price (FOB) and marine freight charges are the main factors governing the feasibility of the forest product exports.

The quality of goods is determined by the tree species, size and grade in the case of logs, and by the level of processing technique in the case of processed wood; and, in turn, export price is determined by the evaluation of the quality in the international market and production costs. Marine transportation cost, however, is most decisively influenced by the distance from the import market and the method of transportation.

From the viewpoint of marine transportation costs, North America and Europe would become Brazilian export markets if Brazil could have international competitiveness in relation to quality and export prices of its forest products. The timber import markets of developed countries in Asia and Oceania present problems except where expensive fancy wood (for which Brazil can bear the freightage) are concerned, because the distance to such markets and the transit through the Panama Canal handicaps Brazil in terms of freight cost.

Processed Indonesian "Ramin" (Gonystylus spp.), for example, is transported to Europe as container cargo in refrigerated containers for protection against fungus and mold damage, and coniferous sawn wood is transported from Papua New Guinea to Japan as container cargo. Container transport, however, requires necessary facilities for loading and unloading. It would be recommendable for Brazil to examine the possibility of using container cargo for the transportation of fancy woods on a commercial basis as well as that of improving port facilities for general sawtimber.

In connection with marine transportation, the example of Indonesia, where the plywood industry has developed rapidly in recent years, may be quoted. A country in Southeast Asia has had many goods returned and faces claims from its export market, Europe, and so it seems that Brazil needs to improve the quality of its timber products in view of the long marine transportation distances involved, and for this purpose, requires improvement and development not only in the wood industry but also in the chemical industries which support it, such as the glue industry.

VII. Timber Price

The international market price of wood is fundamentally determined by the balance between supply and demand. In the long term, however, production cost plays a major role in determining the price of wood. For this reason it is said that the price of wood strongly resists downward pressure, and its rate of increase is higher than the

prices of most other commodities. On the international market in the short term, the following factors have an effect on the price:

a. Fluctuations in exchange rates

b. Restrictions on export and import. That is, if exports are restricted, the FOB price of exported wood generally rises relative to the domestic market price in the exporting country. In other words, since the items whose exports are restricted are always ones which the importing country desires to purchase, their export prices necessarily rise. There are some cases, however, in which export prices fall sharply if exports are limited to too low a level and fail to meet the required units for international transactions.

c. Tariffs and taxes on exports and imports.

d. Price differences (competition) from substitute materials. For example, substitution occurs between non-conifer and conifer, between wood and iron, cement or plastic, and between different species of non-conifer tree. It is the price differences that finally count. In Japan, the consumption of tropical sawnwood has rapidly decreased because its price has risen above those of other coniferous sawnwoods in recent years. There are plans in the plywood industry to replace structural plywood made of tropical timber with that made of conifer wood, because of fears related to the log supply. In the United States, the competition between imported non-conifer plywood and the so-called wood panels is becoming intense.

e. Collecting and loading system and quality inspection capabilies of the exporting countries. In order to sell goods at high prices, the first prerequisite is to ship goods of a standard and quality desirable to the buyer in the desired quantity and time in accordance with the agreement. In international transactions, claims about the date of delivery and quality of goods lead to later prices being substantially cheaper. In forwarding by sea, preparation of transportation is also an important factor, e.g., whether shipping companies dispatch by regular cargo ships or not, or whether container services which have recently increased are possible or not. This is illustrated by the sharp difference in the freightage of sawnwood to Japan from the Philippines and Indonesia, which is one of the factors for the great difference in the prices and quantity of sawnwood exports to Japan between these two countries. In the case of Indonesia, there are many negative factors such as the deterioration of quality and accumulation of interest as a result of the distance between sawmills and the importing countries because of less regular dispatch of cargo ships in comparison with the Philippines.

f. Inventory and distribution system in importing countries. A good example is the maintenance by leading Canadian and American conifer-wood exporting companies of large stockyards in the countries they are exporting to, and their employment of a system in which the reduction of transport costs by using large carriers and direct consumer sales are actualized at the same time (whereby they can raise selling prices). These companies have not yet adopted such a system for non-conifer wood. A trend in this direction is, however, beginning to spread and Antwerp has been making arrangements for Southeast Asian countries which mainly produce non-conifer timber to establish stockyards for their own use.

VIII. Summary of Forestry Policy

In this and the following section, forest development and wood industry policies are summarized together with knowledge obtained from main countries in Africa (mainly, West Africa) and Southeast Asia.

Factors common to these countries are that the forests are almost owned by state, and timber production policy (covering other relevant sectors) is formulated and carried out by the government agency in charge of forests.

There seems to be no difference between these countries in the production policies aiming at achieving both the most economically beneficial effects and land conservation through forests on the basis of enrichment of forest resources and sustaining of yield.

For this purpose, besides forest inventory, forest management plan is in progress. The latter is sometimes made by private companies as a condition for obtaining forest concessions.

In general, however, forest surveys have not yet been sufficiently done except in some countries.

Timber extruction, which is carried out by private companies that have obtained concessions, has begun to be rapidly modernized, as illustrated by the Indonesia experience after 1972, from the manual system to mechanical logging.

In any country, the current over-exploitation of forests, which is far from the aims of the above policy — production based on sustained yield — causes apprehension about the future conservation of forest resources.

In this connection, there are many unsolved problems concerning reforestation as a whole, though every country has been putting much

effort into the selection of suitable tree species for reforestation, development of technology of natural and/or artificial regeneration, and the study and practice of methods of promoting reforestation, and have achieved some good results.

As in the case of Carajas, various kinds of agro-forestry systems can be seen which have been studied and implemented as methods of reforestation in Southeast Asian countries.

IX. Summary of Forest Exploitation Policy

Forest exploitation (here including economic felling) in each country has the following features:

a. Forest exploitation is carried out mainly by private companies which have obtained logging concessions from the government of the country.

b. Concessions vary in the length of term (which corresponds to the size of the concession area), and the terms are tending to be made longer in all countries. This, in turn, tends to lead to rationalization, which is necessary for efficiency of development.

c. Along with this, there is a tendency for the administrations to promote bigger scale concessions.

d. In the Philippines and Indonesia, for example, the governments tend to oblige concessionaires to reforest and to process logs within the country.

e. There is a trend, which has been particularly marked in recent years, of giving weight to domestic capital in forest exploitation. This appears to be significant in Sabah State in Malaysia and Indonesia. Though this tendency is not desirable from the general viewpoint, it seems to be preferable, for economic rationalization, to carry it steadily forward in compliance with the level and conditions of the economy of the country.

X. Summary of Wood Industry Policy

All countries actively encourage domestic wood industries (e.g., sawmill, plywood and paper industries). It is naturally important that their policies should encourage the development and spread of

techniques such as saw-sharpening and sawmilling, and at the same time, more effort appears to be necessary on the software side, as in standardization, grading and moduling of processed wood, improvement of auxiliary industries such as the glue industry, and mill management.

Judging from forest resources, tropical non-conifer timber requires greater utilization of lesser-known tree species in order to achieve the development of forestry and processing industries.

Various policies to promote the wood industry have been formulated and advanced according to the conditions prevalent in the country concerned, and the natures of these policies in each country have been described in the earlier Sections. Though the good intentions of such policies should not be denied, they need to be carried out carefully and gradually with economic efficiency in mind. This applies especially in the case of non-conifer timber, whose uses are strongly specialized.

XI. Comments on Firewood and Charcoal

As shown by trends in the consumption, trade and demand prospects for firewood and charcoal in Subsections F. I, F. II and F. V, the rate of increase of demand for firewood and charcoal is projected to be high in developing countries, whereas it is likely to level off or decrease in developed countries by the year 2000. One special feature of charcoal as a commodity is that transportation cost per unit energy is too high for charcoal to be cost-competitive as compared with other energy sources (e.g., oil, gas, and propane gas). In developed countries, charcoal has already been by-passed as an energy source in both households and the industrial field except for some special uses. This means that there is little possibility of large charcoal exports from Brazil to the developed countries of Europe, the United States and Japan because of the marine transport distance and accompanying freight charges and also for reasons related to price competitiveness with the domestic charcoal of each country. Though demands for firewood and charcoal tend to continue to increase in developing countries, it seems that the amount of firewood and charcoal that may be exported from Brazil to these countries is not as large as before because each of them has a basic policy of domestic production and domestic consumption, and at best a small amount of trade can be expected within Latin America. It therefore seems that if Brazilian charcoal is regarded as merchandise for export, it will not contribute much to Brazilian foreign currency reserves because it is traded only in small quantities as an international commodity despite its special uses (e.g., as activated charcoal).

Thus, some broad comments may be made on policies for Brazil: The country has relatively small amount oil but ample forest resources, and so promotes dependency on wood energy to meet its total energy demands, its domestic energy policy being to develop demand for firewood and charcoal and lessen the dependency on fossil energy such as oil and natural gas. It follows directly, as the examination of this policy shows, that imports such as oil will be reduced.

From this point of view, it is desirable that the technical development should be promoted and studied under two headings: production techniques of firewood and charcoal for the local community; and methods of using these fuels as energy sources for industry and the home.

Firewood and charcoal, as already mentioned, have played an important role as energy sources for the local community since early times. Firewood has a calorific value of no more than 4,000-4,500 cal/kg, whereas the value for charcoal is almost double, at 7,000-8,000 cal/kg. On the basis of the energy produced by firewood and charcoal, the economically viable transport distance is explained to be 80 km by truck and 320 km by rail for firewood, and 270 km by truck and 780 km by railway for charcoal. Thus, charcoal is both more economical than firewood, and has a wider range of application. It follows that, for Brazil, which has an immense amount of forest resources and a great stock of unutilized tree species, it is probably worth giving some importance to charcoal production and devoting a great deal of effort to the development and spread of production techniques for high-quality of high thermal efficienty. It may be beneficial, however, for the charcoal production industry to be fostered as a medium- or small-scale local industry spread all over the country because a large-scale industry requires large plant and equipment investment and high outlays for the transportation of a large amounts of wood. Accordingly, it would be advantageous as one idea to set up ten semi-cylindrical kilns made of blocks — 6m (W) x 10m (L) x 1.5-2.0m (H) — in a one place in an open forest area and relocate them every three years. Such a scheme can be expected to produce up to around 10 tons per two-week cycle from each kiln, making possible a total output of about 100 tons per cycle from 10 kilns, employing 10-15 persons. Since kilns of this type do not have a high construction cost, charcoal production may become established in the community as a local industry if some mechanization and rationalization are introduced, for example by using chain-saws, and small bulldozers for loading and unloading the wood and charcoal. However, in closed forest areas, the Australian vertical shuttle kiln (2m W x 20m H) may be more suitable. This charcoal plant is a medium-scale plant which can be expected to produce around 80 tons per 2-to-3-day cycle from one kiln. Since it requires around 320 tons of raw wood per one operation, it would be better to relocate it every ten years in areas with abundant forest resources. Some advantages of this type of vertical kiln are: a. production capacity per one operation is high; b. the charcoal dust

emitted in the production process, which amount to about 20% of the total, is economically recycled as reconstituted charcoal briquettes and in addition; c. the kiln can be used for charcoal production from large-scale eucalyptus plantation because it was originally developed in eucalyptus forests in Australia. Its shortcomings are that: a. plant and equipment investment costs are high; b. the kiln requires large-scale transportation of raw wood, which raises difficulties in areas without roads; and c. since it requires electric power, operation is limited to areas where the electricity supply capacity is very great.

On the other hand, the improvement and development of techniques of small-scale production of charcoal for distribution and consumption in the local community are also of importance. Since small French and Euro-American charcoal plants (block kilns) which have conventionally been used in tropical areas do not work efficiently and emit much charcoal dust. The introduction of the Japanese charcoal-making method that employs only a saw and a shovel deserve consideration. It makes hard charcoal with a high thermal efficiency and a low dust production, and can act as a superior energy source for the local community. From the point of view of energy consumption in the local community, the improvement, development and extension of burning equipment of high thermal efficiency are important, and it would therefore be valuable to examine a more efficient method of utilizing wood as a thermal energy source for the local community.

In relation to the utilization of firewood and charcoal for household and industrial energy, it is clearly unprofitable to operate a large-scale charcoal production in the neighborhood of a large consumption area in view of the high transportation cost to obtain a large quantity of raw wood, and of the poor competitiveness in comparison with fossil fuels such as oil. It is possible to recycle wood debris such as sawdust, chip dust, bark dust and sander dust, and residues of sawnwood and plywood for reconstituted firewood (wood dust fuel). The equipment for reconstituting products like Japanese "Ogalite", American "Udex" and Swiss "Glomera", which costs little, seems to be worth examination. The type of reconstituted firewood that they produce has a high calorific value, averaging 4,700 cal/g, the highest among the wood fuels. It is however, conventionally used for heating and as fuel for boilers, and its production is falling in developed countries. The study and development of reconstituted firewood of this type seem to be necessary for the expansion of the use of such fuels in Brazil. The investigation of the method of using wood gas can be taken as an example of how to use firewood and charcoal as household and industrial fuels. In the developed countries, wood gasification was investigated internationally and widely used during the World War II, but this study was stopped when the war ended, as the fossil fuels came up. Since the first energy crisis of 1973, such studies have been resumed and have reached an advanced stage in the United States, Canada and France. Wood gas plants are

generally smaller than fossil fuel gas-producing plants, because the raw materials are not available in large quantities. For this reason, many of the gas plants are small- and medium-scale plants using wood debris as the raw material, and in many cases, such a plant is attached to an existing burning plant, and thereby the wood gas produced is used for the latter. Although a small wood gas plant which generates wood gas from charcoal for home heating and a burning equipment which can be automatically ignited, extinguished and fed with charcoal has been developed in Japan, it is not yet ready for general use. If wood gas is to be used in Brazil, it will not be suitable as industrial and household fuel in general, although the conversion of riverboats to wood-gas power through the development of a wood-gas engine would appear to be practicable. The investigation of wood liquefaction has reached a high level in the USSR, where alcohol is produced from wood and used as a fuel. Such investigations have been taken up and actively advanced throughout the world since the first oil crisis in 1973, and especially the United States and Canada are enthusiastic about developments in this field. However, in the industrial production of liquid fuel from wood there are still many problems. It would appear to be important for Brazil to make efforts in the investigation and development of colloidal fuels, in view of the possibility of utilizing a mixture of charcoal dust and heavy oil as a colloidal fuel for power generation and in industry. It may be added that charcoal also has utility as a soil conditioner for agriculture, and in addition, the production of medicines and chemicals is possible from wood tar formed in the process of charcoal production. Accordingly, importance may be attached to the reconsideration of charcoal from the general point of view in terms of the energy situation, foreseeable in Brazil by the year 2000.

XII.   Approach to Forestry Development in Carajas

A lack of information and data based on detailed surveys of forests in the Carajas area make it difficult to comment here concrete development plans for forests and forestry in this area. On the assumption, however, that the forests in the area are ordinary tropical Latin American forests, especially tropical rain forests in the Amazon River Basin, a fundamental approach to the development of forestry in the area will be described below for the sake of reference.

1.   Firstly, as already stated, it is expected that tropical non-conifer resources will be rapidly exploited in the future, and the relative value of non-conifer trees will show a marked rise after

the year 2000. Despite such future prospects, however, the present efficiency in utilization of tropical hardwood is low. On the other hand, conifer resources in the northern, mainly developed countries in temperate and sub-frigid zone tend to continue to be reserved for the future.

Since non-conifer trees in developed countries, however, are mainly natural trees, like tropical non-conifer trees they tend to decrease in stock as a result of exploitation and difficulty of reforestation with them.

If such a situation is taken into consideration, the exploitation of tropical non-coniferous forests in Carajas will be performed with sustainable programmes under the prospect for the worldwide vicissitude of forest resources.

2.   Secondly, as also stated above, forests in tropical America, mainly the Amazon River Basin, account for only a small proportion of commercially exploitable stock compared with forests in tropical Asia and west Africa. The reasons for this are that there are a large number of species per unit area, their marketability is low, and their location deep in the interior of the country creates poor conditions for log transportation. The relative proportion of exploitable stock in these forests will, however, increase along with the rise in timber price resulting from the depletion of world-wide tropical non-conifer resources. This means that there is sufficient possibility for the future commercialization of those trees which are currently unusable in terms of their location, species or grade.

For these reasons, it might be desirable that the utilization of forest resources in the area is held down for the present.

3.   Even if the above-mentioned conservation policy is adopted, deforestation will inevitably occur to some extent for the purpose of agricultural, mining and industrial development in Carajas or for the improvement of the infrastructure.

In this case, too, it is desirable that a land-use plan be made up and carried out for the relocation of forests by artificial reforestation, in the light of the protection of natural environment and development of the local communities. Particularly in the area of agricultural development, it is recommended that the agro-forestry or silvipasture system be adopted as a means of achieving this aim.

4. Meanwhile, as previously mentioned, in the case of adopting a policy of reserving a large area of natural forest, it would be recommended that studies of silvicultural techniques such as enrichment planting or line planting with valuable tree species be commenced, in order to maintain and enhance the value of forests after selective cutting in preparation for their future exploitation.

It appears that tropical rain forests of many species in the Amazon River Basin may remain as the greatest undisturbed tropical rain forests on earth after the year 2000. In other words, these forests will be a precious resources with diverse characteristics for the world's forests and forestry, and also will represent an abundance of clones with various genotypes. Accordingly, care should be taken for the genetic conservation of forest trees in the case of exploitation of natural forests and the promotion of artificial reforestation.

5. To add a few words on forest management, the improvement of infrastructure such as forest roads and the development of the local communities are prerequisites for both clear cutting and artificial reforestation or selective cutting and natural regeneration. In the absence of these prerequisites, it will be difficult to set up sound and intensive forestry operations. The unfortunate experiences of Southeast Asia and Africa in the past where only logging operations were given priority, followed by the abandonment of land, should not be repeated. Furthermore, it would be recommended that forest exploitation be carried out keeping pace with the development of other industries, but not prior to them. In addition, fast growing species might not be used exclusively for reforestation with the aim of reaping profits in a short time span. It is desirable to plant valuable tree species also, even though they have a long harvesting age, since the timber from these species is expected to experience a substantial rise in price.

6. Finally, the present situation of the wood processing industry in the field of tropical forestry is at a considerable disadvantage compared with that in the developed countries, with regard to such conditions as the level of technology, management systems and infrastructure. As already mentioned, since this creates difficulties in the promotion of the wood processing industry in developing countries, these handicaps must be overcome in order to develop the local wood processing industry in the future. Thus, it is recommended that the development of this industry be advanced in line with improvements of such fundamental aspects as technology, management (including marketing) and infrastructure.

7. From the above point of view, consideration can be given to adopting the following policies for the time being:

a. Establishment of a general long-term perspective for forestry development. It is important that, while the position of the area within Brazil is being clarified, a general long-term plan for it should be established in order to promote forestry development, including integrated development of agriculture and live-stock, where such a certain degree of compromise is made between development and environmental protection.

b. Conduct of studies and investigation into the utilization of lesser known tree species. It is considered that such studies should cover surveys of the situation of lesser known tree species, their processing characteristics and the market.

c. Conduct of studies and investigation into the development of silvicultural techniques. Such studies should cover more prac-tical items from surveys of the results of exploitation of the tropical rain forests throughout the world to field studies in an experimental forest of both natural forest management and artifi-cial reforestation techniques.

d. Research and studies on a rational system which includes all aspects from logging to exportation of forest products.

Appendix 1   Trends in Consumption of Forest Products, 1965 - 1980

1)   Roundwood (Coniferous)

2)   Roundwood (Non-Coniferous)

3)   Firewood and Charcoal

4)   Sawnwood (Non-Coniferous)

5)   Pulpwood

6)   Plywood

7)   Particle Board

Remarks: Consumption = Production + Imports - Exports

Source :   FAO, Yearbook of Forest Products, 1980

1) Roundwood (Coniferous)

(1,000 m³)

Region	Item	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Prodn.	212,519	216,540	214,821	233,713	227,771	227,741	246,128	239,166	255,365	237,683	222,108	270,487	284,598	298,958	287,688	258,588
	Imp.	1,557	1,240	1,298	1,576	1,501	1,786	1,787	2,387	1,954	1,737	1,728	2,025	2,174	2,043	2,458	2,146
	Exp.	5,247	6,419	9,247	11,839	10,926	13,391	10,854	14,104	14,248	12,118	12,196	14,842	14,362	15,565	17,865	15,135
	Consump.	208,829	211,361	206,872	223,450	216,346	216,136	237,061	227,449	243,071	227,302	211,640	257,670	272,410	285,436	272,281	245,599
Western Europe	Prodn.	75,575	74,067	74,495	74,296	79,479	85,093	86,395	85,502	96,301	93,756	74,687	85,245	87,053	89,155	94,968	93,944
	Imp.	2,247	2,784	2,511	2,532	2,379	2,523	2,252	2,767	4,316	4,756	3,221	4,417	4,890	4,099	4,547	5,106
	Exp.	1,025	1,345	1,549	1,368	1,225	1,463	1,354	1,380	2,236	2,784	1,704	2,428	2,590	1,899	2,395	2,927
	Consump.	76,797	75,243	75,457	75,460	80,633	86,153	87,293	86,889	98,381	95,728	76,204	87,234	89,353	91,355	97,120	96,123
Oceania	Prodn.	6,099	6,232	6,413	7,025	7,557	7,801	7,576	7,912	8,339	6,537	6,356	7,595	7,178	6,913	7,021	7,410
	Imp.	4	10	18	18	13	4	1	5	1	1	2	5	2	2	2	0
	Exp.	443	538	796	1,432	1,661	1,809	1,797	1,844	1,916	1,302	534	958	1,027	936	1,236	971
	Consump.	5,660	5,704	5,635	5,611	5,909	5,996	5,783	6,073	6,424	5,238	5,822	6,642	6,153	5,979	5,785	6,439
Japan	Prodn.	28,255	28,525	27,377	25,109	23,173	22,230	21,320	21,789	21,419	18,433	17,610	17,930	17,170	17,200	17,200	17,200
	Imp.	5,947	7,559	11,478	15,661	15,544	18,395	15,991	19,795	20,886	17,591	17,238	18,771	19,409	19,669	22,690	17,452
	Exp.	18	17	23	25	15	12	12	7	7	6	6	15	17	17	17	12
	Consump.	34,184	36,067	38,832	40,745	38,702	40,613	37,299	41,577	42,298	36,018	34,842	36,686	36,562	36,852	39,873	34,640
Other developed countries	Prodn.	2,093	2,127	2,180	2,095	2,479	4,521	2,685	2,610	2,850	3,076	3,079	2,955	2,715	2,697	2,697	2,697
	Imp.	20	9	7	8	8	5	6	2	7	13	37	51	35	33	33	33
	Exp.	0	1	0	1	1	1	4	5	4	4	15	22	36	86	86	86
	Consump.	2,113	2,135	2,187	2,103	2,485	4,525	2,687	2,607	2,853	3,085	3,101	2,984	2,714	2,644	2,644	2,644
Africa	Prodn.	662	675	737	795	845	918	1,042	1,014	1,042	1,051	1,046	1,085	1,269	1,180	1,110	1,223
	Imp.	17	11	1	9	25	36	6	20	8	17	38	43	31	32	53	21
	Exp.	0	0	0	43	47	0	65	13	14	14	15	11	31	2	2	4
	Consump.	679	686	738	761	823	954	983	1,021	1,036	1,054	1,069	1,117	1,298	1,210	1,159	1,240
Brazil	Prodn.	5,770	6,450	7,240	7,880	8,400	9,320	9,430	9,130	8,160	8,160	11,015	13,062	14,571	15,395	16,315	16,315
	Imp.	0	0	0	0	0	0	0	1	0	0	1	2	1	0	0	0
	Exp.	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0
	Consump.	5,770	6,450	7,240	7,880	8,400	9,320	9,430	9,130	8,160	8,160	11,015	13,064	14,572	15,395	16,315	16,315
Latin America excluding Brazil	Prodn.	6,270	5,784	5,756	6,111	6,528	6,917	7,173	7,685	8,199	8,155	8,156	8,611	9,266	7,470	9,308	9,765
	Imp.	13	10	3	1	72	65	19	15	24	25	6	9	8	6	6	61
	Exp.	26	18	14	14	17	10	8	9	14	6	15	23	167	639	968	1,017
	Consump.	6,257	5,776	5,745	6,098	6,583	6,972	7,184	7,691	8,209	8,174	8,147	8,597	9,107	6,837	8,346	8,809
Middle and Near East	Prodn.	2,601	2,674	2,844	3,089	3,461	3,269	3,689	3,624	4,259	4,569	4,770	4,778	5,188	5,119	5,483	5,529
	Imp.	45	40	40	48	152	120	76	154	135	59	165	144	165	145	155	174
	Exp.	3	1	1	1	1	4	17	14	7	4	3	3	0	2	0	1
	Consump.	2,643	2,713	2,883	3,136	3,612	3,385	3,748	3,764	4,387	4,623	4,931	4,919	5,353	5,262	5,638	5,702
Southeast Asia and Tropical Oceania	Prodn.	167	179	173	195	283	228	257	233	235	176	510	687	712	669	709	709
	Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Exp.	35	26	52	75	36	1	1	0	12	6	353	443	404	272	365	308
	Consump.	132	153	121	120	247	227	256	233	223	170	157	244	308	397	344	401
Other Asian countries	Prodn.	2,016	1,990	2,230	2,246	2,254	2,131	2,484	2,422	1,828	2,592	2,644	2,464	19,272	19,337	19,287	19,287
	Imp.	93	252	299	472	150	293	435	373	827	773	460	757	2,201	2,416	2,115	1,532
	Exp.	12	9	4	1	1	0	5	4	3	3	3	2	3	4	23	24
	Consump.	2,097	2,233	2,525	2,717	2,403	2,424	2,914	2,795	2,653	3,362	3,101	3,219	21,470	21,749	21,379	20,795
Asian centrally planned economies	Prodn.	13,605	13,940	14,266	14,627	15,077	15,389	15,739	16,133	16,725	16,340	19,145	19,993	20,768	21,717	22,706	23,744
	Imp.	1,510	1,451	15	5	2	2	2	122	492	610	614	538	400	349	349	349
	Exp.	66	70	88	57	97	100	106	119	129	157	177	128	128	128	128	128
	Consump.	15,049	15,321	14,193	14,575	14,982	15,291	15,635	16,136	17,088	16,793	19,582	20,403	21,040	21,938	22,927	23,965
USSR and Eastern Europe	Prodn.	145,723	144,678	154,636	156,262	157,863	166,303	166,373	167,416	165,178	163,360	171,306	166,649	164,012	158,531	155,593	155,630
	Imp.	504	573	744	945	966	1,033	1,013	780	1,188	1,248	830	787	885	960	720	920
	Exp.	4,718	5,040	5,005	6,115	6,382	7,572	7,383	7,982	10,195	9,829	8,884	9,534	9,919	10,281	8,763	7,311
	Consump.	141,509	140,211	150,375	151,092	152,447	159,764	160,003	160,214	156,171	154,779	163,252	157,902	154,978	149,210	147,550	149,239

2) Roundwood (Non-Coniferous)

(1,000 m³)

