/TIM/66), Lithuania (ECE/TIM/SP/3), Poland (ECE/TIM/67), Romania (ECE/TIM/65), Slovenia (ECE/TIM/SP/2), and Ukraine (ECE/TIM/SP/4). A profile for Republic of Moldova will be issued shortly. Other transition countries will be covered as fast as resources allow.

The profiles have been prepared by national correspondents, who express their opinions in a personal capacity. The data are from national official sources or the ECE/FAO data base.

Each profile contains the following main sections:

- an analysis, with the main headings of the general economic situation, the forest resource, forest industries, trade, prices, consumption, institutions and outlook;
- statistical data on the same subjects, with series back to 1964 where possible;
- addresses of relevant organizations and institutions.

The profile for Armenia has been prepared by Mr. K. Ter-Gazarian, Vice-Director of the "ARMFOREST" Forestry Industrial Association, Yerevan, Mr. V. Karapetian, Vice-Director of the same institution and Mr. M. Barseghian, Assistant Director General of the same institution. The secretariat would like to express its profound gratitude to the authors for their excellent work. The work was supported, financially and technically, by the FAO Investment Centre, using guidelines established by the Planning and Statistical Branch, Policy and Planning Division, FAO Forestry Department.

Symbols and abbreviations used

-	nil or negligible
..	not available
*	unofficial figure or secretariat estimate
m ³	cubic metre
m ³ (r)	cubic metre, roundwood
m ³ (s)	solid volume
m ³ o.b.	cubic metre overbark
m ³ u.b.	cubic metre underbark
ha	hectare
t	tonne
dram	Armenian currency (in May 1995, US\$1 = approx. 425 drams)
Rb	Rubles (Russian currency)
AA	"Armenian Forest" Forestry Industrial Association
FE	Forest Enterprise
EBRD	European Bank for Reconstruction and Development
GDP	Gross Domestic Product
MOA	Ministry of Agriculture of the Republic of Armenia
MNEP	Ministry of Nature and Environment Protection of the Republic of Armenia
FSU	Former Soviet Union
MAI	Mean annual increment
GOA	Government of Armenia

FOREST AND FOREST PRODUCTS COUNTRY PROFILE: REPUBLIC OF ARMENIA

1. GENERAL ECONOMIC INFORMATION

The Republic of Armenia (hereafter referred to as "Armenia") is the smallest of the former Soviet transcaucasian republics with an area of 29,800 km², of which 47% is agricultural lands, and a population estimated in 1993 at around 3,7 million people, over 95% of which are ethnically Armenian, and of which 69% are urban-dwellers. Administratively it is divided into 37 districts and the capital is Yerevan. The country became independent in 1991, after the collapse of the former Soviet Union. The main religion is Christian, and the language Armenian.

Since Independence, Armenia has been in the midst of a deep economic crisis. The country is affected by the adjustment from a centrally planned system to a market economy, and is still suffering from the consequences of the devastating 1988 earthquake; from the instability on Georgian trade routes; and from the consequences of the economic blockade following its violent dispute with Azerbaijan. As a result, Armenia is facing a major energy crisis due to the reduction of the gas supply from Turkmenistan, and the closure of the nuclear power plant since the earthquake. This has brought the country's industrial sector almost to a standstill, and created hardship for the population.

In 1992 and 1993, the Gross Domestic Product (GDP) plunged as the lack of energy due to the blockade brought most of industry to a standstill, and adversely affected all other sectors. The official estimates put the decline in real GDP between 1991 and 1992 at 52.3%, and the decline between 1992 and 1993 at a further 14.9%. The annual rate of inflation in 1993 exceeded 2,000%, and in the first six months of 1994 it was over 800%. In November 1993 the Government of Armenia, in an effort to stabilize the economy, introduced its own currency, the dram, which devalued quickly from 1US\$=14.5 to the current (November 1994) rate of 1US\$=430.

The agricultural sector accounted for about 31% of GDP in 1993, and employed about 21% of the active labor force. These shares appear to have increased recently due to food insecurity. The 1991 land reform has resulted in the privatization of most agricultural land and livestock, while the privatization of light industry and trade and services is underway. Erosion is a major problem in Armenia, affecting 60% of agricultural land, and is due mainly to the uncontrolled overgrazing of pasture lands which cover about 0.8 million ha, and improper agricultural practices. Grazing also takes place on forest lands. Farm lands and water dams for hydro-power or for irrigation need to be protected.

Despite the political and economic difficulties, Armenia has made significant advances towards privatization. In 1991 a land reform law was adopted. By early 1994, of the 491 thousand ha of agricultural land that were to be privatized, 87% had been transferred to private owners. None of the pasture lands has been privatized. In the non-agricultural sphere the 1994 programme envisages the privatization of 8900 enterprises, including shops, agricultural

processing businesses, consumer goods' manufacturers, and unfinished construction projects.

Before 1992 Armenia was a very open country, with both exports and imports averaging more than 50% of GDP. Exports were largely concentrated in light industrial machinery and processed foods (about 80% of total), while imports were more evenly spread out among raw materials, with energy equipment, machines, foods and paper product imports accounting for 262 million rubles in 1990 (13.1 million US\$, or 5.6% of all imports), while the same products' exports were negligible (9 million rubles in 1990 or about 0.5 million US\$ and 0.3% of all exports).

Since 1992, the blockade has adversely affected most foreign trade, with the volume of both exports and imports declining. In 1994 the situation remains largely the same. Despite diversification efforts, most of the trade is still with the Russian Federation (58% of exports and 78% of imports in 1993) and other former Soviet republics.

Armenia generated 86% of its electricity consumption of 12.1 billion KWh, mainly from imported oil and natural gas. About 15% of the electricity was generated by hydroelectric stations built on the lake Sevan-Hrazdan water system.

The forest sector accounts for less than 1% of GDP but its real importance is far greater when the environmental impact and the protection against erosion are considered.

All forests in Armenia are owned by the Republic. The few forests belonging formerly to the Sovkhozes and Kolkhozes have been given to the State. However, it is foreseen that private forestry is going to be developed in the near future on the recently privatized lands.

Secondary forest activities, aimed only at profits but ignoring ecological advantages and rational harvesting, have made necessary very high expenditures for reforestation without assurances for the future. According to the law for enterprises, it is profit that determines their existence and the workers' wage level. In the conditions of market economy these enterprises have to derive much more income from forest products to survive. However, this strategy has unacceptable consequences for the forest which will become a source of profit only for the enterprises of the highly forested districts.

Redistribution of incomes according to centralized socialist system cannot be done under these conditions.

For all these reasons, the forest enterprises are financed directly by the state budget.

The transition in forestry will be strongly connected with the insertion of the whole economy into the conditions of a free market. The collapse of centralized production and of politically determined prices is the main problem of transition. A good beginning in market oriented pricing will decrease the risks of continuous degradation of production capacities and is a chief condition for an effective use of resources.

The forest produces only 15% of the needs for timber and poles of the country. In addition, the wood processing enterprises of the Ministry of Industry which were formerly supplied by the Soviet Union, work at 11% of their maximum capacities.

