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DIRECTORATE OF
INTELLIGENCE

Intelligence Memorandum

Foreign Equipment for North Korea's Six-Year Plan (1971-76)

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
March 1973

INTELLIGENCE MEMORANDUM

**FOREIGN EQUIPMENT FOR NORTH KOREA'S
SIX-YEAR PLAN (1971-76)**

SUMMARY AND CONCLUSIONS

1. North Korea's success at acquiring foreign plant equipment during 1971-72 enhances considerably the prospects for meeting the industrial goals of the Six-Year Plan (1971-76). The USSR has agreed to supply 28 whole plants, the Chinese have extended economic aid undoubtedly including some capital goods, the East Europeans have agreed to supply a few plants, and West European and Japanese firms have contracted to furnish 20 plants worth at least US \$180 million. These commitments have already resulted in a rise in North Korea's imports of machinery and equipment to about \$250 million in 1972, compared with \$160 million in 1970 and only \$40 million in 1967. Most of the plant purchases have been made on credit, and this is reflected in the cumulative trade deficit of about \$475 million in 1971-72.

2. The machinery and plant equipment being imported are going into the industrial fields emphasized in the Six-Year Plan. Since 1970 these imports have included Soviet equipment for plants in the electric power, petroleum, metallurgical, and machine building industries; West German equipment for electric power and metallurgical plants; and Japanese equipment for light industries, notably textiles. This new industrial capacity is expected to reduce dependence on imports and improve export capabilities.

3. The availability of credits has been the prime factor in P'yongyang's ability to acquire capital goods from abroad. Compared with the last plan, North Korea has been highly successful in securing Communist

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and Western credits for these major industrial additions. Soviet and Chinese aid agreements are designed to finance the bulk of the foreign-supplied portion of North Korea's industrial development program. Moreover, about \$150 million of the more than \$180 million in whole plants already contracted for from non-Communist countries are to be financed by West European credits. Some additional purchases of Western plant technology probably will be made during the remainder of the plan, judging from continuing negotiations and the likely availability of suitable financing, including perhaps even Japanese Export-Import Bank credits. Debt repayment should not become a problem until the late 1970s, and even then the market for North Korea's semi-manufactured mining products should be sufficiently strong to permit debt servicing deliveries to the USSR and China and to earn the required foreign exchange to meet payments to the non-Communist world.

DISCUSSION

Introduction

4. As the Six-Year Plan began, North Korea entered a dialogue with South Korea aimed at lessening hostilities and discussing possible reunification. The success of this economic plan is particularly important to President Kim Il-song to show the South Koreans and the world the growth that is possible under North Korea's economic system. North Korea, like China, provides few specific data with which to judge economic developments within the country. However, just as with China, useful insights can be derived from a careful gathering and analyzing of the information on the foreign trade of major trading partners with North Korea. Over the years, this foreign trade information - together with the fragmentary information on the domestic economy - has revealed that North Korea's success at industrialization has fluctuated with its success at acquiring foreign industrial equipment and technology. This memorandum provides a brief sketch of such developments under the extended Seven-Year Plan (1961-70), highlights the significance of recent imports of machinery and equipment, discusses the financing of these imports, and comments on the outlook for continued success in acquiring capital goods from abroad in the next few years. The Appendix provides a general discussion of recent trade patterns and a set of basic foreign trade tables.

5. During the reconstruction period following the Korean War, North Korea imported a variety of industrial plants under economic aid agreements with its Communist allies. As a result, production of most industrial commodities had by 1960 regained the peak levels attained under the

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Japanese in 1944. During 1961-66, however, North Korea's vacillating position in the Sino-Soviet dispute alienated both the USSR and China. The resulting drop in assistance was a major factor in the stretching out of the Seven-Year Plan (1961-67) by three years to 1970.

6. Late in 1966, P'yongyang renewed its efforts to expand imports of machinery and plant equipment to improve industrial performance. Soviet project assistance was restored after the Soviet-North Korean rapprochement. A cumulative trade deficit of more than \$200 million during 1968-70 reflected the rapid rise in imports of Soviet machinery and equipment in these years. North Korea also began negotiations with firms in Western Europe and Japan for machinery and equipment, including whole plants. While P'yongyang had to wait until the Six-Year Plan period to achieve success in purchasing whole plants from the West, it did make substantial purchases of machine tools and other categories of machinery from Western Europe and Japan during 1968-70. The renewed wave of Soviet project assistance together with the Western machinery enabled North Korea to fulfill major industrial goals of the Seven-Year Plan in 1970.

