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# The Costs of Soviet Involvement in Afghanistan

An Intelligence Assessment

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# The Costs of Soviet Involvement in Afghanistan

An Intelligence Assessment

This paper was prepared by  
Office of Soviet Analysis, with substantial  
contributions from

South Asian Analysis;  
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## The Costs of Soviet Involvement in Afghanistan (I)

**Key Judgments**  
*Information available  
as of 31 October 1986  
was used in this report.*

Soviet leaders continue to express frustration over the protracted war in Afghanistan. This was evident at the party congress in February 1986 when General Secretary Gorbachev referred to the war as a "bleeding wound." Soviet involvement in Afghanistan has led to periodic censure within the United Nations, become a stumblingblock to improved Sino-Soviet relations, and complicated Soviet policy toward nations in the nonaligned movement. At home, pockets of social unrest related to Afghanistan, the diversion of energies from pressing economic problems, and dissatisfaction in the political hierarchy over the failure to end the war also probably worry the leadership. ( )

The war has not been a substantial drain on the Soviet economy so far, although the costs of the war have been rising faster than total defense spending. We estimate that from their initial invasion in December 1979 through 1986 the Soviets have spent about 15 billion rubles on the conduct of the war. Of this total, about 3 billion rubles would have been spent over the seven-year period even if the USSR had not occupied Afghanistan.

Our estimate of total costs is more likely to be high than low. In calculating the total, we used the high side of a range of estimated aircraft losses; use of the low estimate for aircraft losses would reduce our estimates of the total cost of the war by nearly 2 billion rubles. We also used an accounting procedure that assigned maximum costs for equipment replacement. Use of an accounting procedure based on depreciated values would reduce our cost estimates by another 3-3.5 billion rubles.

Measured in dollars—what it would have cost the United States to procure, operate, and maintain the same force in Afghanistan—we estimate that the total cost through the seven years of the war has been less than \$50 billion. This is only 75 percent of what the war in Vietnam cost the United States in the peak year of 1968.

The Soviets have been able to contain the costs of the war because:

- They have increased the commitment of troops only gradually. Manpower levels have risen from 80,000 in 1980 to the present in-country strength of approximately 120,000.

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- The Soviets have used conservative tactics to minimize human and materiel losses. We estimate they have suffered 30,000 to 35,000 combat casualties, a third of whom died. Much of the equipment and expendables has been drawn from old stocks.
- Soviet supply lines to Afghanistan are relatively short, often shorter than some that serve Soviet troops within the Soviet Union.
- The Afghan Government has been required to pay for most arms and some of the economic assistance it receives from the USSR with natural gas transfers. The total value of this aid—3.5 billion rubles—is, therefore, excluded from our 15-billion-ruble estimate of the total cost of the war.

Soviet costs, although relatively low, have been growing steadily. In both 1985 and 1986, Moscow spent nearly 3 billion rubles on the conduct of the war, or some 2 to 2.5 percent of total defense spending, compared with an average of about 2 billion rubles over the previous five years. While this is still low in relative terms, as an increment to the total defense budget it is beginning to take on increasing significance. Much of the rising cost of the war is traceable to increases in Soviet air operations and the resulting higher aircraft losses. During 1984 and 1985 the Soviets may have lost more than 300 aircraft from all causes. Nearly 90 percent of these were helicopters. In 1985 the replacement cost of the helicopters estimated to have been destroyed in Afghanistan amounted to 35 percent of total Soviet military helicopter procurement costs in that year. These factors have more than offset the savings from the substantial reduction in ground forces combat activity that occurred in 1986 as part of the Soviet policy of turning more of the combat burden over to the Afghan army.

The costs of the war appear likely to continue their gradual rise. Construction, force augmentations, and Soviet employment tactics all indicate that the increased emphasis on air operations observed since 1983 will continue for at least another year:

- Analysis of improvements occurring at airfields in Afghanistan suggests that they are probably intended to support new aircraft deliveries, expand logistic capabilities, and improve security.
- The number of Soviet helicopters in Afghanistan is increasing, and air operations during 1986 exceeded those of 1985.

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- Helicopters are being used more extensively in support of Soviet special forces to seek out and attack insurgent groups.

Despite the increasing trend, however, the economic costs resulting from these operational developments are unlikely, in our view, to be of sufficient magnitude to constitute a significant counterweight to the political and security implications the Soviets would attach to withdrawal under circumstances that could be seen as a defeat. Indeed, we believe the recent rising trend in economic cost is more a reflection of determination in Moscow to counter a better armed insurgency and thus shows continued willingness to incur whatever burden is necessary.

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### **The Costs of Soviet Involvement in Afghanistan**

