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**CIA HISTORICAL REVIEW PROGRAM
RELEASE AS SANITIZED
1999**

THE RUBBER SITUATION IN THE COMMUNIST COUNTRIES
THROUGH 1970

CIA/OER

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MEMORANDUM FOR: Mr. Edmund E. Getzin
Chief, Industrial and Strategic
Materials Division
Department of State

SUBJECT : Rubber Situation in the Communist Countries
Through 1970

1. The attached study is in response to your request of 11 August for an updating of our report entitled, "The Communist Market for Rubber Through 1970", August 1966, (CIA/ER ER 66-15). I believe that you will find the study useful in your preparations for the forthcoming Assembly of the International Rubber Study Group.

2. This study outlines the rubber consumption, production, and imports of the Communist countries through 1966 and prospects during 1967-70. It also discusses the relevance of Communist rubber imports to the primary producers of natural rubber. All the data are for natural and synthetic rubber and exclude reclaimed rubber.

Director
Economic Research

(S-2437)

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THE RUBBER SITUATION IN THE COMMUNIST COUNTRIES THROUGH 1970

Summary

The rubber situation in the Communist countries over the past decade has been characterized by rapidly increasing demand, less than commensurate gains in production, and a resultant rise in imports. Communist requirements for rubber have risen by almost 10 percent annually since 1955, largely in response to the fast growth in output of motor vehicle tires. Although production of synthetic rubber has increased rapidly, it has not kept pace with requirements. Plans for production of synthetic rubber -- particularly for the new stereorubbers* -- have not been met, and much of the output remains high in cost and low in quality compared with that produced in the West. Because of the production shortfalls, imports of rubber have not been curtailed as planned but, on the contrary, have increased substantially. The gap between annual production and consumption has widened from about 200,000 tons in 1955 to about 450,000 tons in 1960 and 600,000 tons in 1966. In spite of an estimated rise in production of synthetic rubber of 14 percent per year in 1967-70, total imports of rubber are expected to average 600,000 to 700,000 tons annually during that period.

As in the past, Communist imports of rubber probably will consist predominantly of natural rubber. Natural rubber imports during 1967-70 will be large, averaging about 550,000 to 650,000 tons yearly, but probably will decline somewhat in importance in the world market because of the anticipated increase in consumption by the Free World. An increase in Free World purchases of natural rubber is predicated largely on the expected rise in demand for rubber by the less developed countries whose output of synthetic rubber probably will remain small. In the United States and Western Europe, synthetic rubber will comprise a growing share of consumption in 1967-70, but a small rise in imports of natural rubber is likely.

World demand for natural rubber by 1970 probably will range between 2.7 million and 2.8 million tons annually, while output of natural rubber may amount to about 3.0 million tons. This factor, coupled with possible lower prices of synthetic rubber, points to a continued fall in the price of natural rubber. The primary producers of natural rubber, confronted with declining export prices and generally adverse terms of trade, will be

* The term stereorubber refers to a type of synthetic rubber in which the molecular chains have specific spatial arrangements. This type of rubber is used as a partial or complete substitute for natural rubber in many applications where natural rubber hitherto has been preferred.

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under considerable pressure to increase sales and to compete for existing markets. The Malaysia/Singapore region has been the largest supplier of rubber to the Communist countries and undoubtedly will make strong efforts to retain this market. Malaysia is in a comparatively better position than the other primary producers to cope with the price declines because of its higher productivity and relatively larger increases in output of rubber. Ceylon's rubber industry is heavily dependent on sales to the Communist countries; such sales, notably to Communist China, accounted for about two-thirds of Ceylon's total exports of rubber in 1966. By contrast, Indonesia delivered only 17 percent of its rubber exports to the Communist countries in 1966.

I. Trend in Consumption of Rubber

A. Through 1966

Consumption of new rubber by the Communist countries has more than doubled during the past decade (1957-66), reaching a record level of about 1,440 thousand tons in 1966. Although still well below the 2,250 thousand tons used by the US, Communist consumption has been rising more rapidly than that in the US and the rest of the Free World (See Table 1) and in 1966 accounted for over one-fifth of the world total (6,620 thousand tons). The sharply increased use of rubber is attributed primarily to the rapid growth in production of tires. Tires account for roughly 60 percent of the rubber consumed by the Communist countries.