Capital Imports and the Six-Year Plan

7. An average annual growth rate of 14% in gross industrial production is planned for the Six-Year Plan, an increase greater than the 12.8% reportedly achieved during the extended Seven-Year Plan but about the same as claimed for the period 1967-70. Among the ambitious goals are the substantial expansion of capacity in electric power, metallurgy, machine building, and textiles. P'yongyang is also planning to add new industrial sectors, notably petroleum refining and petrochemical production. Given domestic limitations in machine building, imported machinery and equipment are expected to provide a substantial portion of the industrial capacity to achieve the 1976 production targets.

Achievements in 1971-72

8. The success that North Korea has had in expanding total imports of machinery and equipment in recent years is shown in the following tabulation:

	<i>Million US \$</i>
1967	40
1968	94
1969	160
1970	160
1971	185
1972	250 ^a

a. Preliminary.

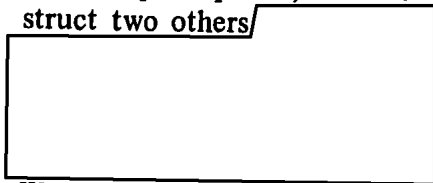
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As noted earlier, the jump in these imports in 1968-70 was a major force in the step-up in industrialization in the latter years of the previous long-term plan. The further rise in 1971-72 suggests a significant boost toward the goals of the new plan. Likewise, the types of machinery and equipment being imported reflect the industrial sectors that are emphasized in the plan* (see Figure 1).

9. The largest category of machinery and equipment imports was power-generating equipment. The economic plan calls for 2,200 megawatts in additional generating capacity by 1976. About three-fourths of the equipment to reach this goal has been coming from the USSR, which promised to expand one of North Korea's thermal powerplants, to construct two others

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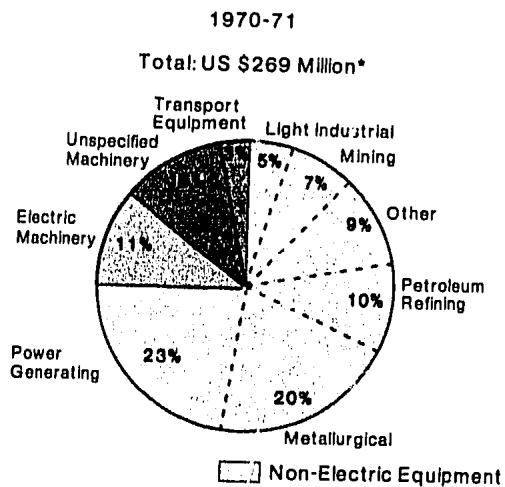


West Germany supplied equipment for a hydroelectric powerplant. By importing and constructing these powerplants early in the plan, P'yongyang hopes to prevent power shortages that would inhibit industrial production.

10. As with power-generating equipment, metallurgical equipment imported for the plan thus far has come primarily from the USSR and probably included equipment for two steel rolling mills, for expansion of crude steel production, and for North Korea's first aluminum plant. North Korea also imported steel rolling equipment from West Germany.

* Imports from the USSR constitute the lion's share of imported industrial equipment and, together with supplies from non-Communist countries, accounted for roughly 80% of the estimated total imports of machinery and equipment in 1970-71. Technically, machinery and equipment imports in 1970 occurred during the extended Seven-Year Plan. However, because of the timelag in installing and operating the equipment, their effect on industrial growth is more relevant to the Six-Year Plan.

Figure 1
North Korea: Distribution of Imports of Soviet and Non-Communist Machinery and Equipment



*Excluding imports from China and Eastern Europe.

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Metallurgical equipment will add capacity to produce 2 million metric tons of additional rolled steel and at least 1 million tons of crude steel. Imported mining machinery will be used to develop two new iron ore deposits. North Korea hopes not only to produce enough ferrous metals to supply its own needs, but also to increase exports of semifinished steel products as well as zinc, lead, and other nonferrous metals.

