



**Directorate of
Intelligence**

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USSR Review



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March-April 1985

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<p>The most tangible political benefit the Soviets have obtained from Third World arms transfers has been entree to areas where they previously had little or no presence. They have almost always been able to establish a military advisory presence in the recipient state and to develop a corps of Soviet-trained nationals, both officers and soldiers. This provides opportunities for Soviet intelligence activities</p>			

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and, in many instances, has created a local constituency with a strong interest in maintaining ties to the USSR. [redacted]

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[redacted]

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Management of Arms Transfers to the Third World [redacted]

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The highest levels of the party, government, and military are involved in decisions on arms transfers because such decisions are an integral part of Soviet foreign policy and may have important consequences for domestic economic policy. Because of the need to coordinate arms transfers with annual economic plans and to await decisions from higher authorities at almost every level, the process is usually lengthy and creates a measure of inflexibility in negotiations. On the other hand, Politburo approval constitutes a national commitment, making the Soviet Union a fairly dependable source of weapons. [redacted]

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[redacted]

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The Soviet Hind Helicopter: Prospects for Exports [redacted]

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The Hind is the Soviet entry in one of the most active sectors of the international arms market—attack helicopters. It has sold well to Moscow's traditional arms customers, but its operational shortcomings could limit additional sales over the long term, particularly to new customers. [redacted]

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[redacted]

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Other Topics

Soviet Oil Production: Short-Term Outlook [redacted]

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In 1984 the USSR produced 12.23 million barrels per day of crude oil and condensate—100,000 b/d less than in 1983. This decline (the first since World War II) reflects a host of problems in the oilfields. With production stagnant in West Siberia and falling in other regions, 1985 could see a nationwide decline of 200,000 to 300,000 b/d. In that case, the USSR might be unable to satisfy domestic oil requirements and maintain exports to Eastern Europe without cutting back net exports for hard currency. [redacted]

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The Soviet Tank Industry: Modernization for the 1990s

[Redacted]

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Over the past decade the Soviets have made sweeping changes in the production methods of their tank industry to facilitate production of tanks with increasingly expensive and complex components and subassemblies. Overall production of tanks has declined, while the industry's plant and equipment holdings have grown dramatically. This modernization will enable the Soviets to produce increasingly sophisticated and capable tanks more efficiently.

[Redacted]

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[Redacted]

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**Educating the Agricultural Labor Force:
Winning the Battle But Losing the War?**

[Redacted]

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Soviet agriculture is short of skilled workers. With the emphasis on rapid mechanization and widespread use of more sophisticated cropping and livestock-raising practices, the level of training and skills of the work force must be raised and the better educated workers must be retained on the farms. This will be difficult to achieve because the incentives the regime is offering do not go far enough to raise the average quality of the agricultural labor force.

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Soviet Arms Transfers to the Third World

Perspective

For the past two decades, arms transfers have been the USSR's main means of promoting its interests in the Third World. Initially designed to strengthen the Soviet Union's political and military position, this program also became, in the 1970s, a key factor in improving the USSR's foreign trade position. It has served the Soviets well in both respects. Largely as a result of security assistance, they have:

- Established and perpetuated relationships with many Third World states.
- Helped friendly regimes to survive.
- Gained access to air and naval facilities, thereby strengthening their global position vis-a-vis the United States and enhancing their ability to project force in most regions of the world.
- Increased pressure on the United States and its allies by bolstering the confidence and capabilities of leftist, "anti-imperialist" regimes.
- Established a favorable trade balance with the non-Communist Third World.¹
- Earned hard currency (an estimated \$5-6 billion annually).
- Made recipient states dependent on the USSR for compatible equipment, spare parts, maintenance, repairs, and training.
- Expanded their military advisory and technical presence in recipient states (to over 18,000 in 1984), thus increasing their ability to establish contact with and penetrate local institutions.
- Created a ripple effect by which recipient states such as Cuba and Libya become arms suppliers, enabling Moscow to distance itself from risky or questionable ventures.
- Gained support for many of their positions in international forums.

¹ Soviet-LDC trade figures do not include statistics for Soviet trade with Cuba and Vietnam, which, as CEMA members, are considered part of the "socialist" community. The amount of economic and military aid extended to these two countries (over \$5 billion to Cuba and almost \$2 billion to Vietnam in 1983) obviously affects the USSR's current account balance negatively.

As an instrument of policy, security assistance has a number of important advantages for the Soviets. Many Third World regimes face internal instability and external pressure and are receptive to offers of military aid. It thus offers an easy point of entry for establishing a relationship. Secondly, the Soviets can compete successfully with the West in terms of the quality and quantity of military equipment supplied, the speed of delivery, and the extension of generous repayment terms; this is not the case in most areas of civilian technology. In addition, military equipment is a convenient commodity for Moscow. The Soviets can deliver obsolete systems (being retired from their own forces) to lesser Third World clients, particularly those to whom they are extending generous repayment terms. And they can sell more sophisticated systems to more important clients, either for hard currency or in exchange for geopolitical advantages.

Arms transfers have assumed a major role in the Soviet foreign trade picture. In 1983 they accounted for 70 percent of all Soviet exports to the developing world and made up over 20 percent of total hard currency exports. While Moscow still makes concessionary arrangements with very close and very poor clients, the focus of the Soviet program has shifted to lucrative markets. In spite of the economic crisis in the Third World, continuing Soviet sales and the accumulated debt of its customers suggest that Moscow will continue to earn substantial income from its export program into the 1990s.

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The article "Management of Arms Transfers to the Third World" describes the prolonged, bureaucratic process by which decisions concerning security assistance are made and implemented by the USSR. Because the program has important implications for foreign policy, foreign trade, and resource allocations, the highest party and government organs are involved in determining its direction and size. The complex military and civilian bureaucracy that oversees the negotiation and implementation of the program is cumbersome, and Soviet industry lacks the sophistication in marketing and servicing that its Western competitors possess. But the Soviets are dependable and predictable arms suppliers and can, if need be, respond rapidly to client needs.

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In spite of its many advantages, military assistance is limited as an instrument of policy. It is one dimensional in nature and often fails to satisfy other aspects of the recipient country's needs. When political or economic considerations become dominant, Moscow is far less able to compete successfully with the West. Egypt in the early 1970s provides the most striking example of this phenomenon. When Sadat decided to move politically to resolve differences with Israel, he turned away from the Soviet Union, which had no ability to help bring about a political solution. Moscow currently faces similar tendencies in southern Africa, where the United States has played a far more active role in the Angolan-South African negotiations over Namibia than have the Soviets.

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The Soviets also have proved both unable and unwilling to provide the economic assistance desperately needed in the Third World, and a number of Soviet arms recipients currently are trying to maintain security ties to the USSR while pursuing economic assistance in the West. Over the long term, such countries may be more reluctant to become closely tied to either East or West as they seek the advantages of dealing with both.

Military assistance has failed to give the Soviets the leverage they seek to manipulate the behavior of their Third World clients. While they have gained support from recipient states for policies that are mutually advantageous or of secondary importance to those states, their efforts to use the arms supply lever to advance their own policy objectives at their clients' expense generally have failed. The article examining Moscow's relations with three different arms clients demonstrates this shortcoming. Iraq has been one of Moscow's largest clients (almost \$13 billion worth of arms), and Moscow has benefited in terms of hard currency and regional presence. But the USSR's numerous efforts to use arms supplies to gain policy concessions from Iraq (for example, to ease pressure on Iraqi Communists, cease attacks on Kurds, and stop the war with Iran) have failed and have served primarily to exacerbate strains in the bilateral relationship. Similarly, arms transfers to Guinea and Peru have provided Moscow entree to each but have not bought it significant political influence in either.