Table 1

Estimated Average Annual Rate of Growth of New Rubber Consumption by the Communist Countries and the Free World 1956-66 and 1967-70

Area	Percent	
	1956-66	1967-70
Communist Countries	9.7	8.6 to 9.9
United States	3.4	3.1
Other Free World Countries . . .	7.6	5.9
Total	6.3	5.5 to 5.9

The USSR is by far the largest Communist user of rubber, accounting for an estimated 875,000 tons, or three-fifths of the Communist total, in 1966. (The estimated consumption of rubber by the USSR, the other European Communist countries, and the Asian Communist countries in 1966 and 1970 is shown in Table 2.) Although it is the world's second largest consumer of rubber, the USSR lags well behind the industrial West in terms of per capita usage. Thus, in 1966, Soviet consumption amounted to only 3.8 kilograms (kg)

per capita - one-third of that in the United States (11.4 kg) and substantially less than that in the United Kingdom (6.9 kg), West Germany (6.4), and France (5.9 kg).

Table 2
Estimated Consumption of New Rubber by the Communist Countries
1966 and 1970

Countries	Thousand Metric Tons	
	1966	1970
Communist Countries	1,440	2,000 to 2,100
USSR	875	1,200 to 1,300
Eastern Europe	410	600
Far East	155	200

B. In 1967-70

Communist consumption of rubber during 1967-70 will continue to increase faster than the world average (see Table 1) and probably will amount to about 2.0 million to 2.1 million tons per year in 1970. This growth is predicated primarily on the probable increase in output of motor vehicle tires.

In the USSR, where motor vehicle output is expected to increase by about 70 percent during 1967-70, the demand for tires and other rubber goods probably will result in the use of about 1.2 million to 1.3 million tons of rubber per year by 1970 - up to almost 50 percent more than in 1966. The Eastern European Communist countries likewise have programmed substantial expansions in their motor vehicle and tire industries and probably will consume a total of .6 million tons of rubber annually by 1970. The per capita level of rubber consumption in the Eastern European Communist area in 1970 will approach the present level in most Western European countries. Consumption of rubber in the Far Eastern Communist countries is projected at .2 million tons yearly by 1970, but this estimate is subject to considerable uncertainty.

II. Production of Synthetic Rubber

A. In 1966

Facilities for large-scale production of synthetic rubber exist in the USSR, Communist China, and all the Eastern European Communist countries with the exception of Bulgaria and Hungary. (For a listing of synthetic rubber plants in the Communist countries, see Appendix A.) In 1966, the Communist countries produced an estimated 828,000 tons of synthetic rubber, slightly less than one-fifth of the world total. This is roughly the same share of total output as in 1961, Communist production of synthetic rubber having risen at about the same rate as the rest of the world during the past five years. Output of synthetic rubber in the Communist countries is shown in Table 3.

Table 3

Estimated Production of Synthetic Rubber by the Communist Countries
Selected Years, 1955-70

Years	Index of Total Production (1955=100)	Thousand Metric Tons			
		Total	USSR	Eastern Europe	Far East
1955	100	312	240	72	0
1960	139	433	326	107	Negl.
1961	160	499	377	122	Negl.
1962	182	567	443	124	Negl.
1963	189	591	457	134	Negl.
1964	210	656	500	156	Negl.
1965	271	846	565	180	10
1966	265	828	625	183	20
1970	442	1,380	1,000	330	50

Efforts by the Communist countries to expand and improve the quantity of synthetic rubber have generally fallen short of targets. Problems have included not only poor planning, shortages of raw materials, and delays in construction but primarily an overriding difficulty in developing technology for production of synthetic rubber and rubber intermediates. In the case of the USSR, efforts to reach commercial production of polyisoprene took more than ten years - well beyond the time period required by Western countries. That problems with production of polyisoprene may still persist is suggested by a Soviet agreement with France signed in 1966 that calls for an exchange of scientific and technical know-how on production of the isoprene monomer. Technological shortcomings also have delayed the production of polybutadiene, butyl, and N-type rubbers in the USSR and have forced the Soviet Union to prolong output of inferior types such as sodium butadiene beyond the deadlines set for their elimination from production. Similarly in Poland and East Germany, output of synthetic rubber has been handicapped by technological shortcomings with resultant reliance on outmoded, uneconomical processes. Although apparent heavy investments have been made in styrene-butadiene plants in Czechoslovakia and Communist China, output appears to have been well below capacity. In all the Communist countries, the failure to make more significant progress in output of synthetic rubber has resulted in large expenditures of scarce foreign exchange for importation of natural rubber.

B. Prospects 1967-70

Although the Communist countries plan to more than double output of synthetic rubber during 1967-70, they undoubtedly will fall far short of this goal and are expected to produce about 1.4 million tons annually in 1970. Nevertheless, an output of this magnitude in 1970 implies an average annual growth rate in 1967-70 of about 14 percent as compared with a rate of about 10 percent during the previous four year period. Since consumption of rubber is expected to rise by only about 9 to 10 percent per year, Communist self-sufficiency in rubber should improve somewhat during the period.