11. The need to develop the iron and steel industry is apparent from North Korea's recent purchases of special-quality steel products. North Korea's production of steel does not include many of the alloy steels important to the growth of the economy, especially the machine building industry. In the past, requirements for special steels were supplied by the USSR. In 1972, however, North Korea signed a five-year contract to purchase additional alloy steel products from Japan. Purchases rose from less than \$1 million in 1971 to about \$9 million in 1972.

12. Petroleum refining is North Korea's newest industrial venture. The cost of the Soviet equipment and technical assistance for the Sungri Chemical Plant, based on US equipment costs of similar capacity, is estimated at \$40 million. The plant is scheduled to process eventually 2 million tons of imported crude oil into various products, including aviation fuels and lubricants. According to Soviet press announcements, the refinery was scheduled for trial production in 1972, using Soviet crude oil. However, the usual announcement of completion has not been made, suggesting a possible delay. (Figure 2 shows the crude oil refining portion

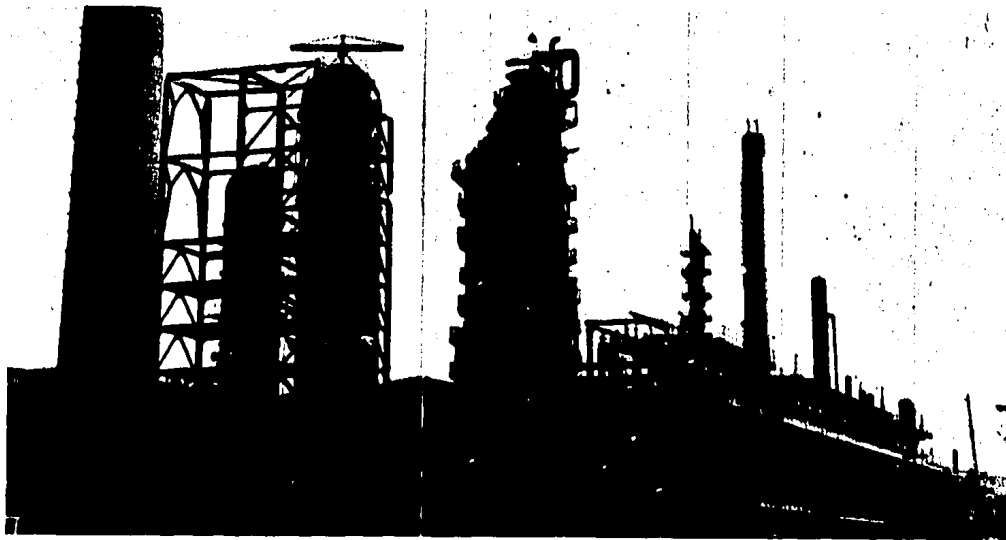


Figure 2. North Korea's first oil refinery, the Sungri Chemical Plant at Unggi, is being constructed with Soviet economic assistance.

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of the plant in the final stages of construction.) The refinery will supply raw materials for a \$52 million petrochemical complex, recently purchased from a consortium of Western firms. North Korea plans to begin construction of the complex some time in 1973. Since North Korea has been importing sizable quantities of petroleum and petrochemical products, considerable foreign exchange should be saved when these plants are operating.

13. Imports of industrial equipment for the textile industry are already affecting the economy favorably. These purchases include two plants from Japan (a 100,000-spindle textile mill and a \$7 million knitting mill) and individual pieces of machinery for installation in textile plants, imported from Japan and Western Europe.

14. North Korea also imported a wide variety of other non-electric machinery, electrical equipment, and transportation equipment. The general description of the machinery, however, precludes any meaningful identification by industrial destination. Nonetheless, the unspecified items in the statistics are important. These items come almost entirely from Soviet trade data and could contain equipment for any number of plants Moscow promised to P'yongyang in 1970, including machine building plants to produce machine tools, batteries, micrometers, bearings, and railroad cars.