The forests in urban areas have been gradually degraded in the quest for fuelwood, with resulting erosion damage and a reduced forest resource base. The largest damage has been made in the last two years during the energy crisis to the shrub and coppice forests in the lowlands, while the "high forests" in the mountains are in comparatively better condition.

A solution to the household energy supply problem is a central issue to-day in environmentally sound forest development. It is likely that fuelwood will remain in the short and medium term as an important source of energy. Improvement of the natural resource base is therefore required to avoid further forest degradation.

The status of the Armenian forests is of concern. A rather small portion of land is forested, and potential for production and exploitation of the existing forests is low. Increased efforts are required to conserve and establish forested lands.

2. FOREST RESOURCES

Forest land and species

Armenia is a landlocked, mountainous country located in the southernmost Caucasus region. Approximately 90% of the country lies over 1,000m above sea level and the average altitude is 1,800m.

The primary forested areas in Armenia are in the north, north-east and the south, while the central part of the country is almost woodless. An extensive area of heavily exploited degraded beech and oak forests and bush lands in urban areas became the main source of fuelwood in the current energy crisis conditions.

Probably as a result of the long period of the centrally-planned economy, there has been little political and social awareness of the need for conservation and communal efforts to preserve the natural resource base. Virtually all forest land is state owned, and is likely to remain so. There is almost no private forestry except inside fences around rural houses.

In the last three years, the collapse of the transportation system lacking gasoline resulted in a break in the normal distribution of fuelwood and was the main cause of severe destruction of tree cover along the city roads and highways, including devastation of the roadside poplars.

Of the total forest covered area of 459.9 thousand ha, about 70% is covered by "high forests", where beech, oak and hornbeam together cover 85% of the area. The remainder are coppice forests (22%) and shrub forests (7%), which are poorly stocked and degraded. The dominant species are *Fagus orientalis*, *Quercus iberica*, *Q. macranthera*, *Carpinus caucasica*, *etc.*

The total standing volume in 1992 was 38.81 million m³ o.b., of which beech contributes 53%. Almost 80% of the standing stock is comprised of the "high forests". Some 9 million m³ o.b. of the forests are located at high elevations on steep slopes without access roads.

The age distribution of the forest types is uneven. The youngest age class, 0-20 years occupies the smallest area. This is an indication that the main part of the forests is mature and overstocked.

Forest ownership

All forests in Armenia are owned by the Republic. The few forests belonging to the state and collective farms (sovkhozes and kolkhozes) have been given to the state. However, it is foreseen that private forestry is going to be developed in the near future on the recently privatized lands. About 300,000 farmers will probably delineate their households and plant fast growing trees such as poplar and willow. Fruit trees such as walnut can generate income. There is a great potential for forestry development in rural areas, particularly in lowlands and along the irrigation canals.

Forest management

The management of the forest is still centrally planned and is based on a ten-year planning horizon with a breakdown into annual tasks. Before independence, the plan was established by committees in Moscow. The present management policy is very conservative and gives emphasis to the ecological role of forests, while the potential for economic development is not really considered.

Until 1992 all state forests were surveyed, on a staggered basis, every 10 years, by the Forest Project Institution of Georgia (under the Department of Forests of the Republic of Georgia). The inventories were carried out based on visual assessment and supported by some measurements of the standing stock. The compartment description and inventory formed the basis for designing the forest management plans.

From 1993, the cooperation with the Georgian Institute ended. The forest survey already has a two-year backlog. The technical capacity to implement such surveys can certainly be found in the country and particularly in the forest service, but financing is lacking as well as the necessary equipment to draw maps and print the plans.

Forest production and harvesting

The standing volume of forests totals 38.81 million m³ and the annual growth increment is estimated at about 390,000 m³, which has been calculated on the basis of the total area and the mean annual increment estimated as follows.

Table 1
Average annual increment of the main tree species

Species	Average annual increment (m ³ /ha/year)
Oak	0.97
Oak coppice	1.10
Beech	1.84
Pine	2.29
Hornbeam	1.61
Poplar	1.81
Birch	1.75
Eastern hornbeam	0.19
Yew	0.41
Walnut	0.25

The mean annual increment (MAI) varies with the geographical situation; it can be very low at high altitude and on poor soil. The potential MAI of beech in the north region could easily reach 3-5 m³/ha if the forests were properly managed with early thinning and a shorter rotation period. Before 1993, the fuelwood cut was usually fixed at 60,000 m³ per year; of this about 8,000 m³ were considered selective cuttings, 45,000 m³ from thinning and sanitary cutting, and about 10,000 m³ were dry wood collected in the forest (table 2). The majority of the wood collected and harvested was for fuelwood. Only about 12,000 m³ were for logs to be sawn in the sawmills of the Forest Enterprise(FE).

Plans were made to supply fuelwood to the populace during 1993. The harvest was raised to 100,000 m³, of which about 45,000 m³ was allocated for fuelwood. In addition, the plan called for the collection of snowbreak trees. Approximately 200,000 m³ quotas were allocated among the several FE. In reality, the plan was difficult to realize because of fuel limitations, and the transportation of the wood to distribution areas was a major impediment.

The harvesting is based almost exclusively on the assortment method where trees are cut into short assortments in the forest before terrain transportation. The average length of sawlogs is 3m, the minimum length is 1m for fuelwood, parquet raw material and other similar assortments. Big lengths are seldom used due to the difficulties in loading and unloading.

Terrain transportation is largely based on manual labour, especially on downward slopes. Animal power, agricultural tractors and winches are also used, but their application is constrained by lack of equipment.

Road building is expensive and difficult in Armenia where forest areas are steep and remote. A positive factor is that suitable road building material is easily available in most areas.

Table 2
Annual Cut (1000 m3)

Year	Types of wood cuttings						Dry wood collection	Total removals
	Total	Industrial cuttings		Sanitation cuttings		Thinnings		
		Total	of which logs	Total	of which logs			
1983	43.1	8.0	3.0	17.9	3.4	17.2	6.7	49.8
1984	45.2	8.0	3.4	18.0	3.5	19.1	4.1	49.3
1985	45.1	8.3	3.5	20.6	3.6	15.3	7.3	52.4
1986	45.1	8.2	3.2	21.3	3.9	15.6	3.3	48.4
1987	48.5	8.0	3.6	23.8	4.3	16.7	6.7	55.2
1988	45.8	8.0	3.5	23.3	3.9	14.5	6.5	52.3
1989	51.8	8.1	3.8	27.4	4.6	16.3	6.2	58.0
1990	51.7	8.1	3.4	27.4	4.8	16.3	6.9	58.6
1991	56.1	8.1	3.3	31.9	5.2	16.1	7.1	63.2
1992	53.0	8.2	3.6	28.2	4.9	16.6	101.0	154.0
1993	118.1	10.1	3.9	78.7	10.3	24.4	88.5	206.6

The total length of forest roads is 325 km, and the density of forest roads is less than 1m/ha. By regulation, new road construction is prohibited if an older road will serve or can be upgraded to satisfy needs. Road building on steep slopes is prohibited. In addition, buffer zones of about 30m are left along streams except at crossings.