The USSR probably will produce about 1 million tons of synthetic rubber in 1970, or 375,000 tons more than in 1966. Part of the increase is expected to come from completion of often-delayed projects of earlier periods and from operational improvements in several existing plants which are producing well below capacity. In furthering its plans for greater substitution of synthetic rubber for natural rubber in tires, the USSR is accelerating the output of the stereorubbers - polyisoprene and polybutadiene. Although they probably will fall short of their apparent goal for producing 400,000 to 500,000 tons of stereorubber in 1970, the Soviets nevertheless will make significant gains. In 1967, output was initiated at another polybutadiene plant and possibly at a new polyisoprene plant.

Production of synthetic rubber in the Eastern European Communist countries probably will rise from somewhat over 180,000 tons in 1966 to an estimated 330,000 tons in 1970. East Germany will continue to be the major producer with output in 1970 estimated at 150,000 tons, including some stereorubber. All of the East European countries appear interested in producing stereorubber and several are expected to follow East Germany's lead in purchasing such plants from the West. Hungary is the only member of this group which is not expected to have commercial-scale output of synthetic rubber by 1970.

III. Imports of Rubber

A. Through 1966

Communist imports of rubber - consisting principally of natural rubber - have increased sharply over the years in order to fill the gap between requirements and production. Since 1960, these imports have averaged close to 600,000 tons per year and in 1966 amounted to 625,000 tons. Net imports of natural and synthetic rubber by the Communist countries during 1951-66 are shown in Table 4.

Table 4

Net Imports of New Rubber by the Communist Countries
Selected Years, 1951-66

Years	Thousand Metric Tons		
	Total	Natural	Synthetic
1951 - 55 average	156	156	Negl.
1956 - 60 average	396	385	11
1961	620	568	52
1962	609	575	34
1963	577	546	31
1964	521	481	45
1965	612	560	52
1966	625	590	35

The USSR is the leading Communist importer of natural rubber and is second only to the US on a worldwide basis. In 1966, net imports of natural rubber by the USSR rose for the second consecutive year and amounted to about 280,000 tons. These increases apparently stemmed the heavy drain on stockpiles that took place in 1964 when rubber purchases dropped significantly in seeming response to foreign exchange difficulties. The reduction in heavy outlays of foreign exchange for rubber undoubtedly is one of the major objectives behind Soviet efforts to increase domestic production. It is estimated that during 1961-66 foreign exchange costs to the USSR for the purchase of natural rubber amounted to about US \$1 billion, or roughly 12 percent of the total outlays of hard currency. Other major European Communist importers of natural rubber in 1966 were Poland (about 38,000 tons), Czechoslovakia (about 34,500 tons), and East Germany (about 31,000 tons).

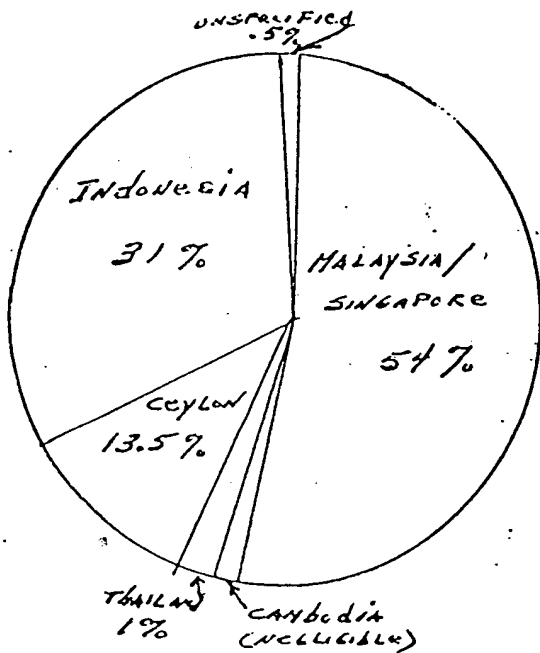
Communist China - the second largest Communist purchaser of natural rubber - has increased greatly its imports of natural rubber in the past three years and in 1966 purchased a record 166,000 tons, valued at US \$84 million. Because of its disagreement with Indonesia and the subsequent transfer in purchases of rubber from this market to Malaysia, Singapore, and Ceylon, China's imports of rubber in 1966 cost about 10 percent more per ton than those in 1965. During the same period, the world price of natural rubber declined about 8 percent.