#### **Scope Note**

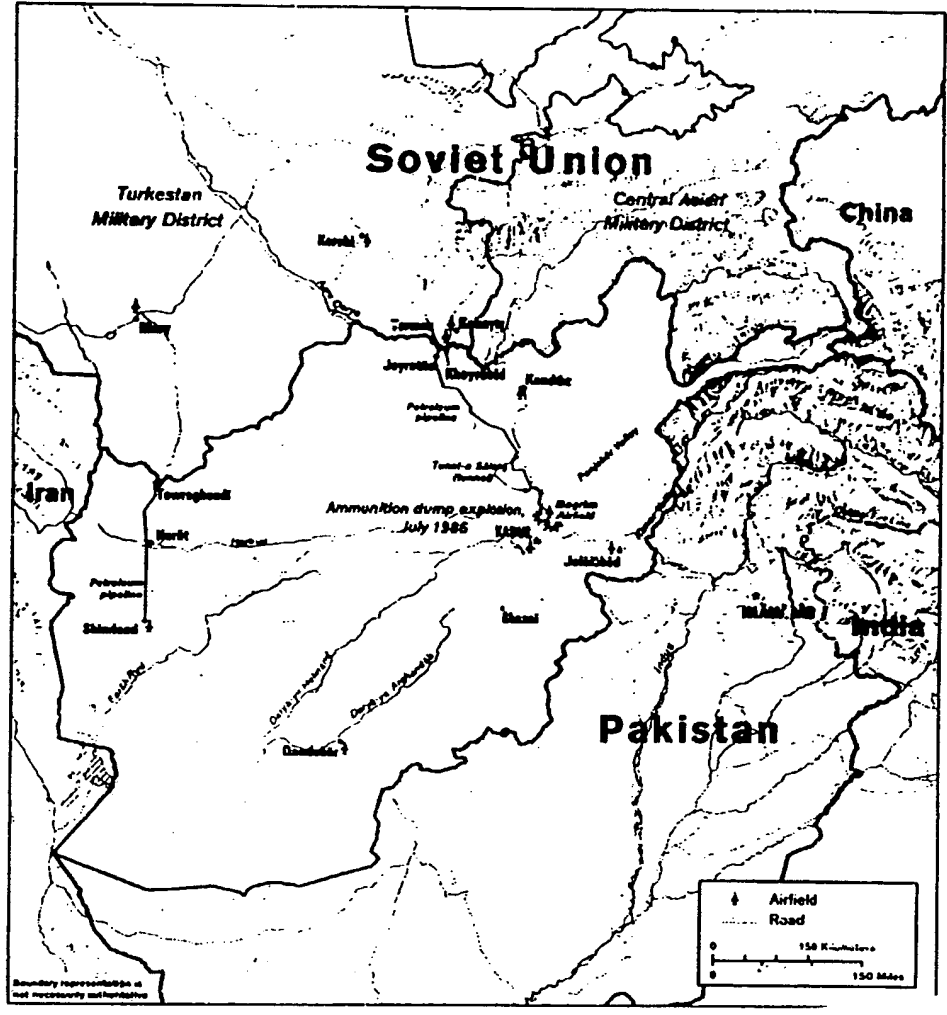
In 1985 a major paper on Soviet military involvement in Afghanistan was published. The estimate of the cost of the Afghan war to the Soviets reported in that paper was thought by some analysts to be too low. This paper presents the results of a comprehensive review of the methodology and data used to generate the manpower, materiel, activity levels, and costs associated with the Afghan war. It traces the trend in, and the costs of, Soviet involvement during seven years of the war from 1980 through 1986; briefly describes the findings of new research into activity levels, expenditures of supplies and equipment, construction of facilities, and personnel costs; and measures the impact of these costs on the military as a whole.

Note: See DI Intelligence Assessment NESA 85-10084/SOV 85-10081  
May 1985, *The Soviet Invasion of Afghanistan: Five  
Years After*.



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Figure 1  
Afghanistan



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### The Costs of Soviet Involvement in Afghanistan (U)

#### Introduction

In 1979, against a background of slowing economic growth and military spending, the Soviet Union invaded Afghanistan to support a fledgling Marxist government threatened by civil war and imminent collapse. Moscow's basic goal was to ensure the continuation of a pro-Soviet Communist regime that could rule the country on its own without a large Soviet military presence. At the time, the Soviets referred to the invasion as "limited" and "temporary," hoping that the accession of a more moderate regime in Kabul under Babrak Karmal, coupled with the Soviet military presence, would intimidate the insurgents, bolster the Afghan army, and enable most of the Soviet troops to withdraw within a couple of years.

Seven years later, the Soviets find themselves bogged down in a guerrilla war, the Soviet-installed regime in Kabul remains weak and ineffective, and the Afghan military remains incapable of quelling a resistance that has grown substantially in numbers, effectiveness, and popular support. Soviet officials now privately concede that their leadership miscalculated the difficulties of achieving their goals and underestimated the long-term costs of their involvement in Afghanistan.

In estimating the ruble cost to the Soviets of their involvement in Afghanistan, we first estimated the costs that are common to all military forces. These include outlays for military personnel, normal operations and maintenance, construction, and the procurement of equipment and supplies. We then estimated the incremental costs—those unique to a wartime situation such as the replacement and repair of large quantities of equipment destroyed and damaged; the expenditure of ammunition; and extraordinary medical, operating, and construction costs.

For manpower and order of battle, we have high confidence in our estimates. We have much less confidence in our estimates of equipment losses and of consumption of petroleum, oil, lubricants (POL), and ammunition because the evidence is not as good.

Our estimates of the cost of Soviet military activities in Afghanistan for 1986 are preliminary. They are based on known deployments and observed patterns of Soviet operations in Afghanistan during most of the year. These estimates, therefore, are less certain than those for the period 1980-85, for which we have more reliable and detailed data on equipment holdings, losses of materiel, and rates of operation.

#### The Soviet Commitment of Manpower and Materiel

Since the invasion in December 1979, the Soviets have increased the number of troops and the quantity and quality of weapons deployed in Afghanistan. Concurrent with the increases, the Soviets shifted their tactics from massed combined-arms sweeps to increasing reliance on small-unit operations, depopulation of key resistance areas, and control of insurgent access through the border provinces. Though this shift was probably driven by military and political considerations, it has kept the war a relatively low-cost effort.

#### Manpower

In mid-1980 the Soviets had approximately 80,000 troops in Afghanistan. By mid-1986 this figure had increased to about 120,000 (see table 1). Those Soviet military personnel in the USSR who support the fighting full-time are estimated to have increased from 20,000 to 40,000 during the period 1980-86. The data were extrapolated from the number of military personnel in the Turkestan MD in 1980 who were estimated to be engaged full-time in supporting the war.

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**Table 1**  
**Soviet Military Manpower in**  
**Afghanistan, 1980 and 1986**

	1980	1986	Percent Increase
<b>Total manpower</b>	<b>80,000</b>	<b>120,000</b>	<b>50</b>
<b>Ground forces</b>			
Combat personnel	49,000	74,500	52
Rear services and support personnel	21,500	30,000	40
Military advisers	2,000	4,000	100
<b>Air forces</b>			
Combat personnel	3,000	5,000	67
Rear services and support personnel	4,500	6,500	44

Of the 120,000 Soviet troops in country, less than half are available for offensive action because of the need to deploy some units semipermanently to defend major bases and lines of communication. We estimate that the current in-country troop strength is inadequate to neutralize the insurgency and gain control of the country. The Soviets clearly have the capability to increase substantially their forces in Afghanistan. Instead, they have increased their troop strength only moderately over the years. This approach has kept Soviet combat casualties low. We estimate that over the seven-year period 1980-86, the Soviets suffered 30,000 to 35,000 casualties, a third of whom died.