Financing the 1971-72 Trade Deficit

15. During 1971-72, North Korea incurred a cumulative trade deficit of about \$475 million, due in large part to deliveries of machinery and equipment. Some \$400 million of this deficit was with the USSR and is believed to have been financed by credits arranged under the aid agreement signed in 1970. Smaller deficits with East Germany and China also were probably financed by credits. On the other hand, a \$40 million hard currency trade deficit, primarily with Japan, was settled by gold sales amounting to about \$20 million during 1971-72, some medium-term credits from West European banks, and possibly some drawing down of hard currency holdings.

Prospects Through 1976

16. The prospects of North Korea's Six-Year Plan have been strengthened by the recent imports of foreign machinery and equipment. Nevertheless, North Korea will have to continue importing large quantities of equipment if the industrial goals of the plan are to be met. This depends on North Korea's ability to maintain economic aid especially from the USSR. If North Korea's neutral policy in the Sino-Soviet dispute persists, economic support from its Communist trading partners will likely continue.

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No information is available on the total value of Soviet or Chinese commitments to North Korea's development program. However, Soviet aid, which includes a commitment to supply 28 plants, is expected to continue at least through 1975 - the final year of the current trade and aid agreement. The Chinese aid agreement of August 1971 will remain in force until 1976.

17. P'yongyang has good potential for further expanding imports of machinery and equipment from the non-Communist world. In the past, North Korea's trade with Japan and Western Europe had been hampered by Western credit restrictions and the absence of trade missions in various Western capitals. During this plan, however, almost all West European countries either have issued or are willing to issue credit guarantees for export of machinery and equipment to North Korea, and P'yongyang has put forth considerable effort to enhance trade ties with the West. Japan is the only one of North Korea's developed trading partners that has not extended credit guarantees to North Korea. Japanese officials have only stated that applications for Export-Import Bank credits will be studied on a case-by-case basis, which suggests that these credits will become available in the next few years. Tokyo appears to be awaiting satisfactory progress in the North-South talks before risking the antagonism of its important trading partner - South Korea.

18. The relaxation of credit restrictions in Western Europe has resulted in contracts for equipment long under negotiation. Since 1970, North Korea has contracted for 20 whole plants costing more than \$180 million. Of this total, about \$150 million will be financed by credits of from five to eight years, guaranteed by the respective West European governments. These plants include the \$52 million petrochemical complex, a \$40 million paper complex from Finland, a \$50 million ammonia-urea plant from Austria, a tin-plating plant from Austria, and various other plants for the chemical and metallurgical industries.

19. Besides these purchases, North Korea is seriously negotiating with Japanese and West European firms for at least 15 more whole plants valued at more than \$200 million. Included among these plants are a motor vehicle plant to produce trucks, petrochemical plants, and a television plant. Only a few of the 15 plants could be purchased for completion by 1976; the more expensive facilities, notably the truck plant, may require several more years of negotiation before any contract is signed.

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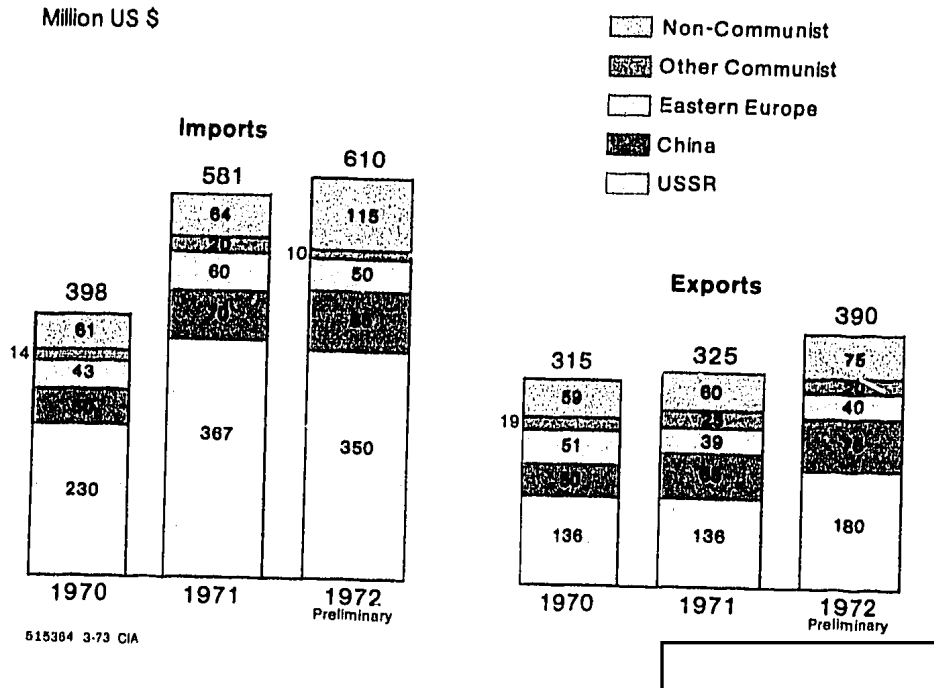
APPENDIX