Region	Item	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Prodn.	41,690	41,686	39,664	38,062	39,827	38,931	38,424	41,002	41,472	37,932	32,125	36,652	38,629	40,716	43,116	42,316
	Imp.	497	529	587	534	489	477	415	459	459	492	318	291	294	409	502	471
	Exp.	448	525	522	508	432	368	339	497	567	622	328	470	481	522	630	784
	Consump.	41,739	41,690	39,729	38,088	38,864	39,040	38,500	40,964	41,364	37,802	32,115	36,473	38,442	40,603	42,988	42,003
Western Europe	Prodn.	22,559	23,064	22,797	22,455	23,556	24,724	23,233	22,507	24,954	23,841	20,797	20,520	22,014	22,972	22,434	24,350
	Imp.	6,214	6,414	6,295	6,998	8,337	7,784	8,184	9,070	10,952	8,928	6,985	8,858	9,426	9,347	8,952	9,295
	Exp.	1,017	1,099	1,166	1,200	1,233	1,354	1,474	1,549	1,850	1,943	1,665	1,833	2,074	2,017	2,055	2,252
	Consump.	27,756	28,379	27,926	28,253	30,660	31,154	29,944	30,028	34,056	30,826	26,117	27,545	29,366	29,302	29,331	31,393
Oceania	Prodn.	7,419	7,622	7,553	7,643	7,261	6,992	7,457	6,984	6,902	7,240	6,490	6,631	6,518	6,336	5,846	6,105
	Imp.	169	59	70	110	116	127	93	95	101	106	41	46	26	17	11	12
	Exp.	14	8	1	12	11	11	13	14	9	12	3	1	3	2	1	4
	Consump.	7,574	7,673	7,622	7,741	7,366	7,108	7,537	7,065	6,994	7,334	6,528	6,676	6,541	6,351	5,856	6,113
Japan	Prodn.	6,487	6,642	6,887	6,943	6,512	5,910	5,860	5,534	5,493	4,751	3,971	4,107	4,014	3,879	3,879	3,879
	Imp.	9,427	12,185	13,787	14,476	17,285	19,651	21,045	21,337	26,309	24,973	17,274	22,042	21,227	22,030	22,096	19,202
	Exp.	1	4	2	2	3	5	1	1	1	8	1	1	1	5	1	1
	Consump.	15,913	18,823	20,672	21,417	23,794	25,756	26,904	26,870	31,800	29,716	21,244	26,148	25,240	25,904	25,970	23,080
Other developed countries	Prodn.	378	311	319	327	409	408	460	437	419	439	385	352	395	442	442	442
	Imp.	202	198	170	184	200	197	199	125	171	226	146	125	115	170	171	171
	Exp.	2	3	6	8	1	1	2	3	5	4	4	10	9	8	8	8
	Consump.	578	506	483	503	608	604	657	559	585	661	527	467	501	604	605	605
Africa	Prodn.	11,236	11,409	11,672	12,759	14,890	14,734	15,298	14,982	16,703	14,409	13,807	15,513	16,554	15,782	16,211	19,335
	Imp.	118	122	137	125	156	226	217	191	215	311	153	172	286	197	244	339
	Exp.	5,639	5,597	5,613	6,461	7,829	6,832	6,794	7,368	8,791	6,840	5,188	6,231	6,094	5,389	6,375	6,539
	Consump.	5,715	5,934	6,196	6,423	7,217	8,128	8,721	7,805	8,127	7,880	8,772	9,454	10,746	10,290	10,080	13,135
Latin America excluding Brazil	Prodn.	9,128	9,094	9,103	9,375	9,293	9,945	10,867	11,706	11,769	11,328	11,636	12,215	11,580	10,943	12,239	12,009
	Imp.	364	340	308	230	209	218	200	126	68	74	62	35	20	28	19	19
	Exp.	484	491	315	273	264	278	183	87	98	62	50	79	45	50	80	117
	Consump.	9,008	8,943	9,096	9,332	9,238	9,885	10,884	11,745	11,739	11,340	11,668	12,171	11,555	10,921	12,178	11,911
Brazil	Prodn.	5,600	5,850	6,320	6,620	7,010	7,470	7,790	7,000	7,835	8,605	10,168	10,688	11,920	12,595	13,349	13,349
	Imp.	2	0	0	0	0	6	24	53	66	71	75	33	39	77	49	56
	Exp.	53	58	79	117	114	84	119	130	426	140	5	7	4	10	13	7
	Consump.	5,549	5,792	6,241	6,503	6,896	7,392	7,695	6,923	7,475	8,536	10,238	10,714	11,955	12,662	13,385	13,398
Middle and Near East	Prodn.	938	926	1,047	1,293	1,445	1,263	1,416	1,775	1,626	1,805	1,287	1,314	1,769	1,796	1,099	1,031
	Imp.	94	70	48	90	37	32	65	43	40	37	68	132	119	101	41	44
	Exp.	26	28	20	17	20	23	20	22	24	8	17	10	9	5	3	5
	Consump.	1,006	968	1,075	1,366	1,462	1,272	1,461	1,796	1,642	1,834	1,338	1,436	1,879	1,892	1,137	1,070
Southeast Asia and Tropical Oceania	Prodn.	28,936	29,549	33,178	42,222	40,347	45,172	46,060	54,538	66,351	60,655	51,720	64,300	67,311	68,939	65,398	64,877
	Imp.	17	20	14	18	10	23	23	268	182	23	147	20	75	185	236	132
	Exp.	13,096	15,521	17,043	21,007	24,629	29,301	31,274	32,642	40,073	34,775	28,567	36,289	37,455	38,767	36,337	31,538
	Consump.	15,857	13,978	16,149	21,233	15,728	15,894	14,885	22,164	26,460	25,903	23,300	28,031	29,931	30,357	29,297	33,471
Other Asian countries	Prodn.	2,031	2,800	3,089	4,259	4,451	5,133	5,637	5,586	6,299	5,663	5,996	7,758	8,749	9,460	9,334	6,806
	Imp.	6,052	6,093	6,632	6,440	6,892	6,744	6,835	6,249	7,234	7,388	8,481	8,699	7,986	4,350	2,905	2,898
	Exp.	243	266	224	229	172	151	186	182	211	187	180	186	218	212	199	247
	Consump.	7,840	8,627	9,497	10,470	11,171	11,726	12,286	11,653	13,322	12,864	14,297	16,271	16,517	13,598	12,040	9,457
Asian centrally planned economies	Prodn.	8,980	9,153	9,284	9,359	10,016	9,726	10,024	10,160	10,531	11,702	12,088	12,999	13,546	14,108	14,708	15,308
	Imp.	707	753	779	1,186	1,264	1,564	2,252	4,000	3,990	3,801	3,887	4,024	5,817	7,065	7,065	7,065
	Exp.	58	70	56	75	78	43	12	28	3	17	12	12	12	12	12	12
	Consump.	9,629	9,836	10,007	10,470	11,202	11,247	12,264	14,132	14,516	15,500	15,958	17,011	19,351	21,261	21,761	22,361
USSR and Eastern Europe	Prodn.	30,471	30,440	33,160	33,040	33,716	35,090	35,640	35,650	35,065	34,896	36,349	35,177	35,004	34,540	33,517	33,732
	Imp.	219	229	441	538	614	475	514	480	577	541	589	543	536	410	398	392
	Exp.	92	114	176	249	252	288	275	290	334	397	354	201	315	296	404	391
	Consump.	30,600	30,564	33,425	33,529	34,078	35,267	35,879	35,840	35,300	35,040	36,593	35,521	35,225	34,654	33,511	33,732

3) Firewood and Charcoal

(1,000 m³)

Region	Item	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Prodn.	36,798	34,816	26,784	25,979	27,027	21,499	19,761	18,693	19,409	19,428	19,100	20,218	19,673	19,673	19,673	19,673
	Imp.	92	110	103	116	146	176	209	187	158	191	209	181	303	352	377	268
	Exp.	0	0	0	120	84	102	84	91	112	110	206	162	200	170	98	63
	Consump.	36,890	34,926	26,887	25,975	27,089	21,573	19,886	18,789	19,455	19,509	19,103	20,737	19,776	19,855	19,952	19,878
Western Europe	Prodn.	57,981	54,367	50,576	47,636	45,520	43,735	40,502	35,206	31,473	30,581	29,183	30,131	27,928	28,103	28,501	28,991
	Imp.	1,273	1,144	1,274	1,189	1,598	1,512	1,415	1,166	1,772	1,979	1,987	1,987	1,978	1,701	1,865	2,058
	Exp.	1,254	1,102	957	993	1,180	1,268	814	752	1,021	1,169	1,068	850	1,075	551	746	909
	Consump.	58,000	54,409	50,893	47,834	45,938	43,979	41,103	35,620	32,224	31,391	30,102	31,266	28,831	29,253	30,020	30,140
Oceania	Prodn.	3,425	3,300	3,180	3,059	3,248	3,122	3,040	2,995	2,672	3,114	2,122	1,520	1,502	1,412	1,412	1,412
	Imp.	2	1	1	1	1	1	1	1	1	1	6	4	1	1	1	0
	Exp.	1	3	0	0	0	0	0	0	0	0	3	0	0	0	0	0
	Consump.	3,426	3,298	3,181	3,060	3,249	3,123	3,041	2,996	2,673	3,115	2,125	1,524	1,503	1,413	1,413	1,412
Japan	Prodn.	9,707	8,565	7,461	6,333	1,704	1,721	1,712	1,736	1,757	1,776	1,799	1,821	1,835	1,854	1,867	1,889
	Imp.	22	79	90	65	62	363	576	734	792	669	371	498	685	672	253	396
	Exp.	1	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0
	Consump.	9,728	8,644	7,551	6,397	1,766	2,104	2,288	2,470	2,549	2,443	2,170	2,319	2,520	2,526	2,120	2,285
Other developed countries	Prodn.	6,857	6,878	6,898	6,916	6,823	6,849	6,869	6,892	6,909	6,929	6,947	6,946	6,943	6,935	6,935	6,935
	Imp.	1	1	2	2	9	7	6	3	4	2	5	28	48	76	76	76
	Exp.	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
	Consump.	6,858	6,879	6,900	6,918	6,832	6,856	6,875	6,895	6,913	6,931	6,952	6,971	6,991	7,011	7,011	7,011
Africa	Prodn.	207,960	209,705	216,156	221,259	251,209	257,774	264,457	271,809	280,081	287,812	295,811	304,333	313,092	322,238	331,495	341,325
	Imp.	127	94	126	87	80	94	72	31	5	26	0	0	0	0	0	0
	Exp.	391	247	434	328	559	340	349	66	170	161	58	50	52	51	51	51
	Consump.	207,696	209,552	215,848	221,018	250,730	257,528	264,190	271,774	279,916	287,677	295,755	304,283	313,040	322,187	331,444	341,274
Brazil	Prodn.	125,000	130,000	130,000	135,000	127,562	131,250	135,039	138,927	142,928	147,044	151,278	155,637	160,116	164,716	169,937	174,406
	Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Exp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Consump.	125,000	130,000	130,000	135,000	127,562	131,250	135,039	138,927	142,928	147,044	151,278	155,637	160,116	164,716	169,937	174,406
Latin America excluding Brazil	Prodn.	82,209	83,526	83,782	84,053	89,356	90,938	92,943	94,419	96,532	97,847	99,334	102,314	105,174	106,578	108,315	111,124
	Imp.	21	19	15	10	16	13	18	5	10	7	13	21	20	9	10	10
	Exp.	10	11	15	4	18	9	19	12	19	27	13	4	4	9	3	3
	Consump.	82,198	83,518	83,806	84,047	89,342	90,930	92,934	94,426	96,541	97,867	99,492	102,473	105,158	106,572	108,309	111,217
Middle East	Prodn.	37,567	37,744	38,006	38,720	62,908	63,640	63,962	65,967	66,357	69,986	71,876	74,520	74,253	76,044	59,564	60,702
	Imp.	330	249	277	296	393	322	213	154	344	172	172	180	159	163	121	109
	Exp.	20	30	27	33	28	32	23	33	31	20	21	22	31	22	20	27
	Consump.	37,877	37,963	38,256	38,983	63,273	63,930	64,152	66,088	66,670	70,138	72,027	74,678	74,381	76,185	59,665	60,784
Southeast Asia and Tropical Oceania	Prodn.	136,370	139,740	143,190	147,835	267,734	182,278	186,924	191,696	196,894	202,329	207,809	213,201	215,521	221,035	226,635	232,156
	Imp.	254	140	56	54	64	109	111	177	177	212	305	253	252	264	222	231
	Exp.	187	309	367	486	550	710	726	620	586	825	652	713	717	639	717	921
	Consump.	136,437	139,571	142,879	147,403	267,248	181,677	186,309	191,253	196,485	201,716	207,462	212,741	215,056	220,660	226,140	231,466
Other Asian countries	Prodn.	125,307	142,868	145,441	147,895	159,211	255,171	261,148	267,212	274,147	280,613	287,686	294,497	304,608	311,806	319,502	326,562
	Imp.	418	420	405	296	319	323	213	244	230	238	168	109	294	225	297	333
	Exp.	127	96	93	114	132	19	44	33	30	67	54	97	124	92	78	78
	Consump.	125,598	143,192	145,740	148,186	159,398	255,475	261,422	267,423	274,347	280,784	287,800	294,509	304,778	311,939	319,721	326,317
Asian centrally planned economies	Prodn.	138,370	140,989	144,670	147,330	183,233	187,491	190,685	195,262	198,541	202,753	207,186	211,490	215,913	220,451	225,089	229,645
	Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Exp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Consump.	138,370	140,989	144,670	147,330	183,233	187,491	190,685	195,262	198,541	202,753	207,186	211,490	215,913	220,451	225,089	229,645
USSR and Eastern Europe	Prodn.	121,061	117,112	112,482	106,829	104,007	102,156	101,938	101,210	98,114	98,472	95,662	96,376	94,460	91,631	91,809	91,834
	Imp.	775	626	276	83	37	53	36	33	32	31	32	31	27	27	25	25
	Exp.	328	192	424	301	326	282	212	221	239	308	235	92	115	141	119	59
	Consump.	121,508	117,546	112,334	106,611	103,718	101,927	101,762	101,022	97,907	98,195	95,459	96,315	94,376	91,507	91,715	91,790

4) Sawnwood (Non-Coniferous)

(1,000 m³)

Region	Item	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Prodn.	18,861	19,408	18,859	18,420	21,376	18,172	17,556	17,346	17,896	17,626	14,831	16,373	16,614	17,282	18,271	18,458
	Imp.	1,078	1,263	1,198	1,091	1,355	1,008	1,116	1,429	1,732	1,412	963	1,287	1,351	1,431	1,489	1,422
	Exp.	742	909	808	660	752	674	787	1,006	1,072	705	807	814	847	1,341	1,025	1,190
	Consump.	19,197	19,762	19,249	18,851	21,979	18,506	17,885	17,769	18,556	18,333	14,987	16,846	17,118	17,372	18,835	18,690
Western Europe	Prodn.	10,537	10,791	10,905	11,188	11,553	11,973	12,587	12,499	13,134	12,323	10,525	11,621	12,253	12,445	12,236	12,996
	Imp.	2,599	2,670	2,647	3,098	3,363	3,541	3,426	3,995	5,677	4,033	3,620	5,435	5,521	5,620	6,674	6,075
	Exp.	1,210	1,262	1,232	1,345	1,444	1,504	1,522	1,766	2,274	1,058	1,607	2,801	2,494	2,756	2,520	2,434
	Consump.	11,926	12,199	12,320	12,941	13,452	14,010	14,491	14,728	16,537	14,498	12,538	14,255	15,280	15,309	16,390	16,637
Oceania	Prodn.	2,648	2,608	2,505	2,655	2,510	2,531	2,637	2,497	2,482	2,533	2,505	2,430	2,340	2,063	1,984	1,986
	Imp.	274	198	169	235	229	278	273	254	338	449	282	346	445	311	304	317
	Exp.	43	29	29	28	36	40	28	27	54	51	32	23	31	30	41	54
	Consump.	2,879	2,775	2,645	2,862	2,703	2,769	2,882	2,724	2,766	2,931	2,755	2,753	2,754	2,344	2,247	2,249
Japan	Prodn.	6,645	7,307	7,867	8,875	9,107	9,827	10,685	10,839	11,965	10,995	9,397	9,630	6,241	6,412	6,412	6,412
	Imp.	141	49	132	191	193	306	323	386	433	452	186	224	303	421	372	529
	Exp.	197	174	137	126	121	100	91	83	56	54	51	51	54	60	60	47
	Consump.	6,589	7,182	7,862	8,940	9,179	10,031	10,917	11,142	12,342	11,393	9,520	9,803	6,490	6,773	6,724	6,894
Other developed countries	Prodn.	46	68	66	76	136	145	184	151	151	164	204	206	140	143	143	143
	Imp.	232	157	208	255	275	333	302	276	406	379	288	239	137	174	174	174
	Exp.	4	3	3	2	5	2	2	0	1	1	1	1	15	8	8	8
	Consump.	274	222	271	329	406	476	484	427	556	542	491	444	262	309	309	309
Africa	Prodn.	1,969	2,031	1,858	2,200	2,540	2,645	2,733	2,586	3,048	3,391	3,537	3,520	3,677	4,429	4,711	5,486
	Imp.	168	176	169	184	133	157	124	132	115	218	153	168	152	200	198	200
	Exp.	709	768	709	755	721	744	642	707	880	813	665	742	718	694	704	709
	Consump.	1,428	1,439	1,318	1,629	1,952	2,058	2,215	2,011	2,283	2,796	3,025	2,946	3,111	3,935	4,205	4,977
Brazil	Prodn.	2,700	2,800	3,000	3,100	3,300	3,500	3,600	3,200	3,444	3,977	4,659	5,397	6,053	6,385	6,736	6,736
	Imp.	0	0	1	0	1	0	1	5	34	83	77	99	209	329	120	422
	Exp.	65	71	76	82	90	147	161	204	367	326	187	180	257	360	311	462
	Consump.	2,635	2,729	2,925	3,019	3,210	3,353	3,440	3,001	3,111	3,734	4,549	5,316	6,005	6,354	6,545	6,696
Latin America excluding Brazil	Prodn.	4,017	4,253	4,184	4,280	4,720	4,567	4,873	4,910	5,033	4,830	5,088	5,457	5,737	5,485	5,990	5,848
	Imp.	98	89	87	96	146	151	190	182	168	552	665	204	125	242	225	285
	Exp.	250	257	265	318	415	438	391	418	503	509	403	368	330	330	522	507
	Consump.	3,865	4,085	4,006	4,058	4,451	4,280	4,672	4,674	4,698	4,873	5,350	5,293	5,532	5,397	5,693	5,626
Middle and Near East	Prodn.	481	485	557	558	610	672	579	711	750	733	693	646	816	824	822	1,126
	Imp.	93	102	117	86	154	96	114	103	80	350	381	445	827	816	665	661
	Exp.	20	24	19	14	13	18	22	18	23	16	1	1	1	0	2	5
	Consump.	554	563	655	630	751	750	671	796	807	1,067	1,073	1,090	1,642	1,640	1,485	1,782
Southeast Asia and Tropical Oceania	Prodn.	6,802	6,426	6,878	7,310	5,944	8,021	6,669	9,587	9,495	9,309	11,253	12,137	12,964	12,577	11,935	11,866
	Imp.	38	19	62	61	73	101	125	227	293	381	286	282	418	506	1,024	775
	Exp.	1,029	1,007	1,044	1,498	1,586	1,771	1,835	2,312	3,162	2,791	2,627	4,386	4,828	4,862	6,296	5,637
	Consump.	5,811	5,438	5,896	5,873	4,431	6,351	4,959	7,502	6,626	6,899	8,912	8,033	8,554	8,221	6,663	7,004
Other Asian countries	Prodn.	2,991	3,430	3,801	3,360	5,457	4,013	4,904	3,967	4,410	4,587	3,497	4,797	4,869	5,200	4,548	4,931
	Imp.	162	340	333	549	394	371	356	436	914	727	695	1,176	1,323	1,337	1,321	1,377
	Exp.	445	492	544	578	744	750	674	818	1,208	902	688	3,797	591	638	982	792
	Consump.	2,708	3,278	3,590	3,331	5,107	3,634	4,586	3,585	4,116	4,412	3,504	2,176	5,601	5,899	4,887	5,516
Asian centrally planned economies	Prodn.	5,309	5,445	5,588	5,820	6,196	6,143	6,351	6,571	6,753	6,734	6,739	7,039	7,354	7,685	8,032	8,396
	Imp.	3	4	4	8	12	10	10	8	9	27	23	30	38	56	56	56
	Exp.	48	43	46	62	61	43	111	87	160	118	133	136	91	115	115	115
	Consump.	5,264	5,406	5,546	5,766	6,147	6,110	6,250	6,492	6,602	6,643	6,629	6,933	7,301	7,626	7,973	8,337
USSR and Eastern Europe	Prodn.	19,038	18,825	19,267	19,529	19,808	20,371	20,784	20,772	20,524	20,383	20,492	20,031	19,507	19,234	18,445	18,317
	Imp.	430	438	484	460	426	398	385	271	354	441	442	366	363	752	268	271
	Exp.	717	779	793	870	894	936	948	827	825	767	749	714	702	752	620	567
	Consump.	18,751	18,485	18,958	19,119	19,330	19,833	20,221	20,336	20,053	20,056	20,185	19,683	19,168	19,234	18,113	18,021

(1,000 m³)

Region / Item	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America Prodn.	121,843	127,857	126,181	127,782	144,216	150,005	137,726	142,366	149,291	165,000	132,931	139,779	135,004	142,018	144,092	148,343
Imp.	2,944	3,367	1,536	3,239	2,110	2,250	1,702	1,732	1,699	2,047	1,612	1,769	2,001	2,187	2,659	2,557
Exp.	4,777	5,361	5,837	6,618	6,804	7,322	5,844	6,116	7,302	7,904	6,509	7,780	8,069	7,835	9,178	9,446
Consump.	120,010	125,863	123,880	124,403	139,522	144,933	133,584	138,032	143,688	159,143	128,034	133,788	128,936	136,370	137,573	141,454
Western Europe Prodn.	65,364	67,187	74,047	67,592	74,010	83,585	87,432	87,170	77,623	88,077	86,604	79,790	72,810	75,984	83,295	86,064
Imp.	10,944	10,751	11,200	12,056	11,479	15,118	12,652	9,890	12,302	15,234	15,296	14,169	14,247	13,185	15,618	18,269
Exp.	4,479	3,860	4,930	5,391	5,510	7,177	6,671	4,867	5,790	6,557	7,125	6,150	5,732	5,334	6,888	8,336
Consump.	71,829	74,078	80,317	74,257	79,979	91,526	93,413	82,193	84,135	96,754	94,774	87,809	81,325	83,835	92,025	95,997
Oceania Prodn.	2,539	2,691	2,727	2,717	3,234	3,557	3,745	3,640	5,374	5,006	7,613	7,191	8,596	8,335	8,278	9,268
Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exp.	0	0	0	0	3	185	565	1,047	2,199	2,931	3,061	3,866	5,326	5,074	5,357	7,064
Consump.	2,539	2,691	2,727	2,717	3,231	3,372	3,180	2,593	3,175	2,075	4,552	3,325	3,270	3,261	2,921	2,204
Japan Prodn.	8,448	9,010	14,180	12,971	13,625	14,846	15,931	13,867	12,801	13,952	11,021	11,679	11,090	9,631	9,631	9,631
Imp.	871	1,553	2,358	4,773	5,732	7,026	5,298	6,935	7,128	11,373	9,498	10,407	15,064	14,071	12,197	13,211
Exp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consump.	9,319	10,563	16,538	17,744	19,357	21,872	21,229	20,802	19,929	25,325	20,519	22,086	26,154	23,702	21,826	22,842
Other developed countries Prodn.	2,337	2,752	2,912	2,879	3,077	3,257	3,278	3,158	3,521	3,929	3,813	4,053	3,886	3,826	3,826	3,826
Imp.	5	3	6	4	7	0	0	0	0	0	0	0	0	0	0	0
Exp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consump.	2,342	2,755	2,918	2,883	3,084	3,257	3,278	3,158	3,521	3,929	3,813	4,053	3,886	3,826	3,826	3,826
Africa Prodn.	762	765	790	784	804	961	1,321	1,433	1,375	1,498	2,137	2,213	2,194	2,309	2,236	2,216
Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exp.	0	0	5	1	0	3	14	5	2	69	70	127	100	100	100	100
Consump.	762	765	785	783	804	958	1,307	1,428	1,373	1,429	2,067	2,086	2,094	2,209	2,136	2,116
Brazil Prodn.	2,160	2,550	2,640	2,860	3,090	3,510	3,770	4,000	4,000	4,000	5,347	5,912	6,539	8,580	8,580	8,580
Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consump.	2,160	2,550	2,640	2,860	3,090	3,510	3,770	4,000	4,000	4,000	5,347	5,912	6,539	8,580	8,580	8,580
Latin America excluding Brazil Prodn.	2,979	3,901	3,503	4,450	4,490	5,002	4,976	5,056	5,080	5,866	6,202	5,986	7,128	7,704	8,692	8,599
Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exp.	338	358	331	363	416	380	373	382	284	183	100	100	53	53	53	53
Consump.	2,641	3,543	3,252	4,007	4,072	4,622	4,603	4,674	4,796	5,683	6,102	6,686	7,075	7,651	8,638	8,546
Middle and Near East Prodn.	215	215	207	254	439	874	672	960	1,133	1,363	869	907	1,004	1,003	1,043	1,051
Imp.	76	33	51	35	7	41	17	0	29	26	6	9	13	36	40	40
Exp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consump.	291	248	258	289	446	915	689	960	1,162	1,389	875	916	1,017	1,039	1,083	1,091
Other Asian countries Prodn.	115	164	177	170	416	778	715	992	1,499	1,695	1,506	1,388	1,637	1,613	1,623	1,623
Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consump.	115	164	177	170	416	778	715	992	1,499	1,695	1,506	1,388	1,637	1,613	1,623	1,623
Southeast Asia and Tropical Oceania Prodn.	390	422	425	455	555	576	645	855	1,124	1,438	1,471	1,606	1,567	1,584	1,504	1,504
Imp.	13	151	170	155	120	149	209	229	745	699	508	548	489	640	775	661
Exp.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consump.	402	573	595	610	675	725	854	1,084	1,869	2,137	1,979	2,154	2,056	2,224	2,279	2,165
Other Oceania Prodn.	115	151	170	155	296	629	506	763	754	996	999	840	1,148	973	846	962
Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consump.	115	151	170	155	296	629	506	763	754	996	999	840	1,148	973	846	962
Asian centrally planned economies Prodn.	1,585	1,700	1,920	2,125	2,226	2,557	2,687	2,617	2,937	4,007	4,379	4,675	4,870	5,075	5,288	5,512
Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exp.	80	0	0	0	0	7	7	7	7	7	88	199	199	199	199	199
Consump.	1,505	1,700	1,920	2,125	2,226	2,550	2,680	2,810	2,930	4,000	4,291	4,476	4,671	4,876	5,089	5,313
USSR and Eastern Europe Prodn.	28,938	30,506	37,373	38,633	40,593	44,660	46,125	47,240	59,446	62,358	58,856	57,586	57,256	55,533	54,969	55,343
Imp.	1,149	1,164	1,419	1,393	1,526	1,208	1,480	1,397	2,208	2,533	1,722	1,546	1,440	1,345	975	975
Exp.	7,237	8,239	8,432	7,805	7,591	8,713	7,598	7,325	9,812	10,955	10,499	10,718	10,351	9,593	10,211	10,121
Consump.	22,850	23,431	30,360	32,141	34,528	37,235	40,007	41,312	50,842	52,936	50,079	48,416	48,345	47,285	45,733	46,197

6) Plywood

(1,000 m³)

Region		1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Prodn.	14,513	15,011	14,927	16,467	15,639	15,929	18,250	19,948	20,505	17,257	16,630	19,168	20,641	19,863	20,710	18,338
	Imp.	970	1,163	1,190	1,747	2,038	1,903	2,424	3,115	2,546	1,890	2,296	2,485	2,198	2,394	1,916	1,082
	Exp.	314	365	458	477	531	483	449	584	779	740	827	732	603	698	752	792
	Consump.	15,169	15,809	15,659	17,737	17,146	17,349	20,225	22,479	22,272	18,407	18,099	20,921	22,236	21,559	21,874	18,624
Western Europe	Prodn.	2,643	2,627	2,688	2,830	3,064	3,139	3,272	3,640	3,696	2,947	2,589	2,805	2,658	2,579	2,755	2,699
	Imp.	1,238	1,203	1,476	1,677	1,743	1,953	1,863	2,175	2,749	2,065	1,956	2,665	2,510	2,922	3,292	2,910
	Exp.	707	715	766	876	971	1,011	1,025	1,150	1,250	968	868	1,021	1,012	1,160	1,274	1,260
	Consump.	3,174	3,115	3,398	3,631	3,836	4,081	4,110	4,665	5,195	4,044	3,677	4,449	4,156	4,342	4,873	4,349
Oceania	Prodn.	122	126	116	124	119	160	170	156	176	165	121	99	111	131	129	129
	Imp.	22	27	28	35	33	39	47	46	56	83	62	99	84	66	76	65
	Exp.	0	1	2	2	4	7	11	8	9	6	2	1	5	11	28	29
	Consump.	144	152	142	157	148	192	206	194	223	242	181	197	190	186	177	165
Japan	Prodn.	2,627	3,101	3,778	4,743	5,893	6,922	7,197	7,748	8,596	7,443	6,168	7,136	7,476	8,016	8,400	8,400
	Imp.	1	2	21	7	27	255	58	136	779	420	146	84	41	48	53	60
	Exp.	382	377	337	425	393	322	327	270	155	123	116	133	140	105	105	48
	Consump.	2,246	2,726	3,462	4,325	5,527	6,855	6,928	7,614	9,220	7,740	6,198	7,087	7,377	7,959	8,348	8,412
Other developed countries	Prodn.	127	112	122	126	142	144	147	158	145	125	87	94	84	84	84	84
	Imp.	6	4	4	5	12	18	15	12	35	58	26	9	8	10	10	10
	Exp.	49	45	54	44	41	44	52	56	58	36	21	33	42	26	26	27
	Consump.	84	71	72	87	113	118	110	114	122	147	92	70	50	68	68	67
Africa	Prodn.	197	167	177	191	229	248	291	339	364	390	355	364	381	365	410	413
	Imp.	44	44	52	45	49	58	76	59	54	95	76	72	145	113	133	133
	Exp.	108	99	101	113	116	126	96	115	125	106	94	75	87	84	81	74
	Consump.	133	112	128	123	162	180	271	283	293	379	337	361	439	394	462	472
Brazil	Prodn.	220	240	270	290	300	342	431	606	659	655	660	695	698	722	762	762
	Imp.	0	0	0	0	0	0	0	0	0	0	0	0	2	3	1	1
	Exp.	6	7	6	12	11	29	29	32	43	30	32	45	52	79	111	116
	Consump.	214	233	264	278	289	313	402	574	616	625	628	650	648	646	652	647
Latin America excluding Brazil	Prodn.	256	277	328	343	357	383	412	452	478	447	461	533	565	565	582	735
	Imp.	46	51	58	65	79	80	103	105	102	112	122	105	105	125	139	132
	Exp.	24	26	28	32	36	32	34	42	47	34	31	50	59	75	66	112
	Consump.	278	302	358	376	400	431	481	515	533	525	552	588	611	614	655	755
Middle and Near East	Prodn.	94	82	91	93	91	98	107	103	99	90	99	120	124	122	110	109
	Imp.	72	80	59	60	79	87	101	144	219	290	267	382	539	581	688	658
	Exp.	6	10	13	17	17	15	8	11	15	12	12	12	15	15	15	15
	Consump.	160	152	137	136	153	170	200	236	303	368	354	490	648	688	783	752
Southeast Asia and Tropical Oceania	Prodn.	309	345	353	486	580	920	957	1,150	1,174	705	1,015	1,247	1,429	1,664	1,758	1,850
	Imp.	9	10	6	5	13	17	11	18	25	21	12	13	13	20	26	26
	Exp.	155	196	221	343	118	159	215	299	401	259	255	442	709	835	1,086	1,096
	Consump.	163	159	138	148	475	788	753	869	798	467	772	815	733	799	698	780
Other Asian countries	Prodn.	384	512	630	973	1,171	1,241	1,453	1,585	2,000	1,759	1,947	2,231	2,820	3,250	3,020	2,265
	Imp.	80	104	85	101	118	121	155	184	222	175	224	211	332	374	417	507
	Exp.	191	307	354	676	1,031	1,224	1,492	1,798	1,905	1,520	1,810	2,377	2,152	2,166	1,866	1,564
	Consump.	273	309	361	398	258	138	116	-29	317	414	361	165	1,000	1,458	1,571	1,208
Asian centrally planned economies	Prodn.	354	428	460	562	666	807	908	1,336	1,321	1,075	1,035	1,192	1,088	1,548	1,560	1,584
	Imp.	2	1	1	2	3	1	2	4	2	1	2	9	10	10	10	10
	Exp.	107	143	151	149	144	218	99	389	367	389	268	331	252	318	330	354
	Consump.	249	285	309	413	522	590	811	951	954	686	769	870	946	1,240	1,240	1,240
USSR and Eastern Europe	Prodn.	2,477	2,550	2,621	2,656	2,697	2,836	2,905	2,901	2,959	3,058	3,145	3,148	3,150	3,077	2,947	2,904
	Imp.	84	106	119	123	126	163	163	157	159	172	207	205	203	198	185	187
	Exp.	354	356	373	403	395	429	427	413	408	430	451	486	544	546	530	525
	Consump.	2,208	2,304	2,365	2,376	2,428	2,570	2,641	2,645	2,630	2,800	2,921	2,867	2,800	2,729	2,602	2,566