Largely as a result of their changed tactics, the Soviets have been somewhat more successful since 1985 in accomplishing those missions necessary to cope with the insurgency, including:

- Reducing the flow of outside aid to the insurgents.
- Actively seeking out and engaging insurgent groups rather than waiting for them to strike.
- Detecting movement in advance of an attack and moving troops rapidly enough to intercept and engage insurgent units.
- Undermining the insurgents' civilian base of support.
- Building up the ability of the Afghan military to assume a more active role in the fighting.

#### **Materiel**

Our cost estimates are based on intelligence on Soviet materiel used in the war effort—equipment holdings and the destruction and expenditure of supplies and equipment in Afghanistan. Detailed estimates for 1986 are not yet available, but preliminary judgments about 1986 are based on known events and observed changes since 1985.

Estimates of equipment holdings through 1985 are agreed Intelligence Community data.

Data on equipment destroyed and damaged come from detailed analysis. A great deal of uncertainty is inherent in these data.

These unknown data are needed for calculations of replacement costs, so they must be estimated.

During the period 1980-85 the USSR slowly increased and modernized its equipment holdings in Afghanistan, partly in response to the stepped-up tempo of the insurgency and partly in line with the policy of overall force modernization (see table 2). The Soviet fighter/fighter-bomber aircraft order of battle increased by about 65 percent during this time and the number of helicopters by about 20 percent. The greatest total increase in aircraft (both fixed and rotary wing) occurred in 1984 and 1985 as a result of stepped-up air attacks on Mujahedin forces. The air force was also modernized as older MIG-21s and MI-8s were replaced by newer, more capable MIG-23, SU-17, and MI-24 aircraft. In 1981 the first squadron of SU-25s—the Soviets' newest ground attack aircraft—appeared in Afghanistan.

The pace of introduction of newer, more capable equipment for the ground forces in Afghanistan was slower than that for the air forces. From 1980 through 1985 the number of major items of equipment increased by only about 10 percent. In fact, table 2 shows a decline in the tank inventory between 1980

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**Table 2**  
**Selected Soviet Military Equipment**  
**in Afghanistan, 1980-85**

	1980	1981	1982	1983	1984	1985
<b>Aircraft</b>						
<b>Fighter/fighter-bombers</b>	70	75	75	75	90	115
MIG-21	65	60	45	45	15	0
MIG-23	0	0	0	0	20	45
SU-17	5	10	15	15	40	45
SU-25	0	5	15	15	15	25
<b>Helicopters</b>	255	260	265	270	305	300
MI-8	140	140	125	125	135	130
MI-74	85	85	100	105	120	120
MI-6	30	35	40	40	50	50
<b>Ground forces equipment</b>						
<b>Tanks</b>	810	720	735	680	680	730
T-54/55	215	120	120	120	0	40
T-62	595	600	615	560	680	690
<b>Armored personnel carriers/ armored combat vehicles</b>	2,815	2,825	2,880	3,070	3,040	3,555
BTR-50	10	0	0	0	0	0
BTR-60	960	965	955	735	90	105
BTR-70	460	455	640	905	1,545	1,670
BMD	500	520	365	365	365	380
BMP 1/2	885	885	920	1,065	1,040	1,400
<b>Other</b>	190	185	185	185	295	335
122-mm self-propelled howitzer	20	20	20	20	90	125
152-mm self-propelled howitzer	20	20	20	20	55	55
BM-21 multiple rocket launcher	130	125	125	125	125	130
BM-27 multiple rocket launcher	20	20	20	20	25	25

and 1985—a result of the decision to withdraw all but one tank regiment from the country. The Soviet forces' need for tanks in Afghanistan is relatively small, and the opportunities for their use are limited.

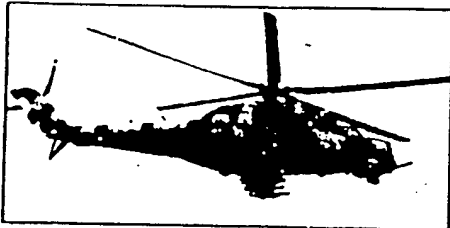
Much larger numbers of armored personnel carriers (APCs) are used, principally for escort duty and perimeter patrol. BTR-50 and BTR-60 armored personnel carriers were replaced with BTR-70s, which

provided greater protection for convoys that were under more frequent attack by the insurgents as the war progressed. The BMP-2 with its 30-mm automatic cannon is better suited for convoy protection than is the old BMP with its 73-mm smoothbore gun, and the Soviets added more than 500 BMP-2s between 1980 and 1986. Self-propelled artillery holdings increased

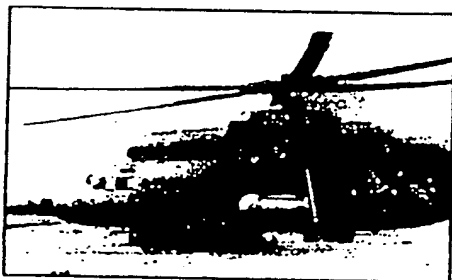
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Figure 2  
Soviet Aircraft in Afghanistan



*MI-24 Attack Helicopter.  
Provides fire support with a mixture of 12.7-mm  
and 30-mm guns, 57-mm and 80-mm rockets,  
and AT-3 and AT-6 antitank missiles.*



*MI-6 Heavy Lift Transport Helicopter With  
BMD-1 Airborne Combat Vehicle.  
The MI-6 is the largest helicopter used in  
Afghanistan. However, its poor performance at  
higher altitudes and temperatures and its  
vulnerability to attack keep it from being used as  
an assault troop carrier.*

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in 1984 and 1985 as part of the modernization effort occurring throughout the Soviet forces. At the same time, the Soviets began to expand their inventory by placing artillery in units that normally did not have it as part of their table of equipment. (

**The Costs of Military Operations in Afghanistan**

We estimate that, from late December 1979 through December 1986, the Soviets spent about 15 billion rubles on the direct conduct of the war (to put these outlays in perspective, we estimate that in 1982, the Soviet military spent 8-9 billion rubles for aircraft procurement alone).<sup>1</sup> Figure 3 shows the distribution of these costs by the major resource categories of procurement, construction, personnel, and operations and maintenance (O&M).