Afforestation and reforestation programmes are important. About 57,000 ha have been afforested and about 52,000 have been reforested, mainly since 1960. Spring is the usual planting season, with less planting done in the fall. Depending on the site, on average 6.0-6.5 thousand seedlings per ha are planted manually. Bareroot seedlings produced in nurseries comprise 100%. Mean survival rates are 50-55%. Seeds are produced in seed orchards and by collection in the woods. Seeds are not imported or exported. Pyrethroides or sometimes mechanical methods are used to protect plants against pests and diseases. Herbicides for regulation of broadleaved coppice are rarely used. Fertilization of forests with nitrogen is not practiced.

Forest fires do not occur often. Lookouts are kept visually; most fires are not easy to reach because of the mountainous relief and shortage of appropriate roads and special techniques and equipment.

The Armenian forests are particularly rich in biodiversity and more than 250 tree and shrubby species can be found, some of which are endangered. About 125,000 ha are under protected status as preserves, national parks and reservations.

3. THE STRUCTURE OF THE WOOD-PROCESSING INDUSTRY AND ITS CAPACITY

The wood-processing industry in Armenia was based for years on imported wood raw material, e.g. in 1988 the total import amounted to about 1 million m³. Most of the round wood and sawnwood was transported by rail from Russia. The wood-processing industry produces mainly sawnwood, furniture, particle-board, and other products. The large size sawmills are highly mechanized. Nearly all drying was done in kilns.

The wood processing industry in Armenia, apart from Armenia Forest's (AA) 18 sawmills and processing plants, is composed of 13 primary forest processing factories (one produces veneer and other woodboards), 34 wood processing plants (mainly producing furniture and wood fixtures), and 1 paper factory. Before the blockade it imported and processed annually about 800,000-850,000 m³ of wood of logs, most of which was softwood. Up to 1990 the cost of import of softwood from FSU (c.i.f. local factory) was 70-120 Rb/m³, which is less than half of the AA price for commercial logs. The FSU pricing system clearly tried to use the Armenian wood industry as intermediate processor of wood. After independence the prices charged by FSU became world prices, and this, along with the high cost of transport (plus, of course, the blockade), has made it difficult for the Armenian wood industry to provide the domestic market with products processed from imported wood.

The wood-processing industry in 1994 employed 6846 workers, of which 577 in the primary forest processing industry, 5807 in wood processing and 462 in paper. The gross output

of the industry in 1993 was 568.4 million Rb (about 88.4 thousand US\$) of which 36.9 million Rb in forest processing, 370.9 million Rb in wood processing, and 178.5 million Rb in paper. It has fallen steeply since 1991.

The current output of the industry does not satisfy the domestic market. In 1993 imports of wood products included 130 million Rb of wood panels, 2.9 million Rb of logs, 9.3 million Rb of other wood, and 84.3 million Rb of furniture wood fixtures, while exports of 25.1 million Rb were all of furniture and fixtures. The bulk of the wood processing industry is currently idle due to the blockade. The GOA plans to privatize all the wood industry plants.

The technology and equipment of the wood industry are out-dated and environmentally unsound. During the last year the entire industry has been utilized to only 10-15% of its installed capacity due to the blockade. Labour is skilled, cheap and available.

Despite the fact that the internal wood demands remain unsatisfied it should be recognized that Armenia produces very high quality beech and oak hardwood. Many domestic needs could be satisfied with lower quality, less expensive lumber. Opportunities for exporting finished products, such as furniture, veneers and parquet, should be looked into to produce foreign currency revenues.

The proposed structural changes would include:

- conversion of the present sawmilling units of the Forest Enterprise (FE) into autonomous companies eventually privatized but initially with Government as the only or the main shareholder, and with policy directive form but not executive links with concerned technical ministries;
- integration of logging and transport with the wood-processing industries to ensure more efficient raw materials supply, thereby reducing degradation losses;
- provision of technical assistance through establishment of a Forest Industries Development Service to provide central advisory services on management, formulation of investment proposals, financing, financial control, marketing, including trade statistics and international trade promotion, design of products, technical support, negotiation and arrangements of trade and joint ventures;
- provision of a line of credit through a commercial bank to support the rational and revitalized handling of wood including delivery, sawmilling and further processing of wood. This line of credit would be used mainly to provide equipment for rehabilitation, modernization, and renewal of primary and secondary processing units.

4. TRADE

The wood trade was completely centralized before 1991. The State Planning Committee of the Soviet Union allocated supplies according to the needs of the whole economy. The operations between the Soviet Republics were not considered as import-export ones. Forestry

enterprises sold standard timber to harvesting enterprises and these sold to processing enterprises or furniture factories as sawnwood. Direct export of the timber to western countries was not allowed before 1991.

The paper industry cannot fulfil the needs of the country. The quality of paper is poor and the development of information technologies and increasing need for printing paper will increase paper imports.

5. PRICES

Pricing policy in the centrally planned economy was directed by the State. Trading between the FE and the wood industries was carried out on the basis of wholesale prices. Such a pricing policy led to price stability without taking into consideration supply and demand.

For commercial logs, prices are determined by AA by the cost of harvest and skidding out of the forest, to the point of first transport. Also a stumpage fee (a type of resource tax) is levied, that is returned to the government. The table below exhibits the typical prices of logs in domestic currency and US\$ since 1990. Since 1993 the prices are revised every month, to account mainly for the changing price of fuel.

Table 3
"Armenian Forest" (AA) Selling Prices for Commercial Logs, 1990-1994

Year	Price per m3 in Domestic Currency (Rb until 1993, dram in 1994)	Price in US\$
1990	220	11
1991	400	8
1992	1700	7.6
1993	6000	7
1994	8000-12,000	23-24

The prices of logs charged internally, or to others by AA is much below international prices. The in-forest prices of fuelwood over the last five years are shown in table 4. The prices differ according to the distance from the main customers who are supposed to pay transport cost, in order to equalize the final price to them. The main customers for fuelwood are state entities, such as city councils, schools, hospitals, etc., and the volume and customers are determined by the government.

Table 4
Selling Prices of Fuelwood in Forest, 1990-1994

Year	Price of Fuelwood (until 1993 in Rb/m ³ , in 1994 in Dram/m ³)
1990	32
1991	60
1992	Jan. 220-350, July 500-700
1993	Jan. 800-1200, July 2000-2800
1994	July 1000-2200

The stumpage fee is determined by multiplying a coefficient, which depends on the type and size of tree and distance to principal storage place, by the minimum wage. The list of the current coefficients were determined formerly by the Soviet plan, and they give small tax revenue. Of the current sale price of different types of wood, 5% is the resource tax, 20% is salaries (including social security), 40% is cost of fuel and materials, and 35% is general and administrative expenses.

It is evident that at present price and cost formation provides little or no guidance for proper and effective allocation of resources and for adequate response to market demands. The elimination of centrally established production targets and artificially or politically determined costs and prices are likely to result initially in substantial problems in determining realistic competitive production targets. An early initiation of market oriented prices is likely to reduce the risk of continued disarray of the productive capacity in the forestry industry and is a precondition of more efficient use of resources, incentives for private business and development of entrepreneurial skills.