NORTH KOREA'S FOREIGN TRADE IN 1971-72

Trade turnover jumped from \$710 million in 1970 to \$910 million in 1971 and to about \$1 billion in 1972 (see Figure 3). However, if allowance is made for the effects of the 1971 currency revaluations on the dollar estimates, North Korea's total trade in 1972 in real terms can

North Korea: Direction of Trade

Figure 3



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be seen to have grown little, if any, above the 1971 level. In both 1971 and 1972, large trade deficits were registered with a cumulative total of about \$475 million for the two years. (For a detailed account of North Korea's foreign trade, by country, see Table 1.)

The willingness of North Korea's Communist trading partners to extend credits was the primary stimulus to the expansion of trade, permitting imports to exceed exports by a wide margin. The USSR, North Korea's most important trading partner, was the largest benefactor. Credit assistance permitted the deficit in Soviet-North Korean trade to rise from about \$95

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Table 1

North Korea: Foreign Trade, by Country^a

Million US \$

	<i>Exports</i>			<i>Imports</i>		
	<i>1970</i>	<i>1971</i>	<i>1972^b</i>	<i>1970</i>	<i>1971</i>	<i>1972^b</i>
Total	315	325	390	398	581	610
Communist	256	265	315	337	517	495
USSR	136	136	180	230	367	350
China ^c	50	65	75	50	70	85
Eastern Europe	51	39	40	43	60	50
Bulgaria	3	4	N.A.	3	4	N.A.
Czechoslovakia	11	12	N.A.	5	8	N.A.
East Germany	17	7	N.A.	15	34	N.A.
Hungary	4	3	N.A.	3	2	N.A.
Poland	10	7	N.A.	9	5	N.A.
Romania	6	6	N.A.	8	8	N.A.
Other ^d	19	25	20	14	20	10
Non-Communist	59	60	75 ^e	61	64	115 ^e
East Asia	40	35	42	29	32	80
Of which:						
Hong Kong	4	4	3	Negl.	Negl.	Negl.
Japan	33	28	36	25	31	78
Singapore	3	3	3	4	2	2
Western Europe	18	21	30	22	18	18
Of which:						
Austria	Negl.	0	0	4	2	Negl.
Belgium-Luxembourg	2	2	3	Negl.	1	Negl.
France	1	4	9	5	8	11
Italy	Negl.	3	7	2	1	1
West Germany	11	8	8	9	4	4
Other	2	4	3	10	13	17
Of which:						
Australia	0	0	0	6	Negl.	6
Canada	0	0	0	0	8	6
Egypt	1	1	N.A.	2	2	N.A.
India	0	3	N.A.	1	2	N.A.

a. The data in this table place North Korea's trade on an export f.o.b. and import c.i.f. basis. Because of rounding, components may not add to totals shown.

b. Preliminary.

c. The estimates for China are roughhewn projections from data of earlier years; deliveries of military hardware are not included.

d. Including Cuba, North Vietnam, Mongolia, and Yugoslavia.

e. The data for 1972 are cumulative monthly totals of the respective trading partners prorated on an annual basis.

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million in 1970 to about \$230 million in 1971. Fragmentary information suggests that the deficit may have fallen off to about \$170 million in 1972. Most of the 1971 rise in trade was due to Soviet military deliveries, estimated at about \$135 million. In 1972, military imports probably declined to the neighborhood of \$50 million. The decline in military shipments was partly counterbalanced by a rise in machinery and equipment deliveries, while exports to the USSR rose sharply.