7) Particle Board

(1,000 m³)

		1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Prodn.	1,629	2,191	2,353	2,861	3,415	3,410	4,755	6,034	6,924	6,006	4,756	6,118	7,360	8,889	8,479	7,367
	Imp.	8	2	18	27	80	52	127	193	232	269	244	350	369	462	506	588
	Exp.	9	2	4	13	30	21	42	96	162	240	179	170	133	165	178	277
	Consump.	1,628	2,192	2,367	2,875	3,465	3,441	4,836	6,131	6,984	6,035	4,822	6,298	7,616	9,186	8,807	7,678
Western Europe	Prodn.	5,147	5,770	6,611	7,828	9,307	10,481	11,965	14,357	16,862	16,726	16,193	18,216	18,527	18,979	20,042	20,023
	Imp.	883	988	1,102	1,295	1,487	1,691	1,803	2,259	3,449	3,186	2,830	3,336	3,525	3,924	4,485	4,241
	Exp.	802	893	1,016	1,170	1,447	1,697	2,065	2,558	3,406	3,396	3,183	3,755	3,856	4,193	4,654	4,555
	Consump.	5,228	5,865	6,697	7,953	9,347	10,475	11,703	14,058	16,905	16,516	15,840	17,797	18,196	18,710	19,873	19,709
Oceania	Prodn.	100	148	178	229	275	318	338	321	462	545	507	641	608	638	652	743
	Imp.	1	2	2	2	3	1	1	3	12	15	5	5	2	1	1	2
	Exp.	1	2	2	2	7	5	5	4	9	8	14	5	9	20	50	2
	Consump.	100	148	178	229	271	314	334	320	465	552	513	641	601	619	603	83
Japan	Prodn.	166	202	231	265	297	350	373	500	645	577	699	901	941	941	950	662
	Imp.	10	20	19	4	26	17	5	3	49	19	4	8	5	4	4	950
	Exp.	5	0	0	0	0	0	2	0	0	0	0	0	5	0	0	75
	Consump.	171	222	250	269	323	367	376	503	694	596	703	909	946	945	954	1,024
Other developed countries	Prodn.	38	44	65	59	78	130	193	243	267	224	214	221	270	259	259	259
	Imp.	5	1	0	1	1	3	1	1	1	3	9	4	2	0	0	0
	Exp.	4	3	4	7	8	3	1	7	8	6	3	2	2	5	5	4
	Consump.	39	42	61	53	71	124	186	237	260	221	220	223	267	254	254	255
Africa	Prodn.	2	5	8	17	40	48	50	55	53	53	53	92	120	127	136	140
	Imp.	17	16	17	14	16	19	31	21	20	27	27	30	44	27	69	66
	Exp.	2	2	3	3	3	3	6	6	3	4	3	0	0	0	0	2
	Consump.	17	19	22	28	53	64	75	69	70	76	77	117	161	151	202	204
Brazil	Prodn.	10	19	42	42	61	112	162	265	313	360	407	461	541	541	550	550
	Imp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Exp.	0	0	0	0	0	0	0	1	1	1	0	3	2	1	3	3
	Consump.	10	19	42	42	61	112	162	264	312	359	407	458	539	540	547	547
Latin America excluding Brazil	Prodn.	145	183	186	230	265	271	298	345	374	421	455	457	479	509	618	857
	Imp.	5	10	8	8	9	11	12	15	15	30	15	23	35	56	53	23
	Exp.	20	21	15	11	19	12	11	13	17	16	13	23	12	14	27	27
	Consump.	130	172	178	227	255	270	299	347	372	435	457	457	502	551	644	853
Middle and Near East	Prodn.	50	54	72	100	143	163	177	215	225	254	322	389	525	572	606	606
	Imp.	7	7	8	6	8	9	15	53	68	62	119	84	103	100	112	114
	Exp.	0	0	0	0	3	10	5	15	17	18	15	17	10	10	9	9
	Consump.	57	61	80	106	148	162	187	253	276	298	426	456	616	662	709	711
Southeast Asia and Tropical Oceania	Prodn.	6	9	10	4	5	5	8	10	13	14	9	7	6	7	12	11
	Imp.	8	12	10	0	0	2	2	1	1	1	0	0	0	0	0	0
	Exp.	0	0	0	0	0	0	0	0	0	0	0	1	1	4	8	8
	Consump.	14	21	10	4	5	7	10	11	14	15	9	6	5	3	4	3
Other Asian countries	Prodn.	32	41	48	50	49	39	45	64	159	133	84	91	94	84	67	89
	Imp.	0	1	2	2	0	1	1	1	1	1	144	2	9	9	11	30
	Exp.	0	0	0	0	0	2	5	11	86	109	-59	6	25	20	55	27
	Consump.	32	42	50	52	49	38	41	54	74	25	44	97	74	72	43	92
Asian centrally planned economies	Prodn.	26	28	27	27	28	30	31	36	41	41	44	44	44	44	44	44
	Imp.	0	0	0	4	0	0	0	0	0	0	0	1	5	9	11	30
	Exp.	0	0	9	3	0	0	0	0	0	0	0	0	0	0	0	27
	Consump.	26	28	26	28	28	30	31	36	41	41	44	45	24	33	55	47
USSR and Eastern Europe	Prodn.	1,873	2,256	2,690	3,057	3,361	3,813	4,386	4,949	5,617	5,288	6,874	7,218	8,026	8,611	8,625	8,691
	Imp.	78	80	106	139	184	216	235	290	375	517	612	774	739	562	492	473
	Exp.	196	214	263	312	282	289	320	362	429	485	643	629	618	667	601	533
	Consump.	1,755	2,122	2,533	2,894	3,263	3,740	4,301	4,877	5,563	5,320	6,843	7,363	8,147	8,506	8,516	8,631

Appendix 2   Trends in per Capita Consumption of Forest Products,
              1966 - 1980

         1)   Roundwood (Coniferous)

         2)   Roundwood (Non-Coniferous)

         3)   Firewood and Charcoal

         4)   Sawnwood (Non-Coniferous)

         5)   Pulpwood

         6)   Plywood

         7)   Particle Board

    Source: FAO, Yearbook of Forest Products, 1980
              United Nations, Population Statistics, 1981

1) Roundwood (Coniferous)

(Qty: 1,000 m³; Population: 1,000 persons)

Region		1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Consumption	211,361	206,872	223,450	218,346	216,136	237,061	227,449	243,071	227,302	211,640	257,670	272,410	285,436	272,281	245,599
	Population	216,610	219,120	221,440	223,710	226,370	229,250	231,730	233,980	236,250	238,700	241,060	243,520	246,070	248,750	251,600
	C/P	0.98	0.94	1.01	0.98	0.95	1.03	0.98	1.04	0.96	0.89	1.07	1.12	1.16	1.09	0.98
Western Europe	Consumption	75,243	75,457	75,460	80,633	86,153	87,293	86,889	78,381	95,728	76,204	87,234	89,353	91,355	97,120	96,123
	Population	428,490	431,700	434,260	437,670	440,360	443,390	446,300	449,350	452,380	454,930	456,770	458,650	460,780	463,500	465,640
	C/P	0.18	0.17	0.17	0.18	0.20	0.20	0.19	0.17	0.21	0.17	0.19	0.19	0.20	0.21	0.21
Oceania	Consumption	5,704	5,635	5,611	5,909	5,996	5,783	6,073	6,424	5,238	5,822	6,642	6,153	5,979	5,785	6,439
	Population	41,280	14,520	41,760	15,030	15,320	15,790	16,080	16,340	16,610	16,840	17,010	17,180	17,360	17,520	17,720
	C/P	0.40	0.39	0.38	0.39	0.39	0.37	0.38	0.39	0.32	0.35	0.39	0.36	0.34	0.33	0.36
Japan	Consumption	36,067	38,832	40,745	38,702	40,613	37,299	41,577	42,298	36,018	34,842	36,686	36,552	36,852	39,873	34,640
	Population	99,790	100,830	101,960	103,170	104,340	105,700	107,190	108,710	110,160	111,570	112,770	113,860	114,900	115,870	116,780
	C/P	0.36	0.39	0.40	0.38	0.39	0.35	0.39	0.39	0.33	0.31	0.33	0.32	0.32	0.34	0.30
Other developed countries	Consumption	2,135	2,187	2,103	2,485	4,525	2,687	2,807	2,853	3,085	3,101	2,984	2,714	2,644	2,644	2,644
	Population	22,790	23,410	24,090	24,760	25,440	26,100	26,820	27,580	28,300	28,930	29,650	30,550	31,390	32,270	33,160
	C/P	0.09	0.09	0.09	0.10	0.18	0.10	0.10	0.10	0.11	0.11	0.10	0.09	0.08	0.08	0.08
Africa	Consumption	686	738	761	823	954	983	1,021	1,036	1,054	1,069	1,117	1,298	1,210	1,159	1,240
	Population	1,019,150	1,026,130	1,051,790	1,078,950	1,106,140	1,133,840	1,162,770	1,191,650	1,220,180	1,252,690	1,283,470	1,319,490	1,352,140	1,392,690	1,430,000
	C/P	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Brazil	Consumption	6,450	7,240	7,880	8,400	9,320	9,430	9,111	8,160	8,162	11,016	13,064	14,572	15,395	16,315	16,315
	Population	82,930	85,240	87,620	90,070	92,520	95,170	97,850	100,560	103,350	106,230	109,180	112,240	115,400	118,650	123,030
	C/P	0.08	0.08	0.09	0.09	0.10	0.10	0.09	0.08	0.08	0.10	0.12	0.13	0.13	0.14	0.13
Latin America	Consumption	5,776	5,745	6,098	6,583	6,972	7,184	7,691	8,209	8,171	8,147	8,597	9,107	6,837	8,346	6,809
	Population	710,020	727,180	743,940	759,970	775,290	795,050	813,790	832,740	853,500	875,380	698,060	922,040	946,330	985,960	1,009,730
	C/P	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Near East	Consumption	2,713	2,883	3,136	3,612	3,385	3,748	3,764	4,387	4,623	4,931	4,919	5,353	5,262	5,638	5,702
	Population	343,160	355,550	368,100	383,470	400,630	418,630	436,460	460,020	482,150	502,520	521,240	539,510	560,990	582,550	610,720
	C/P	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Southeast Asia & Tropical Oceania	Consumption	153	121	120	247	227	256	233	223	170	157	244	306	397	344	401
	Population	651,080	665,930	680,720	695,830	711,510	727,010	760,550	777,930	796,060	813,610	831,180	849,230	866,750	885,550	903,980
	C/P	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004
Other Asian countries	Consumption	2,233	2,525	2,717	2,483	2,424	2,914	2,795	2,653	3,362	3,101	3,219	20,470	21,749	21,379	20,795
	Population	426,680	437,100	449,070	459,930	479,110	480,260	500,460	504,810	520,250	537,430	550,920	565,320	573,570	595,400	602,840
	C/P	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.04	0.04	0.004	0.003

2) Roundwood (Non-Coniferous)

(Qty: 1,000 m³; Population: 1,000 persons)

Region		1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Consumption	41,690	39,729	39,088	38,864	39,040	38,500	40,964	41,364	37,802	32,115	36,473	38,442	40,603	42,988	42,003
	Population	216,610	219,120	221,440	223,710	226,370	229,250	231,730	233,980	236,250	238,700	241,060	243,520	246,070	248,750	251,600
	C/P	0.19	0.18	0.17	0.17	0.17	0.17	0.18	0.18	0.16	0.13	0.15	0.16	0.17	0.17	0.17
Western Europe	Consumption	28,379	27,926	28,253	30,660	31,154	29,944	30,028	34,056	30,826	26,117	27,545	29,366	29,302	29,331	31,393
	Population	428,490	431,700	434,260	437,670	440,360	443,390	446,300	449,350	452,380	454,930	456,770	458,650	460,780	463,500	465,640
	C/P	0.07	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.07	0.06	0.06	0.06	0.06	0.06	0.07
Oceania	Consumption	7,673	7,632	7,741	7,366	7,108	7,537	7,065	6,994	7,334	6,528	6,676	6,541	6,351	5,856	6,113
	Population	14,280	14,520	14,760	15,030	15,320	15,790	16,080	16,340	16,610	16,840	17,010	17,180	17,360	17,520	17,720
	C/P	0.54	0.52	0.52	0.49	0.46	0.48	0.44	0.43	0.44	0.39	0.39	0.38	0.37	0.33	0.34
Japan	Consumption	18,823	20,672	21,417	23,794	25,756	26,904	26,870	31,800	29,716	21,244	26,148	25,240	25,904	25,970	23,080
	Population	99,790	100,830	101,960	103,170	104,340	105,700	107,190	108,710	110,160	111,570	112,770	113,860	114,900	115,870	116,780
	C/P	0.19	0.21	0.21	0.23	0.25	0.25	0.25	0.29	0.27	0.19	0.23	0.22	0.23	0.22	0.20
Other developed countries	Consumption	506	463	503	608	604	657	559	585	661	527	467	501	604	605	605
	Population	22,790	23,410	24,090	24,760	25,440	26,100	26,820	27,580	28,300	28,930	29,660	30,550	31,390	32,270	33,160
	C/P	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Africa	Consumption	5,934	6,196	6,423	7,217	8,128	8,721	7,805	8,127	7,880	8,772	9,454	10,746	10,290	10,080	13,135
	Population	1,019,150	1,026,130	1,051,790	1,078,950	1,106,140	1,133,840	1,162,770	1,191,650	1,220,180	1,252,690	1,283,470	1,319,490	1,352,140	1,392,690	1,430,000
	C/P	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Brazil	Consumption	5,792	6,241	6,503	6,896	7,392	7,695	6,923	7,475	8,536	10,238	10,714	11,955	12,662	13,385	13,398
	Population	82,930	85,240	87,620	90,070	92,520	95,170	97,850	100,560	103,350	106,230	109,180	112,240	115,400	118,650	123,030
	C/P	0.07	0.07	0.07	0.08	0.08	0.08	0.07	0.07	0.08	0.10	0.10	0.11	0.11	0.11	0.11
Latin America	Consumption	8,943	9,096	9,332	9,238	9,885	10,884	11,745	11,739	11,340	11,668	12,171	11,555	10,921	12,178	11,911
	Population	710,020	727,180	743,940	759,970	775,290	795,050	813,790	832,740	853,380	875,380	898,060	922,040	946,330	985,960	1,009,730
	C/P	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Near East	Consumption	968	1,075	1,366	1,462	1,272	1,461	1,796	1,642	1,834	1,338	1,436	1,879	1,892	1,137	1,070
	Population	343,160	355,550	368,100	383,470	400,630	418,630	438,460	460,020	482,150	502,520	521,240	539,510	560,990	582,550	610,720
	C/P	0.003	0.003	0.004	0.004	0.003	0.003	0.004	0.004	0.004	0.003	0.002	0.003	0.003	0.002	0.002
Southeast Asia & Tropical Oceania	Consumption	13,978	16,149	21,233	15,728	15,894	14,885	22,164	26,460	25,903	23,300	28,031	29,931	30,357	29,297	23,471
	Population	651,080	665,930	680,720	695,830	711,510	727,010	750,550	777,930	796,060	813,610	831,180	849,230	866,750	885,550	902,980
	C/P	0.02	0.02	0.03	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.03	0.03
Other Asian countries	Consumption	8,627	9,497	7,483	11,171	11,726	12,286	11,653	13,322	12,864	14,297	16,271	16,517	13,598	12,040	9,457
	Population	426,680	437,270	449,070	459,930	479,110	488,260	500,480	504,810	520,250	537,430	550,920	565,320	573,570	595,400	602,840
	C/P	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02

(Qty: 1,000 m³; Population: 1,000 persons)

Region		1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Consumption	34,926	26,887	25,975	27,089	21,573	19,886	18,789	19,455	19,509	19,103	20,737	19,776	19,855	19,952	19,878
	Population	216,610	219,120	221,440	223,710	226,370	229,250	231,730	233,980	236,250	238,700	241,060	243,520	246,070	248,750	251,600
	C/P	0.16	0.12	0.12	0.12	0.10	0.09	0.08	0.08	0.08	0.08	0.09	0.08	0.08	0.08	0.08
Western Europe	Consumption	54,409	50,893	47,834	45,938	43,979	41,103	35,620	32,224	31,391	30,102	31,268	28,631	29,253	30,020	30,140
	Population	428,490	431,700	434,260	437,670	440,360	443,390	446,300	449,350	452,380	454,930	456,770	458,650	460,780	463,500	465,640
	C/P	0.13	0.12	0.11	0.10	0.10	0.09	0.08	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06
Oceania	Consumption	3,298	3,181	3,060	3,249	3,123	3,041	2,996	2,673	3,115	2,125	1,524	1,503	1,413	1,413	1,412
	Population	14,280	14,520	14,760	15,030	15,320	15,790	16,080	16,340	16,610	16,840	17,010	17,180	17,360	17,520	17,720
	C/P	0.23	0.22	0.21	0.22	0.20	0.19	0.19	0.16	0.19	0.13	0.09	0.09	0.08	0.08	0.08
Japan	Consumption	8,644	7,551	6,397	1,766	2,104	2,288	2,470	2,549	2,443	2,170	2,319	2,520	2,526	2,120	2,285
	Population	99,790	100,830	101,960	103,170	104,340	105,700	107,190	108,710	110,160	111,570	112,770	113,860	114,900	115,870	116,780
	C/P	0.09	0.07	0.06	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Other developed countries	Consumption	878	898	916	6,823	6,849	6,869	6,892	6,909	6,929	6,947	6,946	6,943	6,935	6,935	9,935
	Population	22,790	23,410	24,090	24,760	25,440	26,100	26,820	27,580	28,300	28,930	29,660	30,550	31,390	32,270	33,160
	C/P	0.04	0.04	0.04	0.28	0.27	0.26	0.26	0.25	0.24	0.24	0.23	0.23	0.22	0.21	0.21
Africa	Consumption	209,552	215,848	221,018	250,730	257,528	264,190	271,774	279,916	267,677	295,755	304,283	313,040	322,187	331,444	341,274
	Population	1,019,150	1,026,130	1,051,790	1,070,950	1,106,140	1,133,840	1,162,770	1,191,650	1,220,180	1,252,690	1,281,470	1,319,490	1,352,140	1,392,690	1,430,000
	C/P	0.21	0.21	0.21	0.23	0.23	0.23	0.23	0.23	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Brazil	Consumption	130,000	130,000	135,000	127,562	131,250	135,039	138,927	142,928	147,044	151,279	155,637	160,116	164,716	169,937	174,406
	Population	82,930	85,240	87,620	90,070	92,520	95,170	97,850	100,560	103,350	106,230	109,180	112,240	115,400	118,650	123,030
	C/P	1.57	1.53	1.54	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.43	1.43	1.43	1.43	1.42
Latin America	Consumption	83,518	83,806	84,047	89,342	90,930	92,934	94,426	96,541	97,867	99,492	102,473	105,158	106,572	108,308	111,127
	Population	710,020	727,180	743,940	759,970	775,290	795,050	813,790	832,740	853,500	875,380	898,060	922,040	946,330	985,960	1,009,730
	C/P	0.12	0.12	0.11	0.11	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Near East	Consumption	37,963	18,256	38,983	63,273	63,930	64,152	66,098	66,670	70,138	72,027	74,678	74,381	76,185	59,665	60,784
	Population	343,160	355,550	368,100	383,470	400,630	418,630	438,460	460,020	482,150	502,520	521,240	539,510	560,990	582,550	610,720
	C/P	0.11	0.11	0.11	0.17	0.16	0.15	0.15	0.14	0.15	0.14	0.14	0.14	0.14	0.10	0.10
Southeast Asia & Tropical Oceania	Consumption	139,571	142,879	147,403	267,248	181,677	186,309	191,253	196,485	201,716	207,462	212,741	215,056	220,660	226,140	231,466
	Population	651,080	665,930	680,720	695,830	711,510	727,010	760,550	777,930	796,060	813,610	831,180	849,230	866,750	885,550	903,980
	C/P	0.21	0.21	0.22	0.38	0.26	0.26	0.25	0.25	0.25	0.25	0.26	0.25	0.25	0.26	0.26
Other Asian countries	Consumption	143,192	145,740	148,106	159,398	255,475	261,422	267,423	274,347	280,784	287,800	294,509	304,778	311,939	319,721	326,817
	Population	426,680	437,270	449,070	459,930	479,110	488,260	500,480	504,810	520,250	537,430	550,920	565,320	573,570	585,400	602,840
	C/P	0.34	0.33	0.33	0.35	0.53	0.54	0.54	0.54	0.54	0.54	0.53	0.54	0.54	0.54	0.54

4) Sawnwood (Non-Coniferous)

(Qty: 1,000 m³; Population: 1,000 persons)

Region		1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Consumption	19,762	19,249	18,851	21,979	18,506	17,885	17,769	18,556	18,333	14,987	16,846	17,118	17,372	18,835	18,690
	Population	216,610	219,120	221,440	223,710	226,370	229,250	231,730	233,980	236,250	238,700	241,060	243,520	246,070	248,750	251,600
	C/P	0.09	0.09	0.09	0.1	0.08	0.08	0.08	0.08	0.08	0.06	0.07	0.07	0.07	0.08	0.07
Western Europe	Consumption	12,199	12,320	12,941	13,452	14,010	14,491	14,728	16,537	14,498	12,538	14,255	15,280	15,309	16,390	16,637
	Population	428,490	431,700	434,260	437,670	440,360	443,390	446,300	449,350	452,380	454,930	456,770	458,650	460,780	463,500	465,640
	C/P	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.04	0.04
Oceania	Consumption	2,775	2,645	2,862	2,703	2,769	2,882	2,724	2,766	2,921	2,755	2,753	2,754	2,344	2,247	2,249
	Population	14,280	14,520	14,760	15,030	15,320	15,790	16,080	16,340	16,610	16,840	17,010	17,180	17,360	17,520	17,720
	C/P	0.19	0.18	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.16	0.16	0.16	0.14	0.13	0.13
Japan	Consumption	7,182	7,862	8,940	9,179	10,031	10,917	11,142	12,342	11,393	9,530	9,803	6,490	6,773	6,724	6,894
	Population	99,790	100,830	101,960	103,170	104,340	105,700	107,190	108,710	110,160	111,570	112,770	113,860	114,900	115,870	116,780
	C/P	0.07	0.08	0.09	0.09	0.1	0.1	0.1	0.1	0.1	0.09	0.09	0.06	0.06	0.06	0.06
Other developed countries	Consumption	222	271	329	406	476	464	427	556	542	491	444	262	309	309	309
	Population	22,790	23,410	24,090	24,760	25,440	26,100	26,820	27,580	28,300	28,930	29,660	30,550	31,390	32,270	33,160
	C/P	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.009	0.01	0.01	0.01
Africa	Consumption	1,439	1,318	1,629	1,952	2,058	2,215	2,011	2,283	2,796	3,025	2,946	3,111	3,935	4,205	4,977
	Population	1,019,150	1,026,130	1,051,790	1,078,950	1,106,140	1,133,840	1,162,770	1,191,650	1,220,180	1,252,690	1,283,470	1,319,490	1,352,140	1,392,690	1,430,000
	C/P	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003
Brazil	Consumption	2,729	2,925	3,019	3,210	3,353	3,440	3,001	3,111	3,734	4,549	5,316	6,005	6,354	6,545	6,696
	Population	82,930	85,240	87,620	90,070	92,520	95,170	97,850	100,560	103,350	106,230	109,180	112,240	115,400	118,650	123,030
	C/P	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.06
Latin America	Consumption	4,085	4,006	4,058	4,441	4,280	4,672	4,674	4,698	4,873	5,350	5,293	5,532	5,397	5,693	5,627
	Population	710,020	727,180	743,940	759,970	775,290	795,050	813,790	832,740	853,500	875,380	898,060	922,040	946,330	985,960	1,009,730
	C/P	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Near East	Consumption	563	655	630	751	750	671	786	807	1,062	1,073	1,090	1,642	1,640	1,485	1,782
	Population	343,160	355,550	368,100	383,470	400,630	418,630	438,460	460,020	482,150	502,520	521,240	539,510	560,990	582,550	610,720
	C/P	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003
Southeast Asia & Tropical Oceania	Consumption	5,438	5,896	5,893	4,431	6,351	4,959	7,502	6,626	6,899	8,912	8,039	8,554	8,221	6,663	7,004
	Population	651,080	665,930	680,720	695,830	711,510	727,010	760,550	777,930	796,060	813,610	821,180	849,230	866,750	835,550	903,980
	C/P	0.008	0.009	0.009	0.006	0.009	0.007	0.01	0.009	0.009	0.01	0.01	0.01	0.01	0.008	0.008
Other Asian countries	Consumption	3,278	3,590	3,131	5,107	3,634	4,586	3,585	4,116	4,412	3,504	2,176	5,601	5,899	4,887	5,515
	Population	426,680	437,270	449,070	459,930	479,110	488,260	500,480	504,810	520,250	537,430	550,920	565,320	573,570	595,400	602,840
	C/P	0.008	0.008	0.008	0.01	0.008	0.009	0.007	0.008	0.008	0.007	0.004	0.01	0.01	0.008	0.01

(Qty: 1,000 m3; Population: 1,000 persons)