6. PRODUCTION AND CONSUMPTION

The wood processing industry processed in 1981-1989 (annual average) 225 thousand m³ sawlogs and veneer logs. But in 1992 the fall in production amounted by 45%, and in 1993, nearly 80%. This happened for well known reasons of economic recession, transport difficulties, energy crisis and obsolete equipment.

The main consumers of forest products in Armenia are the furniture and joinery industries. The main articles such as tables, chairs, beds, boards and panels are produced on old machinery. The production of furniture in 1988 reached 164 million Rb. As the prices rise for transport and primary processing, the furniture industry cannot accept a higher wastage rate. The price of a bedroom suite increased from 2,500 Rb. to 5,000 Rb. in 1992. Much furniture is produced with high cost technology. A reconstruction and restructuring of the wood processing, parquet and veneer industry is required.

7. OUTLOOK

Armenia has been hit by violent shocks over the last three years. While this has taken its toll of both production and real consumption, it has made Armenia adapt much faster to international prices, and to its new independent status. Given Armenia's landlocked position, it will continue to be dependent on its neighbours for transport and trade links. Even with peaceful relations, its basic supplies of energy and food remain vulnerable. It is likely that the GOA will pursue a policy of more self-sufficiency in basic foods and energy needs.

The installed capacity of the present forest industries is in excess of the present sustainable forest supply, but cannot and should not be utilized in its present form. In general, its machinery is obsolete and production methods and products are outdated. The present shortage of funds for renewal, maintenance and repair, shortage of transportation facilities and labour interests, added to the blockade and energy crisis conditions, have contributed to an extremely low utilization of installed capacity.

Therefore a considerable restructuring and relocation is needed.

Over-exploitation of forests, especially illegal cuttings for fuelwood and private construction wood, is a long standing practice of land use and the recent problems have aggravated the situation in significant areas of the forests.

Erosion is a major problem, especially in the agricultural sector, but also in forest areas. Most of the forests are on rather steep slopes, which are easily eroded. Erosion can be aggravated by over-utilization of forests, neglect of regeneration forests, and intensive grazing.

The limited financial possibilities have led to a decline in new plantation activities. From 5,000 ha a year of reforestation before 1980, it decreased to 2000 in 1990, and only a few hundred in 1994. However, reforestation is successful if it does not hurt grazing.

Armenian forested lands are particularly rich in non-wood products. Wild rose hips, berries and fruits of various trees and shrubs, several species of mint, and mushrooms. During the present difficult period, the medicinal plants and herbs are often used by the population, who cannot afford to buy expensive medicine. There is certainly a great potential to develop some of the non-wood forest products. The production possibilities and the quality of the various products has to be assessed.

Nature in Armenia is exceptionally rich and varied. In the mountains there are still areas practically untouched by man. There is an urgent need to improve the protection of unique forest wildlands containing a wide variety of animal and plant species. These resources constitute a valuable tourism development potential.

Communal or private support in Armenia for the protection or development of forestry was virtually non-existent in the past. Burgeoning prices for wood have proven to be the strongest incentive for massive interest in private tree planting. The trees in the farming system could provide income and capital accumulation sometimes well in excess of those from field crops. Furthermore, open competition in part or the whole of the production process is likely to result in cost reduction and, ultimately, lower prices to the consumer. A prerequisite for this to happen is free price formation and increased privatization.

Some of the critical watersheds to the dams for power generation and irrigation are severely degraded with resulting erosion and siltation of the dams. Provision of the improved biological cover in those watersheds could substantially increase the useful life of the dams. To ensure the success of such schemes, it is important to apply a technological package which provides both biological cover and a product that would generate maximum economic returns but, most importantly, will be accepted by local land users. Adequate arrangements must be acceptable to land users, so that the tree crops can be protected during the critical period.

The previous isolation of Armenia from the west and the limited experience of market economic relations suggest that technical assistance to the forestry sector would have a high pay-off.

8. FORESTRY POLICY, LEGISLATION AND INSTITUTIONS

The forest policy of the GOA currently is undefined. Under the FSU, the desire to prevent the FSU from exploiting Armenian forests for industrial purposes, and the availability of cheap wood imports from Russia led the exploitation of Armenian forests to be governed largely by conservation and environmental concerns. This mood still largely prevails in the country today, although independence and the blockade have completely changed the external environment faced by Armenia. The consequence is that the GOA has not as yet defined any strategy or policy concerning medium and long term forest utilization and still is operating under the FSU management plans and philosophy.

The changes in external environment that will have to be considered in the formulation of an alternative policy, under the assumption that peace with Azerbaijan will be achieved and hence there will be no blockade, have to do mainly with the new international prices facing the economy, and hence the new structure of the industrial and agricultural sectors. Under the new realities facing Armenia, imported prices for most products, including those for energy and wood will be close to world prices. Given that these prices are many times higher than prices were under the FSU, a tendency for more self-sufficiency in both energy, as well as raw wood supply will be the major external forces to be considered in the formulation of a new forest policy.

The previous legislation applied to forestry is the "Forest Code" adopted in 1978. This code was not adapted to the ongoing and foreseen changes in the Armenian economy regarding, in particular, the shift from a centrally planned system to market economy and the emergence of private property.

A new "Forest Code" was adopted in May 1994 by the Parliament and was signed on 1 November 1994 by the President. This code is largely inspired by the former Forest Code. The articles of this law give regulations for the management of the state Forest Estate but there is no reference to the responsibility of Hayantar for the development of the forestry sector and to the possible emergence of private rural forestry. By-laws are still to be drafted.

The new "Forest Code", being rather general, does not contain major hindrances to the expected future development of the forest sector. The fact that the existing forests remain exclusively the property of the state does not necessarily prevent innovations.

Rather than in the Code, hindrances to forest sector development are more likely to be found in the existing forest regulations, which have been adopted under the Code and remain in force to the extent that they are not in contradiction with the new Code. New regulations are required as soon as possible.

Finally, in the event that a complete redrafting of the Code is not going to be undertaken at this stage in Armenia, it is suggested that at least essential amendments or additions to the existing text be introduced.

A Ministry of Forestry was first organized under the Armenian Soviet system in 1938; it included 14 FE located throughout the country. The Ministry was reorganized as a Department of Forestry within MOA in 1950, but in 1958 it was again reorganized as a separate State Committee of Forest. The latter was reorganized in 1988, when it was renamed into "Armforest" Forestry Industrial Association. In 1992 it was again placed within the MOA.

The responsibility for forest policy is vested in the Ministry of Agriculture, whereas the management of the forests is the responsibility of the AA (Hayantar). The latter is headed by a General Director assisted by four vice-directors. Its headquarters are located in Yerevan. The central office is functionally organized into 8 divisions: 1) Forest Protection Service; 2) Silviculture, Forest Research and Foreign Relations Service; 3) Planning and Accounting Service; 4) Supplies and Maintenance Service; 5) Forest Resources Utilization Service; 6) Forest Products Service; 7) Personnel Service; and 8) Information Service.