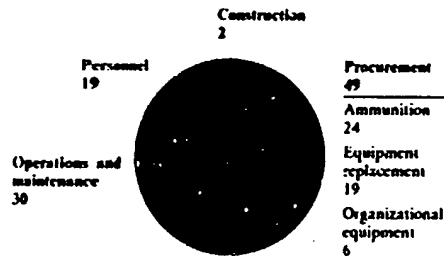
A dollar valuation of the Soviet activities in Afghanistan for 1980-86 is about \$48 billion in 1984 prices (see table A-2 in appendix A), or an average annual cost of about \$7 billion. This amount is calculated by applying prevailing US prices and wages to the Soviet activities in Afghanistan: the US cost of procuring the same supplies and equipment, maintaining the same military force in Afghanistan, and operating that force in the same manner as the Soviets. Over the 13-year period 1964-76, the United States spent the equivalent of nearly \$330 billion (in 1984 prices) on its involvement in Southeast Asia. On an average annual basis, US outlays were four times greater than those of the USSR for its involvement in Afghanistan. The dollar value of the Soviet peak-year (1986) outlay in Afghanistan is less than 15 percent of the US peak-year (1968) outlay of \$65 billion.

Since the invasion of Afghanistan in 1979, the war has become increasingly costly to the Soviets. Over the past seven years they have built up their weapons inventories, experienced greater aircraft and equipment losses, and sharply increased their use of ammunition. In 1980 the USSR spent about 1.5 billion rubles, or 1.5 percent of its total defense budget, on Afghanistan. Outlays grew at an average annual rate

<sup>1</sup> All ruble cost data used to develop this estimate are in constant 1982 prices.

**Figure 3  
Soviet Costs for Afghan War: Distribution  
by Resource Category, 1980-86<sup>a</sup>**

Percent



<sup>a</sup> Based on ruble cost estimates in 1982 prices.

of 12 percent, so that by 1985 total expenditures amounted to 2.7 billion rubles and took about 2.5 percent of the total. Combat activity by Soviet ground forces in 1986 was substantially reduced as part of the Soviet policy of turning more of the combat burden over to the Afghan army. In terms of ruble outlays, the cutback by the ground forces has been more than offset by increased air forces activity and related expenditures. These increases do not extend to aircraft losses, however, where we estimate the Soviets suffered fewer losses in 1986 than in 1985. Our preliminary estimate of costs for 1986 shows only a slight increase over those for 1985.

Of the 15 billion rubles of total estimated costs through 1986, about 12 billion rubles are expenses directly incurred by the war for such things as equipment losses, ammunition expended, shipping

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costs, and out-of-country pay. The remainder represents the peacetime costs of the forces that are deployed to Afghanistan—costs that would have been incurred even without the war.<sup>1</sup>

Our estimate of total costs through 1986 is more likely to be high than low. In calculating the total, we used the high side of a range of estimated aircraft losses and an accounting procedure that uses maximum costs for equipment replacement. Use of the low estimate for aircraft losses would reduce our estimate of the total cost of the war by nearly 2 billion rubles. An accounting procedure based on depreciated values would reduce our total by another 3-3.5 billion rubles. Together, these lower estimates amount to one-half a percent of cumulative Soviet defense spending for the period 1980-86.<sup>2</sup>

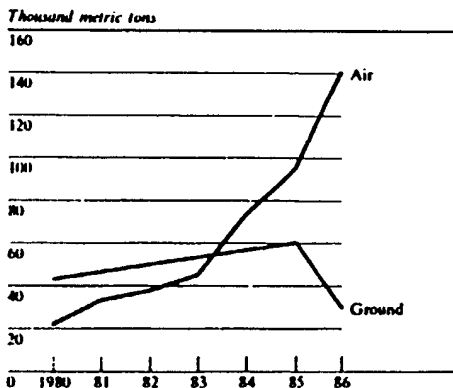
The estimate of total expenditures is subject to other uncertainties. Given the varying rates of uncertainty among the many components of the estimate, we calculate that a worst case—where all individual components of the estimate are either understated or overstated to subjectively derived limits—would result in an error of  $\pm 4$  billion rubles, or about 25 percent of the total through 1986. Because of the tendency for errors to be partially offsetting, however, the uncertainty of our estimate probably is more in the range of  $\pm 2$  billion rubles or less.

#### Procurement

Over the seven-year period of the estimate, procurement accounted for one-half of all Soviet costs. This category includes the costs of ammunition, replacing destroyed equipment, and procuring organizational equipment. For purposes of this estimate we have assumed that the Soviets replaced all destroyed equipment with new equipment of the same kind and paid the full replacement cost.

**Ammunition.** The Soviets' largest procurement expenditure was for ammunition. To estimate air ammunition expenditures, we used known ordnance-carrying factors for each type of aircraft and estimates of the number of sorties flown per year. All-source data on ground munitions expenditures provided the basis for a method that calculates the average weight of ammunition expended per day per man for the year

Figure 4  
Soviet Expenditure of Ammunition in  
Afghanistan, 1980-86



1985. The resulting factor was used to calculate ammunition expenditures, by type of munition, for each of the years of the study.<sup>3</sup>

We estimate that during the period 1980-86, the Soviets used more than 780,000 metric tons of ground and air munitions at a cost of 3.7 billion rubles. This includes the value of all ammunition, some of which was stolen and some of which was captured or destroyed, that the Soviets shipped to Afghanistan.<sup>4</sup> In 1983 they began to rely much more heavily on air operations as a tactical option. This resulted in a dramatic increase in the use of air munitions (see figure 4). Gravity bombs represent the largest category of air munitions expended. We estimate that Soviet aircraft stationed in Afghanistan dropped more bombs in 1985 than the total they dropped in the first three years of the conflict.

<sup>1</sup> In July 1986, an estimated 3,000 metric tons of ammunition was lost in an explosion at a supply dump at Bagram airfield.