Region		1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Consumption	125,863	123,880	124,403	139,522	144,933	133,584	138,032	143,688	159,143	128,034	133,788	128,936	136,370	137,573	141,454
	Population	216,610	219,120	221,440	223,710	226,370	229,250	231,730	233,980	236,250	238,700	241,060	243,520	246,070	248,750	251,600
	C/P	0.58	0.57	0.56	0.62	0.64	0.58	0.59	0.61	0.67	0.54	0.55	0.53	0.55	0.55	0.56
Western Europe	Consumption	74,078	80,317	74,257	79,979	91,526	93,413	82,193	84,135	96,754	94,774	97,809	81,325	83,835	92,025	95,997
	Population	428,490	431,700	434,260	437,670	440,360	443,390	446,300	449,350	452,380	454,930	456,770	458,650	460,760	463,500	465,640
	C/P	0.17	0.19	0.17	0.18	0.21	0.21	0.18	0.19	0.21	0.21	0.19	0.18	0.18	0.20	0.21
Oceania	Consumption	2,691	2,727	2,717	3,231	3,372	3,180	2,591	3,175	2,075	4,552	3,325	3,270	3,261	2,921	2,204
	Population	14,290	14,520	14,760	15,010	15,320	15,790	16,080	16,340	16,610	16,840	17,010	17,180	17,360	17,520	17,720
	C/P	0.19	0.19	0.18	0.21	0.22	0.20	0.16	0.19	0.12	0.27	0.20	0.19	0.19	0.17	0.12
Japan	Consumption	10,563	16,536	17,744	19,357	21,872	22,229	20,802	19,929	25,325	20,519	22,086	26,154	23,702	21,828	22,842
	Population	99,790	100,830	101,960	103,170	104,340	105,700	107,190	108,710	110,160	111,570	112,770	113,860	114,900	115,870	116,780
	C/P	0.11	0.16	0.17	0.19	0.21	0.20	0.19	0.18	0.23	0.18	0.20	0.23	0.21	0.19	0.20
Other developed countries	Consumption	2,755	2,918	2,883	3,084	3,257	3,278	3,158	3,521	3,929	3,813	4,053	3,886	3,826	3,826	3,826
	Population	22,790	23,410	24,090	24,760	25,440	26,100	26,820	27,580	28,300	28,930	29,660	30,550	31,390	32,270	33,160
	C/P	0.12	0.12	0.12	0.13	0.13	0.13	0.12	0.13	0.14	0.13	0.14	0.13	0.12	0.12	0.12
Africa	Consumption	765	790	783	804	960	1,320	1,432	1,373	1,429	2,067	2,086	2,094	2,209	2,136	2,116
	Population	1,019,150	1,026,130	1,051,790	1,078,950	1,106,140	1,133,840	1,162,770	1,191,650	1,220,180	1,252,690	1,283,470	1,319,490	1,352,140	1,392,690	1,430,000
	C/P	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002
Brazil	Consumption	2,550	2,640	2,860	3,090	3,510	3,770	4,000	4,000	4,000	5,347	5,912	6,539	8,580	8,580	8,580
	Population	82,930	85,240	87,620	90,070	92,520	95,170	97,850	100,560	103,350	106,230	109,180	112,240	115,400	116,650	123,030
	C/P	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.07
Latin America	Consumption	3,543	3,252	4,087	4,072	4,622	4,603	4,674	4,796	5,683	6,102	6,886	7,075	7,651	8,638	8,546
	Population	710,020	727,180	743,940	759,970	775,290	795,050	813,790	832,740	853,500	875,360	898,060	922,040	946,330	985,960	1,009,730
	C/P	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.007	0.007	0.008	0.008	0.008	0.009	0.009
Near East	Consumption	248	258	289	446	915	689	960	1,162	1,399	877	916	1,017	1,039	1,083	1,091
	Population	343,160	355,550	368,100	383,470	400,630	418,630	438,460	460,020	482,150	502,520	512,240	539,510	560,990	582,550	610,720
	C/P	0.0007	0.0007	0.0007	0.001	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
Southeast Asia & Tropical Oceania	Consumption	151	170	155	120	149	209	229	745	699	508	548	489	640	775	661
	Population	651,080	665,930	680,720	695,830	711,510	727,010	760,550	777,910	796,060	813,610	831,180	849,230	866,750	885,550	903,980
	C/P	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.001	0.001	0.0006	0.0006	0.0007	0.0007	0.001	0.0007
Other Asian countries	Consumption	425	428	457	555	576	645	855	1,137	1,499	1,531	1,606	1,568	1,584	1,505	1,505
	Population	426,680	437,270	449,070	459,930	479,110	488,260	500,480	504,810	520,250	537,430	550,920	565,320	573,570	595,400	602,840
	C/P	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003

6) Plywood

(Qty: 1,000 m³; Population: 1,000 persons)

Region		1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Consumption	15,809	15,659	17,737	17,146	17,349	20,225	22,479	22,272	18,407	18,099	20,921	22,236	21,559	21,874	18,624
	Population	216,610	219,120	221,440	223,710	226,370	229,250	231,730	233,980	236,250	238,700	241,060	243,520	246,070	248,750	251,600
	C/P	0.07	0.07	0.08	0.08	0.08	0.09	0.10	0.10	0.08	0.08	0.09	0.09	0.09	0.09	0.07
Western Europe	Consumption	3,115	3,398	3,631	3,836	4,031	4,110	4,665	5,195	4,044	3,677	4,449	4,156	4,342	4,873	4,249
	Population	428,490	431,700	434,260	437,670	440,360	443,390	446,300	449,350	452,380	545,930	456,770	458,650	460,780	463,500	465,640
	C/P	0.007	0.008	0.008	0.009	0.009	0.009	0.01	0.01	0.009	0.008	0.01	0.01	0.01	0.01	0.01
Oceania	Consumption	152	142	157	148	192	206	194	223	242	181	197	190	186	177	165
	Population	14,280	14,520	14,760	15,030	15,320	15,790	16,080	16,340	16,610	16,840	17,010	17,180	17,360	17,520	17,720
	C/P	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Japan	Consumption	2,726	3,462	4,325	5,527	6,855	6,928	7,614	9,220	7,740	6,198	7,087	7,377	7,959	8,348	8,412
	Population	99,790	100,830	101,960	103,170	104,340	105,700	107,190	108,710	110,160	111,570	112,770	113,860	114,900	115,870	116,780
	C/P	0.03	0.03	0.04	0.05	0.07	0.07	0.07	0.08	0.07	0.06	0.06	0.06	0.07	0.07	0.07
Other developed countries	Consumption	71	72	87	113	118	110	114	122	147	92	70	50	68	60	67
	Population	22,790	23,410	24,090	24,760	25,440	26,100	26,820	27,580	28,300	28,930	29,660	30,550	31,390	32,270	33,160
	C/P	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.003	0.003	0.002	0.002	0.002	0.002
Africa	Consumption	112	128	123	162	180	271	283	293	379	337	361	439	394	462	472
	Population	1,019,150	1,026,130	1,051,790	1,078,950	1,106,140	1,133,840	1,162,770	1,191,650	1,220,180	1,252,690	1,238,470	1,319,490	1,352,140	1,392,690	1,430,000
	C/P	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Brazil	Consumption	233	264	278	289	313	402	574	616	625	628	650	648	646	552	647
	Population	82,930	85,240	87,620	90,070	92,520	95,170	97,850	100,560	103,350	106,230	109,180	112,240	115,400	118,650	123,030
	C/P	0.003	0.003	0.003	0.003	0.003	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005
Latin America	Consumption	302	356	376	400	431	481	515	533	525	552	588	611	614	655	755
	Population	710,020	727,180	743,940	759,970	775,290	795,050	813,790	832,740	853,500	875,380	896,060	922,040	946,330	985,960	1,009,730
	C/P	0.0004	0.0004	0.0004	0.0005	0.0005	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0007	0.0007	0.0007	0.0007
Near East	Consumption	152	137	136	153	170	200	236	303	368	354	450	648	688	783	752
	Population	343,160	355,550	368,100	383,470	400,630	418,630	438,460	460,020	482,150	502,520	521,240	539,510	560,990	582,550	610,720
	C/P	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005	0.0007	0.0008	0.0007	0.0009	0.001	0.001	0.001	0.001
Southeast Asia & Tropical Oceania	Consumption	159	138	148	475	788	753	869	798	467	772	815	733	799	698	780
	Population	651,080	665,930	680,720	695,830	711,510	727,010	760,550	777,930	796,060	813,610	831,180	849,230	866,750	885,550	903,980
	C/P	0.0002	0.0002	0.0002	0.0007	0.001	0.001	0.001	0.001	0.0006	0.001	0.001	0.001	0.001	0.001	0.001
Other Asian countries	Consumption	309	361	398	258	138	116	-29	317	414	361	165	1,000	1,458	1,571	1,208
	Population	426,680	437,270	449,070	459,930	479,110	488,260	500,480	504,810	520,250	537,430	580,920	565,320	573,570	595,400	602,840
	C/P	0.0007	0.0008	0.0009	0.0006	0.0003	0.0002	0	0.0006	0.0008	0.0007	0.0003	0.002	0.003	0.003	0.002

7) Particle Board

Region		1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
North America	Consumption	2,192	2,367	2,875	3,465	3,441	4,836	6,131	6,984	6,035	4,821	6,298	7,616	9,186	8,807	7,678
	Population	216,610	219,120	221,440	223,710	226,370	229,250	231,730	233,980	236,250	238,700	241,060	243,520	246,070	246,750	251,600
	C/P	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.02	0.03	0.03	0.04	0.04	0.03
Western Europe	Consumption	5,865	6,697	7,953	9,347	10,475	11,703	14,058	16,905	16,516	15,840	17,797	18,196	18,720	19,874	19,709
	Population	428,490	431,700	434,260	437,670	440,360	443,390	446,300	449,350	452,380	454,930	456,770	456,650	460,780	463,500	465,640
	C/P	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04
Oceania	Consumption	148	178	229	271	314	334	320	465	552	513	641	601	619	603	662
	Population	14,280	14,520	14,760	15,030	15,320	15,790	16,080	16,340	16,610	16,840	17,010	17,180	17,360	17,520	17,720
	C/P	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.04
Japan	Consumption	222	250	269	323	367	376	503	694	596	703	909	946	945	954	1,024
	Population	99,790	100,830	101,960	103,170	104,340	105,700	107,190	108,710	110,160	111,570	112,770	113,860	114,900	115,870	116,780
	C/P	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.005	0.006	0.008	0.008	0.008	0.008	0.009
Other developed countries	Consumption	42	61	53	71	124	186	237	260	221	220	223	267	254	254	255
	Population	22,790	23,410	24,090	24,760	25,440	26,100	26,820	27,580	28,300	28,930	29,660	30,550	31,390	32,270	33,160
	C/P	0.002	0.002	0.002	0.003	0.005	0.007	0.009	0.009	0.008	0.008	0.008	0.009	0.008	0.008	0.008
Africa	Consumption	19	22	28	53	64	75	69	70	76	77	117	161	151	202	204
	Population	1,019,150	1,026,130	1,051,790	1,078,950	1,106,140	1,133,840	1,162,770	1,191,650	1,220,180	1,252,690	1,238,470	1,319,490	1,352,140	1,392,690	1,430,000
	C/P	0.00002	0.00002	0.00003	0.00005	0.00005	0.00006	0.00006	0.00006	0.00006	0.00006	0.00009	0.0001	0.0001	0.0001	0.0001
Brazil	Consumption	19	42	42	81	112	162	264	312	359	407	458	539	540	547	547
	Population	82,930	85,240	87,620	90,070	92,520	95,170	97,850	100,560	103,350	106,230	109,180	112,240	115,400	118,650	123,030
	C/P	0.0002	0.0005	0.0009	0.0009	0.001	0.002	0.003	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005
Latin America	Consumption	172	178	227	255	270	299	347	372	435	457	457	502	551	644	853
	Population	710,020	727,100	743,940	759,970	775,290	795,050	813,790	832,740	853,500	875,380	898,060	922,040	946,330	985,960	1,009,730
	C/P	0.0002	0.0002	0.0003	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005	0.0005	0.0005	0.0006	0.0006	0.0008
Near East	Consumption	61	80	106	148	162	187	253	276	298	426	456	618	662	709	711
	Population	343,160	355,550	368,100	383,470	400,630	418,630	438,460	460,020	482,150	502,520	521,240	539,510	560,990	582,550	610,720
	C/P	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004	0.0006	0.0006	0.0006	0.0008	0.0009	0.001	0.001	0.001	0.001
Southeast Asia & Tropical Oceania	Consumption	21	10	4	5	7	10	11	14	15	9	6	5	3	4	3
	Population	651,080	665,930	680,720	695,830	711,510	727,010	760,550	777,930	796,060	813,610	831,180	849,230	866,750	885,550	902,980
	C/P	0.00003	0.00002	0.00001	0.00001	0.00001	0.00002	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Other Asian countries	Consumption	42	50	52	49	33	41	54	74	25	-59	87	74	73	73	92
	Population	435,680	437,270	449,070	450,930	478,110	488,260	500,480	504,810	520,250	537,430	550,920	565,320	573,570	595,400	602,840
	C/P	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.00005	0	0.0001	0.0001	0.0001	0.00007	0.0002

Appendix 3   Outline of Wood Export Restrictions in Main Countries

Regions to which applied	Nature of restriction	Year enacted	Scope of application
USA			
a. Federal forests to the west of long. 100W, except for the State of Alaska	Log export ban; export ban on substitutes for private forest logs	1974	Including cants with a thickness of more than 8 3/4 inches.
b. Federal and state-owned forests except in the State of Alaska and Indian Settlements	Redwood log phased export restrictions and ban (Export Control Act)	1979	Including rounded cants, flitch and sawnwood. Export quota is being gradually reduced as follows, and from the fourth fiscal year, all exports are banned: 30 million Scribner b.f. (about 120,000 m³) for the first fiscal year beginning Oct. 1, 1979; 15 million Scribner b.f. (about 60,000 m³) for the second fiscal year, and 5 million Scribner b.f. (about 20,000 m³) for the third fiscal year.
c. Federal forests in the State of Alaska (only the national forests)	Log export ban	1928	Including cants with a thickness of more than 8 3/4 inches. Excluding wood regarded as surplus.
d. Alaskan state-owned forests	Ban on transfer and export of logs outside the State	1960	Including cants with a thickness of more than 12 inches. Except when approved in advance for experimental purposes (This regulation was ruled unconstitutional by the District Court of Alaska in 1981, and is now under High Court proceedings).
e. Oregon state-owned forests	Log export ban	1963	Only wood in the form of logs (except cants). The provision which had permitted exports in exceptional cases was abolished in 1981.
f. California state-owned forests	Log export ban; export ban on substitutes for private forest logs	1974	Including cants with a thickness of more than 8 3/4 inches.

Appendix 3 (cont'd.)

Regions to which applied	Nature of restriction	Year enacted	Scope of application
Canada			
All regions in British Columbia	Ban on log and chip transfer and export outside the state	1906	Including sawnwood more rounded than permitted under limits set by sawnwood inspection office.
Indonesia			
a. All regions	Valuable foreign woods and Ramin log export ban	1978	Embargoes placed on items, including teak, of the 17 items of valuable foreign woods from May 1978, on ebony from Feb. 1, 1979, and on Ramin from Sept. 15, 1978.
b. All regions except for Irian Jaya	Log export restriction and ban	1981	Allowable limits on log exports issued only to plywood mill owners: Owner of mill in operation Ratio of domestic supply to export —— 4 : 1 Owner of mill under construction Ratio of domestic supply to export —— 1 : 2
		1982	Quantitative restrictions enacted in addition to existing ratio restrictions: Owner of mill in operation (approved by Mar. 1, 1982) 23,000 m^3 per mill for one year only Owner of mill under construction (" Mar. 1, 1982) 184,000 m^3 per mill for three years only Owner of mill under construction (" Jan. 1, 1983) 92,000 m^3 per mill for three years only From the fourth year, all exports banned.
c. All regions	Undried veneer export ban	1982	Veneer which has not passed through drying process (green veneer).
d. Irian Jaya	Log export restrictions	1982	Log export allowable limits issued only to concession-aires with wood processing facilities: Those planning to construct plywood mill —— quantity approved by the President for two years only. Other owners (including prospective owners) of processing facilities —— up to 230,000 m^3 per year for the entire district concerned.

Appendix 3 (cont'd.)

Regions to which applied	Nature of restriction	Year enacted	Scope of application
Malaysia			
a. West Malaysia	Log export restrictions	1972	Overall embargo on 16 major tree species (10 species from Nov. 1972, after which 6 other species were added).
b. Sabah State	Log export restrictions	1976	Export allowable limit issued to log exporting companies (limit: 6 million m^3 in 1982).
c. Sarawak State	Ramin log export ban	1980	Including scepter logs.
Philippines			
All regions	Log export restrictions	1977	Log export allowable limit within 25% of allowable cutting issued to concessionaires with wood processing facilities.
		1982	As a rule, issuance of new allowable limits for log exports and term extension of existing limits terminated.
Thailand			
All regions	Log export ban	1977	Excluding exports for personal use or samples of goods.
Brazil			
All regions	Log export ban depend on regions and species	1973	Including rectangular timber with a thickness of more than 76 mm.

Appendix 4　Tariffs on Wood and Wood Products in Japan

Category	Item	Tariff number	Current tariff (%) Basic	Current tariff (%) Agreed	Current tariff (%) Temporary	Current tariff (%) Preferential	MTN agreement Final reduced tariff(%)	MTN agreement Reduction term	Moving up (%) Tariff before moving up	Moving up (%) Current tariffs after moving up	Main supplying countries
Logs	Paulownia	4403-200	5	-	-	0					China, USA, Brazil
	Others	Other than the above	0	-	-	-					Malaysia, USA, USSR, Indonesia, Philippines
Hewn lumber	Paulownia	4404-200	5	2.5	-	0					USSR, Indonesia, USA
	Others	Other than the above	0	-	-	-					
Sawn wood	Pine, fir, picea Thickness 16 cm or less	4405-310	10	9.0	-	0	6	1959-62	10.0	9.0	New Zealand, Canada, USSR, USA
	Thickness more than 16 cm	-320	0	-	-	-					New Zealand, USSR, USA
	Larix Thickness 16 cm or less	-510	10	-	-	0					USSR
	Thickness more than 16 cm	-530	0	-	-	-					USSR
	Lauan	-540	10	-	-	(0), 5.0					Philippines, Malaysia, Indonesia, Taiwan, China
	Paulownia	-400	5	2.5	2.5	0					Canada, USA
	Others	-200 / Other than the above	0	-	-	-					
Processed wood	Pine, fir, picea, larix (thickness 16 cm or less)	4413-300	10	-	-	0					Canada, USA, New Zealand
	Lauan	-400	10	-	-	0					Philippines, Malaysia, Indonesia, China, Taiwan, Brazil
	Paulownia	-200	5	-	2.5	0					Canada, USA
	Others	Other than the above	0	-	-	-					
Wood commodities	Wooden stick	4409-110	15	5.9	-	0	5	1955-62	6.6	5.9	USA, Indonesia
	Veneer for plywood	4414-230	15	15.0	-	(0), 7.5					Indonesia, Malaysia, Philippines
	Wooden sheet										
	- Pterocarpus, rosewood	4414-100	20	10.6	15.0	0	8	1955-62	12.4	10.6	Thailand
	- Incense cedar	-210	15	0	0	0					USA
	- Teak	-220	15	0	-	0					Thailand
	- Others (e.g., paulownia)	-230	15	-	-	0					Bolivia, Indonesia, Brazil, India
	Laminated wood, blockboard, etc.	4415-200, -300	20	-	-	0					Thailand, Philippines, Malaysia
	Plywood — Plywood with both surfaces made of conifer wood	4415-191	20	15.0	15.0	-					Canada, USA
	- Plywood with processed surfaces and sides	-111, -119	20	18.8	-	-	15	1959-62	20.0	18.8	USA, Canada
	- Others - Thickness less than 6 mm	-192, -193	20	20.0	15.0	-					Indonesia, Korea, Rep. of; Malaysia
	- Thickness 6 mm or more	-194, -195	20	19.3	-	-	17	1959-62	20.0	19.3	Malaysia; Korea, Rep. of
	Modified wood (e.g., reinforced wood)	4417	15	10.0	-	0	7	1955-62	12.0	10.0	UK; Germany, Fed. Rep.
	Recycled wood (e.g., particle board) Board	4418-100	20	13.1	15.0	0	12	"	13.9	13.1	New Zealand, USA
	Others	-200	15	11.9	-	0	10	"	13.1	11.9	USA

Note: Items in parentheses apply to LLDCs.

Appendix 4 (cont'd.)

Preferential Tariff List for Wood

(million yen)

No.	Item	Control	1982 ceiling	Articles in allowance	Articles in allowance of half upper limits	1981 ceiling	Application in 1981
49	Paulownia log	M	891	o	–	891	1,347
50	Paulownia balk, sawnwood, processed wood	M	1,526	–	–	1,526	2,161
51	Lauan and keruing sawnwood	SP, M	4,208	–	o	4,208	5,985
53	Veneer for plywood	SP, M	864	–	o	864	1,270
54	Wooden sheet	M	851	o	o	835	1,233
55	Laminated wood, blockboard	M	589	–	o	589	473
56	Fiberboard, recycled wood	M	372	o	o	149	46
57	Transom	M	4,349	–	–	4,349	3,045
58	44 other kinds of processed wood	M	8,715	o	o	8,327	10,606
59	Cork and cork products	M	836	o	o	827	1,613

Note: In the Control column, M refers to monthly control, and SP refers to items on which the tariff is halved.

[7] BEEF

[7] BEEF

CONTENTS

A. INTRODUCTION

Beef is mainly produced from beef cattle and dairy cattle, with a small quantity also produced from buffalo.

Beef cattle are raised in countries and regions which are rich in grasslands such as pastureland and meadowland. Some cattle are raised to adult in one place and delivered and processed as meat as required, while others are transferred while relatively young to other locations to be raised further and slaughtered. In the latter case, they may be transferred either within a country or to foreign countries.

In both cases, the destination is often a place where grassland is less available than in the raising area but where grain feed is cheaper and more readily available. Recently the United States and other countries are adopting the feedlot system, where feeder stock is bought from the production place and raised with hay and grain feed.

In comparison with grassland raising, the feedlot system has an advantage in that a lot of beef can be produced in a short period using a small area of land. Beef produced by the former system is called grass fed beef; the latter, grain fed beef.

Cow beef is produced from dairy cattle which have become old and produce less milk, and dairy beef is produced from a male dairy calf.

The meat of a calf less than 10 months old is called veal and is handled separately from dairy beef, even if it has been produced from a dairy animal.

Veal, also called white veal, is light pink and very tender, with a popular milky flavor.

Stringent beef demand and supply conditions raise the price, increase the number of cattle slaughtered, and reduce the cattle stocks.

It takes a long time to recover reduced cattle stock, since the gestation period of cattle is about 10 months and the female calf takes

about 14 to 15 months to become capable of reproduction, meaning that the female calf takes about 24 to 25 months to become capable of reproduction even under ideal conditions. This aspect is quite different from those of chicken and pork, stocks of which can be increased in a short period.

Generally a cycle is observed in the relationship of increased beef demand, rise in price of beef, decrease in cattle stock, recovery and increased raising of cattle stock, (also associated with economic trends); this is called the beef cycle.

The beef cycle is considered to be about 5 to 10 years in length.

B. PRODUCTION

o Regions Surveyed

To investigate trends of beef production, major and special countries in the world were selected and classified on the basis of situations of production, distribution and consumption. The investigation was conducted mainly for these countries. The classification system is shown below; these regions are referred to as the Main Regions.

Main Regions	
Developed countries	
North America	The United States Canada Total
9 EC countries	
Oceania	Australia New Zealand Total
Japan	
Subtotal	
Developing countries	
South America	Brazil Argentina Subtotal
Planned economy countries	
USSR China Subtotal	
Grand Total	
Other regions	
World	

I. Number of Cattle Raised

The number of cattle raised in the world increased from 1.041 billion in 1965 to 1.201 billion in 1980, an increase of 15% in 15

[7]-3

years, and an average annual increase of 1% (Reference Table B-1 and B-2). Fig. B-1 shows the increase was steady until about 1976, and since then it has remained almost the same.

By region, Oceania showed the highest production increase in 1976, to 140% over 1970, but since then it has shown a gradual decrease, to 112% in 1980. This is because this major exporting region is greatly affected by economic trends in the importing countries. The USSR, not affected in this way, shows a steady increase every year. North America has shown a gradual decrease since 1975, and the number of cattle there in 1980 returned to almost the same level as that in 1970.

Fig. B-1   Increase or Decrease in Number of Cattle
(1970 = 100)
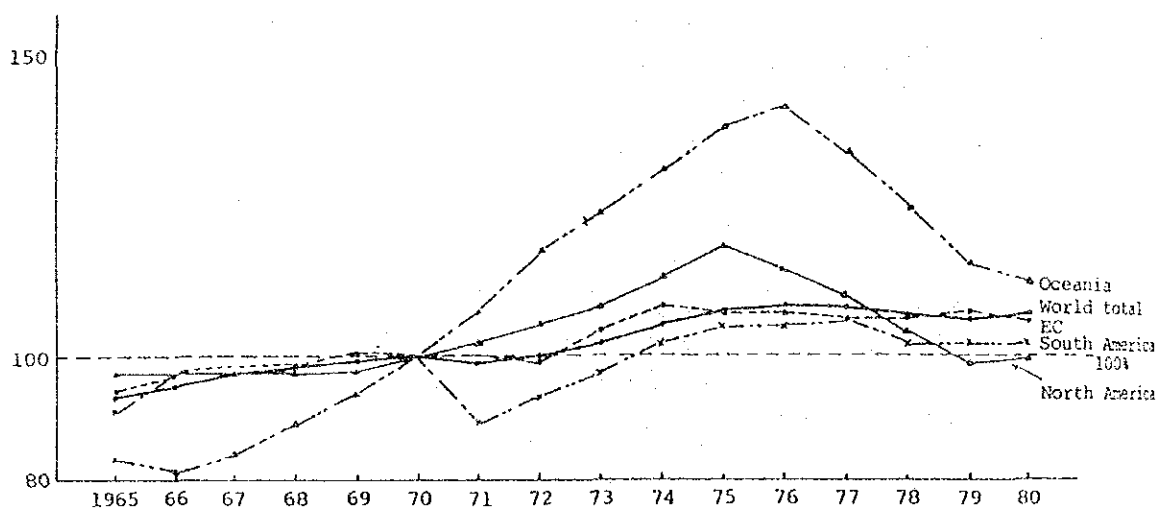
Source: Reference Table B-3

II. Export and Import of Cattle

The export and import of live cattle in the world is only about 0.6% (6.97 million head in 1980) of the cattle raised (One-tenth of the rate of export/import volume of beef which is 5 - 7% of world production) (Table B-1).

Table B-1   Ratio of Number of Cattle Exported to
            Number of Cattle Raised

			(%)
	1965	1972	1980
Developed countries	1.2	1.3	1.5
North America	0.6	0.3	0.3
EC	2.9	3.7	4.1
Other developed countries	-	-	-
South America	0.1	0.1	0.1
Planned economy countries	0.1	0.6	0.1
Main regions total	0.6	0.8	0.7
Other regions	0.3	0.6	0.5
World total	0.4	0.7	0.6

Source: Reference Table B-2 and B-4

Cattle are exported or imported for various purposes such as fattening, slaughtering and reproduction, and the raising conditions differ depending on the purpose. It is not rare for a country which exports a lot also import cattle raised under different conditions (Reference Table B-4).

By region, the EC region is the largest cattle exporter, exporting 2 million head in 1965 and 3.21 million in 1980, with a share of about 45% of world cattle exports. France, the Federal Republic of Germany, Ireland and the UK are major exporting EC countries and their cattle are exported to other countries within the EC, especially to Italy. On the other hand, the smallest cattle exporting region is Oceania, whose exports were only 70,000 head in 1980.

World cattle import volume should be identical to export volume, but statistics show a considerable difference, probably due to the time lag. By region, the EC is also the largest importer in the world, importing 3.3 million head in 1980 and accounting for 49% of world imports. North America imported 760,000 head of cattle in 1980, and half of them were imports to the United States from Canada.

Both export and import of cattle showed about 10% annual increase from 1965 to 1970, but since 1970 they have remained level. This was probably because of increased production in the consumer countries.

III. Cattle Slaughtered

In order to estimate beef production from the number of cattle slaughtered, the proportion of cattle slaughtered is an important factor (slaughter rate = number of cattle slaughtered ÷ number of cattle raised x 100). The slaughter rate is largely affected by the purpose and form of raising. For example, the slaughter rate, whether it is for dairy cattle or beef cattle, is low in a region where there is much grazing. Also there are exceptional regions where slaughter is prohibited for religious reasons. The world slaughter rate has been almost constant at about 20% since 1970 (Fig. B-2 and Reference Table B-5).

Fig. B-2   Slaughter Rate
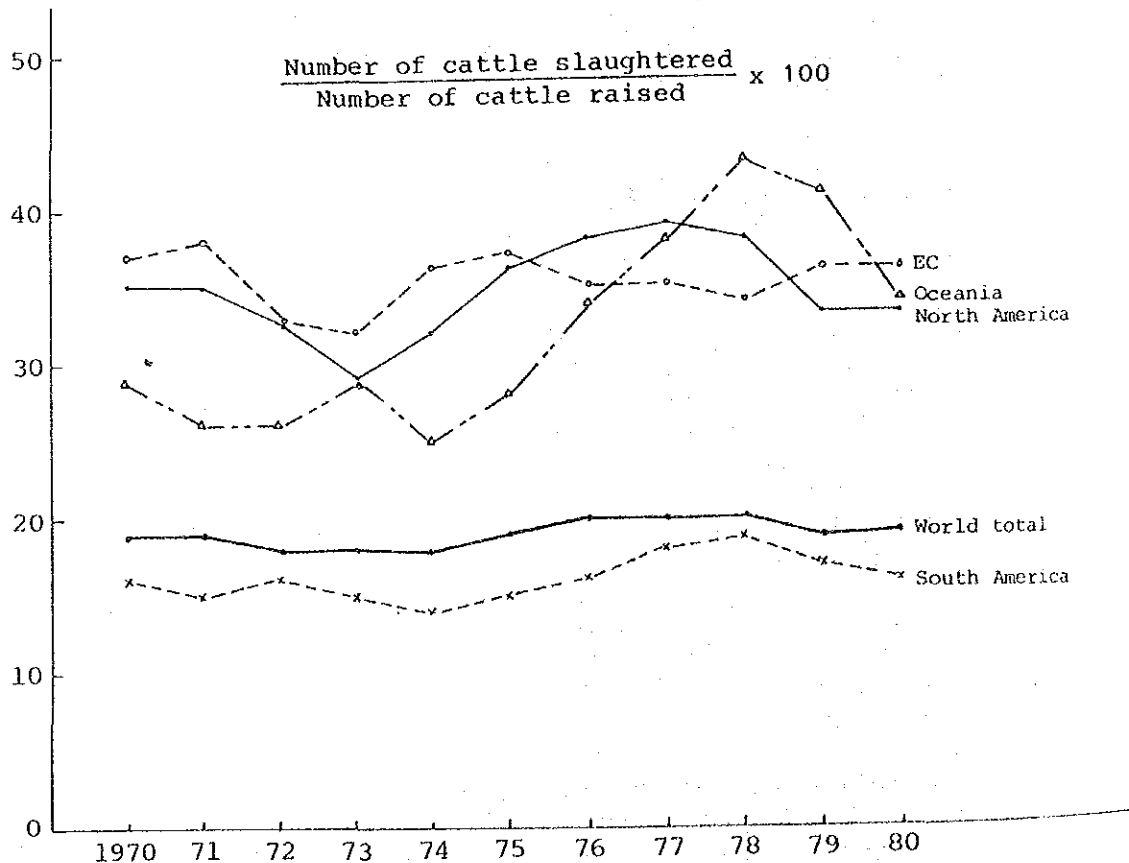
Source: Reference Table B-5

By region, the developed countries have a slaughter rate of
30-35%, the developing countries (Brazil and Argentina) about 20% and
other regions not included in the main region about 10% on average.
One reason for the low rate in the last group is that cattle are more
often raised as a status symbol than for economic purposes.