Hayantar coordinates the activities of 29 FE, 2 forest reserves, 1 protection and research station, 1 nursery and 1 machine repair station. The country is divided into 29 forest districts; each forest district is subdivided into 3 or 4 forest units. The forest district is managed by FEs which are still vertically integrated on the soviet model. Each typically contains several operational sections: administration, regeneration, silviculture, protection, agriculture and industry. The district Director has relatively wide autonomy which allows him to recruit personnel and control all forest activities in the district. The Director is assisted by a deputy director, a chief forester, a chief accountant and several engineers or technicians. The forest unit is headed by a forest ranger. The district Director and the district Forest Chief are nominated by the Hayantar General Director.

Hayantar has about 1,200 permanent employees: 65 are posted at Headquarters and the rest at district level. It is estimated that about 300 have an academic degree, 600 have been trained as technicians or forest guards, the rest are workers. Seasonal workers may also be recruited when needed. The foresters do not wear a uniform. As there is no specific forest training in the country, a large part of the forest staff is educated in other disciplines than forestry.

Hayantar is poorly equipped in all areas. The communication system is very weak. Vehicles and lorries are old and many are out of service. Hayantar cannot assume any new tasks in its present state.

High level training in forestry is the responsibility of the Forestry Chair of the Faculty of Agriculture of the Armenian Agricultural Institute which was founded in 1992. The curriculum is drafted for 5 years. The present target is to have 20-25 graduate forestry generalists with a sub-specialization in silviculture and afforestation. However, theoretical as well as professional training is poor; the department is in great need of field training facilities, laboratory and office equipment, etc. There is no institution where the forest technicians can be trained. Isolation from the outside world is also a major problem which needs urgent solution.

Research in forestry is carried out in the Forest Department of the Institute of Botany of the Academy of Sciences and in the Forestry Research Station of Hayantar. The Academy is doing mainly measurements and controls related to the follow up of the national 10 year management plans. The Hayantar Research Station which occupies about 30 people of different education level is in charge of 5 programmes:

- * natural regeneration in the beech forests in northern Armenia;
- * silvicultural practices in Aragats region;
- * seabuckthorn plantations in Sevan region;
- * introduction of exotic tree species; and
- * selection of oak species in northern Armenia.

The research station lacks the minimum technical equipment, financing and transport to implement its work programme. Assistance is needed to develop research programmes related to forest sector development. To date, there is no collaboration with other forest research institutions and the personnel needs scientific documentation and contact. The present forest research is not prepared to face the new challenges brought by the recent political changes, which involve, *inter alia*, the improvement of silvicultural practices and management organization.

1. GENERAL ECONOMIC AND OTHER INFORMATION

Table 1

	Unit	1980	1985	1990	1991	1992	1993
Population	million	3,100	3,317	3,315	3,574	3,649	3,722
GDP	million roubles ^{a/}	6,184	8,101	9,693	15,920	8,326	1,240
- industrial sector	%	47.1	46.3	35.4	34.8	31.3	25.6
- agriculture	%	13.8	14.6	12.2	19.7	24.8	30.7
- construction	%	11.2	10.4	17.8	11.1	8.7	5.3
- other branches	%	27.9	28.7	34.6	34.4	35.2	38.4
Producer prices index	1991=100	-	-	-	100	1046.6	10386.5
Consumer prices index	1991=100	-	-	-	100	1341.3	10996.2
Exports of goods and services	million roubles	-	-	3523	2662	11279	15666
Imports of goods and services	"	-	-	4655	4506	28003	290478
Industrial products	" ^{a/}	12113	16231	14898	13744	7142	6330
Agricultural products	" ^{b/}	1203	1408	988	1101	1124	1069
Construction	"	2050	2563	5963	3828	898	729
Electric energy	million kwt.h	13469	11986	11297	11103	9693	6485

^{a/} Prices of 1991

^{b/} Prices of 1993

2. THE FOREST RESOURCE

Table 2.1

Main Land-Use Categories, 1993

Categories	Total area (1000ha)	Percent of land (%)	Coniferous	Broadleaved
			(1000ha)	
<u>Total land</u> (excluding water), of which:	2,840.0	100.0	-	-
Forest and other wooded land	392.3	13.8
- Closed forest	334.1	11.7	26.1	308.0
- Exploitable ^{a/}	20.9	0.7	-	20.9
- Unexploitable ^{a/}	313.2	11.0	26.1	287.1
- Other wooded land	44.5	1.6		
Non forest land ^{b/}	67.6	2.4		
Agricultural land	1386.0	48.8		
- Arable land	558.0	19.7		
- Meadows and pastures	828.0	29.1		
Other	994.0	33.2		

^{a/} The definitions of exploitable and unexploitable forest correspond to those employed to those employed to the former Soviet Union and are not comparable to those of FAO/ECE, which would probably allocate a much larger area to exploitable forest than shown here.

^{b/} Non-forest land included in the Forest Fund.

Table 2.1.1**Closed forest area changes by species, 1956 to 1988
(1000 ha)**

Wood species/years	1956	1961	1966	1971	1973	1978	1983	1988
Closed forest, of which	241.8	250.2	252.9	260.7	260.3	269.0	281.5	191.5
Oak (highforest)	62.9	63.1	62.5	62.6	62.5	67.6	75.4	69.8
Oak coppice	20.4	24.0	24.6	24.6	24.4	23.9	22.2	31.8
Beech	85.3	91.1	89.7	89.7	89.7	91.4	92.3	94.2
Hornbeam	46.6	46.0	46.4	46.4	46.4	44.7	42.6	41.6
Ash	0.8	3.4	4.8	5.1	5.1	5.9	6.1	6.1
Pine	1.0	2.20	2.5	2.8	2.8	5.9	11.8	15.7
Elm	1.1	1.3	1.7	1.8	1.8	2.4	3.0	3.3
Juniper	6.5	5.5	4.2	4.2	4.2	4.5	4.7	5.8

Table 2.2

Forestry situation on exploitable closed forest, 1993

	Unit	Total	Coniferous	Broadleaved ^{a/}
Exploitable closed forest	1000ha	20.9	-	20.9
Growing Stock (GS)				
- per hectare	m3/ha	181	-	181
- total	million m3	3.78	-	3.78
Increment				
Gross annual increment (GAI)	1000m3 o.b.	29.4	-	29.4
Natural losses	"	..	-	..
Net annual increment	"
GAI per hectare	m3 o.b./ha	1.41		1.41
GAI as percent of growing stock	%	0.8		0.8
Fellings and removals				
Fellings	1000m3 o.b.	60 ^{b/}		60 ^{b/}
Felling losses	"
Removals	"	60 ^{b/}		60 ^{b/}
Harvesting intensity				
Removals as percent of GS	%	1.58		1.58
Ratio of fellings to GAI	%	204		204