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Moscow faces a number of constraints in its efforts to expand arms sales and thus further advance its position in the Third World. The article "Trends in Soviet Military Assistance to the Third World" suggests that the value of identified accords may be showing a downward trend. There are a number of factors involved in this trend. Some are cyclical (for example, the normal period of consolidation after the signing of a major contract) and some may prove transient (for example, the impact of the oil glut). Others appear to be long term in nature, however, and could have an impact on Moscow's ability to expand arms sales appreciably in coming years. These include:

- The diminished ability of Third World clients, including important purchasers, to pay for arms. Most developing countries are carrying heavy debts, and even wealthier arms purchasers are facing problems of overextension and debt. Moscow has been willing to renegotiate repayment terms with valued clients but has proved hard-nosed in dealing with others. The Soviets have been reluctant to make concessions even to Libya, their largest arms purchaser (over \$15 billion in arms contracts).
- Shifting needs and expectations of recipient states. Many clients have become more demanding as they have had problems absorbing equipment already received or have perceived difficulties absorbing more systems. Some are unhappy with Soviet arms and seek better or more sophisticated equipment. Others want to diversify their arms sources for political reasons.

- Increased competition from the West and the Third World. Traditional suppliers, including the United States, Western Europe, and China, have been joined by new ones, such as Brazil, in aggressive and successful marketing efforts. This has eaten into what might otherwise have proved strong markets for Moscow. [redacted]

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In an effort to respond to rising demands and increased competition in recent years, the Soviets have upgraded their own marketing efforts, offering attractive packages and exporting some of their most sophisticated weapon systems. They have, for example, agreed to sell India the MIG-29, which is not yet fully integrated into the Warsaw Pact force structure. And they have entered into licensing and coproduction agreements with New Delhi on T-72 tanks and armored vehicles. These Soviet decisions almost certainly were driven by the desire to prevent India's purchasing such systems elsewhere. [redacted]

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The article "The Soviet Hind Helicopter: Prospects for Exports" assesses Moscow's effort to market a sophisticated system that is not yet fully integrated into its own force structure. Moscow has sold the Hind in its traditional markets, but has had difficulty breaking into new markets. This inability reflects the USSR's lack of marketing expertise as well as concern about military technology being compromised. The Soviets will have to become more adept and flexible in both areas if they are to compete effectively with sophisticated Western systems. [redacted]

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The Soviets will continue aggressive efforts to maintain and increase their share of the Third World arms market in the years ahead. They will be particularly accommodating in negotiations with hard currency customers and countries they perceive as having geopolitical importance, but they will continue to use security assistance as a means to advance their position generally. Moscow almost certainly will be able to maintain an extensive arms export program, but may not expand it significantly or return to the hard currency bonanza enjoyed in the late 1970s. Continuing regional tensions, the desire for additional systems by old clients, competitive Soviet marketing of new and sophisticated systems, and a desire for diversification by many states guarantee Moscow a significant share of the Third World arms market. [redacted]

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[redacted]

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Trends in Soviet Military Assistance to the Third World

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Military assistance is by far Moscow's most important foreign policy tool for gaining access to less developed countries (LDCs). The Soviet security assistance program was begun in the mid-1950s primarily as a means of helping to establish a strong geopolitical position vis-a-vis the West, especially the United States. To this end, the Soviets made arms and other materiel available to almost any LDC at low prices and offered exceptionally generous repayment terms characterized by grace periods, eight- to 10-year repayment periods, and 2-percent interest rates. Moreover, Moscow provided rapid delivery and free training and maintenance services. By the mid-1960s, the annual value of the program had reached half a billion dollars, concentrated mainly in Iraq, Syria, Egypt, and Afghanistan.

Military Agreements

In the early 1970s the Soviet quest for political and military advantage over the West, while still preeminent, was supplemented by a growing emphasis on hard currency earnings from security assistance. The newfound oil-based wealth of key customers in the Middle East and North Africa led the Soviets to charge these and some other LDCs higher prices for military assistance—a policy they could enforce because Moscow's prices were below those for comparable Western support. At the same time, the USSR's willingness to sell its most modern weapons set the stage for full-scale competition with Western suppliers in the lucrative Middle Eastern market. Continuing tensions in that region, along with increasingly active nationalist movements and revolutions in Sub-Saharan Africa, bolstered the Soviet role, and Moscow's generally rapid responses established a reputation for dependability. These circumstances, accompanied by higher prices and the transfer of complex weapons (sometimes before Eastern Europe received them), propelled the USSR into second place behind the United States in the global market in 1974-79, with agreements estimated at some \$35 billion.

After reaching a yearly high of \$14 billion in 1980, the values of identified accords have averaged about \$9 billion annually (in current dollars), compared with \$6 billion between 1975 and 1979 (see table 1).

Despite the growth—probably about 35 percent in constant terms—cyclical, political, and financial factors held down expansion of the Soviet program:

- The sizable agreements signed in 1980 by Algeria and Libya largely obviated the need for new purchases by these countries in the short term.
- The Soviets decided to withhold full support from Iraq in 1980 after it initiated hostilities with Iran.
- Growing financial problems limited the ability of LDCs, even well-off clients like Libya, to make payments on Soviet military purchases.
- Western and Third World suppliers became more competitive.
- Many clients tended to upgrade inventories only selectively by acquiring follow-on support equipment, rather than making wholesale replacements of weapon systems.

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Recent Efforts To Increase Arms Sales

To help maintain its position in the Third World market, Moscow has in recent years supplied more advanced hardware, especially to the Middle East and Sub-Saharan Africa. In 1983, for example, large quantities of aircraft, tanks, and missiles were provided to Iraq. In the face of a rapidly deteriorating security situation in Angola, Moscow, after several refusals, provided Luanda with its first SA-8 surface-to-air missiles and MI-24 helicopter gunships. A similar circumstance in Mozambique finally led to sizable aircraft deliveries to counter Western initiatives. The Soviets also have become more willing to provide advanced systems to states not engaged in hostilities. Their most impressive success has been in India where, to head off an intense French sales

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Table 1
Soviet Military Assistance Agreements
With Non-Communist LDCs, 1975-84 ^a

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Total	3,185	6,142	9,644	2,701	8,834	14,636	6,503	11,763	2,994	9,155
North Africa	534	0	4,650	770	68	11,400	0	472	3	0
Algeria	500	0	800	300	0	3,400	0	0	0	0
Libya	0	0	3,850	468	68	8,000	0	472	3	0
Other	34	0	0	2	0	0	0	NEGL	0	0
Sub-Saharan Africa	201	922	1,944	1,033	555	293	1,948	559	1,231	2,313
Angola	0	415	38	26	33	13	157	190	804	2,124
Ethiopia	0	250	1,100	750	0	126	1,700	10	0	39
Mozambique	24	131	41	0	141	0	0	212	400	0
Other	177	126	765	257	381	154	91	147	27	150
Europe	0	0	0	0	28	0	0	0	0	0
Spain	0	0	0	0	28	0	0	0	0	0
Latin America	70	337	251	0	200	111	253	132	221	112
Nicaragua	0	0	0	0	0	0	128	12	18	59
Peru	70	337	250	0	200	105	118	106	204	53
Other	0	0	1	0	0	6	7	13	0	0
Middle East	1,192	4,602	2,113	481	6,642	36	3,507	7,350	428	4,718
Iraq	32	4,043	56	41	2,297	11	58	3,003	113	2,241
South Yemen	100	6	100	405	864	10	NEGL	500	23	0
Syria	1,030	9	1,431	9	2,657	0	3,000	3,042	100	2,114
Other	30	544	526	26	824	15	449	805	192	363
South Asia	1,188	281	686	417	1,341	2,796	795	3,250	1,111	2,012
Afghanistan	181	9	25	303	1,098	373	230	282	342	101
India	1,007	268	649	95	243	2,423	539	2,968	769	1,911
Other	0	4	12	19	0	0	26	0	NEGL	NA

^a Due to rounding, numbers may not add to totals shown.