Communist purchases of natural rubber have been made primarily from Malaysia and Singapore, Indonesia, and Ceylon. Malaysia and Singapore supplied about 382,000 tons or almost two-thirds of Communist imports in 1966. In 1965, Malaysia and Singapore accounted for about 54 percent of total Communist imports, the increase since then resulting in large measure from Communist China's shift in purchases from Indonesia. In 1966, Indonesia supplied only about 17 percent of Communist imports of natural rubber in contrast with its 31 percent of the total in 1965. Ceylon's share of the total rose from 14 percent in 1965 to 15 percent in 1966. Thailand and Cambodia have been minor suppliers of rubber to the Communist countries. The distribution of Communist imports of natural rubber in 1965 and 1966 by country of origin is shown in Figure 1.

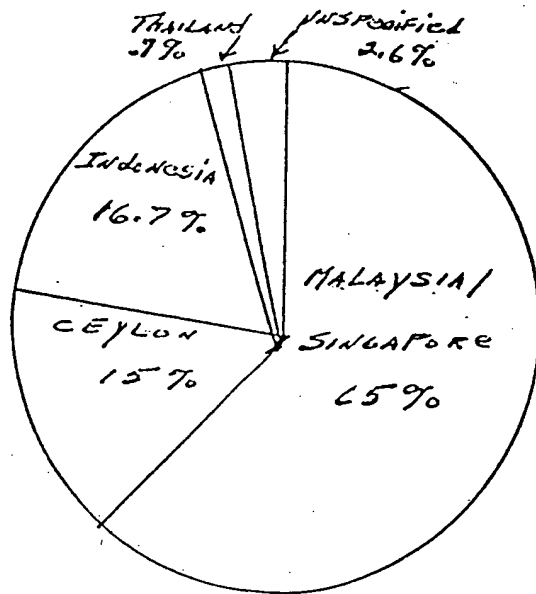
B. Probable Trend of Imports Through 1970

The gap between future rubber requirements and production indicates that the Communist imports will have to average roughly 600,000 to 700,000 tons annually during 1967-70. Natural rubber is expected to retain its relative position in overall rubber imports by the Communist countries and average about 550,000 to 650,000 tons yearly during the period. This compares with average annual imports of about 540,000 tons in the previous four-year period and reflects the anticipated increase in natural rubber purchases by the Eastern European Communist countries and the Asian Communist countries. Purchases by

COMMUNIST NET IMPORTS OF NATURAL RUBBER
 BY COUNTRY OF ORIGIN
 1965 and 1966



1965
 560,000 Metric Tons



1966
 590,000 Metric Tons

the USSR are expected to remain at the recent level of about 200,000 to 300,000 tons yearly. In an apparent effort to limit the use of natural rubber, the Soviets have raised the prices of natural rubber going to manufacturers by an average of 17 percent in their recent price reforms. The share of natural rubber in total new rubber used by the Soviet tire industry reportedly will be reduced from 34 percent in 1965 to only 14 percent in 1970.

Although Communist consumption of natural rubber probably will rise, it probably will decline slightly in relative importance because of the faster growth in world consumption during the period 1967-70. Estimated world consumption of rubber in 1966 and 1970 is shown in Table 5.

The three major consuming areas of the Free World are expected to use more natural rubber by 1970 in spite of the comparatively faster growth in their consumption of synthetic rubber. Gains in the use of natural rubber by the United States and Western Europe, however, will not be large. Demands for natural rubber by other Free World countries, particularly those nations which cannot support a synthetic rubber industry, are expected to increase the most during 1967-70.

World demand for natural rubber by 1970 is estimated at about 2.7 million to 2.8 million tons annually. The potential output of natural rubber in 1970 is estimated at about 3.0 million tons, indicating a probable excess of supply over demand. This factor, coupled with possible lower prices of synthetic rubber, will exert continued downward pressure on the price of natural rubber. Sharp aberrations in the price of natural rubber, such as those that have occurred in the second half of 1967, demonstrate the sensitivity of such prices to even modest changes in supply and demand.

C. Effect on Producers of Natural Rubber

The producers of natural rubber, confronted with the prospect of lower prices, will be under considerable pressure to maximize output and sales. In this competition for markets, Malaysia - the world's largest producer - will continue to have an advantage over other major suppliers and particularly over Indonesia, its rival in output of natural rubber. Malaysia has undertaken measures for increased productivity, such as extensive planting of high yielding trees and the adoption of modern processing techniques. In the past, Malaysia has found a ready market for its rubber, over 80 percent of which is of high quality and normally commands premium prices in the world market. This trend probably will continue and enable Malaysia to dispose of its rubber output in 1970 which may be about 25 percent more than in 1966. Although decreases in price will limit the growth in total value of exports, profits may remain high because of rising productivity and possible improvement in the cost structure of the industry.