^{a/} Broadleaved = Broadleaved and shrub land

^{b/} of which, 10,000m³ from final fellings

Table 2.3

Age group distribution in stocked forest, 1993

	Total	Age group of forest stand				Average rotation (years)
		Young	Middle	Pre-mature	Mature and overmature	
<u>Closed forest (1000ha)</u>	334.1	38.2	154.2	53.9	87.9	
- Coniferous	26.1	16.7	3.9	2.3	3.2	
- Broadleaved	288.7	16.8	142.9	48.9	80.1	
Other wood species	10.8	2.3	3.7	0.8	4.0	
Shrub land	8.5	2.4	3.7	1.9	0.5	
<u>Forest area by types of forest lands</u>						
<u>High forest</u>	260.8	35.1	109.7	42.6	73.4	
Coniferous	26.1	16.7	3.9	2.3	3.2	
- Scots Pine	17.7	16.4	0.6	0.2	0.5	121-140
- Juniper	8.4	0.3	3.3	2.1	2.7	121-140
<u>Broadleaved</u>	215.4	13.7	98.4	37.6	65.7	
- Beech	96.6	0.8	46.7	21.8	27.3	141-160
- Oak	64.3	2.8	35.6	8.3	17.6	121-140
- Hornbeam	55.1	0.8	19.1	10.8	24.4	71-80
- Poplar	4.1	3.1	1.0	-	-	51-60
- Other broadleaved	12.9	6.5	4.2	1.0	1.2	

	Total	Age group of forest stand				Average rotation (years)
		Young	Middle	Pre-mature	Mature and overmature	
Other wood species	10.8	2.3	3.7	0.8	4.0	
<u>Coppice forest</u> (1000ha)	73.3	3.1	44.5	11.3	14.4	
- Oak	55.7	2.8	36.3	7.0	9.6	101-120
- Beech and others	17.6	0.3	8.2	4.3	4.8	41-50
<u>Percent of total</u> (%)	100	4.2	60.7	15.4	19.6	
- Oak	100	5.0	65.2	12.6	17.2	
- Beech and others	100	1.7	46.6	24.4	27.2	
<u>Shrub land</u> (1000ha)	8.5	2.4	3.7	1.9	0.5	
- Seabuckthorn ^{1/}	1.6	0.3	0.7	0.6	-	
- Russian olive ^{1/}	0.5	0.1	0.3	0.1	-	
- Others	6.4	2.0	2.7	1.2	0.5	
<u>Percent of total</u> (%)						
- Seabuckthorn ^{1/}	100	18.8	43.7	37.5	-	
- Russian olive ^{1/}	100	20.0	60.0	20.0		
- Others	100	31.3	42.2	18.8		
<u>Percent of total</u> (%)						
Closed forest	100	11.4	46.2	16.1	26.3	
Coniferous	100	64.0	14.9	8.8	12.3	
Broadleaved	100	6.4	45.7	17.4	30.5	

	Total	Age group of forest stand				Average rotation (years)
		Young	Middle	Pre-mature	Mature and overmature	
Other wood species	100	21.3	34.2	7.4	37.1	
Shrub land	100	28.2	43.5	22.4	5.9	
High forest	100	13.5	42.1	16.3	28.1	
Coniferous						
Scots pine	100	92.7	3.4	1.1	2.8	
Juniper	100	3.6	39.3	25.0	32.1	
Broadleaved				22.6	28.3	
Beech	100	0.8	48.3	12.9	27.4	
Oak	100	4.4	55.3	19.6	44.3	
Hornbeam	100	1.4	34.7	-	-	
Poplar	100	75.6	24.4	7.8	9.3	
Other broadleaved	100	50.4	32.5			

^{1/} Seabuckthorn - *Hippophae rhamnoides* L.
Russian olive - *Elaeagnus angustifolia* L.

Table 2.3.1

Closed forest area by age groups and species

Species	Year of inventory	Total (%)	of which (%):			
			Young stands	Middle-aged	Pre-mature	Mature and overmature
Coniferous	1966	100	26.9	56.7	10.4	6.0
	1973	100	44.5	31.9	6.9	16.7
	1978	100	41.4	48.1	3.8	7.7
	1983	100	43.2	27.3	4.5	25.0
	1988	100	68.4	15.3	4.2	12.1
Broadleaved	1966	100	4.3	48.1	21.7	25.9
	1973	100	3.3	46.6	20.1	30.0
	1978	100	4.5	54.3	18.9	22.3
	1983	100	0.9	45.2	21.1	32.7
	1988	100	5.3	47.4	18.0	29.3
Other broadleaved	1966	100	44.2	13.9	9.3	32.6
	1973	100	43.1	24.6	7.7	24.6
	1978	100	51.6	25.0	6.2	17.2
	1983	100	20.6	58.8	5.9	14.7
	1988	100	46.2	42.3	2.6	8.9
Total	1966	100	6.5	46.5	21.1	25.9
	1973	100	6.4	44.4	19.3	29.9
	1978	100	9.3	51.4	17.7	21.6
	1983	100	11.9	45.3	17.1	25.7
	1988	100	11.3	44.8	16.5	27.4

Table 2.4
Comparative data: Land use and forestry situation, 1993

	Unit	Armenia	Total Europe
Total land area per capita	ha/capita	0.8	1.0
Forest and other wooded land	ha/capita	0.1	0.3
Of total land area:			
Forest and other wood land of which:	% of total of land	13.8	35.4
- Closed forest	% of forest and other wood land	72.8	68.2
- Publicly owned	" "	100	49.0
- Privately owned	" "	-	51.0
- Under management plan	" "	100	..
Growing stock in closed forest of which:	m3 o.b./ha	125	128
- Coniferous	%	1.8	64.8
- Broadleaved	%	98.2	35.2
Net annual increment			
- Per hectare of closed forest	m3 o.b./ha	1.3	4.3
- Percent of growing stock	%	1.0	3.4

Source for Europe: The Forest Resources of the Temperate Zones (ECE/TIM/62) 1992

3. FOREST DAMAGE

Table 3.1

Reported information on forest fires, illegal cutting and illegal grazing, 1980 to 1993

	Unit	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993
Fires total	number	5	10	2	7	-	11	3	3	1	-
- known causes	"	4	3	1	2	-	1	-	1	-	-
Areas burned, of which:	ha	8.5	65.9	36.6	34.1	-	28.8	11.5	4.2	10.4	-
- wooded land	"	3.4	30.4	34.4	13.4	-	17.0	2.9	0.8	3.2	-
Illegal cutting	number of trees	605	465	525	525	481	396	217	898	52069	1550000
	m ³	158	89	101	93	56	98	26	262	11788	57704
Illegal grazing	ha	437	452	598	501	529	560	978	1001	2630	4529

4. REMOVALS AND INDUSTRIAL OUTPUT

Table 4.1

Reported annual roundwood removals by species and assortments, 1980 to 1993
(1000m³)

