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Intelligence Memorandum

Communist Military Aid Deliveries to North Vietnam

During 1968

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Foreword

This memorandum presents an estimate of Communist military aid deliveries to North Vietnam. The volume and value of Soviet and Chinese Communist military deliveries are presented for previous years, but the analysis is focused on deliveries during 1968. The methodology used to derive the estimates is discussed in the appendix. This memorandum was prepared jointly by the Central Intelligence Agency and the Defense Intelligence Agency.

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Communist Military Aid Deliveries to North Vietnam
During 1968

Summary

Military aid deliveries to North Vietnam from other Communist countries in 1968 had an estimated value of nearly \$400 million, more than one-third below the level of 1967. This decline reflects a reduction in North Vietnamese requirements for anti-aircraft ammunition and surface-to-air missiles after the US bombing restrictions of 31 March and the bombing halt of 1 November. The decline in deliveries does not indicate any decreased willingness on the part of the USSR or Communist China to supply weapons. North Vietnam continued to receive the means for improving its air defenses, including equipment for additional surface-to-air missile battalions, advanced models of radar, and advanced configurations of the MIG-21 jet fighter aircraft.

The USSR was again the principal supplier of military equipment during 1968, but Communist China played a slightly greater role than in the previous three years, supplying one-fourth of the total. The Eastern European Communist countries and North Korea are believed to have provided only small amounts. In addition to the equipment deliveries, Communist China maintained troops in North Vietnam to assist in construction of lines of communication and airfields and to afford additional air defense cover. A substantial share of the 40,000-50,000 Chinese troops which were in North Vietnam at the beginning of 1968 were gradually withdrawn during the year. Possibly as many as 2,000 Soviet military advisers and technicians were assisting in North Vietnam in 1968/

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[REDACTED] Communist weapons and manpower probably were provided free of charge.

Military equipment deliveries during 1969 probably will be even below the 1968 level if the bombing of North Vietnam is not resumed. Improvements in air defense capabilities have been continuing.

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Military Deliveries During 1968

1. North Vietnam's imports of military equipment during 1968, valued in Soviet foreign trade prices, are estimated at almost \$400 million,* more than one-third less than deliveries during 1967. The cumulative value of Communist military equipment deliveries to North Vietnam during 1954-68 is almost \$2 billion, as shown in the following tabulation:

	Million US \$					
	<u>1954-64</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Total</u>
USSR	70	210	360	505	290	1,435
Communist China	70	60	95	145	100	470
Eastern Europe	Negl.	Negl.	Negl.	Negl.	5	5
North Korea	0	0	Negl.	Negl.	Negl.	Negl.
<i>Total</i>	<i>140</i>	<i>270</i>	<i>455</i>	<i>650</i>	<i>395</i>	<i>1,910</i>

2. The decline in the value of military imports was concentrated in the second half of 1968** and reflects mainly a sharp drop in requirements for SA-2 surface-to-air missiles and antiaircraft artillery ammunition following the US bombing restrictions adopted on 31 March. The North Vietnamese fired 500-600 SA-2 missiles in 1968, compared with more than 3,800 in 1967, and it is estimated that about 1,100

* Soviet foreign trade prices are the list prices charged for military hardware and ammunition by the USSR under its aid agreements with non-Communist countries. Values calculated at equivalent US costs, intended to reflect the cost of the Soviet materiel if it were produced in the United States, generally are higher than the foreign trade valuations. Values in Tables 1 and 2 are expressed in both types of prices, but values in the text are given in foreign trade prices.

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replacement missiles were imported during 1968, compared with 4,000 in 1967. Ammunition imports are estimated to have dropped from 91,000 tons in 1967 to about 55,000 tons in 1968. The decrease in expenditures of antiaircraft artillery ammunition was less pronounced than the decrease in expenditures of SA-2 missiles because North Vietnam continued to rely heavily on antiaircraft artillery for air defense in the southern Panhandle, where the bombing continued at a high level through October 1968. After the bombing halt of 31 October, antiaircraft defenses in the Laotian Panhandle were increased, although the increase in the use of ammunition there did not offset the reduced expenditures in North Vietnam.