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Artillery represented the largest category of ground ammunition expended, accounting for nearly 45 percent of total ground forces munitions costs throughout the seven-year period. In the early 1980s the Soviets deployed automatic mortars to Afghanistan. In 1984-85 longer range field guns and more self-propelled artillery were brought in. These measures resulted in increased expenditures of ammunition.

**Equipment Replacement.** Between 1980 and 1986 we estimate that the Soviets replaced aircraft, armored vehicles, ground forces weapons, tanks, and trucks valued at 3 billion rubles. Aircraft accounted for more than 80 percent of the total. Table 3 shows the number lost in each category through 1985.

There is a wide range in the estimates of the number of Soviet aircraft destroyed in Afghanistan since 1979. The cost estimates in this paper reflect the higher numbers—750 aircraft through 1985. If we used the lower numbers—some 320 aircraft—our cost estimates would be reduced by nearly 2 billion rubles.<sup>7</sup>

Of the estimated 750 Soviet aircraft destroyed from all causes during the period 1980-85, nearly 640, or 85 percent, were helicopters (see figures 5 and 6). The value of helicopters destroyed in 1985 is estimated to be equal to 35 percent of the value of all helicopters procured by the military in that year. Despite the large numbers of helicopters lost by the Soviets in Afghanistan, we did not detect increases in production to make up for these losses. Losses may have been replaced out of existing stocks, delaying the introduction of new equipment into peacetime units, but we have no evidence of this.<sup>8</sup>

In contrast, we estimate that fewer than 100 fighter and ground attack aircraft were lost from all causes during the period 1980-85. This six-year total is only

<sup>7</sup> The question of Soviet air losses will be addressed in a forthcoming SOVA study. The use of the high estimate—750 aircraft—in this paper was deliberate in order to arrive at a maximum cost estimate. The low figure—320 aircraft—is based on firm evidence in which the Intelligence Community has high confidence. Estimated losses beyond 320 aircraft are based on less certain evidence.

<sup>8</sup> Another interpretation of this apparent anomaly is that the high estimate of aircraft losses may be in error. (P)

Table 3  
Soviet Equipment Losses  
in Afghanistan, 1980-85

	Number Lost
<b>Ground forces</b>	
Trucks	5,250
Artillery*	880
Armored vehicles	655
Tanks	340
<b>Air forces*</b>	
Helicopters	640
Fixed-wing aircraft*	105

\* Includes field artillery, mortars, and multiple rocket launchers.

\* Figures for air forces are the high end of a range of estimates.

\* Includes transports.

slightly greater than the *annual* peacetime training attrition rate of about 70 tactical aircraft for the Soviet Air Forces. The relatively small number of fixed-wing aircraft lost may reflect the difficulty the insurgents have in tracking and destroying Soviet fighters as well as the success of the countermeasures taken by the Soviets to offset growing insurgent capabilities. Preliminary estimates for the year 1986 indicate that Soviet aircraft losses were less than they were in 1985.

The value of Soviet ground forces equipment losses in Afghanistan for the period 1980-86 is estimated at nearly 500 million rubles. Most equipment losses occur during attacks on convoys and perimeter patrols. Cargo trucks represented the greatest loss in terms of numbers, but they accounted for only about 10 percent of the estimated total value of ground forces equipment destroyed. The largest loss was that of more than 300 tanks, whose replacement cost amounted to 45 percent of the value of all ground forces equipment estimated to have been lost. Other

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Figure 5  
Afghan Insurgents and Their Weapons

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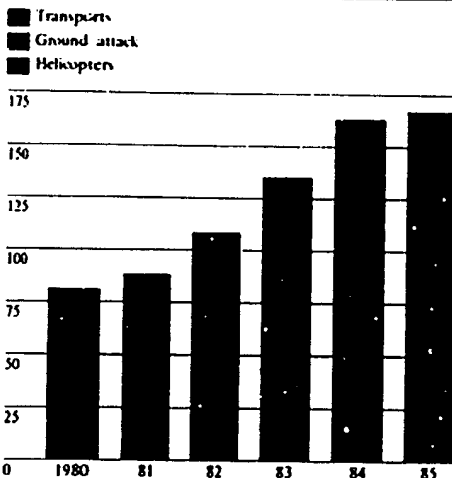
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**Figure 6**  
**Soviet Aircraft Destroyed in**  
**Afghanistan, 1980-86\***

*Number of aircraft*



\*This figure represents the high side of a range of estimates.

escort vehicles such as APCs suffered relatively high casualties because they are among the first to be targeted in a convoy attack. We estimate that more than 650 of these escort vehicles, valued at 125 million rubles, were destroyed over the period 1980-85.

**Organizational Equipment.** Organizational equipment consists of supplies necessary for the smooth operation of any unit. The category includes mess gear, tents, cots, typewriters, communications systems, test equipment, repair manuals, tools, and thousands of other items. The cost of supplying organizational equipment to Soviet troops in Afghanistan through 1986 is estimated at over 800 million rubles, with ground forces accounting for more than 90 percent of the total.

**Construction**

During the period 1980-86, Soviet expenditures for construction in Afghanistan amounted to 350 million rubles, or 2 percent of the total. Sixty percent of this amount is estimated to have been spent during the first three years. (

Construction projects counted in this estimate include pipelines and portable pumping stations; airfield runways, taxiways, and parking areas; housing and support areas; and a small thermal-electric power plant. Not included—for lack of data—were the costs of repairing damaged roads, pipelines, and facilities. We assume that these repairs were made by Soviet military personnel, for whom costs are already included in our estimate. Thus, we believe that any additional costs of repair were small. (

Most of the facilities constructed were relatively low cost and semipermanent—for example, storage buildings, Quonset huts, barracks, tents, and small aircraft hangars. The most costly facilities were 375 kilometers of oil-supply pipeline with 46 portable pumping stations, a small 12,000-kilowatt thermal-electric power plant in Kabul, and some new airfield runways and parking areas constructed of pierced steel plank. (

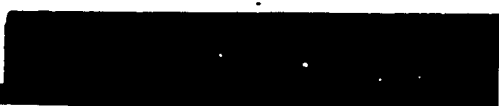
The facilities that the Soviets use in Afghanistan are barely adequate to support the present force and level of operations. Any significant buildup of forces would require an expansion of these facilities. (

**Personnel**

Personnel expenditures amounted to 2.9 billion rubles, or 19 percent of the total, during the 1980-86 period. Personnel outlays include pay and allowances, food, clothing, and transportation costs for the 80,000 to 120,000 Soviet troops in country over the seven-year period (including those of the military advisory group), and the estimated 20,000 to 40,000 support personnel in the Turkestan Military District. (

Forty percent of personnel expenditures represents the out-of-country bonus of double base pay for Soviet career military personnel and the additional cost of food, clothing, and transportation in Afghanistan.