PRODUCT	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993
Total roundwood	49.8	52.4	48.4	55.2	52.3	58.0	58.6	63.2	154.0	206.6
Sawlogs and veneer logs	6.4	7.1	7.1	7.9	7.4	8.4	8.2	8.5	8.5	14.2
- Broadleaved	6.3	6.9	6.9	7.6	7.2	8.2	7.9	8.3	8.4	14.0
- Coniferous	0.1	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.1	0.2
Fuelwood	43.4	45.3	41.3	47.3	44.9	49.6	50.4	54.7	145.5	192.4
- Broadleaved	43.0	44.8	40.9	46.8	44.4	49.0	49.8	54.2	145.1	191.9
- Coniferous	0.4	0.5	0.4	0.5	0.5	0.6	0.6	0.5	0.4	0.5

Table 4.2**Annual production data by product ^{a/}**

	Unit	1980	1985	1990	1991	1992	1993
Sawnwood	1000m3	0.5	0.6	0.6	0.5	0.6	0.4
- Broadleaved	"	0.5	0.6	0.6	0.5	0.6	0.4
- Coniferous	"	-	-	-	-	-	-
- Sleepers	"	-	-	-	-	-	-
Parquet	1000m2	30.0	85.5	90.0	91.2	65.3	39.8
Pianos	number	2662	1370	930	-	-	-
Notebooks	million	32.0	45.0	37.8	45.0	63.0	25.4
Particle board	1000m3	1.0	5.0	1.5	1.2	-	-
Fibreboard	1000m3	0.2	0.7	1.2	1.2	0.7	-
Paper and paperboard	1000 t.	10.0	14.3	15.0	15.0	8.0	3.5

^{a/} Data for sawnwood and parquet are production from Hayantar enterprises only.
Some other data may also not be national totals.

5. STRUCTURE OF THE FOREST INDUSTRIES

Table 5.1

Enterprises, labour force and turnover

	Unit	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993
<u>TOTAL</u>											
Enterprises	number	185	190	192	193	195	214	220	220	220	220
Labour force	"	9250	9792	10275	10530	11505	11984	12326	12326	12085	10123
Turnover ^{a/}	mill.Rb	128	133	135	136	140	145	149	149	1486	5254
<u>WOOD EXPLOITATION</u>											
Enterprises	number	8	9	11	12	12	13	13	13	12	12
Labour force	"	256	330	395	425	440	469	475	475	475	468
Turnover ^{a/}	mill.Rb	1.6	1.7	1.8	1.9	2.1	2.4	2.6	2.6	21.7	323
<u>WOOD PROCESSING</u>											
Enterprises	number	176	180	180	180	182	200	206	206	207	207
Labour force	"	8479	8893	9303	9512	10461	10903	11235	11476	11003	9116
Turnover ^{a/}	mill.Rb	116	119	120	121	122	126	129	129	1308	3682
<u>PAPER AND PAPERBOARD</u>											
Enterprises	number	1	1	1	1	1	1	1	1	1	1
Labour force	"	515	569	577	593	604	612	616	615	607	539
Turnover ^{a/}	mill.Rb	10.4	12.3	13.2	14.1	15.9	16.6	17.4	21.0	156.3	1249

^{a/} Current prices

Table 5.2**Structure of the forest industries, 1991**

Enterprises	Number	Average for one enterprise		
		Labour force	Total annual production (1000 Rb)	Installed capacity (1000 Rb)
Total of which:	220*	46	744	593
1. Wood exploitation	13	37	233	258
2. Wood processing, including	206	44	694	539
a) Sawmilling	71	2	18	12
b) Wood based pannels	36	60	747	870
c) Wooden packing cases and boxes	12	40	640	577
d) Furniture	21	205	5,037	3,087
e) Other woodworking	66	3	20	108
3. Wood pulp and paper	1	615	17,595	15,959

Table 5.3**Structure of the wood-processing enterprises by different size groups, 1991**

Size of the enterprise	Number	Average for one enterprise		
		Labour force	Total annual production (1000 Rb)	Installed capacity (1000 Rb)
1. Very small	137	2.2	19.3	58.4
2. Small	61	50.9	616.6	681.5
3. Medium	16	163.2	1773.3	1412.3
4. Large	6	700.0	15883.3	9700.2
Total	220	46.4	743.8	592.6

Table 5.4

Structure of the FSU^{a/} and the Republic's wood-processing enterprises, 1991

Enterprises	Number of enterprises		Annual production (1000 Rb)		Labour force		Installed capacity (1000Rb)	
	total	%	total	%	total	%	total	%
Total, of which:	220	100	163634	100	10217	100	130367	100
1. FSU, of which:	18	12.7	118046	72.1	6384	62.5	78589	60.3
- Armenian Forest Industry Territorial Association	15	6.8	115012	10.3	5907	57.8	75239	57.7
- Armenian Forestry industrial Association	13	5.9	3034	1.8	477	4.7	3350	2.6
2. Republic, of which:	192	87.3	45588	27.9	3833	37.5	51778	39.7
- ministries, institutions, etc.	95	43.2	45293	27.7	3758	36.8	50958	39.1
- kolkhozes	97	44.1	295	0.2	75	0.7	820	0.6

^{a/} Former Soviet Union

6. RAW MATERIAL CONSUMPTION

Table 6.1

Utilization of sawlogs and veneer logs, 1980 to 1993 ^{a/}
(1000 m3)

Denomination	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993
For sawnwood										
Total,	129	212	215	223	222	244	269	233	121	50
of which:										
- Coniferous	105	174	175	180	178	195	220	180	105	36
- Broadleaved	24	38	40	43	44	49	49	53	16	14
For plywood and veneer sheets,										
of which										
- Plywood	16	19	18	18	18	19	20	18	6	4
- Veneer sheets	9	12	12	11	12	12	14	12	4	2

^{a/} Data of Ministry of Industry, not national totals.

Table 6.2
Conversion Factors
(Unit of wood raw material per unit of product)

Assortment	Unit	Conversion factor
SAWNWOOD		
- Coniferous	m3/m3	1.49
- Broadleaved	m3/m3	1.54
- Sleepers	m3/m3	-
WOOD-BASED PANELS		
- Veneer sheets	m3/m3	2.86
- Plywood	m3/m3	2.4
- Particle board	m3/m3	0.15
- Fibreboard	m3/m3	2.78

7. FOREST PRODUCTS TRADE

Table 7.1

Annual export-import data by product, 1980 to 1993

Product	Unit	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993
<u>Export</u>											
Beech sawlogs	1000m3	2	-	-	-	-	-	-	-	-	-
Parquet	1000m2	4	3	3	2	1	-	-	-	-	-
Pianos	number	1895	1250	850	-	-	-	-	-	-	-
<u>Import</u>											
Sawlogs	1000m3	125	205	208	215	215	236	261	224	112	36
Paper and paperboard	1000t.	78	80	79	80	81	84	88	88	24	16

8. PRICES

Table 8.1

Trend in prices for forest products ^{a/}

Product	Unit	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993
Coniferous											
- Sawlogs	Rb/m3	17	19	19	26	26	26	26	26	280	3000
- Pulpwood	Rb/m3	13	18	18	20	20	20	20	20	200	2000
Broadleaved											
- Sawlogs	Rb/m3	18	21	21	28	28	28	28	28	250	2000
- Logs for plywood	"	21	24	24	32	32	32	32	32	300	3000
- Pulpwood	"	13	18	18	20	20	20	20	20	200	2000
- Fuelwood	"	6	9	9	13	13	13	13	13	80	500