[Redacted]

effort, they sold production technology for T-72 tanks and armored vehicles. Even more important is a 1984 agreement with India for the purchase and assembly of about 170 advanced MIG-29 fighter aircraft, valued at over \$1 billion. [Redacted]

The Soviets have capitalized on windfalls to acquire new customers in the Third World. The reliance of Nicaragua's Sandinistas on the Bloc and Cuba for military materiel is predicated largely on ideology (assistance began well before the July 1979 revolution), although attractive financial terms also are an important factor. Jordan—in the wake of Israel's raid

on Iraq's nuclear facilities—turned to Moscow in 1981 for air defense equipment after failing to obtain similar weapons from the United States. Kuwait's \$260 million deal in 1982 (the first with Moscow in five years) reflected a renewed diversification effort, despite opposition by Kuwaiti military officers. [Redacted]

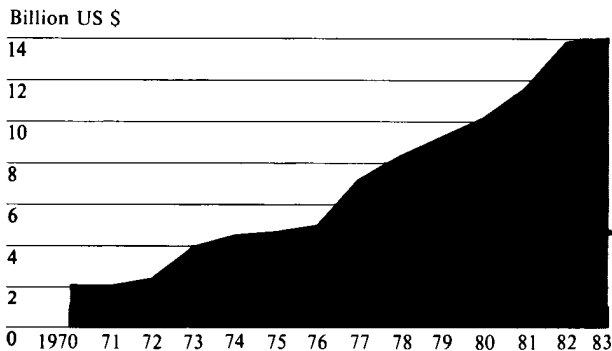
Soviet aggressiveness, however, has not been global. Libya, Moscow's largest alltime arms client with

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USSR: Exports to the LDCs, 1970-83



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purchases of some \$15 billion, wanted to buy additional advanced Soviet weapons last year, but reportedly was refused for financial and political reasons. And in several other cases, Moscow has pursued additional sales but met with failure. For example, Algeria has showed no inclination to reverse its policy of shifting to purchases from Western suppliers, and Egypt, recognizing US sensitivities, has kept its distance from Moscow despite persistent Soviet efforts.

Military Exports and Technical Services

The USSR's security assistance program has been the major element in the expansion of Moscow's economic ties to the LDCs (see graph). The value of Soviet military exports to LDCs (including deliveries of major weapon systems, spare parts, ordnance and other support materials) rose from \$1 billion in 1970 to a record of more than \$9 billion in 1982 and remained at about that level in 1983.¹ The hard

¹ These estimates are derived from Soviet trade statistics for the purposes of estimating trade flows. They are generally higher than the Intelligence Community's estimates of the value of observed military deliveries. The main difference between these two estimates is the valuation of follow-on supplies needed to maintain LDC inventories of Soviet military equipment.

[Redacted]

currency portion of these exports totaled an estimated \$7 billion in 1983, ranking second only to oil in Soviet hard currency exports. Exports of military supplies accounted for over 20 percent of total hard currency exports in 1983 [Redacted]

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The Soviet military technical presence also has grown rapidly. In 1984 more than 18,000 Soviet military technicians and advisers were stationed in the LDCs, compared with an annual average of 7,500 during 1970-75. This program focuses primarily on advisory, technical servicing, and training functions in Africa and the Middle East. Charges for advisory and technical services can be high, with concessions usually made only for Moscow's poorest clients. These services are estimated to have earned Moscow over \$100 million annually since the late 1970s. [Redacted]

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The Balance-of-Payments Perspective

The USSR's military trade and aid program is largely responsible for Moscow's favorable balance-of-payments position vis-a-vis the LDCs (see table 2). Without the military exports, the USSR would have run sizable deficits in its trade with the LDCs rather than the surpluses its trade accounts show. Furthermore, credits have financed a smaller share of total Soviet military exports than in the early 1970s. Credits financed almost 80 percent of arms exports in 1970, but the share in 1979 was just over 20 percent. The share increased to about 40 percent in 1982 and almost 50 percent in 1983, largely because of Soviet credits to Syria. In addition, repayments on military credits offset a substantial share of credit drawings.

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[Redacted]

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According to our calculations, the USSR has been earning \$6-8 billion annually from its military program (see table 3). Of this amount, we believe that at least \$5-6 billion is paid for in hard currency or its equivalent.² These revenues not only pay for Soviet imports from the LDCs but also permit Moscow to purchase machinery and equipment and other products from the developed West, where the USSR generally runs a trade deficit. [Redacted]

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² In recent years, the USSR has been accepting oil in lieu of cash payments from Libya and Iraq, including some Saudi oil on Iraq's account. This represents a second-best solution to Moscow, in that it must sell the oil to generate the hard currency revenues. [Redacted]

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Credit Arrangements

The USSR's financial support for its military exports to the LDCs can best be described as realistic. While generally expecting payment in cash or its equivalent from its wealthier customers, Moscow probably does not expect to conclude military sales agreements with its poorer customers without offering concessionary credits. Generally, the Soviets offer their clients 10-year credit terms with interest rates of 2 to 4 percent and a grace period of up to two years. These terms, however, can vary considerably, depending on the country purchasing the equipment and the type of equipment being sold. More generous credit arrangements have been extended to India and Afghanistan. Under the terms of the Indo-Soviet military trade agreement of 1980, for example, credits to India carry 15-year repayment terms at 2- to 3-percent interest and a two-year grace period. [redacted]

These easy credit arrangements apparently apply only to sales of major weapon systems. For follow-on support and resupply of spares, maintenance, and ordnance, Moscow usually demands cash in advance or at the time of delivery. It does not hesitate to pressure even key client states like Libya, Syria, Angola, and Mozambique to make the required payments. According to a US Embassy source in Maputo, for instance, half of Mozambique's aircraft were grounded in late 1982 because of a lack of hard currency to purchase the required spare parts. [redacted]

In some cases, Moscow has been willing to adapt to the financial circumstances of its customers. Afghanistan and Ethiopia, in particular, have received discounts of 75 percent and 50 percent, respectively, off the list prices. These discounts, which represent a substantial grant element in Soviet military trade with these clients, are valued at \$1.6 billion for the 1975-82 period. Moreover, following the Syrian setback in Lebanon in the summer of 1982, Moscow replaced Syrian losses on terms that included grants and favorable credits [redacted]

Moscow's military sales program has also generated a sizable LDC debt to the USSR, estimated at almost \$18 billion at yearend 1983. This debt ensures that LDC repayment obligations will remain considerable through 1990. A sizable portion of this debt (perhaps as much as 50 percent), however, is owed by countries that may well be unable to make their payments on schedule—for example, Ethiopia, South Yemen, North Yemen, Tanzania, and Mozambique. The USSR has already rescheduled the debt owed by many of these countries. [redacted]

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The Domestic Economic Costs and Benefits

The domestic cost to Moscow of its military exports is the resources used in their production. Until the early 1970s, much of the equipment that the USSR sold to LDCs consisted of used items being retired from Soviet military forces. The cost to Moscow was represented by the resources necessary to overhaul, adapt, and ship the arms. Since then, however, the competition in the world arms market has led the Soviets to export mostly new equipment. In recent years sales have, on occasion, also included sophisticated equipment that only recently had been introduced into the USSR's military forces. The advanced air defense system delivered to Syria and the MIG-29s promised to India, for example, have not been fully integrated into the Warsaw Pact forces. [redacted]

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The opportunity cost to the USSR of these exports has also risen as the growth of Soviet machine-building capacity has lagged behind the increase in requirements for investment goods, consumer durables, and military hardware. When the growth rate of military procurement for its own forces slowed after 1976, the continued growth in exports of military hardware probably was thrown into especially sharp relief. [redacted]

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Moreover, the Soviets face some security and logistic problems when they instruct their clients in the use of exported systems. The problems of translating and sanitizing documentation have appeared to overwhelm them at times. The Soviets can limit or deny access to classified manuals by offering hands-on training to

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Table 2
USSR: Estimated Balance of Payments
With the LDCs, 1970-83