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We have high confidence in our estimate of personnel costs. We believe it is correct to within  $\pm 10$  percent. We have less confidence in other estimates, such as the cost of supplies and equipment and the cost of treating the wounded. If our estimate of outside support—our least reliable manpower estimate—should be off by as much as  $\pm 50$  percent (10,000 to 20,000 men), the effect on total costs would amount to about  $\pm 200$  million rubles over the entire six-year period. Thus, the impact of uncertainty in this category is minimal.

#### Operations and Maintenance

Expenditures for O&M for the period 1980-86 amounted to 4.6 billion rubles, or 30 percent of the estimated total. The biggest expense in this category—some 3.6 billion rubles—was the cost of maintaining ground and air forces equipment in a war environment. In addition, some 675 million rubles were spent to repair war damage to this equipment.

Outlays for POL during the period 1980-86 are estimated at 330 million rubles. In 1980, Soviet forces used an estimated 360,000 metric tons of POL. By 1986 use had increased to over 650,000 metric tons. About 65 percent of the total value was accounted for by air forces. These estimates are based

on factors that were instrumental in establishing such factors as the average distance a vehicle traveled in a year and the average sortie duration of an aircraft on each of its missions.

Much of the increasing cost of the war was the result of the rising number of hours flown by more sophisticated Soviet aircraft. In 1980 a MIG-21 averaged less than 100 hours of flying time per year at a cost of 4,600 rubles per hour. Nearly 60 percent of this cost was for the one-half metric ton of ordnance it carried and expended during each sortie. Most of the remainder was the cost of maintenance. POL accounted for slightly more than 3 percent of the cost of an hour's flying. By 1985 the MIG-21 had been replaced by the SU-17 and SU-25, which were flying three to four times as often at an hourly cost averaging nearly 15,000 rubles. Larger payloads and higher maintenance costs per aircraft contributed to these increasing outlays. During the seven-year period, air forces

maintenance costs went up by about 150 percent, and those of the ground forces increased by nearly 30 percent.

#### Military and Economic Aid

The value of military and economic aid deliveries from the USSR to the Democratic Republic of Afghanistan (DRA) has remained steady, averaging 400-600 million rubles per year.<sup>1</sup> The total—3.5 billion rubles in 1980-86—is not included in our 15-billion-ruble estimate of the cost of the war for the same time period because, with the exception of ammunition and some used equipment that the Soviets may provide free, the Afghan Government reportedly pays for its arms imports and about one-third of its economic aid from the USSR. The DRA pays for its military and economic aid largely through the sale of its natural gas. The Soviets take about 90 percent of Afghanistan's annual production, which reduces its debt to the Soviet Union by more than \$300 million a year.

Arms transfers from the USSR to Afghanistan place that country behind only Vietnam and Cuba in terms of value received by Marxist Third World states since the start of the Afghan war. Most arms deliveries consisted of ammunition, spare parts, and some replacement equipment. Replacement equipment is difficult to track, but that provided to the Afghans, while sufficient to maintain Kabul's forces at their current size, is less sophisticated than that provided to most other arms clients in the Third World or used by the Soviets themselves in Afghanistan. Moreover, there are indications the Soviets are unwilling to replace all Afghan equipment that has been lost, stolen, or destroyed. In some cases, armored personnel carriers have been replaced by less expensive trucks, probably because of the Afghan army's relatively poor record of caring for its equipment.

<sup>1</sup> Unlike estimates for the cost of Soviet involvement in Afghanistan, which are in constant prices, ruble estimates for military and economic aid are in current prices.

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Since the war, the USSR has largely replaced Western lenders and donors in providing economic support to the DRA. Deliveries from the USSR since 1979 are estimated at approximately 1.5 billion rubles. They included basic commodities such as wheat, sugar, oil products, consumer goods, and industrial raw materials under a grant aid program. Much of the economic development that is being paid for by the DRA was designed to support Soviet military logistic requirements. To this extent, the Soviets are transferring part of the burden of the war to the DRA. This activity includes such projects as the new bridge over the Amu Darya, two oil-product pipelines, expansion at Kabul airport, the construction of seven new airfields, and work on road and rail transport facilities.

#### Outlook

Thus far, the war in Afghanistan has been relatively inexpensive for the Soviets for the following reasons:

- Less than 3 percent of the USSR's armed forces is engaged full-time in the conduct of the war.
- Activity levels of a guerrilla war are generally much lower than those of a conventional theater conflict. Small-scale combat operations are the norm; large-scale offensives are the exception.
- Supply lines are relatively short, often shorter than some entirely within the Soviet Union.
- Older, less expensive equipment was used, at least in the early years.
- Military aid to Afghanistan is largely paid for by the DRA.

At the present level of effort, Afghan-related costs represent only 2 to 2.5 percent of total Soviet defense spending. Costs have risen at a rate of 12 percent a year, but there are signs they will grow more slowly or level off in the future. Over the past several months, Moscow has been showing some indications of attempting to lower its military profile in order to facilitate a political settlement. Gorbachev on 28 July, for example, announced a decision to withdraw six regiments from Afghanistan, which could have amounted to 7,000 to 8,000 troops. In fact, the net number of troops withdrawn was fewer than 2,000—a reduction that will have little or no effect on Soviet capabilities and will reduce costs associated with the

war in Afghanistan by only 50 million rubles per year. Although the withdrawal was a sham, we think Moscow will not want to change its posture of maintaining that the forces on hand can control the insurgency.