^{a/} Current prices

SUPPLEMENTARY INFORMATION ON FORESTRY AND FOREST INDUSTRIES**A. Government bodies dealing with forest and forest industry sectors**

1. Ministry of Agriculture of the Republic of Armenia

Republic Square, 2
Yerevan, Armenia, 375010
tel. 7-8852 524641
telex 243369 TRANS SU

2. Ministry of Nature and Environmental Protection of the Republic of Armenia

35 Moskovian Str.
Yerevan, Armenia, 375002
tel. 7-8852 530741
fax. 7-8852 534902

3. Armenian Forest Industry Regional Association (Hayantarard)

35 Moskovian Str.
Yerevan, Armenia, 375002

4. Armenian Forestry Industrial Association (Hayantar)

Sakharov Square
Yerevan, Armenia, 375010
tel. 7-8852 524574

5. Academy of Sciences of Republic of Armenia

24, Bagramian Avenue
Yerevan, Armenia, 375019
tel. 7-8852 524580

B. Selected industry and trade organizations

1. Ijevan Experimental Forest Equipment Factory

2, Vasilian Str.
Ijevan, Armenia, 377260

2. Ijevan Wood Processing Enterprise

Ijevan, Armenia, 377260

C. Universities and technical colleges

1. Armenian Agricultural Academy
74, Terian Str.
Yerevan, Armenia, 375009
tel. 7-8852 524541
2. Yerevan State University
1 Mravian Str.
Yerevan, Armenia, 375049
tel. 7-8852 554629

D. Research institutes

1. Institute of Botany
Laboratory of Forestry
Avan, Yerevan, Armenia, 375063
tel. 7-8852 6217
2. Institute of Zoology
7, Sevak Str.
Yerevan, Armenia, 375044
tel. 7-8852 281470
3. Institute of plants disease and pest control
Merdzavan
Echmiadzin, Armenia, 378312
tel. 7-8852 562212

E. Publication/periodicals

1. Herald of Agricultural Sciences
4, Spendiarian Str.
Yerevan, Armenia
tel. 7-8852 533301

SOME FACTS ABOUT THE TIMBER COMMITTEE

The Timber Committee is a principal subsidiary body of the ECE (UN Economic Commission for Europe) based in Geneva. It constitutes a forum for cooperation and consultation between member countries on forestry, forest industry and forest product matters. All countries of Europe; the former USSR; United States of America, Canada and Israel are members of the ECE and participate in its work.

The ECE Timber Committee shall, within the context of sustainable development, provide member countries with the information and services needed for policy- and decision-making regarding their forest and forest industry sector ("the sector"), including the trade and use of forest products and, when appropriate, formulate recommendations addressed to member Governments and interested organizations. To this end, it shall:

1. With the active participation of member countries, undertake short-, medium- and long-term analyses of developments in, and having an impact on, the sector, including those offering possibilities for the facilitation of international trade and for enhancing the protection of the environment;
2. In support of these analyses, collect, store and disseminate statistics relating to the sector, and carry out activities to improve their quality and comparability;
3. Provide the framework for cooperation e.g. by organizing seminars, workshops and *ad hoc* meetings and setting up time-limited *ad hoc* groups, for the exchange of economic, environmental and technical information between governments and other institutions of member countries that is needed for the development and implementation of policies leading to the sustainable development of the sector and to the protection of the environment in their respective countries;
4. Carry out tasks identified by the UN-ECE or the Timber Committee as being of priority, including the facilitation of subregional cooperation and activities in support of the economies in transition of central and eastern Europe and of the countries of the region that are developing from an economic point of view;
5. It should also keep under review its structure and priorities and cooperate with other international and intergovernmental organizations active in the sector, and in particular with the FAO (Food and Agriculture Organisation) and its European Forestry Commission and with the ILO (International Labour Organisation), in order to ensure complementarity and to avoid duplication, thereby optimizing the use of resources.

More information about the Committee's work may be obtained by writing to:

Timber Section
UN-ECE/FAO Agriculture and Timber Division
Palais des Nations
CH-1211 Geneva 10, Switzerland
Fax: 41 22 917 0041

UN-ECE/FAO Timber Section Publications

- ***Timber Bulletin** Volume XLVII (1994) ECE/TIM/BULL/47/...
- ***Timber Bulletin** Volume XLVIII (1995) ECE/TIM/BULL/48/...
- (Six issues per year)
1. Forest Products Prices
 2. Forest Products Statistics
 3. Forest Products Annual Market Review
 4. Forest Fire Statistics
 5. Forest Products Trade Flow Data
 6. Forest Products Markets in (current year) and Prospects for (forthcoming year)
- ***UN-ECE/FAO Timber and Forest Study Papers**
- Forest and Forest Products Country Profile: Ukraine ECE/TIM/SP/4
- Forest and Forest Products Country Profile: Belarus ECE/TIM/SP/5
- (Country profiles also exist on Albania, Bulgaria, former Czech and Slovak Federal Republic, Estonia, Hungary, Lithuania, Poland, Romania, Slovenia and Ukraine)
- Forest resource information of some newly constituted countries--Supplement to the UN-ECE/FAO 1990 forest resource assessment of the temperate zones ECE/TIM/SP/6
- Medium-term survey of the sawmilling industry structure and capacity 1992 ECE/TIM/SP/7
- Forest and Forest Products Country Profile: Republic of Armenia ECE/TIM/SP/8
- UN-ECE/FAO Timber and Forest Discussion Papers** (original language only)
- Castrén and Simula, "Productivity in Finnish Forestry in 1964-1989" ECE/TIM/DP/1
- Wibe, "Non-wood benefits in forestry, survey of valuation studies" ECE/TIM/DP/2
- Dykstra, "Information systems in forestry: a brief overview" ECE/TIM/DP/3
- ETTS V working papers: (provisional - to be issued in 1995 or 1996)
- Peck and Descargues, "The policy context for the development of the forest and forest industries sector in Europe"
 - Pajuoja, "The outlook for the European forest resources and roundwood supply"
 - Eronen, "Forest resources and consumption of forest products in countries in transition"
 - Brooks, Baudin and Schwarzbauer, "Modelling forest products demand supply and trade in ETTS V"
 - Baudin and Brooks, "Projections of forest products demand, supply and trade in ETTS V"
 - Issartel and Vikinge, "Long-term trends in forest products prices"
- UN-ECE/FAO Timber and Forest Seminar and Workshop Proceedings**
- Clothing and safety equipment in forestry, Finland, 1994
- Development of marketing of sawnwood products in countries in transition, Hungary 1994 (to be issued in 1995)
- UN-ECE/FAO Timber and Forest Information Series**
- The UN-ECE Timber Committee Yearbook 1994 ECE/TIM/INF/2
- Brochures about the ECE Timber Committee, the FAO European Forestry Commission, the Joint FAO/ECE Working Party on Forest Economics and Statistics and the Joint FAO/ECE/ILO Committee on Forest Technology, Management and Training

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