Million US \$

	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983
Current account balance	995	1,064	1,871	3,935	5,142	5,638	3,566	2,098	6,196	5,942
Trade balance	735	509	1,221	3,025	4,082	4,443	2,406	898	4,636	4,372
Exports (f.o.b.)	1,975	4,598	4,878	7,121	8,267	9,186	10,070	11,525	13,763	13,940
Military	1,048	2,516	2,942	4,810	5,860	6,126	6,149	7,437	9,358	9,307
Imports (f.o.b.)	1,240	4,089	3,657	4,096	4,185	4,743	7,664	10,627	9,127	9,568
Shipping	135	250	305	515	625	680	625	620	920	915
Technical services	25	120	145	175	225	285	295	300	350	300
Interest earnings	100	185	200	220	210	230	240	280	290	355
Military	45	120	130	150	140	155	160	195	195	255
Economic	55	65	70	70	70	75	80	85	95	100
Capital account balance	-645	-690	-740	-1,190	-1,225	-440	-1,065	-1,135	-2,885	-3,990 ^a
Credit drawings	-1,165	-1,750	-1,930	-2,620	-2,665	-1,890	-2,605	-2,755	-4,660	-5,885
Military	-830	-1,305	-1,520	-2,125	-2,220	-1,320	-2,035	-2,085	-3,805	-4,985
Economic	-335	-445	-410	-495	-445	-570	-570	-670	-855	-900
Repayments	520	1,060	1,190	1,430	1,440	1,450	1,540	1,620	1,775	1,895
Military	300	715	820	940	920	1,040	1,120	1,175	1,310	1,395
Economic	220	345	370	490	520	410	420	445	465	500
Net balance^b	350	374	1,131	2,745	3,917	5,198	2,501	963	3,311	1,952
Hard currency	50	6	479	2,434	3,009	4,043	1,640	826	2,723	557
Soft currency	300	368	652	311	908	1,155	861	137	588	1,395
Outstanding debt	4,970	9,270	9,270	11,140	12,320	12,760	13,825	14,965	17,845	21,835
Military	2,530	6,345	6,345	8,230	9,530	9,810	10,725	11,635	14,130	17,720
Economic ^c	2,440	2,925	2,925	2,910	2,790	2,950	3,100	3,330	3,715	4,115

^a Preliminary.

^b The net balance includes both net Soviet earnings and errors and omissions in the methodology. The net hard currency balance is probably a minimum value, with the net soft currency balance including transactions settled in hard currency as well as most of the errors and omissions.

^c Value of economic debt has been adjusted to reflect the price difference in the value of grain credits extended to India and Bangladesh and the value of repayment of these credits made in kind.

the client's personnel. This, however, produces other problems. If the training is done overseas, the Soviets make the instructors unavailable to their own defense establishment. If they train foreign military personnel along with their own at Soviet facilities, they may be unable to restrict foreign access to information they wish to convey to Soviet trainees. [redacted]

The defense industrial sector does benefit, however, from the export of older systems, which dominate the export program. These systems can be, or have already been, produced relatively cheaply at the lower

end of the learning curve. The Soviets will have amortized startup costs over the years, trained production crews, and, presumably, worked out most of the bugs in the system. Whether we view the effects of the learning curve in terms of rubles saved or increased production, they present a savings to the Soviets that we believe is not automatically passed on to the client. [redacted]

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Table 3

Million US \$

**USSR: Estimated Earnings From
Military Sales, 1970-83**

	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983
Military exports (c.i.f.) ^a	1,153	2,768	3,236	5,291	6,446	6,739	6,764	8,181	10,294	10,238
Credits extended	-830	-1,305	-1,520	-2,125	-2,220	-1,320	-2,035	-2,085	-3,805	4,985
Repayment	345	835	950	1,090	1,060	1,195	1,280	1,370	1,505	1,650
Principal	300	715	820	940	920	1,040	1,120	1,175	1,310	1,395
Interest	45	120	130	150	140	155	160	195	195	255
Net earnings	668	2,298	2,666	4,256	5,286	6,614	6,009	7,466	7,994	6,903
Hard currency	177	1,459	1,710	3,353	4,261	5,508	4,875	5,970	6,213	5,060
Soft currency	491	839	956	903	1,025	1,106	1,134	1,496	1,781	1,843

^a Converted from the f.o.b. value estimated from Soviet statistics to a c.i.f. value using a UN standard coefficient of 10 percent.

[Redacted]

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Prospects

The prospect for substantial growth in Soviet military exports is dim although some increases in sales are possible. Several of Moscow's major arms clients have sought to diversify their sources of arms. With greater competition from other arms sellers and the current outlook for a stagnant or declining Third World arms market, an even more aggressive sales campaign will be required to expand sales beyond the present level. Moreover, financial problems facing most of the USSR's major arms customers will further hamper increased sales and earnings. Under these circumstances, Moscow will probably have to offer better financial terms to LDC customers and agree to reschedule some debt payments, thus reducing the immediate economic payoff. [Redacted]

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Soviet arms exports will, nevertheless, remain sizable and will continue to be the dominant element in Soviet-LDC relations. Even with LDC financial problems, arms exports will be an important earner of hard currency for Moscow. With the larger and more sophisticated LDC inventories of Soviet-built equipment, the provision of spare parts, ordnance, follow-on items, and services will play a larger role in the USSR's military export programs. [Redacted]

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[Redacted]

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Soviet Arms Transfers and Political Influence

[redacted]

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In some cases, potential political payoff appears to have been the primary motive in Soviet arms transfer programs in the Third World. The most tangible political benefit has been entree to areas where the USSR had little or no presence before. Arms deals have almost always been followed by the establishment of a Soviet military advisory presence and the development of a corps of Soviet-trained officers and soldiers. This provides opportunities for Soviet intelligence activities and, in many instances, has created a local constituency with a strong interest in maintaining ties to the USSR. [redacted]

This article excludes such Third World countries as Angola, Ethiopia, Vietnam, and Cuba, which enjoy a special client relationship with the USSR. These states are dependent on Soviet Bloc troops and/or large-scale military and economic backing that goes well beyond the arms transfers discussed here. Here we deal with the much larger and more varied group of nonclient arms recipients. [redacted]

The Soviets have often reinforced their ties to non-client states by manipulating the supply of equipment and spare parts. That is, once initial arms deliveries have been made, training and spare parts are doled out sparingly, prolonging the recipient's dependence on Moscow. When local complaints reach a high enough level, Moscow will offer a new arms package, followed by a new cycle of training and spares parts rationing. Prosperous Third World countries may be able to find alternative sources for some Soviet-made equipment, but many cannot. [redacted]

Even after the Soviet presence is established and a certain degree of recipient dependence has developed, Moscow's record in realizing political benefits has been mixed:

- Arms recipients have echoed Soviet positions on *international issues*, but this is almost always when they hold that position in any case (for example, Guinea's strong anticolonialist stand in the early 1960s) or are relatively unconcerned (as in the case of Iraq's position on the invasion of Czechoslovakia).

Seldom have the Soviets been able to impose their view when it conflicts with that of the recipient country. Indeed, they have sometimes followed the lead of their nonclient recipients or become embroiled in regional disputes.