The slaughter rate in Oceania reached 40% around 1978, probably
because the number of cattle slaughtered temporarily increased as a
function of the need to reduce beef supply stock, which was due to
inactivity of export trade caused in turn by sluggish consumption in
the consumer countries.

The number of cattle slaughtered can be determined from the
number of cattle raised and the slaughter rate, and it increased
around 1976 because the number of cattle raised increased greatly,
especialy in Oceania; subsequently the slaughter rate increased as
already mentioned, but since then it has decreased slightly. The
number of cattle slaughtered in the world in 1970 was 211 million,
increased to 241 million in 1978, and then decreased to 228 milliion
in 1980. The reason for the decrease was sluggish consumption in the
world, as already mentioned (Fig. B-3, Reference Table B-5 and B-6).

Fig. B-3   Number of Cattle Slaughtered
            (1970 = 100)
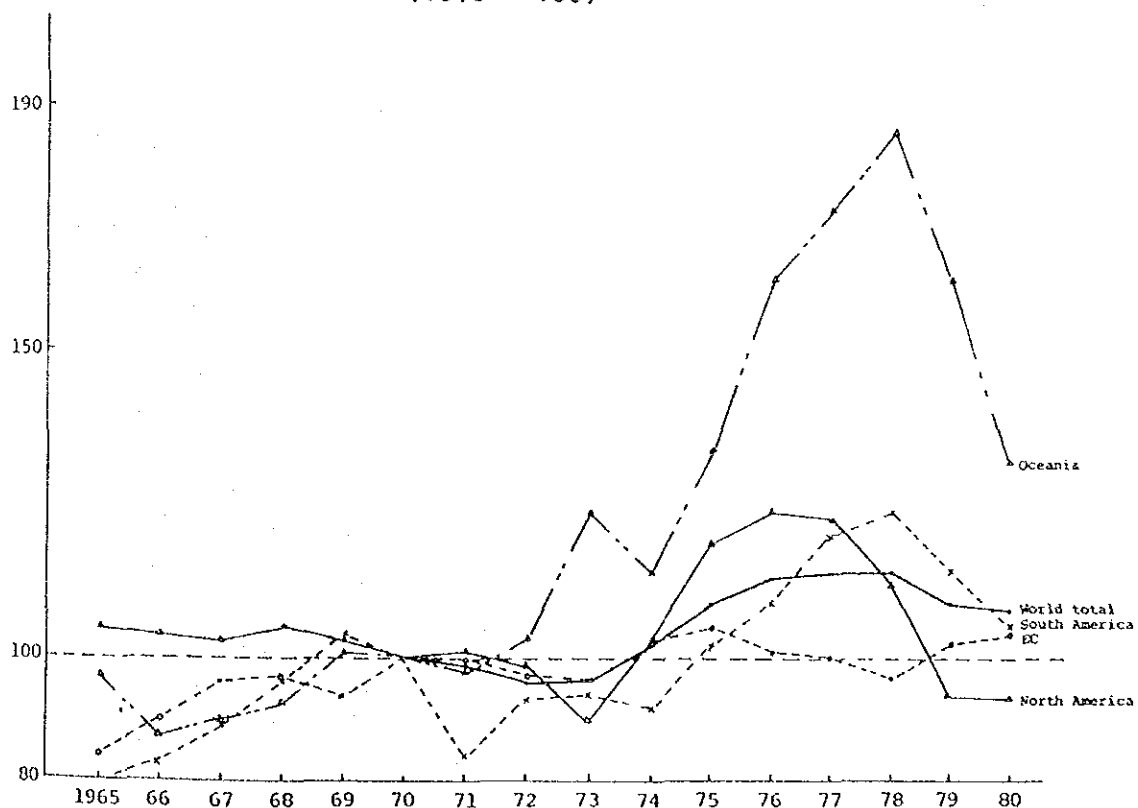
IV.   Production of Beef

The amount of beef production is expressed in carcass weight.
Carcass weight is the weight of the slaughtered animal not including
the head, the four limbs, tail, skin, blood and internal organs. The
carcass weight of cattle varies depending on breed, raising conditions
and age.   The world average carcass weight per beef animal is a little
less than 200 kg, an increase of over 4% during the past 10 years.
The rate of increase in carcass weight differs considerably from
region to region, and during the same period, it was 7% for North
America and 24% for the EC.   The large rate of increase in the EC was
probably caused by the change from dairy cattle to beef cattle.

The carcass weight itself also differs considerably from region
to region.   For example, the average carcass weight in 1980 was 150 kg
in China, 173 kg in Oceania, 210 kg in South America and 269 kg in
North America (Reference Table B-7 and B-8).

It is considered that the yearly increase of carcass weight per
head is caused by the general spread of bigger breeds for meat produc-
tion and the dissemination of the raising method to increase slaughter
weight by feeding with grains prior to slaughtering.   The regional
difference in carcass weight is also partly due to difference in breed
and to variation in quantity of grains fed.

Fig. B-4   Carcass Weight   (1970 = 100)
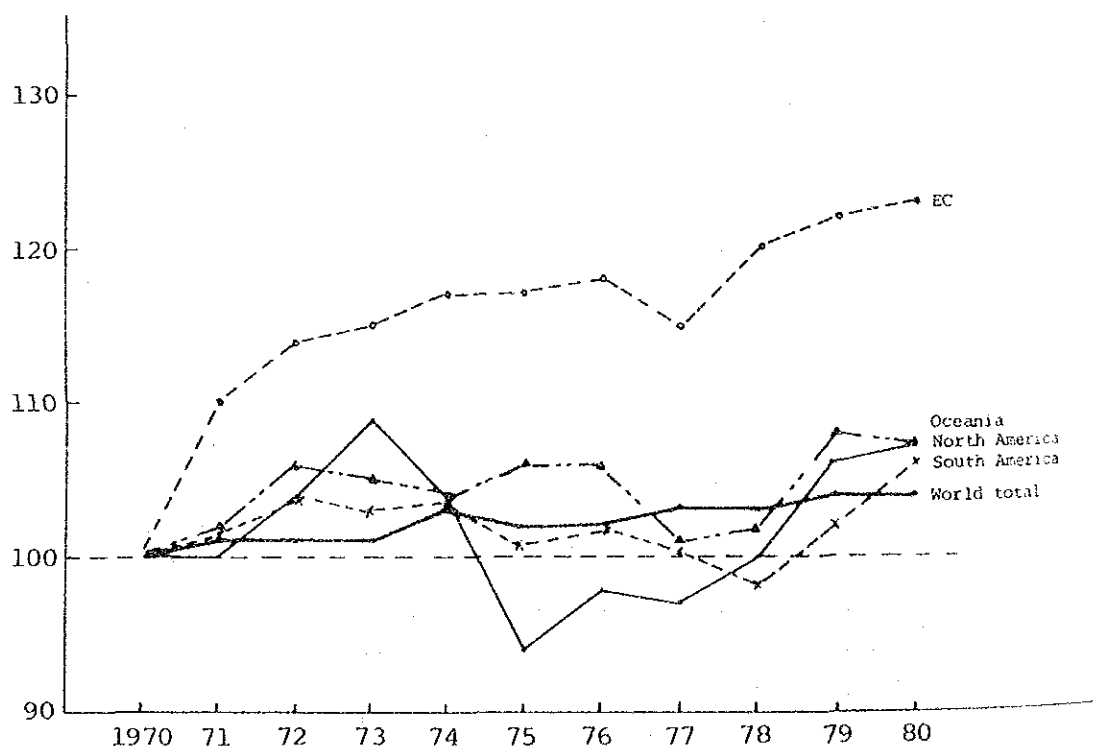
Source: Reference Table B-9

World production of beef was 40.29 million tons in 1970, but decreased to 39 million tons for the subsequent three years, and then gradually increased to exceed 47 million tons in 1978, and decreased gradually in the subsequent two years to become 45.13 million tons in 1980 (117% of 1970 production). That is, beef production increased as consumption increased due to increased population and income, but after 1976, economic recession reduced the increase rate, and after the peak in 1978, the production started to decrease.

Fig. B-5   Trend of Beef and Veal Production   (1970 = 100)
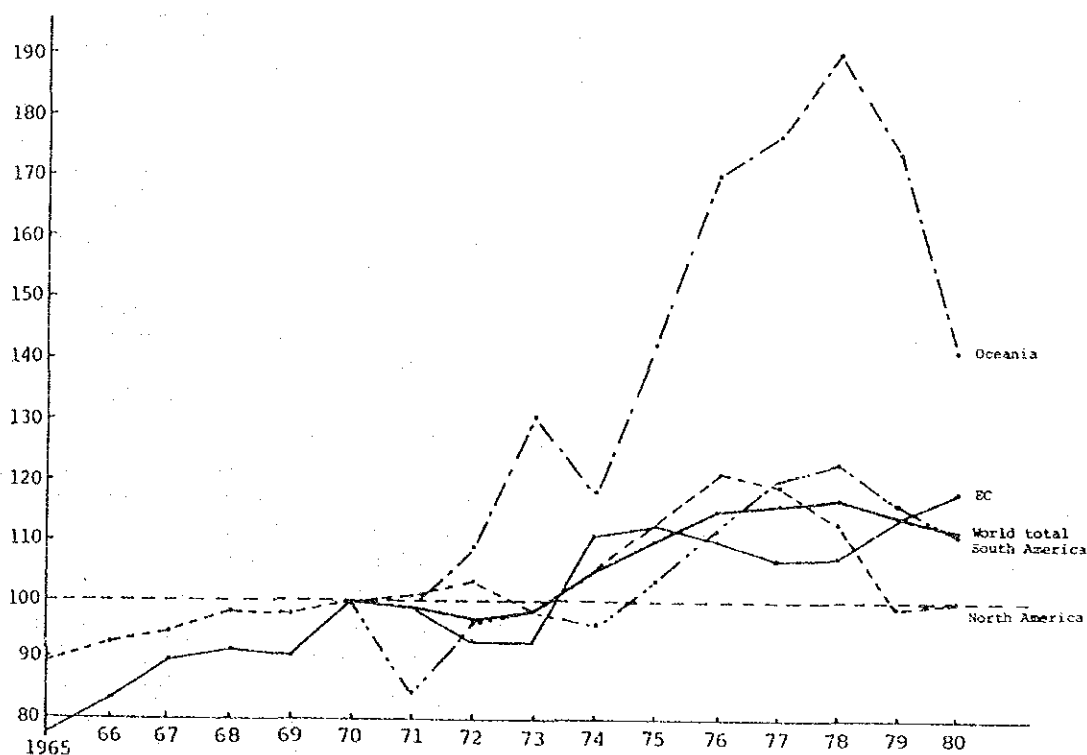
Source: Reference Table B-11

By region, North America is the largest producer in the main regions, producing 10.97 million tons in 1980, 24% of world production. The planned economy countries including the USSR and China account for 18.5% of world production, the EC countries for 15.5%, Brazil and Argentina for 11.0% together, and Oceania for only 4.5%.

The past trend for North America has been for beef production to increase gradually from 9.81 million tons in 1965 to 10.95 million tons in 1970, 27.2% of world production at that time. During this period, the number of cattle slaughtered decreased gradually after 1968, but beef production continued to increase slightly until 1972 and only decreased slightly in 1973. This is probably because cattle weight had tended to increase due to increased feeding with grain feeds, which increased carcass weight and resulted in a continuous increase in beef production despite the decrease in the number of cattle slaughtered. In 1973 beef production decreased temporarily, partly because of the effect of the oil crisis and partly because of generally sluggish consumption. Subsequently, however, it increased again and reached 12.17 million tons in 1976, the highest until then, but from then on production decreased sharply and finally dropped to 10 million tons in 1980, lower than the 1970 level. During that period, there appeared a tendency to reduce the rate of feeding with grains in order to reduce beef production to cope with economic recession. As a result, carcass weight decreased considerably for some time. Later, carcass weight almost recovered to the previous level, but beef production decreased since it was affected by depressed world consumption.

In the USSR and China, beef production is increasing steadily. Especially in the USSR, carcass weight has increased considerably, up nearly 10% from 162 kg in 1970 to 178 kg in 1980, and combined with the 5% increase in the number of cattle slaughtered, caused an increase in beef production of about 24% during that period.

The EC countries showed a trend slightly different from that in other regions, and production continued to increase, although it decreased temporarily both in 1972/73 and in 1976/78, and increased by 18.5% from 5.94 million tons in 1970 to 7.04 million tons in 1980, up 52.1% from 4.63 million tons in 1965. The reason for this big increase seems to be that this region gradually switched production from dairy cattle to beef cattle, to counteract overproduction of milk. Dairy cattle were slaughtered in large numbers after 1970, resulting in a temporary increase of beef production. As a reaction, beef production in the subsequent one or two years decreased, and then gradually recovered. As dependence of beef production on beef cattle increased, beef production continued to increase despite the fact that the number of cattle slaughtered did not increase much.

Beef production in Brazil and Argentina increased 11% over the 10 years, from 4.47 million tons in 1970 to 4.96 million tons in 1980, and this increase is almost the same as the world trend.

Since the two countries in Oceania export about 40% of their production, beef production in these countries is greatly affected by demand situations in the importing countries. Most of their export is to the United States and part of it goes to Japan. Both countries increased their imports from the 1960s into the 1970s and exports from Oceania also increased, but the oil crisis in 1973 decreased imports in both countries considerably. As a result, exports from Oceania decreased in 1974 and the production also decreased. The decrease in exports stopped one or two years later and production started to increase, but after the peak in 1976, the number of cattle raised started to decrease and the number of cattle slaughtered also started to decrease after the peak in 1978. As a result, beef production decreased and came down to 2.04 million tons in 1980, almost the same level as in 1975. This is because there appeared a tendency to reduce the scale of cattle raising as a result of the recognition that the past growth rate could not be expected to continue in the light of the worldwide depression of consumption (Reference Table B-12 and B-13).

V. Demand and Supply of Beef

Generally, demand and supply increase or decrease in a fairly balanced way, and the supply and demand of beef is no exception. Therefore, the trend of beef demand follows almost the same trend as beef supply, but when the demand situation changes sharply due to social or economic fluctuations, supply in terms of production or imports cannot cope with it, and a lag occurs between demand and supply. For this reason supply tends to fluctuate somewhat later than demand.

Since the trend of beef supply is almost the same as that of production, a graph is sufficient to illustrate this point (Fig. B-6, Reference Table B-14 and B-15).

In many countries beef demand is met largely by domestic production, but some countries cannot raise enough cattle because of climate, geographical features, soil and other limitations. Such countries meet their domestic demand by importing beef (or live cattle) from countries which can maintain more cattle than they need for domestic consumption (Reference Table B-16).

If the percentage of domestic beef production against domestic beef consumption is called the self-sufficiency rate, the highest self-sufficiency rate is found in Oceania. Since Australia is sparsely populated and has a great deal of pastureland, it has a large beef production capacity and is exporting 30 to 40% of its domestic production to North America and Japan (Reference Table B-17).

Fig. B-6   Trend of Beef and Veal Supply
            (1970 = 100, Production + Import - Export)
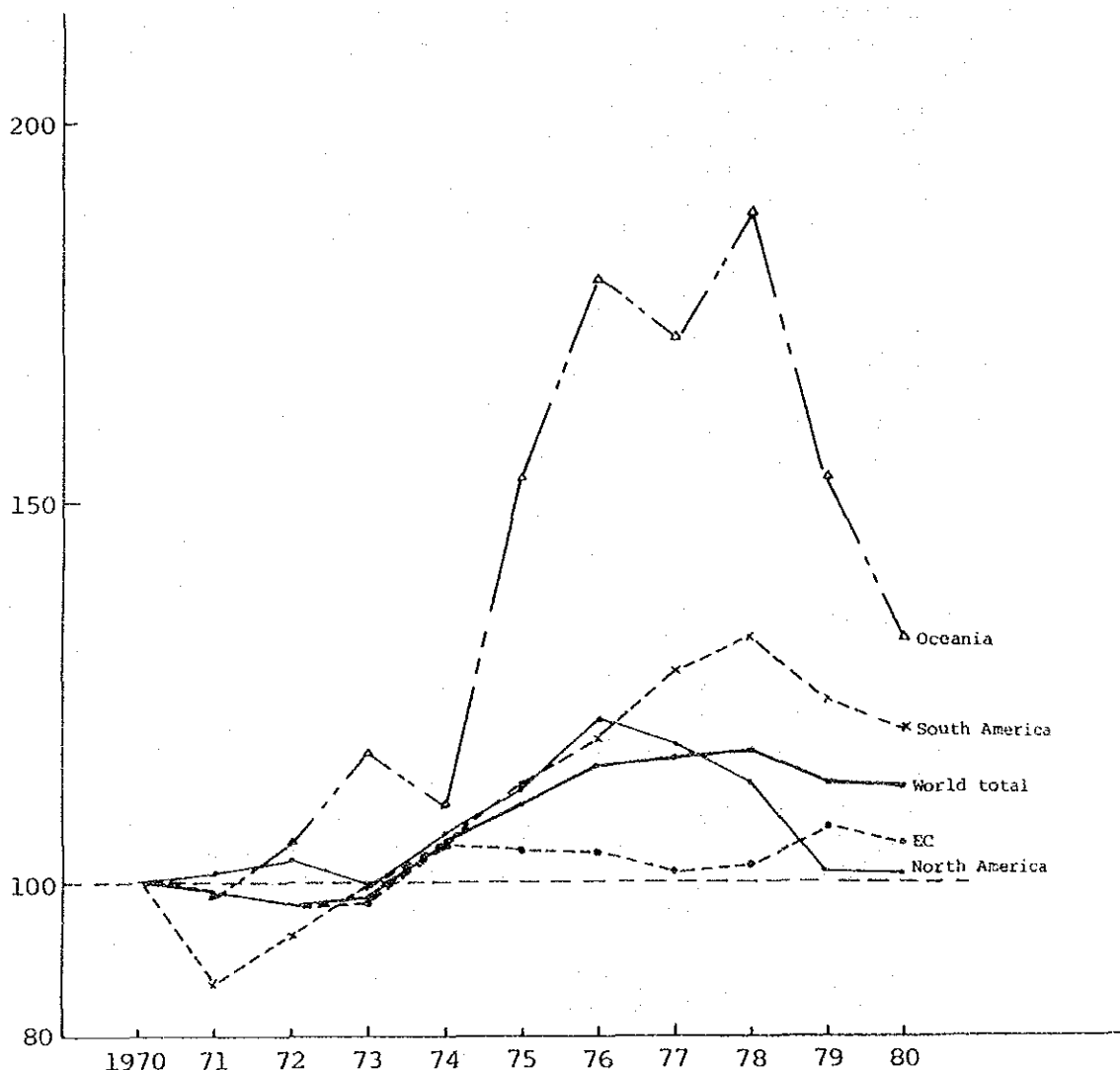
Source: Reference Table B-15

In the EC countries, the self-sufficiency rate was less than 100%
before 1973, but as mentioned in the section on beef production, it
gradually increased due to improved quality of beef production stock,
and these countries had an oversupply of 6% in 1980.

South America, with good production conditions, was exporting
surplus production of about 10%, but since 1974 the self-sufficiency
rate has decreased, and it was 103% in 1980. The South America region

is a foot-and-mouth disease area, and therefore export conditions are severe; since uncontaminated areas do not permit the import of raw beef, the beef must be processed.

The North America region is the largest beef producing region but is also the largest consuming region and the self-sufficiency rate is constant at about 95%. Shortages are mainly covered by imports from Oceania.

In the USSR, a self-sufficiency rate of about 100% was maintained before 1973, but it became less than 100% after 1974, and is now about 95%. This is thought to be caused by increased per capita beef consumption (Fig. B-7, Reference Table B-18 and Reference Fig. B-1).

Fig. B-7   Self-sufficiency Rate (Production/Demand)
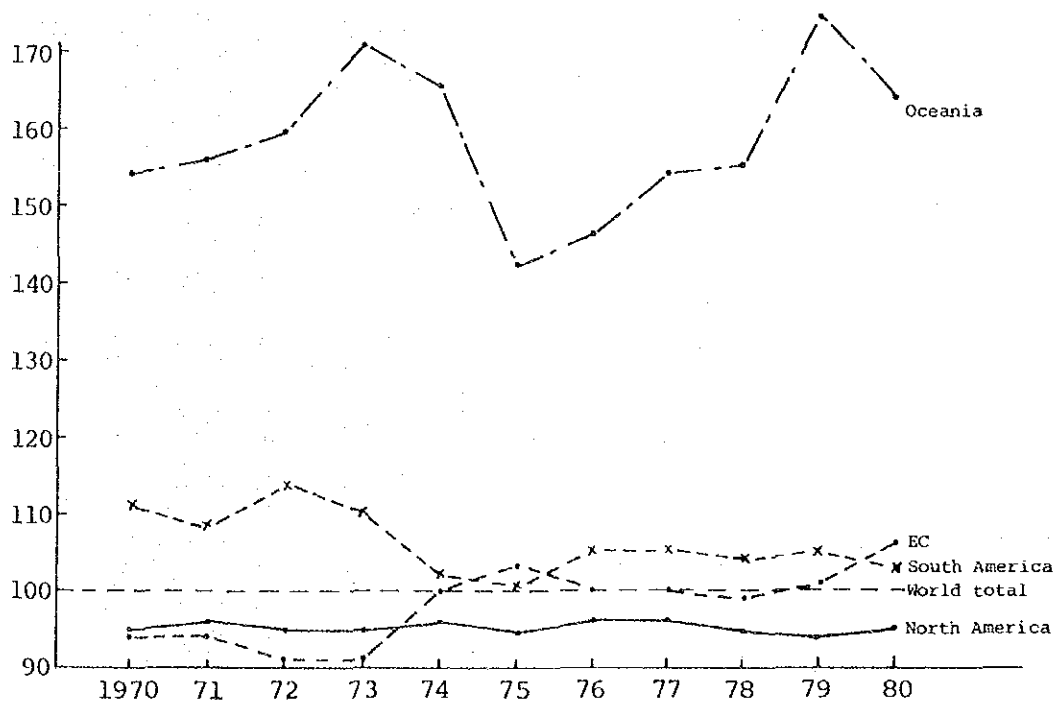
Source: Reference Table B-17

Reference Table B-1　Cattle and Beef Related Figures in Main Regions

Classification	Number of cattle raised (1,000 head)				Beef production (1,000 MT)				Beef export (1,000 MT)				Beef import (1,000 MT)			
	1970	%	1980	%	1970	%	1980	%	1970	%	1980	%	1970	%	1980	%
Developed countries	233,086	21	241,572	20	18,620	46	20,467	45	1,085	52	2,492	74	1,489	70	1,994	62
North America	124,139	11	123,595	10	10,951	27	10,970	24	56	3	110	3	588	28	695	22
USA	112,303	10	111,192	9	10,088	25	9,999	22	9	0.4	64	2	527	25	642	20
Canada	11,836	1	12,403	1	863	2	971	2	47	2	46	1	61	3	53	2
EC	74,389	7	79,149	7	5,943	15	7,040	16	523	25	1,586	47	877	41	1,175	36
Other developed countries	34,558	3	38,828	3	1,726	4	2,457	5	506	24	796	24	24	1	124	4
Oceania	30,939	3	34,580	3	1,448	4	2,039	5	506	24	796	24	1	–	2	–
Australia	22,162	2	26,205	2	1,055	3	1,564	3	328	16	580	17	0	0	2	–
New Zealand	8,777	1	8,375	1	393	1	475	1	178	8	216	7	0	0	0	0
Japan	3,619	0.3	4,248	0.4	278	0.7	418	1	0	0	0	0	23	1	122	4
South America	143,590	13	146,761	12	4,469	11	4,960	11	450	21	210	6	1	–	65	2
Brazil	95,150	9	91,000	7	1,845	5	2,084	5	98	5	6	–	1	–	65	2
Argentina	48,440	4	55,761	5	2,624	6	2,876	6	352	16	204	6	–	–	–	–
Planned economy countries	158,365	14	167,591	14	7,330	18	8,355	19	38	2	13	0.4	82	4	345	10
USSR	95,162	8	115,100	10	5,393	13	6,673	15	38	2	8	–	82	4	333	10
China	63,203	6	52,491	4	1,937	5	1,682	4	–	–	5	–	0	0	12	0.4
Main regions total	635,041	48	555,924	46	30,419	75	33,782	75	1,573	75	2,715	80	1,572	74	2,404	74
Other regions	590,877	52	645,886	54	9,875	25	11,348	25	515	25	663	20	564	26	831	26
World total	1,125,918	100	1,201,810	100	40,294	100	45,130	100	2,088	100	3,378	100	2,136	100	3,235	100

Note : Percentages represent share of world total.
Source: FAO, Production Yearbook and Trade Yearbook

Reference Table B-2　　Number of Cattle

(1,000 head)

	1965	1966	1967	1968	1969	1970	1971	1972
Developed countries	219,528	220,387	222,236	224,701	228,102	233,086	237,429	243,764
North America	120,908	120,513	120,402	120,935	121,368	124,139	126,571	130,137
USA	109,000	108,862	108,645	109,152	109,885	112,303	114,578	117,862
Canada	11,908	11,651	11,757	11,783	11,483	11,836	11,993	12,275
EC	69,828	71,834	72,887	73,146	74,065	74,389	74,024	73,883
Other developed countries	28,792	28,040	28,947	30,620	32,669	34,558	36,834	39,744
Oceania	25,617	25,153	26,019	27,465	29,211	30,939	33,191	36,147
Australia	18,816	17,936	18,270	19,218	20,606	22,162	24,372	27,373
New Zealand	6,801	7,217	7,749	8,247	8,605	8,777	8,619	8,774
Japan	3,175	2,887	2,928	3,155	3,458	3,619	3,643	3,597
South America	130,876	139,305	141,196	141,365	141,047	143,590	128,044	133,300
Brazil	84,167	90,505	89,969	89,896	92,739	95,150	78,258	81,000
Argentina	46,709	48,800	51,227	51,469	48,298	48,440	49,786	52,300
Planned economy countries	150,008	156,236	160,011	160,117	158,700	158,365	162,471	165,729
USSR	87,171	93,436	97,111	97,167	95,700	95,162	99,225	102,434
China	62,837	62,800	62,900	62,950	63,000	63,203	63,246	63,295
Main regions total	500,412	515,928	523,443	526,183	527,849	535,041	527,944	542,792
Other regions	541,344	555,612	569,210	579,178	585,142	590,877	583,182	587,783
World total	1,041,756	1,071,540	1,092,653	1,105,361	1,112,991	1,125,918	1,111,126	1,130,575
Main regions (%) / World total	48.0	48.1	47.9	47.6	47.4	47.5	47.5	48.0

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Reference Table B-2 (cont'd.)