3. Imports of artillery and armor also were estimated to be lower in 1968 than in previous years when North Vietnam was building its inventory of these items. On the other hand there were increased deliveries of radar, small arms, and other infantry weapons. North Vietnam improved its night and poor-weather air defenses by importing fire control radar for antiaircraft artillery. Large increases were made in inventories of light automatic weapons in 1968, and the value of these weapons increased substantially as a percent of the value of imports of small arms and other infantry weapons.

4. The value of aircraft deliveries to North Vietnam in 1968 was the same as in 1967, but all of the jet fighter deliveries were MIG-21's; there were no further deliveries of obsolete MIG-17 aircraft. About 10 of the 23 MIG-21's delivered in 1968 replaced losses inflicted by US attacks. Most of the 15 MIG-21's delivered since May 1968 are believed to be the more advanced all-weather Fishbed's; previously North Vietnam possessed only earlier models. Other aircraft deliveries to North Vietnam in 1968 included at least three MI-4 light cargo helicopters and one IL-18 passenger aircraft from the USSR.

5. Although the value of ammunition during 1968, about \$225 million, was considerably below the level imported the previous year, ammunition imports as a share of total military imports was about the same

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in both years. The share of imports made up by air defense weapons -- SAM systems, including replacement missiles, MIG jet fighter aircraft, radar, and anti-aircraft artillery -- dropped from about 36 percent in 1967 to 31 percent in 1968. Ground forces weapons, such as small arms, other infantry weapons, and field artillery, increased from 6 percent of the value of military imports in 1967 to 9 percent in 1968. The value of military imports from the USSR and Communist China, grouped according to end use, is given in the following tabulation:

	<u>Million US \$</u>			
	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
All ammunition	103	205	369	226
Air defense	134	183	235	122
Ground forces	18	39	36	34
Naval forces	2	2	4	1
Other	10	22	8	7
<i>Total a/</i>	270	455	650	390

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

Other Military Assistance

6. In addition to combat equipment, Communist countries have provided considerable military assistance in the form of manpower services and military-related goods and equipment. At the beginning of 1968, between 40,000 and 50,000 Chinese support troops were working on construction, repair, and air defenses in North Vietnam, primarily on rail lines, airfields, and anti-aircraft artillery and radar sites in the north. With the bombing halt in the north on 31 March and the completion of some construction projects,

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however, a large number of Chinese military personnel and technicians were withdrawn during the year. No firm estimate exists on the number of Soviet military technicians in North Vietnam during 1968, but as many as 2,000 may have been there training North Vietnamese jet fighter pilots, assisting in assembly and checkout of new aircraft, and providing technical assistance for communications, maintenance, and logistic support activities.

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Sources of Military Assistance

7. The Soviet Union continued to be the principal supplier of military aid although its share of total deliveries dropped to less than three-fourths in 1968, from almost four-fifths in 1965-67. Communist China supplied an increased share -- one-fourth compared with one-fifth in the three previous years. Eastern European countries and North Korea together contributed slightly more than 1 percent. Military deliveries from the USSR in 1968 consisted primarily of ammunition and missiles, equipment for surface-to-air missile battalions, radar, and MIG-21 jet aircraft. Communist China provided slightly more than one-fourth of the ammunition and most of the small arms and other infantry weapons. Military aid from the Eastern European countries consisted of a relatively small number of vehicles, infantry equipment, and small amounts of ammunition; North Korea supplied small amounts of infantry weapons and ammunition. Estimated quantities and values of military imports from the USSR and Communist China from 1965 through 1968 are shown in Tables 1 and 2.