- The Soviets have gained *access to some air and naval facilities*, but it has usually been limited and carefully controlled. Many military aid recipients (including India, Madagascar, Congo, and Seychelles) have refused Soviet requests for access.
- The Soviets have also found it difficult to gain *influence over domestic politics* in nonclient recipient states. Even a leader with close military ties to the Kremlin usually reacts strongly against perceived interference in his country's internal affairs, especially if he sees a challenge to his own position. Some who have received the most Soviet aid have been the harshest repressors of local Communist parties. The leverage that Moscow can develop is almost always restricted to specific military issues like future arms procurement. [redacted]

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Given the fading appeal of Soviet-style socialism as a development model, the Soviets' difficulties in building commercial ties, and their unwillingness to supply purely economic aid, the transfer of arms is the Kremlin's most effective instrument for developing and sustaining a position in the Third World countries. Arms deals may not yield all of the benefits the Soviets may be seeking in a particular state, but they are usually the most effective instrument and often the only one available. [redacted]

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Arms Transfer Relationships

With Key Regional Actors. States in this category—probably the most important Soviet arms customers—generally play important roles in their region and are usually adjacent to and frequently at odds with pro-Western countries. Many can pay for weapons in hard

currency and thus are able to diversify their sources of supply and put pressure on Moscow to be more forthcoming with sophisticated equipment. Recipients in this category include Libya, Algeria, Syria, India, and Iraq. [redacted]

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Arms ties with these states have helped the Soviets to expand their presence in strategically important regions and to establish themselves as key players in regional diplomacy. The Soviets have also used these ties to broaden support for their positions on regional and international issues, when there was no conflict with the position of the recipient. India's support of Moscow's call for a ban on space weapons is an example. [redacted]

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Moscow frequently "needs" the states in this first category and thus is reluctant to jeopardize its ties with them by applying pressure on key issues. With many of these governments, the arms relationship is the only real link, and Moscow hesitates to tinker with it. [redacted]

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In some cases, recipient states have been a drag on Soviet policy, and often they can make Moscow bid against Western suppliers seeking to reenter that particular arms market. There are other risks as well. Soviet deliveries can fuel regional arms races, and some recipients (the Syrians, for example) could be emboldened to consider solving their foreign problems by military action, in the belief that the Soviets would have to back them up. From a Soviet standpoint, however, the benefits of the arms transfer ties with these potential clients probably outweigh the risks. [redacted]

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With Third World Socialists. There are a number of Third World countries that are of little direct military importance to the Soviets but have leaders who profess to be fellow socialists, anti-imperialists, and anticolonialists. Almost always unable to pay in full for arms and training, these leaders usually want the arms to protect themselves from or to placate key domestic constituencies (military and security forces, for example), as well as for meeting foreign threats. Countries in this group include Zambia, Tanzania, Congo, Seychelles, and Guinea. [redacted]

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To such regimes, Moscow offers weapons, support, and training on terms that at first are favorable, even concessionary. The equipment is usually unsophisticated, but, in many cases, it soon constitutes the recipient's entire arsenal. A relatively large Soviet advisory presence is established, and nationals are sent for military training in the USSR. Later, spare parts are supplied on less generous terms, and the recipient state finds that its military effectiveness depends heavily on Soviet largess. [redacted]

In most countries in this category, the Soviets have established a substantial military and diplomatic presence to back up their arms transfer programs. In many, they have been able to create a body of high-ranking local military personnel who see that Soviet arms supplies are vital to their livelihood and who may exercise influence over future procurement decisions. [redacted]

Most of the recipients in this category also require large amounts of economic aid, however, which Moscow is unwilling to provide. Consequently, even the most radical recipient states try to avoid alienating Western aid donors by drawing too close to the Soviets. Moreover, their leaders invariably have been sensitive to perceived Soviet interference in their internal affairs and careful to guard their nonaligned status. [redacted]

With Western-Oriented Nations. The third type of arms transfer relationship encompasses countries that usually are not sympathetic to the USSR, ideologically or politically. They have generally turned to Moscow to score a political point or for a particular weapon system that they could not obtain, for political or financial reasons, from the West. These countries may or may not be in areas of immediate military interest to the USSR, and they generally do not receive state-of-the-art weapons. Countries in this category include Peru, Kuwait, Jordan, and Nigeria. [redacted]

The Soviets usually respond to nations of this group by offering the desired arms, training, and support on good terms. They tend to try to prolong the relationship by doling out spare parts over an extended period and occasionally offering new equipment. [redacted]

Israel's defeat of the Arabs in the 1967 and 1973 wars reinforced Iraq's dependence on the USSR. It also enabled the Iraqis to acquire more sophisticated weapon systems by exploiting Moscow's desire to demonstrate its credibility as an arms supplier. [redacted] 25X1

In these cases, arms transfers have enabled Moscow to build connections with Western-oriented military establishments and to expand its presence in countries otherwise reluctant to host large numbers of Soviets. These recipient regimes, however, still receive most of their arms and training from the West, and they generally limit their ties with the USSR strictly to the military and economic channels associated with the arms relationship. The Soviets recognize that they risk their relationship with states of this type if they use it as a lever. [redacted]

The need for inexpensive military equipment to fight the Iraqi Kurds and to offset Iran's military superiority led Baghdad to sign a friendship and cooperation treaty with Moscow in 1972 and accept two members of the CPI in the cabinet in 1973. In 1973 Iraq also granted the USSR contracts in oil development and some access to the ports of Umm Qasr and Al Basrah for ship replenishment. [redacted] 25X1

Case Studies

Iraq—A Key Regional Actor. The Iraqis who toppled the monarchy and came to power in July 1958 quickly turned to Moscow for arms no longer available from Western governments unhappy with the vocal radicalism of the new regime. Since then, successive regimes have signed more than 40 identified arms agreements worth almost \$13 billion. These have made Iraq one of the top three Third World recipients of Soviet arms—and an important source of hard currency for the USSR. [redacted]

In 1975 Baghdad began to use its cash from higher oil prices to purchase military equipment from the West, primarily from France. To restore his country's waning influence, Premier Kosygin visited Baghdad in 1976, and shortly thereafter Iraq signed a \$4 billion agreement for Soviet arms. [redacted] 25X1

The Iraqis' nationalism and strong anti-Communism have always complicated the relationship. During the Ba'athists' first brief reign in 1963, for example, they executed several members of the Iraqi Communist Party (CPI)—and observed Soviet arms deliveries ceased, although it is possible that a few deliveries continued. The Soviets did not, however, allow the troubles of the CPI to become a major source of tension. In 1966 they made Iraq the first Arab country to receive supersonic aircraft by delivering MIG-21s. This was probably an effort to court the regime by offsetting French sales of Mirage III fighters to Israel, and it illustrated a new pattern in Soviet arms transfers to the Middle East: keeping a potential client happy by providing sophisticated arms. [redacted]

This large arms agreement did not prevent a deterioration in political relations. Iraq opposed Soviet and Cuban involvement in Ethiopia in 1977 and the Marxist coup in Afghanistan in 1978. Saddam Husayn again cracked down on the CPI in 1978, and the Soviet invasion of Afghanistan at the end of 1979 strengthened Iraqi suspicion of Moscow's intentions in the region. Nevertheless, in 1979 Iraq and the USSR concluded a \$2 billion arms sales agreement. [redacted] 25X1

In the early days of the Iran-Iraq war in 1980, Moscow cut off direct arms shipments to both sides, ostensibly claiming a neutral position. Because Soviet arms deliveries to Iran had been negligible, the embargo reflected Soviet opposition to Iraq's invasion as well as efforts to curry favor with Iran. [redacted] 25X1

This brought Soviet-Iraqi relations to a new low, without producing closer ties in Tehran. Finding the [redacted] 25X1

[redacted] 25X1

embargo counterproductive, the Soviets lifted it in 1981 and eventually delivered arms worth over \$1 billion to Iraq. A new \$3 billion agreement was signed in 1982 and another, for \$2 billion, in 1984. [redacted]

The war has prolonged Iraq's dependence on Soviet arms, despite Baghdad's efforts to diversify. The USSR still provides two-thirds of Baghdad's military equipment—a relationship that may account for the Iraqis' abstention from the UN votes on Afghanistan beginning in 1983 and their silence on the downing of the Korean airliner. [redacted]

The improvement in political relations notwithstanding, Baghdad remembers Moscow's 1980-81 embargo, distrusts Soviet intentions, and is well aware of Moscow's effort to cultivate Tehran; and Saddam Husayn has not eased his repression of the CPI. Once the war ends, Baghdad is likely to move to reduce its dependence on Soviet arms. The renewal of diplomatic relations with the United States in November 1984 indicated that Husayn intends to balance his ties with the USSR somewhat. [redacted]