(1,000 head)

	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries	253,123	264,921	261,875	268,248	260,449	250,501	242,232	241,572
North America	134,149	140,888	146,044	142,035	136,520	129,145	123,192	123,595
USA	121,534	127,670	132,028	127,980	122,810	116,375	110,864	111,192
Canada	12,615	13,218	14,016	14,055	13,710	12,870	12,328	12,403
EC	77,188	80,129	79,741	79,279	79,049	78,852	79,279	79,149
Other developed countries	41,786	43,904	46,090	46,934	44,880	42,504	39,761	38,828
Oceania	38,189	40,254	42,446	43,211	41,005	38,459	35,611	34,580
Australia	29,101	30,839	32,793	33,434	31,533	29,330	27,112	26,205
New Zealand	9,088	9,415	9,653	9,777	9,472	9,129	8,499	8,375
Japan	3,597	3,650	3,644	3,723	3,875	4,009	4,150	4,248
South America	139,771	145,792	151,195	150,174	152,054	146,791	146,864	146,761
Brazil	85,000	90,437	92,495	92,000	91,000	89,000	90,000	91,000
Argentina	54,771	55,355	58,700	58,174	61,054	57,791	56,864	55,761
Planned economy countries	167,354	169,968	173,241	175,663	173,988	176,544	166,702	167,591
USSR	104,006	106,266	109,122	111,034	110,346	112,690	114,086	115,100
China	63,348	63,702	64,119	64,629	63,642	63,854	52,616	52,491
Main regions total	560,248	580,681	586,311	594,085	586,491	573,836	555,798	555,924
Other regions	585,698	600,260	616,158	616,791	624,111	631,573	638,442	645,886
World total	1,145,946	1,180,941	1,202,469	1,210,876	1,210,602	1,205,409	1,194,240	1,201,810
Main regions (%) / World total	51.1	49.2	48.8	49.1	48.4	47.6	46.5	46.3

Reference Table B-3   Trends of Cattle Number
(Index Number, 1970 = 100)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries	94	95	95	96	98	100	102	105	109	114	112	115	112	107	104	104
North America	97	97	97	97	98	100	102	105	108	113	118	114	110	104	99	100
USA	97	97	97	97	98	100	102	105	108	114	118	114	109	104	99	99
Canada	101	98	99	100	97	100	101	104	107	112	118	119	116	109	104	105
EC	94	97	98	98	100	100	100	99	104	108	107	107	106	106	107	106
Other developed countries	83	81	84	89	95	100	107	115	121	127	133	136	130	123	115	112
Oceania	83	81	84	89	94	100	107	117	123	130	137	140	133	124	115	112
Australia	85	81	82	87	93	100	110	124	131	139	148	151	142	132	122	118
New Zealand	77	82	88	94	98	100	100	100	104	107	110	111	108	104	97	95
Japan	88	80	81	87	96	100	101	99	99	101	101	103	107	111	115	117
South America	91	97	98	98	98	100	89	93	97	102	105	105	106	102	102	102
Brazil	88	95	95	94	97	100	82	85	89	95	97	97	96	94	95	96
Argentina	96	101	106	106	100	100	103	108	113	114	121	120	126	119	117	115
Planned economy countries	95	99	101	101	100	100	103	105	106	107	109	111	110	111	105	106
USSR	92	98	102	102	101	100	104	108	109	112	115	117	116	118	120	121
China	99	99	100	100	100	100	100	100	100	101	101	102	101	101	83	83
Main regions total	94	96	98	98	99	100	99	101	105	109	110	111	110	107	104	104
Other regions	92	94	96	98	99	100	99	99	99	102	104	104	106	107	108	109
World total	93	95	97	98	99	100	99	100	102	105	107	108	108	107	106	107

Source: FAO, Production Yearbook

Reference Table B-4   Cattle Export/Import Balance

(1,000 head; difference = imports - exports)

Classification	1965			1966			1967			1968		
	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.
Developed countries	2,683	3,100	+417	1,944	2,996	+1,052	1,972	3,284	+1,312	2,372	3,897	+1,525
North America	667	1,133	+466	572	1,109	+537	319	783	+464	390	1,045	+655
USA	54	1,129	+1,075	35	1,100	+1,065	55	752	+697	36	1,039	+1,003
Canada	613	5	-608	537	9	-528	264	31	-233	354	6	-348
EC	2,005	1,965	-40	1,363	1,886	+523	1,645	2,499	+854	1,977	2,847	+870
Other developed countries	11	2	-9	9	1	-8	8	2	-6	5	5	0
Oceania	10	0	-10	8		-8	7		-7	5	0	-5
Australia	9	0	-9	7		-7	6		-6	4		-4
New Zealand	1	0	-1	1		-1	1		-1	1	0	-1
Japan	1	2	+1	1	1	0	1	2	+1	0	5	+5
South America	110	10	-100	122	6	-116	213	64	-149	265	55	-210
Brazil	8	2	-6	3	4	+1	5	64	+59	102	55	-47
Argentina	102	8	-94	119	2	-117	208	0	-208	163	0	-163
Planned economy countries	95	115	+20	6	128	+122	111	108	-3	695	56	-639
USSR	-	115	+115	-	128	+128	-	108	+108	583	56	-527
China	95	-	-95	6	-	-6	111	0	-111	112	0	-112
Main regions total	2,888	3,225	+337	2,072	3,130	+1,058	2,296	3,456	+1,160	3,332	4,008	+676
Other regions	1,549	1,001	-548	2,058	1,192	-866	3,039	1,899	-1,140	2,620	2,007	-613
World total	4,437	4,226	-211	4,130	4,322	+192	5,335	5,355	+20	5,952	6,015	+63

Reference Table B-4 (cont'd.)

(1,000 head; difference = imports - exports)

Classification	1969			1970			1971			1972		
	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.
Developed countries	2,480	4,325	+1,845	2,731	4,473	+1,742	2,804	4,527	+1,723	3,158	5,107	+1,949
North America	282	1,051	+769	335	1,220	+885	338	1,081	+743	405	1,260	+855
USA	39	1,043	+1,004	88	1,168	+1,080	93	991	+898	104	1,187	+1,083
Canada	243	8	-235	247	52	-195	245	91	-154	301	73	-228
EC	2,192	3,273	+1,081	2,392	3,251	+859	2,462	3,443	+981	2,747	3,843	+1,096
Other developed countries	6	1	-5	4	2	-2	4	3	-1	6	4	-2
Oceania	6	0	-6	4	1	-3	4	2	-2	6	3	-3
Australia	3		-3	2	1	-1	2	2	0	3	3	0
New Zealand	2	0	-2	2	0	-2	2	0	-2	4	0	-4
Japan	0	1	+1	0	1	+1	0	1	+1	0	1	+1
South America	274	68	-206	208	70	-138	157	69	-88	157	78	-79
Brazil	113	67	-46	104	70	-34	102	61	-41	112	76	-36
Argentina	160	1	-159	104	1	-103	55	9	-46	45	3	-42
Planned economy countries	785	104	-681	845	78	-767	933	57	-876	917	45	-872
USSR	669	104	-565	735	78	-657	813	57	-756	787	45	-742
China	116	104	-116	110	0	-110	120	0	-120	130	0	-130
Main regions total	3,539	4,497	+958	3,784	4,621	+837	3,894	4,653	+759	4,232	5,230	+998
Other regions	2,775	2,317	-458	3,071	2,391	-680	2,971	2,434	-537	3,322	2,551	-771
World total	6,314	6,814	+500	6,855	7,012	+157	6,865	7,087	+222	7,554	7,781	+227

Reference Table B-4 (cont'd.)

(1,000 head; difference = imports - exports)

Classification	1973			1974			1975			1976		
	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.
Developed countries	3,134	4,483	+1,349	2,559	3,321	+762	3,671	3,926	+255	3,596	4,429	+833
North America	700	1,265	+565	352	716	+364	421	516	+95	684	1,183	+499
USA	273	1,035	+762	205	570	+365	197	386	+189	206	984	+778
Canada	427	230	-197	147	147	0	224	130	-94	478	199	-279
EC	2,417	3,214	+797	2,173	2,597	+424	3,237	3,406	+169	2,877	3,241	+364
Other developed countries	17	4	-13	34	8	-26	13	4	-9	35	5	-30
Oceania	17	3	-14	34	3	-31	13	1	-12	35	1	-34
Australia	10	3	-7	25	3	-22	11	1	-10	31	1	-30
New Zealand	8	0	-8	9	1	-8	2	0	-2	3	0	-3
Japan	0	1	+1	0	5	+5	0	3	+3	0	4	+4
South America	133	70	-63	108	83	-25	103	92	-11	117	116	-1
Brazil	115	69	-46	104	81	-23	102	91	-11	104	116	+12
Argentina	18	1	-17	4	2	-2	1	1	0	13	1	-12
Planned economy countries	889	57	-832	688	202	-486	763	514	-249	580	193	-387
USSR	769	56	-713	598	198	-400	613	506	-107	440	192	-248
China	120	1	-119	90	4	-86	150	8	-142	140	1	-139
Main regions total	4,156	4,610	+454	3,355	3,606	+251	4,537	4,532	-5	4,293	4,738	+445
Other regions	2,647	2,490	-157	2,446	2,240	-206	2,296	2,064	-232	2,476	2,105	-371
World total	6,803	7,100	+297	5,801	5,846	+45	6,833	6,596	-237	6,769	6,843	-74

Reference Table B-4 (cont'd.)

(1,000 head; difference = imports - exports)

Classification	1977			1978			1979			1980		
	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.	Exp.	Imp.	Differ.
Developed countries	3,624	4,311	+687	3,836	4,735	+899	3,629	4,182	+553	3,708	4,104	+396
North America	742	1,184	+442	592	1,308	+716	436	760	+324	424	758	+334
USA	198	1,133	+935	123	1,252	+1,129	67	732	+665	66	679	+613
Canada	544	51	-493	469	56	-413	369	28	-341	358	79	-279
EC	2,837	3,118	+281	3,173	3,416	+243	3,086	3,406	+320	3,210	3,331	+121
Other developed countries	45	9	-36	71	11	-60	107	16	-91	74	15	-59
Oceania	45	2	-43	71	2	-69	107	1	-106	74	1	-73
Australia	43	2	-41	63	1	-62	89	1	-88	62	1	-61
New Zealand	2	0	-2	8	1	-7	18	-	-18	12	0	-12
Japan	0	7	+7	0	9	+9	0	15	+15	0	14	+14
South America	125	112	-13	206	132	-74	119	182	+63	103	50	-53
Brazil	105	110	+5	103	131	+28	100	182	+82	101	48	-53
Argentina	20	2	-18	103	1	-102	19	0	-19	2	2	0
Planned economy countries	578	241	-337	125	51	-74	185	135	-50	235	122	-113
USSR	443	240	-203	-	51	+51	-	135	+135	-	120	+120
China	135	1	-134	125	0	-125	185	0	-185	235	2	-233
Main regions total	4,327	4,663	+336	4,167	4,918	+751	3,933	4,499	+566	4,046	4,276	+230
Other regions	2,470	2,047	-423	3,311	2,384	-927	3,504	2,755	-749	2,887	2,572	-315
World total	6,797	6,710	-87	7,478	7,302	-176	7,437	7,254	-183	6,933	6,848	-85

Source: FAO, Trade Yearbook

[7]-21

Reference Table B-5   Ratio of Cattle Slaughtered

(Cattle slaughtered/cattle raised x 100)

	1965	'66	'67	'68	'69	'70	'71	'72	'73	'74	'75	'76	'77	'78	'79	'80
Developed countries	36	36	36	36	36	35	34	32	30	32	36	36	38	38	35	34
North America	38	38	37	38	37	35	35	33	29	32	36	38	39	38	33	33
USA	38	38	37	38	37	35	35	33	29	32	36	38	39	38	33	33
Canada	39	38	37	39	36	34	35	33	31	32	36	39	39	37	32	33
EC	33	35	37	37	35	37	38	33	32	36	37	35	35	34	36	36
Other developed countries	34	31	31	30	31	30	27	26	29	26	29	33	37	42	40	34
Oceania	34	31	31	30	31	29	26	26	29	25	28	34	38	43	41	34
Australia	34	32	31	29	29	26	24	23	28	23	26	32	38	44	42	34
New Zealand	35	31	31	33	35	36	33	32	34	33	37	40	38	40	37	35
Japan	37	28	26	25	33	36	34	34	23	32	35	27	31	32	30	29
South America	13	13	14	15	17	16	15	16	15	14	15	16	18	19	17	16
Brazil	9	8	9	10	10	10	12	13	13	12	12	12	13	13	11	11
Argentina	20	23	24	25	29	27	19	19	18	18	20	24	24	28	27	25
Planned economy countries	—	—	—	—	—	29	29	27	27	27	27	28	27	27	28	29
USSR	—	—	—	—	—	37	37	34	34	34	34	34	33	33	32	32
China	—	—	—	—	—	15	15	15	15	15	15	16	17	17	21	21
Main regions total	—	—	—	—	—	28	28	26	25	26	28	29	29	30	28	28
Other regions	—	—	—	—	—	11	11	10	11	11	11	11	11	11	12	11
World total	—	—	—	—	—	19	19	18	18	18	19	20	20	20	19	19

Source: FAO, Production Yearbook

[7]-22

Reference Table B-6　　Number of Cattle Slaughtered

(1,000 head)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries	78,717	79,363	80,411	81,726	81,025	81,714	81,838	78,354	75,704	84,740	94,405	97,764	98,126	93,974	84,930	82,742
North America	45,564	45,453	44,808	45,581	44,743	43,601	43,927	43,304	39,297	44,744	51,950	54,146	53,395	48,996	40,882	40,846
USA	40,959	41,032	40,402	41,027	40,584	39,557	39,716	39,267	35,403	40,499	46,871	48,726	48,074	44,272	36,932	36,795
Canada	4,605	4,421	4,406	4,554	4,159	4,044	4,211	4,037	3,894	4,245	5,079	5,420	5,321	4,724	3,950	4,051
EC	23,292	25,182	26,766	27,003	26,119	27,848	27,882	24,577	24,411	28,660	29,138	28,112	27,985	27,060	28,310	28,851
Other developed countries	9,861	8,728	8,837	9,142	10,163	10,265	10,029	10,473	11,996	11,336	13,317	15,506	16,746	17,918	15,738	13,045
Oceania	8,693	7,922	8,089	8,338	9,011	8,966	8,775	9,263	11,154	10,183	12,047	14,483	15,548	16,655	14,509	11,814
Australia	6,324	5,650	5,657	5,608	5,960	5,819	5,870	6,419	8,147	7,120	8,437	10,615	11,980	12,968	11,348	8,887
New Zealand	2,369	2,272	2,432	2,730	3,051	3,147	2,905	2,844	3,107	3,063	3,610	3,868	3,568	3,687	3,161	2,927
Japan	1,168	806	748	804	1,152	1,299	1,254	1,210	842	1,153	1,270	1,023	1,198	1,263	1,229	1,231
South America	16,977	18,684	20,330	21,732	23,301	22,485	18,807	20,890	21,225	20,715	22,969	24,583	27,006	27,876	25,665	23,625
Brazil	7,843	7,608	7,810	8,732	9,480	9,560	9,250	10,856	11,409	10,600	11,000	10,715	12,258	11,427	10,048	9,573
Argentina	9,134	11,076	12,520	13,000	13,821	12,925	9,557	10,034	9,816	10,115	11,969	13,868	14,748	16,449	15,617	14,052
Planned economy countries						45,174	46,315	44,197	44,650	46,173	46,512	48,507	46,949	48,458	47,126	48,604
USSR	–	–	–	–	–	35,625	36,700	34,538	34,938	36,360	36,597	38,191	36,433	37,642	37,010	37,386
China	–	–	–	–	–	9,549	9,615	9,659	9,712	9,813	9,915	10,316	10,516	10,816	11,116	11,218
Main regions total						149,373	146,960	143,441	141,579	151,628	163,886	170,854	172,081	170,308	157,721	154,971
Other regions						62,273	62,213	60,173	63,162	63,786	65,956	67,347	68,584	70,705	73,675	73,174
World total						211,646	209,173	203,614	204,741	215,414	229,842	238,201	240,665	241,013	231,396	228,145
Main regions / World total (%)						70.6	70.3	70.4	69.2	70.4	71.3	67.5	71.5	70.7	68.2	68.4

Source:　FAO, Production Yearbook

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Reference Table B-7   Trends of Number of Cattle Slaughtered (Index Number, 1970 = 100)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries	96	97	98	100	99	100	100	96	93	104	116	120	120	115	104	101
North America	105	104	103	105	103	100	101	99	90	103	119	124	122	112	94	94
USA	104	104	102	104	103	100	100	99	89	102	118	123	122	112	93	93
Canada	114	109	109	113	103	100	104	100	96	105	126	134	132	117	98	100
EC	84	90	96	97	94	100	100	88	87	103	105	101	100	97	102	104
Other developed countries	96	85	86	89	99	100	98	102	117	110	130	151	163	175	153	127
Oceania	97	88	90	93	101	100	98	103	124	114	134	162	173	186	162	132
Australia	109	97	97	96	102	100	101	114	140	122	145	182	206	223	195	153
New Zealand	75	72	77	87	97	100	92	90	99	97	115	123	113	117	100	93
Japan	90	62	56	62	89	100	97	93	65	89	98	79	92	97	95	95
South America	76	83	90	97	104	100	84	93	94	92	102	109	120	124	114	105
Brazil	82	80	82	91	99	100	97	114	119	111	115	112	128	120	105	100
Argentina	71	86	97	101	107	100	74	78	76	78	93	107	114	127	121	109
Planned economy countries						100	103	98	99	102	103	107	104	107	104	108
USSR						100	103	97	98	102	103	107	102	106	104	105
China						100	101	101	102	103	104	108	110	113	116	117
Main regions total						100	98	96	95	102	110	114	115	114	106	104
Other regions						100	100	97	101	102	106	108	110	114	118	118
World total						100	99	96	97	102	109	113	114	114	109	108

Source: FAO, Production Yearbook

Reference Table B-8   Average Carcass Weight of Slaughtered Cattle

(kg/head)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries						228	230	238	243	239	227	231	226	233	242	247
North America	215	225	231	235	240	251	252	260	273	261	237	246	243	252	266	269
USA	218	228	235	239	244	255	256	264	277	265	240	250	246	255	269	272
Canada	188	195	194	202	208	213	213	222	230	222	207	210	215	224	239	240
EC	199	199	200	202	207	197	216	224	227	230	230	232	227	236	240	244
Other developed countries						168	173	181	178	180	181	178	172	176	186	188
Oceania						161	164	170	170	168	171	170	162	165	174	173
Australia	150	156	160	167	169	181	178	181	177	184	183	173	166	168	178	176
New Zealand						125	135	145	145	132	141	162	158	155	158	162
Japan						214	236	262	292	278	278	291	301	319	327	340
South America						199	203	206	205	207	200	203	199	195	203	210
Brazil						193	194	193	193	200	196	203	200	203	210	218
Argentina	218	210	201	214	209	203	211	219	220	214	204	203	198	194	198	205
Planned economy countries						162	162	162	164	170	171	167	180	180	185	173
USSR						151	152	166	168	176	177	172	189	188	190	178
China						203	202	150	150	150	150	150	150	150	150	150
Main regions total						204	205	210	213	214	207	209	210	212	219	218
Other regions						159	158	150	147	154	156	157	157	156	154	155
World total						190	191	192	192	196	193	194	195	196	198	198

Source: FAO, Production Yearbook

Reference Table B-9 Trends of Average Carcass Weight of Slaughtered Cattle (Index Number, 1970 = 100)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries						100	101	104	107	105	100	101	99	102	106	108
North America	86	90	92	94	96	100	100	104	109	104	94	98	97	100	106	107
USA	85	89	92	94	96	100	100	104	109	104	94	98	96	100	105	107
Canada	88	92	91	95	98	100	100	104	108	104	97	99	101	105	112	113
EC	101	101	102	103	105	100	110	114	115	117	117	118	115	120	122	124
Other developed countries						100	103	108	107	107	108	107	102	105	111	112
Oceania						100	102	106	105	104	106	106	101	102	108	107
Australia	83	86	88	92	93	100	98	100	98	102	101	96	92	93	98	97
New Zealand						100	108	116	116	106	113	130	126	124	126	130
Japan						100	110	122	136	130	130	136	141	149	153	159
South America						100	102	104	103	104	101	102	100	98	102	106
Brazil						100	101	100	100	104	102	105	104	105	109	113
Argentina	107	103	99	105	103	100	104	108	108	105	100	100	98	96	98	101
Planned economy countries						100	100	100	101	105	106	103	111	111	114	107
USSR						100	101	110	111	117	117	114	125	125	126	118
China						100	100	74	74	74	74	74	74	74	74	74
Main regions total						100	100	103	104	105	101	102	103	104	107	107
Other regions						100	99	94	92	97	98	99	99	98	97	97
World total						100	101	101	101	103	102	102	103	103	104	104

Source: FAO, Production Yearbook

Reference Table B-10   Production of Beef and Veal from Slaughtered Animals

(1,000 MT)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries						18,620	18,825	18,669	18,395	20,286	21,443	22,603	22,251	21,884	20,583	20,467
North America	9,812	10,207	10,370	10,709	10,754	10,951	11,063	11,261	10,709	11,658	12,320	13,305	12,988	12,343	10,871	10,970
USA	8,945	9,346	9,514	9,789	9,888	10,088	10,167	10,363	9,813	10,716	11,271	12,166	11,845	11,283	9,925	9,999
Canada	867	861	856	920	866	863	896	898	896	942	1,049	1,139	1,143	1,060	946	971
EC	4,630	5,001	5,341	5,452	5,396	5,943	6,027	5,514	5,553	6,592	6,715	6,532	6,349	6,382	6,791	7,040
Other developed countries						1,726	1,735	1,894	2,133	2,036	2,408	2,766	2,914	3,159	2,921	2,457
Oceania	946	879	904	935	1,010	1,448	1,439	1,577	1,887	1,715	2,055	2,468	2,553	2,756	2,519	2,039
Australia						1,055	1,047	1,164	1,438	1,310	1,547	1,840	1,988	2,184	2,018	1,564
New Zealand						393	392	413	449	405	508	628	565	572	501	475
Japan						278	296	317	246	321	353	298	361	403	402	418
South America						4,469	3,811	4,293	4,361	4,283	4,596	4,987	5,366	5,513	5,206	4,960
Brazil	-	-	-	-	-	1,845	1,794	2,095	2,202	2,120	2,157	2,176	2,452	2,320	2,114	2,084
Argentina	1,995	2,321	2,522	2,786	2,883	2,624	2,017	2,198	2,159	2,163	2,439	2,811	2,914	3,193	3,092	2,876
Planned economy countries						7,330	7,509	7,171	7,330	7,856	7,960	8,099	8,466	8,709	8,697	8,355
USSR	3,917	4,414	5,100	5,500	5,600	5,393	5,562	5,722	5,873	6,384	6,473	6,552	6,888	7,086	7,029	6,673
China	-	-	-	-	-	1,937	1,947	1,449	1,457	1,472	1,487	1,547	1,578	1,623	1,668	1,682
Main regions total						30,419	30,145	30,153	30,086	32,424	33,999	35,689	36,083	36,106	34,486	33,782
Other regions						9,875	9,800	9,049	9,267	9,811	10,283	10,591	10,765	11,055	11,356	11,348
World total						40,294	39,945	39,182	39,353	42,235	44,282	46,280	46,848	47,161	45,842	45,130
Main regions (%) World total						75.5	75.5	76.9	76.5	76.8	76.8	77.1	76.9	76.6	75.2	74.9

Source: FAO, Production Yearbook

Reference Table B-11   Increase/Decrease in Beef and Veal Production
(Index Number, 1970 = 100)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries						100	101	100	99	109	115	121	120	118	111	110
North America	90	93	95	98	98	100	101	103	98	107	113	121	119	113	99	100
USA	89	93	94	97	98	100	101	103	97	106	112	121	117	112	98	99
Canada	100	100	99	107	100	100	104	104	104	109	122	132	132	123	110	113
EC	78	84	90	92	91	100	101	93	93	111	113	110	107	107	114	118
Other developed countries						100	101	110	124	118	140	160	169	183	169	142
Oceania						100	99	109	130	118	142	170	176	190	174	141
Australia	90	83	86	89	96	100	99	110	136	124	147	174	188	207	191	148
New Zealand						100	100	105	114	103	129	160	144	146	127	121
Japan						100	106	114	88	115	127	107	130	145	145	150
South America						100	85	96	98	96	103	112	120	123	116	111
Brazil						100	97	114	119	115	117	118	133	126	115	113
Argentina	76	88	96	106	110	100	77	84	82	82	93	107	111	122	118	110
Planned economy countries						100	102	98	100	107	109	110	115	119	119	114
USSR	70	82	95	102	104	100	103	106	109	118	120	121	128	131	130	124
China						100	101	75	75	76	77	80	81	84	86	87
Main regions total						100	99	99	99	107	112	117	119	119	113	111
Other regions						100	99	92	94	99	104	107	109	112	115	115
World total						100	99	97	98	105	110	115	116	117	114	112

Source: FAO, _Production Yearbook_

Reference Table B-12   Export Volumes of Beef and Veal

(1,000 MT)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries	770	734	850	931	914	1,085	1,146	1,201	1,502	1,614	1,759	1,830	2,054	2,192	2,426	2,492
North America	52	36	22	31	34	56	53	48	63	43	35	77	79	83	93	110
USA	16	9	9	8	8	9	15	20	33	22	21	37	42	52	54	64
Canada	36	27	13	23	26	47	37	28	30	21	14	40	37	31	39	46
EC	275	319	459	515	491	523	573	565	654	894	1,115	975	1,079	1,128	1,253	1,586
Other developed countries	443	379	369	385	389	506	520	588	785	677	609	778	896	981	1,080	796
Oceania	443	379	369	385	389	506	520	588	785	677	609	778	896	981	1,080	796
Australia	321	278	263	256	256	328	339	402	583	493	417	550	635	755	835	580
New Zealand	121	101	106	129	133	178	181	186	203	183	192	228	261	226	245	216
Japan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	385	422	391	294	482	450	319	541	387	124	81	239	281	309	341	241
Brazil	36	21	12	39	78	98	89	156	99	19	5	12	31	10	3	6
Argentina	349	401	380	255	405	352	231	385	288	105	75	227	250	299	338	235
Planned economy countries			158	113	82	38	13	39	49	29	20	10	10	11	8	13
USSR	-	-	158	113	82	38	11	37	47	27	18	8	8	10	6	8
China	-	-	-	-	-	-	2	2	2	2	2	2	2	1	2	5
Main regions total	1,155	1,156	1,399	1,338	1,478	1,573	1,478	1,781	1,938	1,767	1,860	2,079	2,345	2,512	2,775	2,746
Other regions	295	316	434	487	523	515	500	571	611	502	495	566	566	612	658	632
World total	1,450	1,427	1,833	1,825	2,001	2,088	1,978	2,352	2,549	2,269	2,355	2,645	2,911	3,124	3,433	3,404
Main regions (%) World total	76.9	78.5	76.3	73.3	73.9	75.3	74.7	75.7	76.1	77.9	79.9	78.6	80.6	80.4	80.8	80.7

Source: FAO, Production Yearbook

Reference Table B-13   Export Ratios of Beef and Veal

(%)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries						5.8	6.1	6.4	8.2	8.0	8.2	8.1	9.2	10.0	11.8	12.2
North America	0.5	0.4	0.2	0.3	0.3	0.5	0.5	0.4	0.6	0.4	0.3	0.6	0.6	0.7	0.9	1.0
USA	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.4	0.5	0.5	0.6
Canada	4.2	3.1	1.5	2.5	3.0	5.4	4.1	3.1	3.3	2.2	1.3	3.5	3.2	2.9	4.1	4.7
EC	5.9	6.4	8.6	9.4	9.1	9.5	9.5	10.2	11.8	13.6	16.6	14.9	17.0	17.7	18.5	22.5
Other developed countries						29.3	30.0	31.0	36.8	33.3	25.3	28.1	30.7	31.1	37.0	32.4
Oceania						34.9	36.1	37.3	41.6	39.5	29.6	31.5	35.1	35.6	42.9	39.0
Australia	33.9	31.6	29.1	27.4	25.3	31.1	32.4	34.5	40.5	37.6	27.0	29.9	31.9	34.6	41.4	37.1
New Zealand						45.3	46.2	45.1	45.2	45.2	37.8	36.3	46.2	39.5	48.9	45.5
Japan						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South America						10.1	8.4	12.6	8.9	2.9	1.8	4.8	5.3	5.6	6.6	4.9
Brazil						5.3	5.0	7.4	4.5	0.9	0.2	0.6	1.3	0.4	0.1	0.3
Argentina	17.5	17.3	15.1	9.2	14.0	13.4	11.5	17.5	13.3	4.9	3.1	8.1	8.6	9.4	10.9	8.2
Planned economy countries						0.5	0.2	0.5	0.7	0.4	0.3	0.1	0.1	0.1	0.1	0.2
USSR			3.1	2.1	1.5	0.7	0.2	0.6	0.8	0.4	0.3	0.1	0.1	0.1	0.1	0.1
China						0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
Main regions total						5.2	4.8	5.9	6.4	5.4	5.5	5.8	6.5	7.0	8.0	8.1
Other regions						5.2	5.1	6.3	6.6	5.1	4.8	5.3	5.3	5.5	5.8	5.6
World total						5.2	5.0	6.0	6.5	5.4	5.3	5.7	6.2	6.6	7.5	7.5

Note: Export/Production x 100

Source: FAO, Trade Yearbook

Reference Table B-14   Supply of Beef and Veal

(1,000 MT)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries						19,024	19,220	19,325	18,928	20,179	21,296	22,536	21,996	21,711	20,239	19,969
North America	10,028	10,523	10,740	11,117	11,240	11,483	11,575	11,876	11,325	12,159	12,901	13,930	13,518	12,999	11,549	11,555
USA	9,194	9,683	9,887	10,211	10,350	10,606	10,670	10,945	10,392	11,184	11,807	12,736	12,356	11,904	10,586	10,577
Canada	834	839	853	907	889	877	906	931	934	975	1,093	1,194	1,162	1,095	963	978
EC	5,427	5,459	5,721	5,742	5,858	6,297	6,387	6,084	6,128	6,607	6,551	6,526	6,375	6,433	6,718	6,629
Other developed countries						1,244	1,258	1,365	1,475	1,413	1,844	2,080	2,103	2,279	1,972	1,785
Oceania						943	920	990	1,102	1,038	1,446	1,690	1,658	1,776	1,440	1,245
Australia	503	601	641	679	754	727	708	762	855	817	1,130	1,290	1,354	1,430	1,184	986
New Zealand	-	-	-	-	-	215	211	228	246	222	316	400	304	346	256	259
Japan	-	-	-	-	-	301	338	375	373	375	398	390	445	503	532	540
South America						4,020	3,498	3,753	3,975	4,211	4,539	4,771	5,111	5,317	4,976	4,815
Brazil	-	-	-	-	-	1,748	1,711	1,940	2,103	2,153	2,176	2,187	2,447	2,423	2,222	2,143
Argentina	1,646	1,920	2,142	2,531	2,478	2,272	1,786	1,813	1,871	2,058	2,364	2,584	2,664	2,894	2,754	2,672
Planned economy countries						7,374	7,612	7,173	7,328	8,224	8,372	8,324	8,897	8,747	8,911	8,687
USSR	-	-	4,955	5,401	5,541	5,437	5,667	5,725	5,872	6,753	6,861	6,770	7,318	7,116	7,233	6,998
China	-	-	-	-	-	1,937	1,945	1,448	1,456	1,471	1,511	1,554	1,579	1,631	1,678	1,689
Main regions total						30,418	30,330	30,251	30,231	32,613	34,207	35,631	36,004	35,775	34,126	33,471
Other regions						9,924	9,722	8,939	9,193	9,670	10,191	10,626	10,983	11,295	11,521	11,516
World total						40,342	40,051	39,190	39,424	42,283	44,398	46,257	46,987	47,070	45,647	44,987
Main regions (%) World total						75.4	75.7	77.2	76.7	77.1	77.0	77.0	76.6	76.0	74.8	74.4