Table 5

Estimated Consumption of New Rubber by the Communist Countries and the Free World
1966 and 1970

Thousand Metric Tons

Countries	1966		1970			
	All Rubber	Natural	All Rubber	Natural	Synthetic	
Free World	5,180	1,960	3,220	6,235	2,165	4,070
United States	2,250	560	1,690	2,540	580	1,960
Western Europe	1,650	750	900	2,020	810	1,210
Other Free World	1,280	650	630	1,675	775	900
Communist Countries	1,440	590	850	2,000-2,100	550-650	1,450
Total	6,620	2,550	4,070	8,235-8,335	2,715-2,815	5,520

The outlook for Indonesia is comparatively bleak. Total earnings from rubber during 1967-70 undoubtedly will fall, since the output of natural rubber is expected to increase by only about 9 percent, or less than the anticipated fall in price. To date, Indonesia has made relatively little progress in upgrading the quality, and price, of its rubber, much of which it exports to Singapore for processing, with a consequent loss in value-added.

Ceylon will be in a somewhat better position to cope with the decline in rubber prices, since its output of rubber is expected to increase by about one-fifth during 1967-70. On the other hand, Ceylon has normally committed a larger percentage (about two-thirds in 1966) of its exports of rubber to the Communist countries, notably Communist China. Trade with China has been conducted under a rubber/rice barter agreement which has yielded relatively favorable terms of trade for Ceylon. Although China has not attempted to date to exact political concessions from this trade, it is possible that Peking will use the recent quarrel with Ceylon as a pretext for delaying the 1968 rubber/rice barter agreement.

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APPENDIX A

SYNTHETIC RUBBER PLANTS IN THE COMMUNIST COUNTRIES

Country	Location	Product
USSR	Chardzhou*	NA
	Chaykovskiy*	NA
	Gudermes*	NA
	Irkutsk area*	NA
	Kazan	Polybutadiene (planned), sodium polymerized butadiene rubber (SKB).
	Krasnoyarsk	SKB, nitrile (SKN), possible oil-extended butadiene-styrene rubber
	Nizhne Kamsk	Possibly polyisoprene.
	Omsk	Butadiene, methylstyrene, styrene-butadiene latex, methyl pyridine latexes and rubber, type 1500 (yevroprene).
	Sterlitamak	Oil-extended copolymer rubber based on butane, polyisoprene, latex.
	Sungait	Oil-extended copolymer rubbers, butyl rubber, styrene-butadiene. Nitrile rubber planned.
	Temir Tau	Butadiene rubber, new type of frost-resistant rubber.

* Locations marked with an asterisk represent areas where new rubber plants are planned or under construction.

Country	Location	Product
	Tol'yatti	Styrene-butadiene, polyisoprene.
	Ufa*	Ethylene-propylene rubber (planned).
	Volzhskiy	Polyisoprene
	Voronezh	SKB, oil-extended copolymer, latex, polybutadiene. Polyisoprene (planned).
	Yaroslavl'	SKB, nitrile rubber, butyl rubber, oil- extended, frost-re- sistant rubber, polybutadiene (planned)
	Yavan*	Chloroprene (planned).
	Yefremov	SKB, polyisobutylene, butyl rubber, poly- butadiene, polyiso- prene (planned).
	Yerevan	Chloroprene rubber and latex.
Bulgaria	Burgas*	SBR (planned), latex (planned), polybutadien- (planned), polyisoprene (planned).
Czechoslovakia	Kolin	Silicone rubber
	Kralupy nad Vltavou	SBR, polybutadiene (plan- ned), polyisoprene (planned).
	Slovnaft*	Butadiene (planned), polybutadiene (planned)
East Germany	Schkopau	SBR, nitrile, latexes, polybutadiene (planned)
	Nuenchritz	Silicone rubber

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Country	Location	Product
Hungary	Balatonfuzfo	Silicone rubber
	Szeged*	Polybutadiene (planned) polyisoprene (planned).
Poland	Oswiecim	SBR
	Plock	Butadiene, polybutadiene (planned).
Rumania	Gheorghe Gheorghiu- Dej	SBR
	Brazi*	Butadiene (planned), polybutadiene (planned).
Communist China	Lan-chou	SBR and nitrile
	Ch'angshou	Chloroprene