In sum, Baghdad has exploited the Soviet desire to maintain a position in the Gulf region more successfully than Moscow has exploited Iraqi military needs. Iraq has generally been able to buy arms from the USSR on terms more favorable than those usually available in the West, without conceding its national interests or independence. And Moscow has been unable to bolster the CPI's influence in the Iraqi Government. [redacted]

As long as Iran remains adamantly anti-Soviet, Baghdad probably will continue to receive Soviet weapons on favorable terms, as the Soviets seek to preserve their existing position. Even if the Soviets respond positively to recent Iranian overtures to improve ties, Moscow would probably try to protect its relationship with Iraq through further arms deals. [redacted]

Guinea—A Socialist Dependent. Arms transfers were an important part of the rapid expansion of Soviet-Guinean relations that occurred in 1959. Isolated after France's precipitate withdrawal in 1958 and intent on ending his country's dependence on the

Western economic system, Sekou Toure turned eastward for political, economic, and military support. Soviet Premier Nikita Khrushchev saw that the provision of such support could be a means of undermining the European powers in Africa, making socialism a model for Third World development, and gaining support for Soviet foreign policy positions in his growing rivalry with China's Mao Tse-tung. [redacted]

In March 1959 Czechoslovakia supplied about \$1 million in small arms and armored cars, and in 1960 the USSR agreed to provide, on favorable terms, \$8 million worth of artillery, radar, armored vehicles, and fighter aircraft. The Soviets also brought Guinean officers to the USSR for training and sent a number of military advisers to Conakry. The military side of the relationship, however, was overshadowed during this period by political cooperation on African and Third World issues, by trade, and by economic aid; the Soviet Bloc offered almost \$100 million in credits between 1958 and 1962. [redacted]

Both sides grew disillusioned, and ties cooled by late 1961. With justification, Toure accused the Soviets of interfering in Guinea's internal affairs, and he expelled the Soviet Ambassador in December. Many Guineans also complained about the unsuitability of Soviet aid to local conditions and the often high-handed behavior of Soviet advisers. In Moscow, optimism about Guinea's prospects for building socialism faded, and doubts about Toure's political reliability grew when he applied to the World Bank and IMF for economic aid. Soviet economic and military assistance fell off sharply; but, because its military equipment was almost entirely of Soviet origin, Conakry continued to depend on the USSR for spare parts and training. [redacted]

Bilateral relations improved in the mid-1960s, as Toure consolidated his one-man control of Guinean politics and his fear of internal and external threats led him again to Moscow for military aid. The Soviets responded in 1965 by providing \$2 million in small arms. In 1970 an attack on Conakry by Portuguese-backed Guinean exiles reinforced Toure's fears, and

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Moscow sent a small naval patrol in response to his appeal. That naval presence grew into the Soviet West Africa patrol. In April 1971 the Soviets stepped up arms shipments, providing coastal patrol boats, tanks, MIG-17 fighters, and anti-aircraft guns. In turn, they gained access to Conakry's airport for naval reconnaissance and military transport flights and to its harbor for support of the naval patrol. [redacted]

dependence. They may also renew their request for reconnaissance flight access, but, as long as they believe their present access rights are secure, they probably will not devote many more military and economic resources to Guinea [redacted]

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Relations cooled again in 1977. Toure's security fears diminished, and he was becoming disenchanted by Moscow's unwillingness to provide extensive economic aid. He suspended Soviet reconnaissance flight access rights and, over the next few years, cut back the number of Soviet military advisers. [redacted]

In sum, arms transfers helped Moscow get a foothold in Guinea and enabled it to expand its role in Guinea's military to the point that Conakry has no realistic alternative to continuing that role. The arms relationship enabled the Soviets to gain some access to Guinean facilities but was not sufficient to prevent Toure from reducing it. The Soviets have been unable to establish significant leverage in Guinean political and economic life. Toure jealously guarded his political independence, and the new military government has continued his policies of opening Guinea's economy and moving it toward genuine nonalignment. [redacted]

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The US Embassy in Conakry reports that Moscow responded by driving a hard bargain on spare parts, demanding payment for items previously supplied on concessionary terms. This was probably to indicate its unhappiness with Toure's actions and to remind him of his military dependence. [redacted]

Peru: A Target of Opportunity. Through the early 1970s, Peru's armed forces were equipped with a variety of US and European arms, and the United States was Lima's primary source of military assistance. Relations with the United States began to cool as early as the mid-1960s, however, when Peru asked for the relatively advanced F-5A fighter aircraft to modernize its Air Force. For fear of upsetting the military balance in the region, the United States refused to sell them. This caused a strain in relations, and the Air Force bought French Mirage 5's instead. [redacted]

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[redacted] the Soviets tried to tie their continued provision of maintenance and spare parts to renewal of access for reconnaissance flights. Since that time, they have occasionally offered new equipment that would keep Guinea dependent and justify their requests for expanded access to its air and naval facilities. [redacted]

Soviet-Guinean relations were cool but correct through the death of Toure in March 1984 and the military coup that followed. Conakry has not acquired any significant new equipment from Moscow since 1980, but it remains dependent on Soviet ammunition, spare parts, training, and advisory support. The new leaders have sought increased Western aid and investment and, according to State Department sources, would like to reduce the Soviet military presence in Guinea. However, they probably believe, on the basis of their discussions with Washington and Paris, that the West is unlikely to provide much new military aid on favorable terms and that a continued military relationship with the USSR is essential for the armed forces. [redacted]

In 1968 a coup replaced pro-Western President Fernando Belaunde Terry with a junta of leftist army officers. They nationalized US-owned businesses in Peru, opened diplomatic relations with Communist nations, and seized several US fishing boats in Lima's claimed 200-nautical-mile territorial sea. In 1969 Washington suspended arms sales and military assistance, and Lima expelled the US Military Advisory Group. [redacted]

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The junta still faced a number of traditional security concerns. Peru's periodic border clashes with Ecuador and its irredentist designs on northern Chile kept

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For their part, the Soviets will probably offer new equipment occasionally, while providing enough spare parts and training to ensure Conakry's continued

defense a high priority. With US aid cut off, the officers had to turn elsewhere to modernize their forces. [redacted]

While the Soviets undoubtedly were pleased by this turn of events, they remained noncommittal until 1973. Then they stepped in with offers of quick delivery of relatively sophisticated weapons at low prices and on easy terms. Peru became the first South American country to buy Soviet military equipment, with the delivery in 1973 of five MI-8 Hip helicopters and 35 T-55 tanks. [redacted]

This marked the beginning of an expanding military relationship. Soviet military sales to Peru through 1984 exceeded \$1.5 billion. Equipment has included fighters, helicopters, tanks, and surface-to-air missiles, and the agreements have also involved spare parts, training for Peruvian military personnel in the USSR, and the presence of Soviet advisers and technicians in Peru. All the military sales have been for credit, with virtually no downpayment, a mere 2- to 5-percent interest, and the balance due in 10 to 20 years. [redacted]

Peru now has so much Soviet equipment that it depends heavily on Soviet spare parts and maintenance to sustain vital sectors of its armed forces. Nearly one-third of the Air Force's planes and about two-thirds of the Army's tanks are Soviet made, and both forces rely almost entirely on Soviet-supplied air defense equipment. The US Embassy in Lima reports that, because of this dependency, the Peruvian military occasionally exerts pressure on the government to maintain cordial relations with the USSR. The Navy has thus far turned down Soviet offers, and it continues to rely on the West for equipment and training. [redacted]

Moscow recognizes the value of its arms-linked ties. The military has traditionally been the dominant voice in determining who governs Peru, intervening against civilian regimes it considers inept, ideologically suspect, or threatening to its own institutional interests. Since World War II the military has held power itself four times (most recently from 1968 to 1980), for a total of 22 years. [redacted]