We do expect to see continued growth in the costs of air operations for at least another year:

- Increased Soviet use of airstrikes—as well as artillery support—is one of several ways of helping the Afghan army to get on its feet and of cutting back on direct operations by Soviet ground troops.
- Airfields in Afghanistan are being upgraded and improved. Analysis indicates that these improvements are probably intended to support more aircraft, expand logistic capabilities, and improve security.
- The number of Soviet helicopters in Afghanistan is increasing, and more helicopters are being used in support of Soviet special forces. This indicates at least a continuation and probably an expansion of the Soviets' successful policy of seeking out and sometimes ambushing resistance groups. At the same time, the insurgents are continuing to improve marginally their capabilities for downing Soviet and Afghan aircraft.

We expect the Soviets to continue to limit the resources they are committing to ground operations as they pursue political and military strategies for disengaging their forces that include turning more of the burden of such operations over to the Afghan army.

Over the last year the Soviet leadership has indicated more clearly than in the past that it is frustrated with the slow progress of the war and would like to be able to withdraw its troops. At the February 1986 party congress, General Secretary Gorbachev referred to the Afghanistan war as a "bleeding wound," the starkest description yet from a Soviet leader. Moscow

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has mounted a steady propaganda campaign to convince both global opinion and its own population that it is sincerely seeking a political solution to the war. None of the changes in the Soviet military effort over the past year, however, appear to stem from a need to win the war quickly, or from a willingness to accept significantly higher costs, even temporarily, in the hope of a quick solution. On the political front, the Soviets have been unwilling to make even minor concessions that would affect their continuing military effort—witness the sham “withdrawal” in the fall.

In short, the Soviets do not appear ready to abandon their fundamental goal of establishing in Kabul a pro-Communist regime that is stable and can rule the country without a large Soviet presence. The slow but steady rise in the economic cost of the war reflects Moscow's continued determination to do what is necessary to deal with the better armed resistance, while resisting the temptation to try to win the war quickly. Recent changes in strategy, especially the increase in air operations, have raised costs somewhat more rapidly than in the past, but the leadership apparently believes that such costs thus far have been relatively low and have not been a substantial drain on the Soviet economy. If the Soviets eventually decide to withdraw, we believe that decision would be based on political and military considerations rather than on economic factors.

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Appendix A  
Statistical Tables

Table A-1  
USSR: The Ruble Cost of Involvement in Afghanistan, 1980-86 \*

Million 1982 rubles

	1980	1981	1982	1983	1984	1985	1986	Total Cost	Total Incremental Cost **
Total	1,533	1,713	1,916	2,060	2,477	2,716	2,855	15,270	11,850
Equipment destroyed	251	289	357	422	525	568	500	2,912	2,912
Ground	53	63	67	65	86	98	50	482	
Air	198	226	290	358	439	470	450	2,430	
Equipment damaged	59	68	84	98	122	132	115	678	678
Ground	16	18	20	19	25	29	15	142	
Air	43	50	64	79	97	103	100	536	
Maintenance	433	454	455	486	526	595	650	3,598	2,375
Ground	367	378	380	400	411	477	475	2,887	
Air	66	77	75	86	115	118	175	711	
POL	37	40	41	43	46	54	70	332	149
Ground	11	13	15	16	17	23	25	121	
Air	26	27	26	27	29	31	45	211	
Ammunition	277	350	387	439	652	739	870	3,713	3,713
Ground	159	172	184	197	210	222	120	1,265	
Air	118	178	202	242	442	516	750	2,448	
Organizational equipment	92	98	122	122	128	133	135	830	515
Ground	83	88	112	112	117	121	125	759	
Air	9	10	10	10	11	11	10	71	
Personnel	251	269	328	328	348	364	375	2,263	996
Ground	219	236	293	293	311	324	330	2,007	
Air	31	33	35	35	37	39	45	256	
Construction	79	79	63	32	32	32	35	350	350
Medical	20	21	26	26	27	29	30	180	162
Outside support	37	45	54	62	71	71	75	414	0

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

\*\* Incremental costs are defined as those that are unique to a wartime situation.

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Table A-2  
USSR: The Dollar Cost of Involvement in Afghanistan, 1980-86\*

Million 1984 dollars

	1980	1981	1982	1983	1984	1985	1986	Total
<b>Total</b>	<b>4,983</b>	<b>5,548</b>	<b>6,278</b>	<b>6,621</b>	<b>7,591</b>	<b>8,347</b>	<b>8,735</b>	<b>48,182</b>
<b>Equipment destroyed</b>	<b>340</b>	<b>389</b>	<b>480</b>	<b>573</b>	<b>709</b>	<b>764</b>	<b>675</b>	<b>3,930</b>
Ground	66	78	85	82	108	122	60	602
Air	273	311	395	490	601	642	615	3,328
<b>Equipment damaged</b>	<b>79</b>	<b>91</b>	<b>111</b>	<b>131</b>	<b>163</b>	<b>176</b>	<b>150</b>	<b>902</b>
Ground	19	22	24	24	31	35	15	171
Air	60	68	87	108	132	141	135	732
<b>Maintenance</b>	<b>995</b>	<b>1,036</b>	<b>1,039</b>	<b>1,102</b>	<b>1,164</b>	<b>1,332</b>	<b>1,400</b>	<b>8,068</b>
Ground	917	944	949	999	1,027	1,192	1,190	7,219
Air	78	91	90	103	137	140	210	849
<b>POL</b>	<b>111</b>	<b>121</b>	<b>122</b>	<b>130</b>	<b>138</b>	<b>163</b>	<b>210</b>	<b>996</b>
Ground	33	40	44	49	52	70	75	363
Air	78	81	78	81	86	94	135	632
<b>Ammunition</b>	<b>964</b>	<b>1,184</b>	<b>1,303</b>	<b>1,467</b>	<b>1,957</b>	<b>2,346</b>	<b>2,605</b>	<b>11,826</b>
Ground	629	679	729	779	829	878	475	4,998
Air	334	505	575	688	1,128	1,467	2,130	6,828
<b>Organizational equipment</b>	<b>384</b>	<b>411</b>	<b>512</b>	<b>512</b>	<b>534</b>	<b>556</b>	<b>565</b>	<b>3,473</b>
Ground	347	370	470	470	490	508	525	3,180
Air	37	40	42	42	45	47	40	294
<b>Personnel</b>	<b>1,476</b>	<b>1,591</b>	<b>1,929</b>	<b>1,929</b>	<b>2,058</b>	<b>2,139</b>	<b>2,210</b>	<b>13,330</b>
Ground	1,280	1,384	1,710	1,710	1,826	1,903	1,940	11,753
Air	195	206	219	219	231	235	270	1,577
<b>Construction</b>	<b>233</b>	<b>233</b>	<b>186</b>	<b>93</b>	<b>93</b>	<b>93</b>	<b>105</b>	<b>1,036</b>
<b>Medical</b>	<b>47</b>	<b>50</b>	<b>62</b>	<b>62</b>	<b>65</b>	<b>68</b>	<b>70</b>	<b>424</b>
<b>Outside support</b>	<b>355</b>	<b>444</b>	<b>532</b>	<b>621</b>	<b>710</b>	<b>710</b>	<b>745</b>	<b>4,117</b>