Similarly, in 1970 and again in 1971, China extended to North Korea economic aid that probably included a commitment to supply whole plants on credit. There is little information on the trade between China and North Korea. However, it is believed that this trade has been rising in the past few years and that imports have grown somewhat faster than exports. Trade with most East European countries, on the other hand, remained relatively balanced during the past several years. Trade with East Germany is the only exception where possible credits to North Korea permitted both the 1971 increase in trade and the deficit with Eastern Europe. In 1972, East European trade with P'yongyang probably fell off slightly.

Trade with the non-Communist world is also playing an important role in North Korea's new development plan. Since 1970, North Korea has been negotiating with firms in Japan and Western Europe for whole industrial facilities. These negotiations began to bear fruit in 1972. Imports from non-Communist countries, based on partial year statistics of the major trading partners, rose to their highest level in 1972 and resulted in a \$40 million trade deficit. Trade with Japan accounted for most of the increase in imports and thus for most of the deficit. In order to finance this imbalance, North Korea sold \$12 million in gold to France in 1972, following sales of \$9.1 million in 1971, and probably received some credits from Western Europe.

The commodity composition of North Korea's trade depicts the economic significance of foreign trade to the economy. North Korea earns foreign exchange primarily by exporting heavy industrial products such as pig iron, steel, magnesite, zinc, lead, and cement as well as some agricultural products such as rice, fish, apples, and tobacco. In turn, North Korea purchases a wide variety of goods necessary for the maintenance and growth of the economy. Grain imports usually fluctuate with North Korea's domestic harvests, whereas imports of petroleum products, chemicals, and manufactured goods have risen in line with domestic requirements. Of all North Korea's imports, however, machinery and equipment are the most significant items. These imports increased from \$160 million in 1970 to \$185 million in 1971 and may have reached \$250 million in 1972. (For a detailed account of North Korea's commodity trade, see Tables 2 and 3.)

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Table 2

North Korea: Commodity Composition of Foreign Trade

	<i>Million US \$</i>					
	<i>Imports</i>			<i>Exports</i>		
	<i>1969</i>	<i>1970</i>	<i>1971</i>	<i>1969</i>	<i>1970</i>	<i>1971</i>
Total	398	398	581	279	315	325
Food and tobacco	42	56	50	40	39	36
Crude materials and edible oils	23	25	22	28	34	34
Petroleum products and fuels	57	59	75	4	5	7
Chemicals	22	22	28	17	13	12
Manufactured goods	44	41	46	162	194	201
Machinery and equipment	160	160	185	16	22	23
Unidentified	50	35	175	14	8	12

North Korea also receives significant amounts of military goods from the USSR and China. Order-of-battle estimates suggest deliveries of Soviet military hardware of more than \$120 million in 1971. Soviet export data suggest that military shipments may have been \$125 million to \$150 million in 1971.

It has been hypothesized that the residual category of unidentified commodities in the Soviet trade statistics contains Soviet military shipments to other countries on credit or current account. In 1971 this category of unidentified commodities rose to \$164 million from only \$24 million in 1970. Deliveries as grants are not included in the Soviet trade data.

The Soviet-supplied equipment included SAM battalions and associated equipment, SU-7 Fitter aircraft, ground force weapons and materials, and considerable amounts of electronic equipment. In addition to Soviet deliveries, China has supplied military hardware, possibly as a grant, including MIG aircraft, tanks, artillery, naval craft, and spare parts. Poland supplied AN-2s, which will probably be used by the military.

There are some indications that imports of military hardware declined in 1972. Soviet trade data for that year are not yet available and order-of-battle estimates require a timelag of from eight to 12 months. However, Minister of Finance Kim Kyong-yon, in his budget report to the Supreme People's Assembly, stated that planned defense spending in 1972 would decline to 17% of total expenditures from the actual share of 31% in 1971. While these data may reflect some statistical manipulation, a cutback in the defense budget probably occurred.