Military aid to Peru has yielded some political and economic benefits. Since 1971, for example, Moscow has been allowed to use Peruvian ports for the logistic support and maintenance of its 200 fishing vessels operating off the coast of South America. More important, Peru is a foothold in South America. The Soviets in Lima have identified the Bolivian and Argentine military attaches as priority targets for cultivation. The US Embassy indicates that there are 350 Soviets in Peru—far more than are needed for normal diplomatic relations—and that 150 of them are military advisers. [redacted]

On the other hand, Peru's armed forces have been dissatisfied with Soviet logistic support for the equipment provided. [redacted] maintenance is a serious problem because spare parts are unavailable and repairs are slow. Aircraft reportedly are unflyable for months while they await servicing. Lima is trying—apparently with little success—to reduce this dependence by replacing Soviet with Peruvian technicians. It is also trying to diversify its sources of military aid: last year it negotiated an agreement with France for the purchase of 26 Mirage 2000 fighters. The poor state of the Peruvian economy, however, probably will limit Lima's freedom of maneuver. [redacted]

Moscow gained its foothold in the Peruvian military largely through attractive financing terms and promises of quick delivery, and it apparently is taking steps to protect that foothold. [redacted] the USSR has agreed (in 1984) to refinance Lima's military debt, is increasing its efforts to provide equipment and training to all three services, and probably will continue to offer attractive financing terms. A new agreement signed last summer apparently ensured the military that spare parts would be forthcoming. [redacted]

[redacted]

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Management of Arms Transfers to the Third World [redacted]

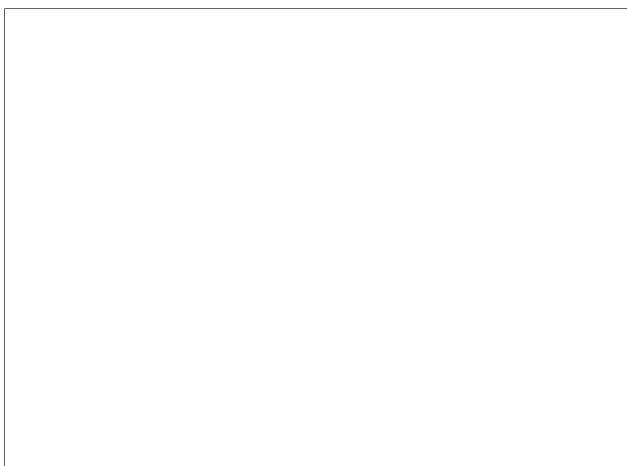
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Arms transfers to the Third World are instruments of Soviet foreign and military policies and also have an impact on the Soviet economy. They therefore concern the highest levels of the party, government, and military establishments. They include sales and grants of arms and military equipment, supply of spare parts and munitions, training and technical assistance, and, recently, support for Third World arms industries. [redacted]

whether to provide military assistance to a country, the magnitude of the support, and what types of weapons should be included. They also make recommendations on various aspects of the terms of trade, such as the amount of subsidy, timing of deliveries, and terms of payment. If a military assistance agreement is already in effect, the Ministry of Defense, working with other government organizations, is given latitude to interpret and administer policy for limited cash sales or for unsophisticated equipment. [redacted]

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Major transfer proposals are considered when they arise, but also are reviewed by the Politburo and Council of Ministers in the annual and five-year defense and economic plans. As a result of the long-term commitment and advance planning, the Soviets are a fairly reliable supplier of weapons. Some flexibility to deal with unanticipated arms exports is built into plans by establishing weapon reserves and maintaining some excess production capacity. General arms transfer commitments for the 1986-90 period were considered in 1983, and delivery obligations will be established in 1985. [redacted]

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Determining Policy

The Politburo establishes arms transfer policy and reviews transfer proposals that have significant political and strategic implications or that would have a substantial impact on the Soviet economy. The Politburo is advised by: the Ministry of Defense on the military significance of the proposed transfer; the Minister of Foreign Affairs and Foreign Trade¹ on foreign policy implications; the Council of Ministers, and particularly the Military-Industrial Commission and State Planning Committee, on the economic impact, especially for defense industries; and the Commission for CEMA Affairs on coordination of CEMA-wide deliveries. These organizations consider

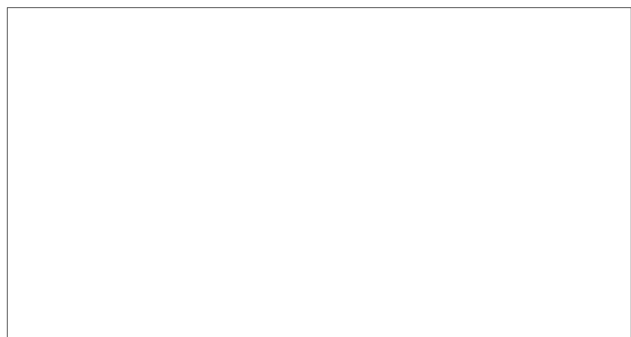
Managing Arms Transfers

The General Staff's Tenth Main Directorate and the State Committee for Foreign Economic Relations (GKES) of the Council of Ministers share responsibility for the day-to-day management of arms transfers. The delineation of responsibility is not entirely clear to us in every case, but evidence suggests that the Tenth Main Directorate has a more influential staff role in establishing policy and preparing for negotiations, and the GKES has a more prominent line management responsibility for administering contracts. [redacted]

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¹ The Ministry of Foreign Trade handles the commercial sale and shipment of general purpose equipment such as aircraft, helicopters, and trucks that can be used or outfitted for military purposes. These sales require resource commitment approval by the Politburo and are coordinated with the Ministry of Defense. [redacted]

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- Military specialists train troops in the use and maintenance of weapons and equipment. They generally return to the USSR after the transfer of equipment and training are complete. [redacted]

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The State Committee for Foreign Economic Relations administers all Soviet economic and technical assistance agreements—including military exports. Two sections within the GKES handle all military aid: the Chief Engineering Directorate (GIU) for weapons and other military equipment, and the Chief Technical Directorate (GTU) for military construction. These organizations negotiate and administer contracts for training personnel in the operation of equipment. They also handle supplemental purchase contracts for additional equipment, spare parts, or services. [redacted]

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The Tenth Main Directorate of the General Staff oversees the entire foreign military assistance program. Its senior officers participate in general policy discussions on major prospective agreements. They are supported by staff analyses of the military, political, and economic situation of the potential recipient country. Directorate personnel prepare the annual and five-year military aid plans, which become part of the defense component of the national annual and five-year plans [redacted]

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Establishing Agreements
Establishing an arms transfer agreement is normally a long, multistaged process. It usually takes a year to complete negotiations and sign the contracts. The need to await Politburo decisions at almost every stage is the major source of delay. The Soviets then require 12 to 24 months for production and delivery. Thus, a prospective recipient of Soviet arms would normally have to project requirements some three years in advance. The Soviets do, however, speed the entire process in special situations, for example, when an important client country is engaged in a conflict (see inset). [redacted]

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The Directorate oversees and monitors the delivery of weapons and equipment and selects and trains foreign nationals in Soviet military schools. It can also become involved in the later stages and details of the management of arms transfers, such as the delivery of spare parts, financial arrangements, and supply problems. The Directorate is instrumental in providing quick-reaction assistance and resupply, exemplified by its role in supplying arms to India in 1971 and to Egypt during the 1967 and 1973 Middle East wars. [redacted]

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Exploratory Phase. After receiving a request from a prospective foreign client or a proposal from the Soviet leadership, the Tenth Main Directorate prepares a Feasibility Report, which includes an extensive military, political, and economic analysis of the prospective recipient, including background on prior military assistance provided, the extent of non-Soviet military aid received, price data, and the customer's repayment record. The GIU provides to the Tenth Main Directorate all necessary financial information and detailed contract data. [redacted]

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The Tenth Main Directorate controls military assistance groups in foreign countries, a vital mechanism for influencing the client. These groups train clients in the use and maintenance of weapons and equipment and in a few cases also provide command and control support. They include both military advisers and military technical specialists:

- Military advisers work with the host country's forces and advise on the deployment of military equipment. In Afghanistan, Ethiopia, and Angola, Soviet military advisers have become deeply involved in guiding military operations.