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

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## Appendix B Methodological Approaches

### Estimating Physical Quantities and Activity Levels

#### Manpower

Soviet manpower estimates are based on numerous finished intelligence reports that gave manpower by specific combat units and by combat and rear services support categories. These unit and category data were combined with our pay and allowance factors to calculate personnel costs. Estimates of manpower in the USSR supporting Soviet forces in Afghanistan during the period 1980-86 were extrapolated from an estimate of the number of military personnel in the Turkestan Military District in 1980 working full-time in support of the war in Afghanistan. We have less confidence in our estimate of support manpower within the Soviet Union than in that for military manpower in Afghanistan, but it is consistent with the size of the invading force and the level of wartime activity.

#### Equipment Holdings

Estimates of major equipment holdings are agreed positions held by various members of the Intelligence Community and [redacted]

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Data on equipment destroyed and damaged come from detailed analysis of all-source data. Often, however, no distinction can be made between Soviet and Afghan equipment or between destroyed and damaged equipment. At times, the model or type of equipment involved in the report is not known. In these cases, we estimate the type of equipment (for replacement cost calculations), using known Soviet and Democratic Republic of Afghanistan equipment holdings and activity levels.

#### Usage Rates

Estimates of rates of use of petroleum, oil, and lubricants (POL) and ammunition rely on a variety of sources that were instrumental in establishing such factors as the average distance a vehicle traveled in a year and the sortie duration of a helicopter on each of its types of missions.

Estimates of usage of POL and ammunition by the Soviet air forces in Afghanistan vary according to aircraft type, mission, and order of battle (O/B). The flying times of five aircraft types—helicopter attack, helicopter transport, fixed-wing attack, fixed-wing reconnaissance, and fixed-wing transport—were apportioned among the airstrike, convoy support, reconnaissance, cargo transport, and troop transport missions. As an example, an attack helicopter might spend 40 percent of its time on airstrike missions, 30 percent on convoy support, 10 percent on reconnaissance missions, and the remaining 20 percent on troop transport.

Because the mix of aircraft was not the same each year, it was necessary to develop a table of "conditional probabilities." This table was used to weight the chances of a particular type of aircraft being used on a particular mission by the number and type of aircraft available. Once we determined how each aircraft was used and how much time it spent in each of its possible roles, we used known usage-rate factors to determine how much fuel and ordnance each used.

Data on ground munitions expenditures come predominantly from [redacted] that provide data on total ground munitions expenditures for various units and time periods. We judge the lengths of time covered to be sufficient to eliminate the distortion arising from peaks and troughs in combat operations. The reports list ground munitions by specific type, the total number of rounds expended for the period, and the number remaining in stock. Each munition line entry was converted into the corresponding weight in metric tons and aggregated by class of munitions: small arms, all grenades (antitank and hand), artillery, mortars, and multiple rocket launchers. An

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average weight expended per day per man was determined from the total by dividing the weight-per-day figure by the on-strength personnel holdings of the unit. By multiplying this weight per day per man by 365 and then by the estimated number of Soviet ground combat personnel in Afghanistan in 1985, we obtained an estimated ground munitions expenditure for 1985 of 60,418 metric tons. Repeating this for 1980 yielded an estimate of 43,274 metric tons. Interpolation generated the missing figures for the years 1981-84.

We estimated POL for ground forces using data on rates of vehicle use and fuel consumption. [ 1980 Soviet motor transport vehicles in the eastern part of Afghanistan traveled an average of 29.9 kilometers per day and those in the western part traveled an average of 38.8 kilometers per day. An index developed from data on increasing use of air munitions and aviation POL and the growing numbers of military personnel were used to calculate increasing transportation requirements. From these data, we calculated average distances traveled by trucks for each of the subsequent years. We then multiplied fuel consumption rates for each type of vehicle to obtain an estimate of the total amount of fuel used each year. We added a factor for POL consumption by weapon system and an additional 10 percent for waste, spillage, theft, and combat losses.

#### Assumptions Used in Estimating Costs

After the physical quantities and activity levels associated with the war had been estimated, a set of assumptions and counting rules was established:

- No additional Soviet divisions were established as a direct result of the war. Ten divisions that appeared during the period were considered to be part of the military's planned peacetime expansion.

- No additional manpower was obtained. Annual increases in total Soviet military manpower were assumed to be the result of normal peacetime conscription activities.
- The cost of replacing destroyed equipment and expended ammunition was the full replacement or stock replacement cost, not the commonly accepted accounting concept of "depreciated value."
- No account was taken of the fact that old destroyed equipment may have been replaced with newer, more expensive models. For example, a MIG-21 that was shot down might be replaced by a MIG-23. Only when the newer equipment is destroyed and replaced do we account for the higher cost.

The use of full replacement costs resulted in an estimate for procurement that was on the high side of our uncertainty range. For purposes of comparison, we made some calculations on the basis of hypothetical depreciated values assigned to equipment and supplies. The results suggested that, had these depreciated values been used, the estimate of the cost of the war during the period 1980-86 would have been lower by 3-3.5 billion rubles, all of which would have been incremental costs.

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