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Table 3

**North Korea: Commodity Composition of Trade
with the USSR and Non-Communist Countries^a**

	<i>Million US \$</i>			
	1970		1971	
	<i>USSR</i>	<i>Non-Communist</i>	<i>USSR</i>	<i>Non-Communist</i>
Total imports	230.0	61.4	366.8	63.5
<i>Foodstuffs and tobacco</i>	22.7	8.4	15.1	8.4
Of which:				
Wheat and wheat flour	19.1	5.1	11.8	7.1
Refined sugar	3.4	0	1.3	0
<i>Crude materials and edible oils</i>	14.2	8.2	11.3	5.7
Of which:				
Cotton	9.4	2.3	9.3	2.0
Vegetable oils	2.7	0.2	1.6	Negl.
Rubber	0	3.9	0	1.8
<i>Petroleum products and fuels</i>	44.6	0.9	40.2	1.0
Petroleum products	30.8	0.9	26.0	1.0
Coke	3.3	0	5.3	0
Coal (bituminous)	10.4	0	9.1	0
<i>Chemicals</i>	6.9	4.6	7.4	6.8
Of which:				
Fertilizers	0	0.7	0.7	0
Organic	2.4	0.5	2.1	0.1
Medicines and pharmaceuticals	0.8	0.8	0.9	0.5
<i>Manufactured goods</i>	17.4	9.9	17.5	10.1
Of which:				
Rubber tires	4.3	0.1	4.2	0.2
Textiles and synthetic fibers	1.1	4.1	1.2	3.6
Ferroalloys	3.1	0	2.3	0.2
Iron and steel products	2.8	0.4	3.1	0.8
Aluminum	1.1	0.1	0.6	Negl.
Timber products	1.1	1.8	1.9	0.1
<i>Machinery and equipment</i>	100.0	27.8	111.5	29.9
Non-electric	73.7	18.3	87.4	20.5
Electric	6.8	8.2	6.5	8.3
Transportation equipment	3.5	0.5	3.1	0.7
Unspecified machinery	16.1	0.6	14.6	0.4
<i>Unidentified</i>	24.2	1.8	163.8	1.6

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Table 3
North Korea: Commodity Composition of Trade
with the USSR and Non-Communist Countries^a
(Continued)

	<i>Million US \$</i>			
	1970		1971	
	<i>USSR</i>	<i>Non-Communist</i>	<i>USSR</i>	<i>Non-Communist</i>
Total exports	135.9	59.2	135.8	60.4
<i>Foodstuffs and tobacco</i>	<i>24.6</i>	<i>4.7</i>	<i>23.5</i>	<i>5.1</i>
Of which:				
Fish	0	2.9	0	2.8
Rice	12.5	Negl.	14.7	0
Corn	0	1.3	0	0.7
Apples	5.3	0	3.3	0
Tobacco	4.1	0.2	1.3	0
<i>Crude materials and edible oils</i>	<i>4.3</i>	<i>24.8</i>	<i>3.6</i>	<i>23.1</i>
Of which:				
Silk	0	3.4	0	7.3
Iron ore	0	5.6	0	4.8
Other minerals and ores	4.3	6.8	3.6	6.3
<i>Petroleum products and fuels</i>	<i>0</i>	<i>1.3</i>	<i>0</i>	<i>1.2</i>
Coal	0	1.3	0	1.2
<i>Chemicals</i>	<i>2.3</i>	<i>0.3</i>	<i>2.0</i>	<i>0.4</i>
Of which:				
Calcium carbide	1.4	0.2	0.3	Negl.
<i>Manufactured goods</i>	<i>92.0</i>	<i>26.9</i>	<i>93.2</i>	<i>29.6</i>
Of which:				
Pig iron	4.9	4.2	5.1	2.5
Rolled steel products	37.2	3.7	33.1	2.3
Zinc	4.4	4.6	3.8	13.0
Lead	2.2	6.8	1.0	4.6
Other nonferrous metals	0.3	7.0	0.1	4.8
Magnesite powder	11.8	0	21.1	0
Cement	6.7	Negl.	5.2	0.1
Other construction materials	1.7	Negl.	0.4	0
Clothing	16.7	0.1	18.3	Negl.
<i>Machinery and equipment</i>	<i>8.2</i>	<i>0.2</i>	<i>5.4</i>	<i>0.3</i>
<i>Unidentified</i>	<i>4.6</i>	<i>0.8</i>	<i>8.1</i>	<i>0.8</i>
Gold sales^b	0	10.5	0	9.1

a. Because of rounding, components may not add to totals shown.

b. Exported but excluded from the totals.

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