8. Military deliveries for early 1968 were negotiated during August-October 1967, during which time, according to public announcements, a number of agreements were signed for strengthening the economic and national defense potential of North Vietnam. Details of the agreements are lacking, but official public statements indicate that Communist China, North Korea, Bulgaria, Poland, the USSR, Hungary, and Rumania agreed to provide military assistance during 1968. New military aid agreements, described as supplementary

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for the remainder of 1968, were negotiated during May-July with Bulgaria, Rumania, Hungary, Poland, and Czechoslovakia. At the same time, each of these countries, plus East Germany, agreed to provide military aid in 1969. On 25 November 1968, North Vietnamese aid negotiators went to Moscow and signed an additional agreement with the Soviet Union for military and economic aid in 1969. This agreement probably was prompted by North Vietnam's changed requirements following the US bombing halt on 1 November. The terms of Communist military aid to North Vietnam are unknown, but the aid is probably in the form of grants.

Prospects for 1969

9. If the bombing of North Vietnam is not resumed, Communist military aid to North Vietnam in 1969 probably will be smaller than in 1968, since requirements for expendable air defense munitions will be reduced further. However, new equipment to strengthen and improve North Vietnam's air defense capability probably will continue to be acquired. Deliveries of at least 12 MIG-21 aircraft from the USSR and a number of MIG-19 aircraft from Communist China already have been received during the first quarter of 1969. Military aid probably will also be used to modernize the equipment of North Vietnam's military forces. More sophisticated components probably will replace equipment heavily used under adverse conditions during the period of US bombing. It is unlikely, however, that the North Vietnamese will feel the need to increase their weapons inventories unless the fighting should accelerate considerably.

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Appendix

Methodology

Estimates of Communist military deliveries to North Vietnam are based on indirect evidence from a wide variety of sources as to the types and quantities of weapons supplied. There is virtually no direct information on imports of munitions. The estimate of major items of military equipment delivered each year is derived from an analysis

[redacted] Deliveries are calculated from estimated changes in inventories of weapons and estimates of the amount of weapons destroyed. Ammunition tonnages are computed using various estimated factors. For example, expenditures of antiaircraft ammunition, which have comprised some 80 percent of total estimated ammunition deliveries, were derived as a product of number of firing units, weapons involved, rates of fire for these weapons, duration of firing, and weight per round.

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The military aid supplied by the USSR and Communist China is distinguished by the type of equipment and ammunition produced by the donor country. For example, MIG-21 aircraft are assumed to have been provided by the USSR because Communist China does not produce this item. All SAM equipment, heavy antiaircraft artillery, and most of the lighter artillery are assumed to come from the USSR because the USSR has far greater quantities of these weapons. Most of the small arms and other infantry weapons delivered to North Vietnam are believed to originate in China because most of the captured small arms that have been observed in South Vietnam are of Chinese origin. From two-thirds to four-fifths of the ammunition in past years was estimated to have come from the USSR, depending on the amounts of antiaircraft ammunition expended.

Values derived for Tables 1 and 2 reflect both the Soviet foreign trade prices and US factor costs.

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Foreign trade prices are the list prices charged for military hardware and ammunition by the USSR under its aid agreements with non-Communist countries. Values calculated at equivalent US costs are intended to reflect the cost of the Communist materiel if it were produced in the United States. They are generally higher than the foreign trade valuations, the principal exceptions being ammunition and small arms.