Note: Supply of Beef and Veal = Production + Imported - Exported

Source: FAO, Production Yearbook and Trade Yearbook

Reference Table B-15   Trends of Supply of Beef and Veal
(Index Number, 1970 = 100)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries						100	100	102	99	106	112	118	116	114	106	105
North America	87	92	94	97	98	100	101	103	99	106	112	121	118	113	101	101
USA	87	91	93	96	98	100	101	103	98	105	111	120	117	112	100	100
Canada	95	96	97	103	101	100	103	106	106	106	111	136	133	125	110	112
EC	82	87	91	91	93	100	101	97	97	105	104	104	101	102	107	105
Other developed countries						100	101	110	119	114	140	167	169	183	159	143
Oceania						100	98	105	117	110	153	179	176	188	153	132
Australia	86	83	88	93	104	100	97	105	118	112	155	177	186	197	163	136
New Zealand						100	98	106	114	103	147	186	141	161	119	120
Japan						100	112	125	124	125	132	130	148	167	177	179
South America						100	87	93	99	105	113	119	127	132	124	120
Brazil						100	98	111	120	123	124	125	140	139	127	123
Argentina	72	85	94	111	109	100	79	80	82	91	104	114	117	127	121	118
Planned economy countries						100	103	97	99	112	114	113	121	119	121	118
USSR			91	99	102	100	100	105	108	124	126	125	135	131	133	129
China						100	100	75	75	76	78	80	82	84	87	87
Main regions total						100	100	99	99	107	112	117	118	118	112	110
Other regions						100	98	90	93	97	103	107	111	114	116	116
World total						100	99	97	98	105	110	115	116	117	113	112

Source: FAO, Production Yearbook and Trade Yearbook

Reference Table B-16   Import Volumes of Beef and Veal

(1,000 MT)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries	1,076	1,143	1,245	1,259	1,492	1,489	1,541	1,857	2,035	1,507	1,612	1,763	1,799	2,019	2,082	1,994
North America	268	352	392	439	520	588	565	663	679	544	616	702	609	739	771	695
USA	265	346	382	430	470	527	518	602	612	490	557	607	553	673	715	642
Canada	3	5	10	10	49	61	47	61	68	54	58	95	56	66	56	53
EC	797	777	839	805	953	877	933	1,135	1,229	909	951	969	1,105	1,179	1,180	1,175
Other developed countries	11	14	14	15	19	24	43	59	127	54	45	92	85	101	131	124
Oceania	0	0	0	0	0	1	1	1	0	0	0	0	1	1	1	2
Australia	-	-	0	1	1	1	1	0	0	0	0	0	1	1	1	2
New Zealand	-	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Japan	11	14	14	14	18	23	42	58	127	54	45	92	84	100	130	122
South America	0	0	0	0	0	1	6	1	1	52	24	23	26	113	111	65
Brazil	-	-	-	-	0	1	6	1	1	52	24	23	26	113	111	65
Argentina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Planned economy countries			13	14	23	82	116	41	47	397	432	235	441	49	222	344
USSR	-	-	13	14	23	82	116	40	46	396	406	226	438	40	210	333
China	-	-	0	0	0	0	0	1	1	1	26	9	3	9	12	11
Main regions total	1,076	1,143	1,258	1,273	1,515	1,572	1,663	1,899	2,083	1,956	2,068	2,021	2,266	2,181	2,415	2,403
Other regions	271	352	427	480	466	564	422	461	537	361	403	601	784	852	806	815
World total	1,347	1,495	1,685	1,753	1,981	2,136	2,085	2,360	2,620	2,317	2,471	2,622	3,050	3,033	3,221	3,218
Main regions World total (%)	79.9	76.5	74.7	72.6	76.5	73.6	79.8	80.5	79.5	84.4	83.7	77.1	74.3	71.9	75.0	74.6

Source: FAO, Trade Yearbook

Reference Table B-17   Self-sufficiency in Beef

(production and demand: 1,000 MT; %: production/demand x 100)

	1965			1966			1967			1968		
	Prod.	Demand	%	Prod.	Demand	%	Prod.	Demand	%	Prod.	Demand	%
North America	9,812	10,028	98	10,207	10,523	97	10,370	10,740	97	10,709	11,117	96
USA	8,945	9,194	97	9,346	9,683	97	9,514	9,887	96	9,789	10,211	96
Canada	867	834	104	861	839	103	856	853	110	920	907	101
EC	4,630	5,152	90	5,001	5,459	92	5,341	5,721	93	5,452	5,742	95
Oceania												
Australia	946	625	151	879	601	146	904	641	141	935	679	138
New Zealand												
Japan												
South America												
Brazil												
Argentina	1,995	1,646	121	2,321	1,920	121	2,522	2,142	118	2,786	2,531	110
USSR							5,100	4,955	103	5,500	5,401	102
China												
Main regions total												
Other regions												
World total												

Reference Table B-17 (cont'd.)

(production and demand: 1,000 MT; %: production/demand x 100)

	1969 Prod.	1969 Demand	1969 %	1970 Prod.	1970 Demand	1970 %	1971 Prod.	1971 Demand	1971 %	1972 Prod.	1972 Demand	1972 %
North America	10,754	11,240	96	10,951	11,483	95	11,063	11,575	96	11,261	11,876	95
USA	9,888	10,350	96	10,088	10,606	95	10,167	10,670	95	10,363	10,945	95
Canada	866	889	97	863	877	98	896	906	99	898	931	96
EC	5,396	5,858	92	5,943	6,297	94	6,027	6,387	94	5,514	6,084	91
Oceania	1,010	754	134	1,448	943	154	1,439	920	156	1,577	990	159
Australia				1,055	727	145	1,047	708	148	1,164	762	153
New Zealand				393	215	183	392	211	186	413	228	181
Japan				278	301	92	296	338	88	317	375	85
South America				4,469	4,020	111	3,811	3,498	109	4,293	3,753	114
Brazil				1,845	1,748	106	1,794	1,711	105	2,095	1,940	108
Argentina	2,883	2,478	116	2,624	2,272	115	2,017	1,786	113	2,198	1,813	121
USSR	5,600	5,541	101	5,393	5,437	99	5,562	5,667	98	5,722	5,725	100
China				1,937	1,937	100	1,947	1,945	110	1,449	1,448	100
Main regions total				30,419	30,418	100	30,145	30,330	99	30,133	30,251	100
Other regions				9,875	9,924	100	9,800	9,722	101	9,049	8,939	101
World total				40,294	40,342	100	39,945	40,051	100	39,182	39,190	100

Reference Table B-17 (cont'd.)

(production and demand: 1,000 MT; %: production/demand x 100)

	1973 Prod.	1973 Demand	1973 %	1974 Prod.	1974 Demand	1974 %	1975 Prod.	1975 Demand	1975 %	1976 Prod.	1976 Demand	1976 %
North America	10,709	11,325	95	11,658	12,159	96	12,320	12,901	95	13,305	13,930	96
USA	9,813	10,392	94	10,716	11,184	96	11,271	11,807	95	12,166	12,736	95
Canada	896	934	96	942	975	97	1,049	1,093	96	1,139	1,194	95
EC	5,553	6,128	91	6,592	6,607	100	6,715	6,551	103	6,532	6,526	100
Oceania	1,887	1,102	171	1,715	1,038	165	2,055	1,446	142	2,468	1,690	146
Australia	1,438	855	168	1,310	817	160	1,547	1,130	137	1,840	1,290	143
New Zealand	449	246	183	405	222	182	508	316	161	628	400	157
Japan	246	373	66	321	375	86	353	398	89	298	390	76
South America	4,361	3,975	110	4,283	4,211	102	4,596	4,539	101	4,987	4,771	105
Brazil	2,202	2,104	105	2,120	2,153	98	2,157	2,176	99	2,176	2,187	99
Argentina	2,159	1,871	115	2,163	2,058	105	2,439	2,364	103	2,811	2,584	109
USSR	5,873	5,872	100	6,384	6,753	95	6,473	6,861	94	6,552	6,770	97
China	1,457	1,456	110	1,472	1,471	100	1,487	1,511	98	1,547	1,554	100
Main regions total	30,086	30,231	100	32,424	32,613	99	33,999	34,207	99	35,689	35,631	100
Other regions	9,267	9,193	101	9,811	9,670	101	10,283	10,191	101	10,591	10,626	100
World total	39,353	39,424	100	42,235	42,283	99	44,282	44,398	100	46,280	46,257	100

Reference Table B-17 (cont'd.)

(production and demand: 1,000 MT; %: production/demand x 100)

	1977			1978			1979			1980		
	Prod.	Demand	%	Prod.	Demand	%	Prod.	Demand	%	Prod.	Demand	%
North America	12,988	13,518	96	12,343	12,999	95	10,871	11,549	94	10,970	11,555	95
USA	11,845	12,356	96	11,283	11,904	95	9,925	10,586	94	9,999	10,577	95
Canada	1,143	1,162	98	1,060	1,095	97	946	963	98	971	978	99
EC	6,349	6,375	100	6,382	6,433	99	6,791	6,718	101	7,040	6,629	106
Oceania	2,553	1,658	154	2,756	1,776	155	2,519	1,440	175	2,039	1,245	164
Australia	1,988	1,354	147	2,184	1,430	153	2,018	1,184	170	1,564	986	159
New Zealand	565	304	186	572	346	165	501	256	196	475	259	183
Japan	361	445	81	403	503	80	402	532	76	418	540	77
South America	5,366	5,111	105	5,513	5,317	104	5,206	4,976	105	4,960	4,815	103
Brazil	2,452	2,447	100	2,320	2,423	96	2,114	2,222	95	2,084	2,143	97
Argentina	2,914	2,664	109	3,193	2,894	110	3,092	2,754	112	2,876	2,672	108
USSR	6,888	7,318	94	7,086	7,116	100	7,029	7,233	97	6,673	6,998	95
China	1,578	1,579	100	1,623	1,631	100	1,668	1,678	99	1,682	1,689	100
Main regions total	36,083	36,004	100	36,106	35,775	101	34,486	34,126	101	33,872	33,471	101
Other regions	10,765	10,983	98	11,055	11,295	98	11,356	11,521	99	11,348	11,516	99
World total	46,848	46,987	100	47,161	47,070	100	45,842	45,647	100	45,130	44,987	100

Source: FAO, Production Yearbook and Trade Yearbook

Reference Table B-18　　Trends in Number of Cattle Raised, Beef Production, Total Beef Demand, and Beef Wholesale Price in the United States and Australia

Classification	1965 Actual figure	1965 Index	1966 Actual figure	1966 Index	1967 Actual figure	1967 Index	1968 Actual figure	1968 Index	1969 Actual figure	1969 Index	1970 Actual figure	1970 Index	1971 Actual figure	1971 Index	1972 Actual figure	1972 Index
USA																
Number of cattle raised (1,000)	109,000	100	108,862	100	108,645	100	109,152	100	109,885	101	112,303	103	114,578	105	117,862	108
Beef production (1,000 MT)	8,945	100	9,346	104	9,514	106	9,789	109	9,888	111	10,088	113	10,167	114	10,363	116
Total demand (1,000 MT)	9,194	100	9,683	105	9,887	108	10,211	111	10,350	113	10,606	115	10,670	116	10,945	119
Wholesale price ($/MT)	24.99	100	25.71	103	25.29	101	26.87	108	29.45	118	29.36	117	32.39	130	35.78	143
Australia																
Number of cattle raised (1,000)	18,816	100	17,936	95	18,270	97	19,218	102	20,606	110	22,162	118	24,372	130	27,373	145
Beef production (1,000 MT)	946	100	879	93	904	96	935	99	1,010	107	1,055	112	1,047	111	1,164	123
Total demand (1,000 MT)	625	100	601	96	641	103	679	109	754	121	727	116	708	113	762	122
Export price (cents/kg)	53.1	100	55.6	105	57.2	108	58.9	111	57.2	108	60.5	114	63.0	119	63.8	120

Classification	1973 Actual figure	1973 Index	1974 Actual figure	1974 Index	1975 Actual figure	1975 Index	1976 Actual figure	1976 Index	1977 Actual figure	1977 Index	1978 Actual figure	1978 Index	1979 Actual figure	1979 Index	1980 Actual figure	1980 Index	1981 Actual figure	1981 Index
USA																		
Number of cattle raised (1,000)	121,534	111	127,670	117	132,028	121	127,980	117	122,810	113	116,375	107	110,864	102	111,192	102	126,789	116
Beef production (1,000 MT)	9,813	110	10,716	120	11,271	126	12,166	136	11,845	132	11,283	126	9,925	111	9,999	112	10,330	115
Total demand (1,000 MT)	10,392	113	11,184	122	11,807	128	12,736	139	12,356	134	11,904	129	10,586	115	10,577	115	10,805	118
Wholesale price ($/MT)	44.54	178	41.89	168	44.61	179	39.11	157	40.38	162	52.34	209	67.75	271	66.96	268	63.84	255
Australia																		
Number of cattle raised (1,000)	29,101	155	30,839	164	32,793	174	33,434	178	31,533	168	29,330	156	27,112	144	26,205	139	25,177	134
Beef production (1,000 MT)	1,438	152	1,310	138	1,547	164	1,840	195	1,988	210	2,184	231	2,018	213	1,564	165	1,481	157
Total demand (1,000 MT)	855	137	817	131	1,130	181	1,290	206	1,354	217	1,430	229	1,184	189	986	158	968	155
Export price (cents/kg)	85.3	161	52.7	99	30.1	57	45.2	85	49.3	93	73.1	138	139.8	263	154.9	292	128.9	243

Notes:　1) Index: 1965 = 100
　　2) Total demand (1,000 MT) = production - exports + imports
　　3) Wholesale price —— Choice slaughter steers, 900 - 1,100 pounds, Omaha, U.S. Agricultural Marketing Service.
　　4) Export price —— Export quality oxen, 301 - 320 kg, Sydney, A.M.L.C. Report

Source:　Reference Table B-2, B-10 and B-14; USDA Agricultural Marketing Service; Australia Meat and Livestock Corporation

Reference Fig. B-1   Trend in Number of Cattle Raised, Carcass Production,
Total Demand and Wholesale Price in USA and Australia
(1965 = 100)
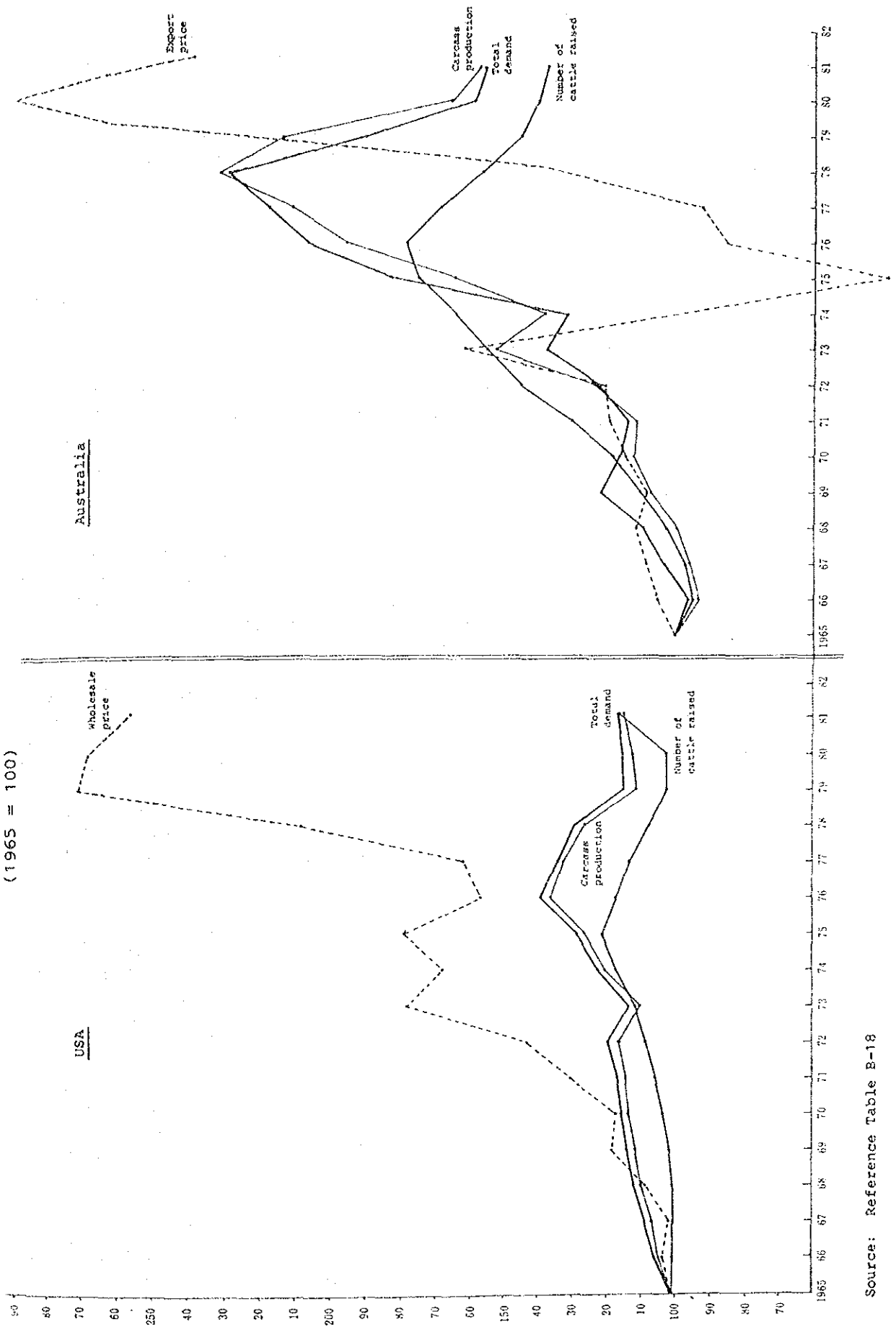
Source: Reference Table B-18

C. CONSUMPTION

I. Changes in Beef Consumption

1. Total Consumption

Assuming that the world beef supply (production + import - export) was consumed, the world beef consumption increased at a considerably high rate due to the world-wide high economic growth until 1970. However, growth of comsumption in major consuming countries slackened between 1970 and 1973 as shown in Fig. C-1.

The consumption rate rose again in 1974 and continued to expand until 1978 at a higher rate than that between 1965 and 1970. As shown in Fig. B-1, while supply had increased due to a continuous increase in the number of beef cattle in such major producing countries as the United States and Australia, in which a peak in the beef cycle was reached during the period, export demand, for such countries as Australia, dropped considerably in the wake of the first oil crisis. Therefore, producers kept cattle on their ranches to avoid oversupplying the market. In the United States, supply shortages of feed grains, and subsequent price increases in feed grains as well as other materials took place in 1973-75 and countermeasures such as the shift of cattle from grain to grass feeding to avoid the worsening situations of farm management were implemented. Thus, these emergency measures, adopted by the major producing countries having different production methods, were unexpectedly similar. That is, they attempted to maintain cattle by low cost grass feeding.

However, since these measures were inevitably tentative in nature, the cattle could not be kept for long periods, resulting in the increase in the number of cattle slaughtered.

As a result, the price fell due to the "softening" of the market with the result that consumption increased. This situation seems to be reflected in the increasing consumption levels from 1974 to 1978. Actually, it was after 1976 that the number of cattle in the United States and Australia began to decline due to herd adjustments. After a lag of one year, the production of beef also began to decline after 1977.

The price regained its pre-oil crisis level in 1978 due mainly to the adjustments made on the supply side. Since 1979 the supply of beef has been stable, although there have been slight declines. Prices increased due to the influence of the second oil crisis

(increasing production costs and world-wide economic recession), and the consumption of the developed countries, except the major producing countries in Oceania and South America, was suppressed, although the consumption level reached almost the same level as that of 1970.

By region, consumption in North America was 10.03 million tons in 1965, 11.48 million tons in 1970, 12.90 million tons in 1975, and a record high 13.93 million tons in 1976, subsequently decreasing toward 1980. This was largely a result of the trend of consumption in the United States, which accounts for most of the consumption in North America. In this country there is a 10 year beef production cycle, and at the bottom of the cycle supply becomes tight and price increases. On the other hand, at the crest of the cycle, supply is sufficient, price decreases and consumption increases. While this cycle continued, consumption continued to increase, but after the crest was reached in 1976, consumption started to decrease. Taking consumption in 1970 as 100, it was 87 for 1965, 111 for 1975 and 100 for 1980. The phenomenon of beef consumption per capita hitting the ceiling is apparent, and consumption also tends to be affected by price competition with other meats and by consumer preference. The recession became more serious in the second half of the 1970s, increasing unemployment and reducing incomes, thus greatly affecting consumption.

Canada shows a consumption trend similar to that in the United States. Its consumption increased from 830,000 tons in 1965 to 880,000 tons in 1970, 1.09 million tons in 1975, and after reaching a peak in 1976 (as did consumption in the United States), it started to decrease, falling to 980,000 tons in 1980. Even over a long period beef consumption did not increase much. Taking consumption in 1970 as 100, it was stable at 95 in 1965 and 112 in 1980. Taking into consideration population increase, consumption per capita decreased in the second half of the 1970s.

Beef consumption in the EC countries has continued to increase. Since consumption per capita was not as high as in the United States, the rate of increase was relatively high, but slowed in the 1970s: 5.43 million tons in 1965, 6.3 million tons in 1970, 6.55 million tons in 1975 and 6.63 million tons in 1980. In the first half of the 1970s beef production increased because of the counter-measures against oversupply of milk products, replacing imports and lowering prices; as a result, consumption increased to about 25 kg per capita. Taking consumption in 1970 as 100, consumption in 1965 was 86 and 105 in 1980, which is a higher increase than in the United States.

Beef consumption in Australia is closely connected to exports to the world market. There is a strong tendency that when the export market is sluggish and the export price is low, domestic

consumption increases, and when export business is good, domestic consumption decreases. That is, the domestic market is acting as an adjusting valve for export and production. For this reason domestic consumption fluctuates considerably. Consumption was 500,000 tons in 1965, 730,000 tons in 1970, 1.45 million tons in 1975 and peaked at 1.78 million tons in 1978. Taking consumption in 1970 as 100, consumption was 153 in 1975, 188 in 1978, and 132 in 1980, the big increases indicating sluggish exports.

New Zealand followed a trend similar to that in Australia. The consumption was 300,000 tons in 1970, 400,000 tons in 1975, 540,000 tons in 1980, and continued to increase after 1978. Taking consumption in 1970 as 100, it was 132 in 1975 and 179 in 1980.

Consumption in Brazil increased from 1.75 million tons in 1970 to 2.18 million tons in 1975 and 2.14 million tons in 1980, but showed a slight decrease in the latter half of the 1970s.

Consumption in Argentina soared from 1.65 million tons in 1965 to 2.53 million tons in 1968, but showed a reactive fall to 1.79 million tons in 1971. Subsequently a high level of consumption was maintained, registering 2.67 million tons in 1980, with a peak of 2.89 million tons occurring in 1978. This was a reflection of the sluggish export market, as in the case of Australia.

Consumption in the USSR continued to increase, although with some fluctuations; it was 4.96 million tons in 1975 and 7 million tons in 1980. This is partly because beef production fluctuates with fluctuations in harvest of agricultural products, especially of grain feeds and roughage, and partly because imports cannot easily compensate for such fluctuations (Fig. C-1).

Beef consumption in Japan increased steadily and quickly from 300,000 tons in 1970 to 400,000 tons in 1975 and 540,000 tons in 1980. Taking consumption in 1970 as 100, it was 132 in 1975 and 179 in 1980.

The increase in world consumption was 110 in 1975 and 112 in 1980, taking consumption in 1970 as 100; for the developed countries, it was 112 in 1975 and 105 in 1980.

2. Beef Consumption per Capita

Assuming that world beef consumption is equal to world beef supply, world consumption per capita was 11.2 kg in 1970, 10.3 kg in 1973, 11.2 kg in 1975, 11.4 kg in 1977 and 10.1 kg in 1980. It decreased from 1970 to 1973, increased from 1974 to 1977, again decreased after 1978, and consumption in 1980 was 1.1 kg lower than in 1970 (Reference Table C-1 and Fig. C-2).

Fig. C-1   Beef Consumption   (1970 = 100)
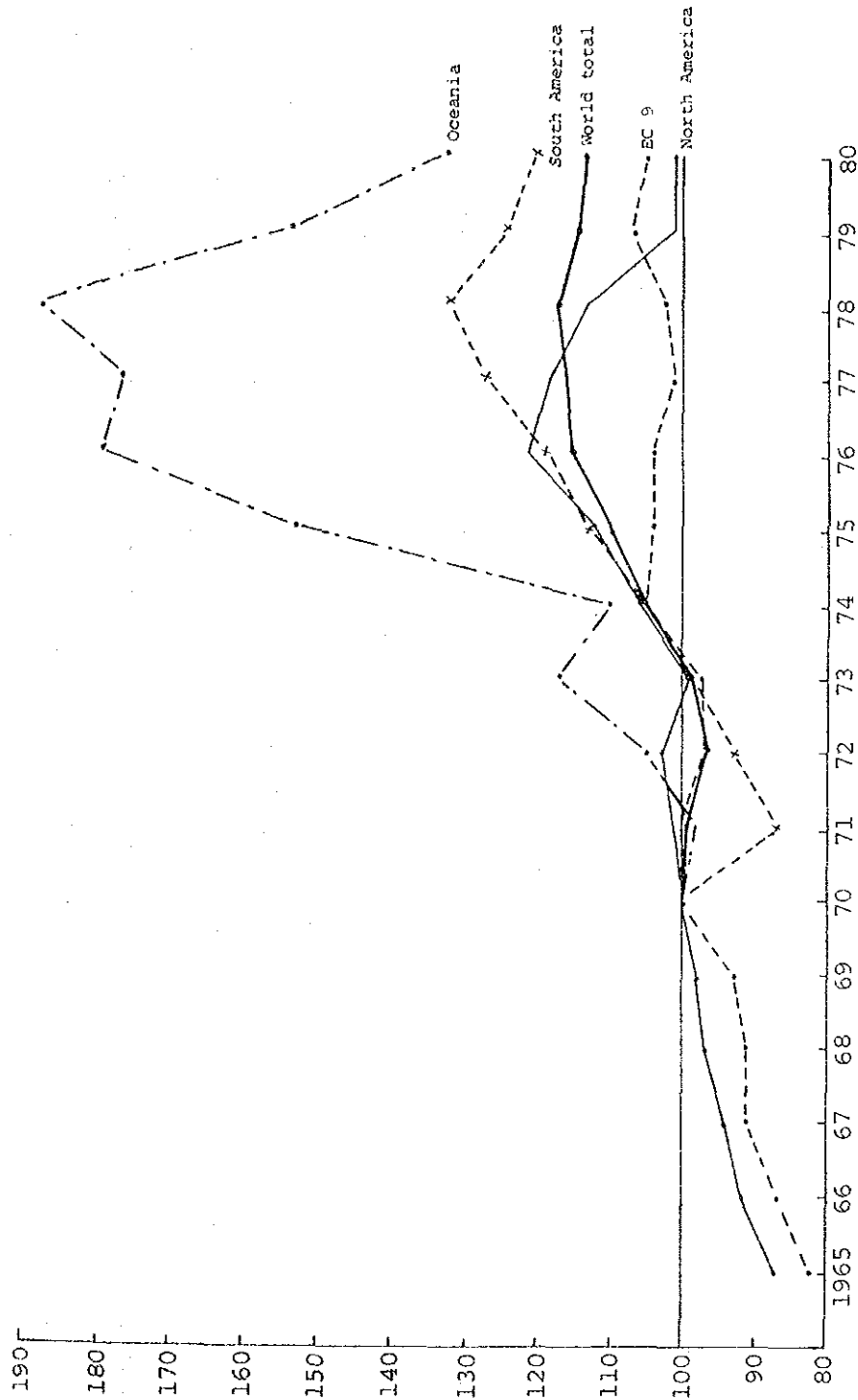
Source: Reference Table B-15

Fig. C-2   Annual Beef Consumption Per Capita
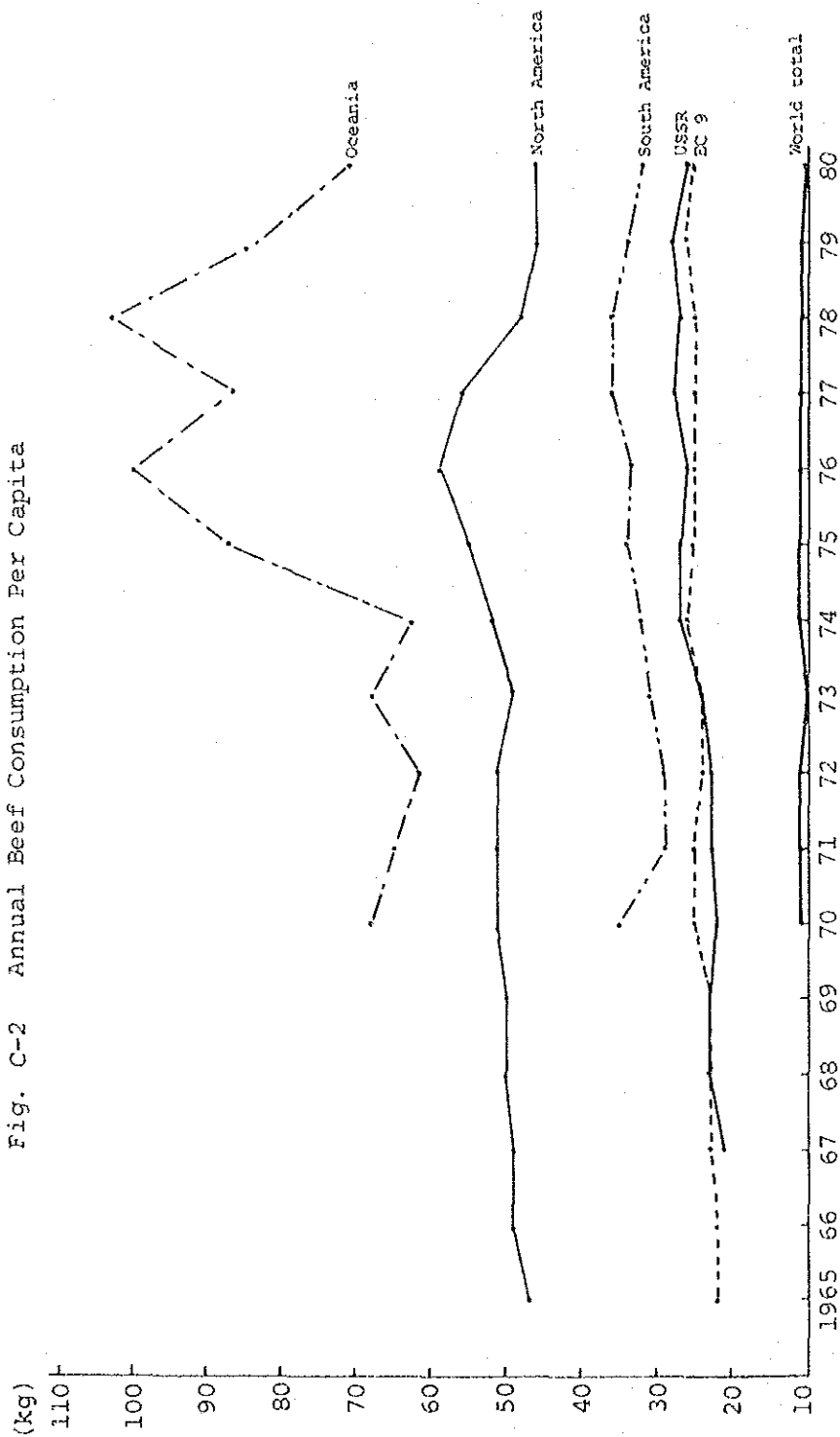
Source: Reference Table C-1

The annual consumption per capita in the developed country group was 32.0 kg in 1970, 30.9 kg in 1973, 34.2 kg in 1975 and 30.9 kg in 1980, indicating a similar trend to that of world average consumption.