Table 1
Soviet Military Aid Deliveries to North Vietnam a/

	1965			1966			1967			1968		
	Million US \$			Million US \$			Million US \$			Million US \$		
	Quantity (Units)	At Soviet Trade Prices	Foreign At US Costs	Quantity (Units)	At Soviet Trade Prices	Foreign At US Costs	Quantity (Units)	At Soviet Trade Prices	Foreign At US Costs	Quantity (Units)	At Soviet Trade Prices	Foreign At US Costs
Total value b/		<u>210</u>	<u>280</u>		<u>360</u>	<u>440</u>		<u>505</u>	<u>590</u>		<u>290</u>	<u>310</u>
SAM missile systems		<u>72</u>	<u>77</u>		<u>77</u>	<u>85</u>		<u>142</u>	<u>162</u>		<u>78</u>	<u>86</u>
Firing battalions c/	15	66	70	10	44	47	5	22	23	10	44	46
Replacement missiles d/	200	6	7	1,100	33	38	4,000	120	139	1,135	34	40
Aircraft	<u>27</u>	<u>17</u>	<u>25</u>	<u>85</u>	<u>45</u>	<u>53</u>	<u>20</u>	<u>16</u>	<u>22</u>	<u>27</u>	<u>24</u>	<u>27</u>
IL-28 light jet bomber	8	3	11									
MIG-21 jet fighter	11	9	12	26	21	28	20	16	22	23	21	25
MIG-15/17 jet fighter	32	4	10	42	6	13						
MI-6 helicopter				6	12	7						
MI-4 helicopter	3	1	1	7	1	1						
U-MIG-15 jet trainer	3	Negl.	1							3	1	1
AN-24 medium transport				3	3	3						
IL-18 heavy transport				1	2	1						
Naval craft										1	2	1
Poluchat 1-class motor gunboat										2	Negl.	Negl.
Armor	<u>133</u>	<u>5</u>	<u>8</u>	<u>15</u>	<u>Negl.</u>	<u>1</u>	<u>123</u>	<u>5</u>	<u>8</u>	<u>2</u>	<u>Negl.</u>	<u>Negl.</u>
T-54 medium tank	30	3	4				40	3	5			
T-34 medium tank	25	1	2									
PT-76 amphibious tank	25	1	1	5	Negl.	1	10	1	1			
BTR-40 armored personnel carrier	25	Negl.	Negl.	10	Negl.	Negl.	40	1	1			
BTR-50 armored personnel carrier												
ZSU-57 self-propelled gun	8	Negl.	1				3	Negl.	Negl.			
SU-76 assault gun							30	Negl.	1			
Other	20	Negl.	Negl.								Negl.	Negl.

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Table 1
Soviet Military Aid Deliveries to North Vietnam ^{a/}
(Continued)

	1965			1966			1967			1968		
	Quantity (Units)	Million US \$		Quantity (Units)	Million US \$		Quantity (Units)	Million US \$		Quantity (Units)	Million US \$	
	At Soviet Trade Prices	Foreign	At US Costs	At Soviet Trade Prices	Foreign	At US Costs	At Soviet Trade Prices	Foreign	At US Costs	At Soviet Trade Prices	Foreign	At US Costs
Artillery ^{g/}	1,430	28	80	2,830	50	109	2,330	22	105	245	6	2
100-mm antiaircraft artillery	100	5	14	100	5	14						
85-mm antiaircraft artillery	315	12	27	55	2	5	465	19	40	20	1	2
57-mm antiaircraft artillery	485	17	31	735	25	46	590	21	37	55	2	3
37-mm antiaircraft artillery	250	2	6	1,850	17	44	850	6	20	95	1	2
14.5-mm antiaircraft artillery	230	1	1	50	Negl.	Negl.	100	Negl.	1	40	Negl.	Negl.
Field artillery (76 - 152-mm)	50	1	1	40	1	Negl.	325	5	7	135	2	2
Radar	23	2	4	160	17	25	89	2	15	124	10	20
Trucks and other vehicles ^{f/}	650	3	3	400	2	2	850	4	4	430	2	3
Small arms and other infantry weapons ^{g/}		1	1		2	2		1	1		2	2
Ammunition (metric tons)	17,000	70	70	40,000	164	164	68,000	275	275	40,000	164	164

- a. The data refer exclusively to combat materiel; they exclude aid designed for war-support purposes.
b. Because of rounding, components may not add to the total values shown.
c. Price per firing battalion includes a factor for replacement parts and the cost of an initial complement of missiles.
d. Rounded figure based on estimated number of missiles fired with some provision for stockpiling.
e. North Vietnam's inventory of antiaircraft artillery was revised down from the high estimate for 1967, and a small, but unknown, number of antiaircraft artillery weapons carried as reported in 1967 probably were imported in 1968.
f. Estimates for vehicles assigned to the armed forces. Vehicles used for military-support purposes are not included.
g. All mortars are included as infantry weapons.

Table 2
Chinese Communist Military Aid Deliveries to North Vietnam a/

	1965			1966			1967			1968		
	Million US \$			Million US \$			Million US \$			Million US \$		
	Quantity (Units)	At Soviet Foreign Trade Prices	At US Costs	Quantity (Units)	At Soviet Foreign Trade Prices	At US Costs	Quantity (Units)	At Soviet Foreign Trade Prices	At US Costs	Quantity (Units)	At Soviet Foreign Trade Prices	At US Costs
Total value b/		<u>60</u>	<u>70</u>		<u>55</u>	<u>110</u>		<u>145</u>	<u>160</u>		<u>100</u>	<u>100</u>
Aircraft	<u>8</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>61</u>	<u>8</u>	<u>19</u>	<u>0</u>	<u>0</u>	<u>0</u>
MIG-15/17 jet fighter	8	1	2				61	8	19			
Naval craft	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>6</u>	<u>4</u>	<u>5</u>	<u>1</u>	<u>1</u>	<u>1</u>
Shanghai-class motor gunboat												
P-6-class motor torpedo boat	2	2	2	2	2	2	6	4	5			
Ruchuan-class hydrofoil motor torpedo boat												
Other										1	1	1
Armor	<u>25</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
T-34 medium tank	25	1	2									
Artillery c/	<u>320</u>	<u>6</u>	<u>11</u>	<u>140</u>	<u>4</u>	<u>6</u>	<u>695</u>	<u>8</u>	<u>10</u>	<u>160</u>	<u>2</u>	<u>4</u>
57-mm antiaircraft artillery	100	4	6	100	4	6	100	4	6	50	1	2
37-mm antiaircraft artillery	100	2	5							45	Negl.	1
14.5-mm antiaircraft artillery										25	Negl.	1
Field artillery (76 - 100-mm)	10	Negl.	Negl.	40	Negl.	Negl.	120	1	1	80	1	Negl.
Radar	<u>12</u>	<u>2</u>	<u>4</u>	<u>112</u>	<u>2</u>	<u>16</u>	<u>67</u>	<u>7</u>	<u>8</u>	<u>50</u>	<u>2</u>	<u>7</u>
Trucks and other vehicles d/	<u>600</u>	<u>2</u>	<u>2</u>	<u>400</u>	<u>2</u>	<u>2</u>	<u>700</u>	<u>4</u>	<u>4</u>	<u>400</u>	<u>2</u>	<u>2</u>
Small arms and other infantry weapons e/		<u>10</u>	<u>10</u>		<u>35</u>	<u>41</u>		<u>22</u>	<u>20</u>		<u>20</u>	<u>21</u>
Ammunition (metric tons)	<u>8,000</u>	<u>33</u>	<u>33</u>	<u>10,000</u>	<u>41</u>	<u>41</u>	<u>24,000</u>	<u>24</u>	<u>24</u>	<u>15,000</u>	<u>60</u>	<u>60</u>

a. The data refer exclusively to combat materiel; they exclude aid designed for war-support purposes.

b. Because of rounding, components may not add to the total values shown.

c. North Vietnam's inventory of antiaircraft artillery was revised down from the high estimate for 1967, and a small, but unknown, number of antiaircraft artillery weapons carried as imported in 1967 probably were imported in 1968.

d. Estimates for vehicles assigned to the armed forces. Vehicles used for military-support purposes are not included.

e. All mortars are included under infantry weapons.