By country, consumption per capita in the United States was 47.6 kg in 1965, 51.7 kg in 1970, 49.5 kg in 1973, 55.3 kg in 1975, 59.2 kg in 1976 and 46.4 kg in 1980. It increased from 1965 to 1972, sharply decreased in 1973, again increased from 1974, reached a peak in 1976, and has decreased since 1977.

Although there were increases and decreases in the last 15 years, consumption in 1980 (46.4 kg) was almost the same as consumption in 1965 (47.6 kg).

Consumption per capita in Canada showed a similar trend to that in the United States. It was 42.6 kg in 1965, 41 kg in 1970, 47.9 kg in 1975 and 40.8 in 1980. The increase over the 10 year period from 1965 was modest, but then consumption sharply increased until 1977, and then sharply decreased. Consumption in 1980 was lower than that in 1965.

Consumption in the EC increased steadily from 22.2 kg in 1965 to 25.0 kg in 1970, and since then it has remained steady at about 25 kg.

Consumption in Australia was 44.2 kg in 1965, 58.1 kg in 1970, 83.7 kg in 1975, 101.6 kg in 1978 and 68.0 kg in 1980. The peak consumption in 1978 was nearly 2.5 times that in 1965, due to abnormally low beef prices caused by sluggish exports.

Consumption in New Zealand after 1970 followed a similar trend to that in Australia although the consumption level has been higher than in Australia.

Consumption in Brazil was quite stable at 18.4 kg in 1970, 19.8 kg in 1975 and 17.5 kg in 1980.

Consumption in Argentina was similar to that in Australia and New Zealand, at 95.9 kg in 1970, 93.1 kg in 1975, 109.7 kg in 1978, and 98.8 kg in 1980.

The USSR maintained a trend of increasing consumption, although with some fluctuation. Consumption per capita was 21 kg in 1967, 22.4 kg in 1970, 27 kg in 1975, 28.3 kg in 1977 and 26.4 kg in 1980.

Consumption in Japan increased steadily from 2.9 kg in 1970 to 3.6 kg in 1975, and 4.6 kg in 1980, although the level of consumption remained low.

Consumption of the Republic of Korea maintained a trend of increasing consumption, although its volume is very small. Consumption per capita was 1.4 kg in 1965, 1.3 kg in 1970, 2.0 kg in 1975, 2.5 kg in 1980.

World beef consumption per capita decreased from 100 in 1975 to 90 in 1980. Taking consumption in 1970 as 100, consumption in developed countries decreased slightly from 108 in 1975 to 97 in 1980. The United States and Canada followed the same trend. The EC showed a light increase and Australia, New Zealand and the USSR also showed an increase. Japan and the Republic of Korea showed a high increase, and consumption in the Republic of Korea was 192 for 1980 (Reference Table C-2).

Consumption in the developed countries is by a factor of 2.8-3.1 higher than world average consumption.

The group with high consumption consists of the United States with a factor of 4.5-5.2 higher than world consumption, Canada (3.6), Australia (5.1-9.1), New Zealand (6.5-11.4), and Argentina (6.8-9.8). The medium consumer group consists of the EC nations (2.2-2.5), Brazil (1.6-2.0), and the USSR (2.0-2.6). On the other hand, Japan and the Republic of Korea are lower in consumption than average with factors of 0.3-0.5 and 0.1-0.4 respectively, and Japan is the lowest consumer among the developed countries, although recently it has narrowed the gap with the world average (Reference Table C-3).

II. Trends of Meat Consumption

The average annual increase in meat consumption in the world was 3.5% in 1966-1970, 2.8% in 1971-1975 and 2.9% in 1976-1980. While beef consumption has shown a tendency to decrease from 3.4% to 3.6% and 0.8%, in the corresponding periods respectively, pork and poultry have shown a higher increase, indicating a partial shift from beef to pork and poultry. This is because pork and poultry are far cheaper than beef. By region, however, slightly different trends are seen.

The increase in meat consumption in the developed countries clearly showed a sluggish tendency, from 3.3% in 1966-1970 to 2.2% in 1971-1975 and 2.1% in 1976-1980. In the same periods, the increase in beef consumption was 3.2%, 3.7% and 1.9%, and the increase rate decreased considerably in 1976-1980. In the case of pork, it was 2.4%, 0.8% and 4.8%. The poultry showed a rather high increase at 6.3%, 3.7% and 5.7%. For mutton, the increase was 1.2%, 4.2% and

0.8%. During the recession period of 1976-1980, consumption of pork and poultry increased. In some of the developed countries beef consumption cannot be expected to increase much.

In the developing countries, the consumption of all meats showed a strong increase from 3.9% in 1966-1970 to 4.1% in 1971-1975 and 4.4% in 1976-1980. For beef, it was 4.0%, 3.4% and 1.7%. As in the developed countries, the increase rate of consumption showed a tendency to slowdown. In the same periods, pork consumption showed a stable increase at 3.8%, 4.8% and 4.5%. The consumption of poultry meat showed the highest increase at 6.4%, 6.8% and 10.2%. For mutton it was 2.2%, 1.4% and 3.9%.

Table C-1   Trends in Meat Production and Consumption
(Average annual growth rate)

		Production		Consumption (%)	
		1966-70	1976-80	1966-70	1976-80
World	Total Meat	3.5	3.1	3.5	2.9
	Beef	3.4	0.7	3.4	0.8
	Pork	2.9	5.0	2.9	4.7
	Poultry	6.2	7.2	4.7	7.2
Developed	Total Meat	3.3	2.5	3.3	2.1
countries	Beef	3.1	1.6	3.2	1.9
	Pork	2.5	5.5	2.4	4.8
	Poultry	6.2	6.0	6.3	5.7
Developing	Total Meat	3.8	4.1	3.9	4.4
countries	Beef	3.9	1.3	4.0	1.7
	Pork	3.6	4.4	3.8	4.5
	Poultry	6.2	9.7	6.4	10.2

Source: FAO, Production Yearbook and Trade Yearbook

The pattern of meat consumption varies by developed country, newly industrializing country, oil producing country and developing country. It also varies depending on production form, local customs, income level and religion.

The United States consumes beef, pork and poultry meat in that order. Beef consumption has already reached a peak, and an increase in the consumption of poultry, which is relatively cheap has been observed. Canada follows a similar pattern to that in the United States.

In the EC countries much pork is consumed. Many countries consume more pork than beef, and recently the consumption of poultry meat has also increased. The consumption of all meats has already reached quite a high level, and substitution among the meats occurs depending on price and quality, but no radical change can be expected, since the traditional diet is based on meat and dairy products. As seen from beef consumption, which has been stable at about 25 kg for several years, the pattern of meat consumption is almost fixed.

In the oil producing countries which have foreign payment capability, meat consumption is increasing sharply, but is based on chicken and mutton, and the increase in consumption of pork and beef cannot be greatly expected for religious reasons.

In the newly industrializing countries, the consumption increase has centered on chicken and beef. The consumption pattern in the Republic of Korea is centering on beef and chicken, in Taiwan on pork and in Mexico on beef and chicken.

In the USSR and East European countries, mainly beef and pork are consumed, but consumption of broilers has tended to increase because of increased production. As a whole, the level of meat consumption is lower than that in West European countries, but in the future an increase in consumption is expected for all kinds of meat.

In the developing countries, consumption is increasing, centering on chicken, but it differs widely from region to region. Generally speaking, the supply of meat is not steady because the countries lack foreign payment capability and agricultural production itself is low. They are compelled to obtain supplies through local production. Recently, however, in some developing countries, consumption of the livestock products including meat showed a higher increase than in the developed countries. This is because their income elasticity for meat, and the like, is very high due to population increase, income increase, urbanization, education level and moderate changes in eating habits.

In many cases, demand is strong for livestock products such as beef, chicken and mutton; especially for chicken, which is often in short supply. In the Middle East, the demand for chicken is especially strong because of religion. This is illustrated by chicken consumption's high annual increase rate of 13% over the past 10 years. The increased demand for chicken in Asia and Central and South American countries is not as high as in the Middle East, but is higher than that in the developed countries, and chicken shares an important part in the meat consumption.
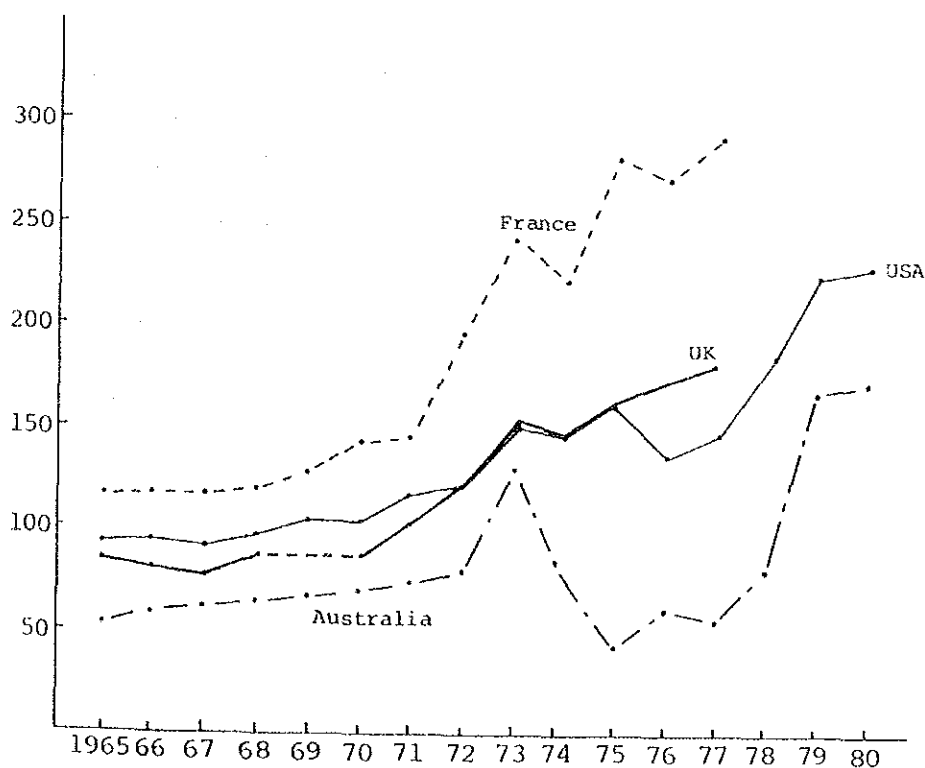
III. Prices of Beef

1. Wholesale Prices in Selected Countries

If wholesale prices of beef are observed for Australia, an exporting country, the United States, the largest producer and consumer, and the UK and France which are active both in export and import of beef among the EC countries, Australia had the lowest price, which had been rising gradually since 1965, then increased sharply in 1973 and dropped sharply in 1975. The price was low for a few years and then started to rise after 1978, and in 1980 exceeded the 1973 level by 40%. The fall in price was caused by sluggish exports due to the oil crisis, as mentioned before, and the subsequent rise in price was caused by reduced production.

It is difficult to make a direct comparison because the quality and standard of beef are different, but prices in France, the UK and the United States show a similar trend to those in Australia (Table C-2 and Fig. C-3).

Fig. C-3   Wholesale Prices of Beef in Selected Countries
             (US cents/kg, Carcass)

Source: Table C-2

Table C-2   Prices of Beef in Selected Countries

(US cents/kg of carcass weight)

|	France	UK	USA	Australia	New Zealand
1965	116.7	84.5	93.7	54.0	46.0
1966	118.1	80.0	94.9	60.3	45.5
1967	116.5	77.5	90.8	63.1	64.0
1968	119.5	86.4	96.3	65.1	47.4
1969	126.5	–	104.9	65.8	55.8
1970	142.8	86.2	104.4	70.9	59.1
1971	147.3	104.4	115.7	74.4	64.7
1972	196.1	121.9	123.0	80.6	88.3
1973	243.8	153.5	149.7	129.2	84.6
1974	222.0	146.4	146.4	78.4	53.2
1975	282.2	163.1	160.1	44.0	73.5
1976	272.2	172.8	134.5	62.1	62.0
1977	291.0	181.6	138.2	55.9	63.9
1978	–	–	177.3	83.1	–
1979	–	–	224.0	167.7	–
1980	–	–	230.2	173.4	–

Notes: France: Oxen, first quality, wholesale price excluding tax,
Rungis, Paris.
UK: Through 1969, Australian, hindquarters, frozen, whole-
sale price, Smithfield market, London.
USA: Through 1974, steer beef carcass, choice, 500-600 lb.
wholesale price, Chicago; from 1975, same carcass, 600-700
lb. midwest.
Australia: Oxen, first and second export quality, 670-700
lb. wholesale price, Brisbane.
New Zealand: Oxen, quarter beef, good average quality,
opening schedule price for meat operators and exporters,
North Island.

Source: T. Makino, The Analytical Statistics of World Livestock
Industry

2. Export Prices in Selected Countries

If export prices of beef are observed in the main beef export-
ing countries such as Australia, Argentina, Ireland and France, they
are not necessarily the same, but the prices in 1965 were within 70
to 80 cents per kg of carcass. They rose to about $1 in 1971 and
then rose sharply to $1.50 - 1.80 in 1973. Subsequently the prices
in Australia and Argentina were low at around $1.20 for a few years
and then rose to $2.50 in 1979 and 1980. Prices in Ireland and
France were not as low as those in the other two countries, and
after a period of little change, reached a level of $2.60 - $2.70.
It can be said that Australia and Argentina, which depend more on
exports, were more strongly affected by the oil crisis (Fig. C-4,
Reference Table C-4).

Fig. C-4   Export Prices of Beef in Selected Countries
   (US cents/kg, Fresh)
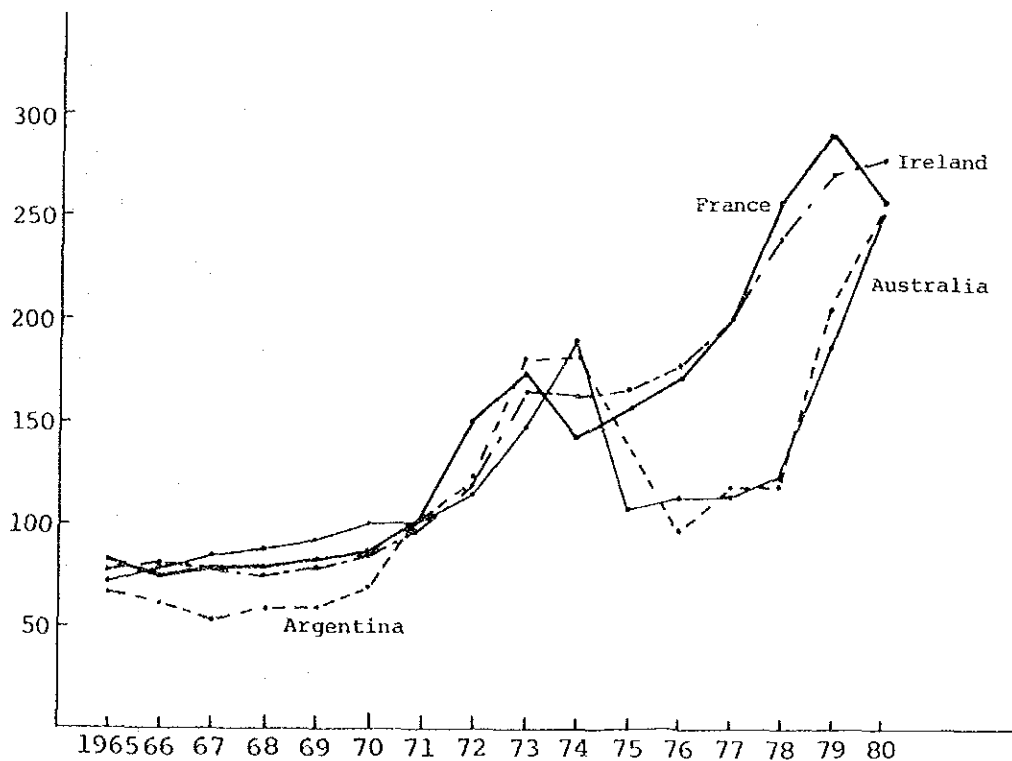
Source: Reference Table C-4

3. Import Prices in Selected Countries

    If the import prices of beef are observed for the five main
importing countries, the United States and the UK show similar
trends, and Italy and France also show similar trends. The USSR,
however, shows a different trend.

    France, as also mentioned in the section on export prices, is
both a very active exporter and importer, and a comparison of prices
reveals that France exports low quality beef and imports high
quality beef. The average import price in France and Italy in 1965
was about $1 per kg and steadily rose to $3.50 - 3.70 in 1980. The
prices in the UK and the United States are a little lower than those
in the other two countries, and from a level of 70 cents in 1965,
they rose to $1.70 in 1973, fell after that, started to rise from
1978, and reached $2.50 - 2.90 in 1980.

    The import price in the USSR is lower than in the above coun-
tries, and from a level of 50 cents in 1970, it rose steadily to
reach $1.70 in 1980 (Fig. C-5, Reference Table C-5).

Fig. C-5   Import Prices of Beef in Selected Countries
            (US cents/kg, Fresh)
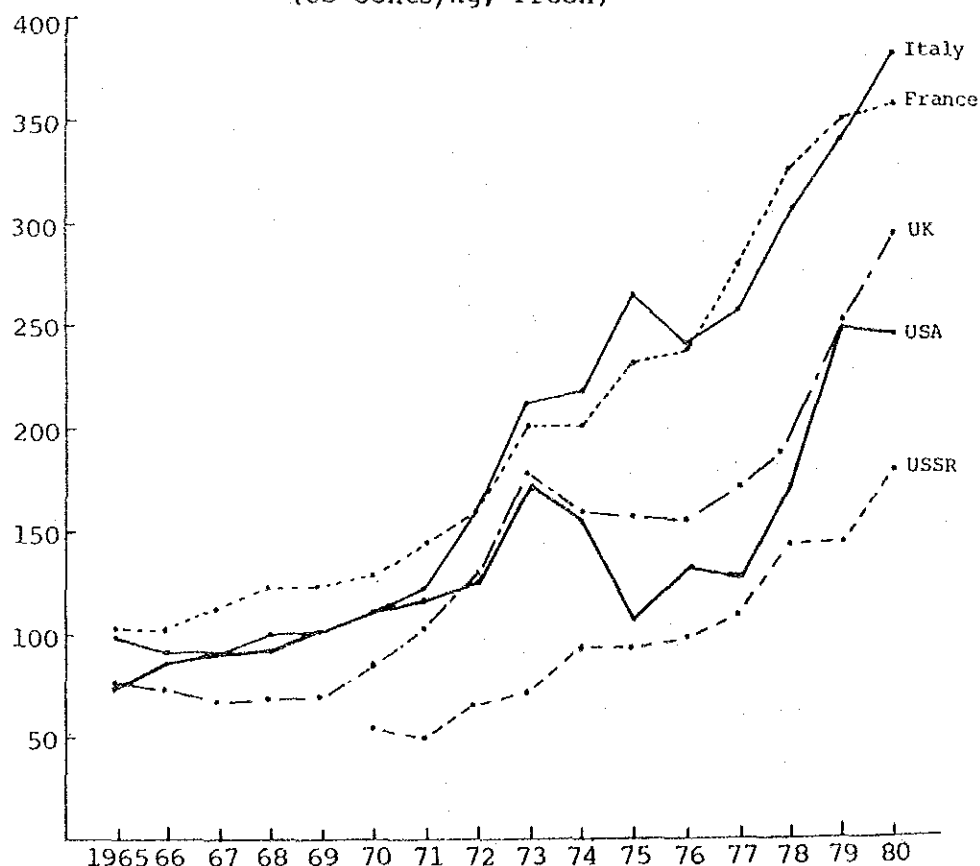
Source: Reference Table C-5

Reference Table C-1   Supply of Beef and Veal per Capita

(kg)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries						32.0	32.0	31.8	30.9	32.7	34.2	35.9	34.9	34.3	31.5	30.9
North America	46.9	48.5	49.0	50.2	50.2	50.8	50.5	51.4	48.7	52.0	54.7	58.5	56.3	47.7	46.4	45.9
USA	47.6	49.2	49.7	50.8	51.0	51.7	51.5	52.4	49.5	52.8	55.3	59.2	56.9	54.5	47.0	46.4
Canada	42.6	41.7	41.8	43.6	42.1	41.0	41.9	42.7	42.3	43.3	47.9	51.6	49.9	46.6	40.6	40.8
EC	22.2	22.2	23.1	23.1	23.4	25.0	25.2	23.9	23.9	25.7	25.4	25.2	24.6	24.8	25.8	25.4
Other developed countries						11.2	11.2	11.1	11.9	11.2	14.5	16.0	16.1	17.2	14.8	13.3
Oceania						68.0	65.3	62.4	68.4	63.4	87.3	100.3	96.5	102.9	82.6	70.8
Australia	44.2	51.8	54.3	56.6	61.5	58.1	55.5	58.8	65.3	61.2	83.7	93.8	96.2	101.6	82.8	68.0
New Zealand						76.2	74.0	78.5	83.1	73.3	102.9	129.4	97.9	111.4	82.4	83.5
Japan						2.9	3.2	3.5	3.5	3.4	3.6	3.5	3.9	4.4	4.6	4.6
South America						34.6	28.7	29.2	31.0	32.0	33.6	42.3	35.9	35.8	34.0	32.2
Brazil						18.4	17.5	19.3	20.3	20.2	19.8	19.4	21.1	20.3	18.6	17.5
Argentina	74.1	85.3	93.9	109.5	105.9	95.9	74.1	74.3	75.7	82.2	93.1	100.5	102.2	109.7	103.1	98.8
Planned economy countries						7.3	7.4	6.9	6.9	7.6	7.7	7.5	7.9	7.3	7.2	6.9
USSR			21.0	22.7	23.0	22.4	23.1	23.2	23.5	26.8	27.0	26.4	28.3	27.3	27.5	26.4
China						2.5	2.5	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7
Main regions total						17.7	17.3	17.0	16.8	17.9	18.5	19.0	19.0	18.1	16.8	16.3
Other regions						5.2	5.0	4.5	4.6	4.7	4.8	4.9	5.0	4.9	5.0	4.8
World total						11.2	10.9	10.5	10.3	10.9	11.2	11.4	11.4	11.1	10.5	10.1

Source: T. Makino, The Analytical Statistics of Livestock Industry

Reference Table C-2   Trends of Beef and Veal Supply per Capita
(Index Number, 1970 = 100)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries																
North America	92	95	96	99	99	100	100	100	97	102	107	112	109	107	98	97
USA	92	95	96	98	99	100	99	101	96	102	108	115	111	94	91	90
Canada	104	102	102	106	103	100	102	104	103	106	117	126	122	114	99	99
EC	89	89	92	92	94	100	101	96	96	103	102	101	98	99	103	102
Other developed countries						100	100	99	106	100	129	143	144	154	132	119
Oceania	76	89	93	97	106	100	96	92	101	92	128	148	142	151	121	104
Australia						100	96	101	112	105	144	161	166	175	143	117
New Zealand						100	97	103	109	96	135	170	128	146	108	110
Japan						100	110	121	121	117	124	121	134	152	159	159
South America						100	83	84	90	92	97	99	104	103	98	93
Brazil						100	95	105	110	110	108	105	115	110	101	95
Argentina	77	89	98	114	110	100	77	77	79	86	97	105	107	114	108	103
Planned economy countries						100	101	95	95	104	105	103	108	100	99	95
USSR						100	103	104	105	120	121	118	126	122	123	118
China		94		101	103	100	100	72	72	72	72	72	72	68	68	68
Main regions total						100	98	97	95	102	105	108	108	103	95	93
Other regions						100	96	85	87	89	91	92	94	92	94	91
World total						100	97	94	92	97	100	102	102	99	94	90

Reference Table C-3   Ratios of Beef and Veal Supply per Capita to World Average

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries						2.84	2.93	3.03	3.00	3.00	3.05	3.15	3.06	3.09	3.00	3.06
North America						4.54	4.63	4.90	4.73	4.77	4.88	5.13	4.94	4.30	4.42	4.54
USA						4.62	4.72	4.99	4.81	4.84	4.94	5.19	4.99	4.91	4.48	4.59
Canada						3.66	3.84	4.07	4.11	3.97	4.28	4.53	4.38	4.20	3.87	4.04
EC						2.23	2.31	2.28	2.32	2.36	2.27	2.21	2.16	2.23	2.46	2.51
Other developed countries						0.93	0.95	1.06	1.16	1.03	1.29	1.40	1.41	1.55	1.41	1.32
Oceania						5.49	5.40	5.94	6.64	5.82	7.79	8.80	8.46	9.27	7.87	7.01
Australia						5.19	5.09	5.60	6.34	5.61	7.47	8.23	8.44	9.15	7.89	6.73
New Zealand						6.80	6.79	7.48	8.07	6.72	9.19	11.35	8.59	10.04	7.85	8.27
Japan						0.26	0.29	0.33	0.34	0.31	0.32	0.31	0.34	0.40	0.44	0.46
South America						3.02	2.63	2.78	3.01	2.94	3.00	3.71	3.15	3.23	3.24	3.19
Brazil						1.64	1.61	1.84	1.97	1.85	1.77	1.70	1.85	1.83	1.77	1.73
Argentina						8.56	6.80	7.08	7.35	7.54	8.31	8.82	8.96	9.88	9.82	9.78
Planned economy countries						0.65	0.68	0.66	0.67	0.70	0.69	0.66	0.69	0.66	0.69	0.68
USSR						2.00	2.12	2.21	2.28	2.46	2.41	2.32	2.48	2.46	2.62	2.61
China						0.22	0.23	0.17	0.17	0.17	0.16	0.16	0.16	0.15	0.16	0.17
Main regions total						1.57	1.59	1.62	1.63	1.64	1.65	1.67	1.67	1.63	1.60	1.61
Other regions						0.47	0.47	0.43	0.45	0.43	0.43	0.43	0.44	0.44	0.48	0.48
World total						1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Source: Reference Table C-1