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Soviet Rapid Responses in Crisis Situations

Syria—1982

The Soviets substantially increased their military commitment to Syria within seven months of Israel's defeat of Soviet-equipped Syrian forces in Lebanon in June 1982. They sent more SA-8 surface-to-air missiles and introduced the SA-5 system, the most advanced model of the MIG-23 interceptor, and several hundred military advisers and technicians.

[Redacted]

Ethiopia—1977

During the Ethiopian-Somali conflict, the USSR initially supplied arms to both sides. As hostilities increased during the summer of 1977, the USSR began to lean toward the Ethiopian side. In mid-October the Soviets ceased arms shipments to Somalia. In late November 1977, a massive Soviet airlift of arms to Ethiopia was launched. By early December 1977 approximately 400 Soviet military advisers were in Ethiopia and another 900 or more were scheduled to arrive. Throughout December and January, Soviet arms—including MIG-21s, trucks, tanks, and small arms—poured into Ethiopia. By March 1978 the rearmed Ethiopian forces had crushed the Somali offensive. The speed and extent of Soviet and Cuban military assistance was the decisive difference.

[Redacted]

Negotiating Phase. The negotiation process usually begins with a series of discussions primarily political in nature. Depending on the country and circumstances, the discussions may include the top Soviet leaders; frequently they are led by the Minister of Defense. Often political conditions for any military aid are set during these discussions. With the satisfactory resolution of the political discussions, the client's request is reviewed by the Politburo, and the USSR agrees "in principle" to provide military aid to the customer. The client in turn signs a purchase statement affirming serious interest in obtaining assistance. [Redacted]

The Politburo forwards the initial agreements to the Ministry of Defense, Ministry of Foreign Trade, Military-Industrial Commission, Gosplan, and other

organizations to work out the details. The Politburo reconsiders the proposal after these inputs are received and an official Soviet position is developed.

[Redacted]

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Procedural negotiations at the working levels cover the terms of the General Agreement, laying out the nature of the assistance, administrative aspects of the project, and the extent of credit. After the General Agreement is approved in draft by the Politburo, the customer is usually given only one or two days to respond. [Redacted]

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The Project Requirements Document of the General Agreement states what services and equipment are to be offered by the USSR. The document is developed from the feasibility report, the customer's request, and field studies made by officers from the military services involved in the aid project. The document is assembled by the Tenth Main Directorate with a minimum of civilian input and submitted via the Minister of Defense to the Politburo for final approval. The document then is presented to the client, who is allowed 60 to 90 days for a written response. [Redacted]

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Purchase Contracts. The actual purchase of weapons, equipment, and services is covered by a separate purchase contract, usually negotiated along with the General Agreement or as a supplement to an existing General Agreement. [Redacted]

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[Redacted]

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Contract Management. Once a General Agreement has been signed, the Foreign Trade Bank (Vneshtorgbank) opens a special credit account for use only as specified in the Agreement. For each contract, a portion of the credit is set aside for spare parts and ammunition; however, additional spare parts and ammunition must be purchased through separate contracts. [Redacted]

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Organization of Arms Production for Export

In many cases the Soviets have not exported weapon systems until they have been in Soviet inventories eight to 10 years. Although this practice is changing and the percentage of new systems being exported has been growing in the last 10 years, older weapons have proved highly marketable to Third World countries. Their relatively low cost and simplicity are compatible with the resources, tactics, and support capabilities of Third World military services.

[Redacted]

The concentration on these older models for export has influenced the organization and scheduling of weapons production. Although most weapons for export are manufactured concurrently with domestic production, the Soviets have serviced many export obligations by dedicating entire production lines and runs to the export variant. In extreme cases, the demand has warranted temporarily dedicating all or most of a plant to export production:

- *The Omsk Tank Plant produced T-55s at least until the late 1970s, long after Soviet forces began receiving more modern systems.*
- *In the 1960s Moscow Airframe Plant 30 produced MIG-21s for export while preparing for production of the MIG-23.*
- *Arsenyev Airframe Plant 116 currently exports most of the SS-N-2 Styx cruise missiles it produces.*
- *Rybinsk Shipyard 341 produces minor surface combatants almost entirely for export, while other shipyards produce the same vessels for Soviet customers.*

[Redacted]

Producing for export at the end of a production run facilitates scheduling and eliminates the need for frequent changes in equipment, tooling, and material supply to accommodate any differences in the design of an export variant. It also extends the production run, increasing the benefits of having mastered the design and production process. Plant managers sometimes are allowed to use a portion of hard currency earned to purchase foreign manufacturing equipment.

[Redacted]

Staying competitive in Third World arms markets, however, is complicating the export business for Soviet defense industry. Countries like India are demanding state-of-the-art hardware, such as the MIG-29, requiring Soviet plants to produce concurrently for Soviet and foreign military services. Exporting more sophisticated weapons also means establishing a more complex training and logistic support pipeline. Some countries—again India is preeminent—are purchasing licenses to produce Soviet weapons. This obligates Soviet plants to transfer and install equipment and tooling, train indigenous managers and laborers, and provide ongoing material support and technical consultation. Soviet industry has little experience in nurturing Third World defense industrial development. It is not clear to what degree these more aggressive moves to provide a broader array of arms transfer services will become a part of Soviet international arms dealings.

[Redacted]

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The GKES implements the purchase contract within the terms of the General Agreement, overseeing the relationship between foreign customers and Soviet industrial ministries and plants and ensuring that production meets delivery obligations (see inset). It arranges for the assignment and transportation of specialists to support aid contracts and for the transfer of the client's personnel to the USSR for training. GIU and GTU representatives are the liaison with the client in all matters, negotiating supplements to existing contracts, conveying client complaints, and handling any disciplinary problems that involve Soviet specialists in the host country.

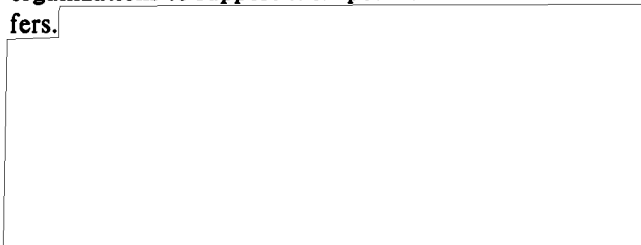
[Redacted]

Implications

The authority of the Tenth Main Directorate in overseeing the arms transfer program enables the military to exercise influence over a crucial dimension of Soviet foreign policy, the national economy, and particularly the defense industry. This directorate and the GKES nevertheless share responsibilities, and conflicts often arise between them. This could reflect conflicts between policymakers who use the different

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organizations to support their positions on arms transfers.



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The Soviet process for implementing arms transfers takes considerable time and can constrain both Soviet and client flexibility to respond to fluctuating military, political, or economic conditions. As previously shown, the Soviets can and have responded rapidly and flexibly in a number of cases, but quick responses cause dislocations in defense industries and weapon stockpiles. Overall, Soviet central planning and the long leadtimes for production of arms exports work to make the management of the arms transfer program slow and deliberate.



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On the other hand, Politburo approval constitutes a national commitment, which makes the Soviets a fairly dependable source of weapons. It allows them to provide weapons, equipment, and training on a predictable schedule. It facilitates the manipulation of sales and credit terms to break into new markets, retain old ones, and promote client dependency. Dependency, in turn, affords the Soviets some latitude in changing negotiated agreements without bringing these changes to the clients' attention. A number of clients contend that the Soviets exploit the entire process, at least partly offsetting the advantage of a quick and firm Soviet commitment.



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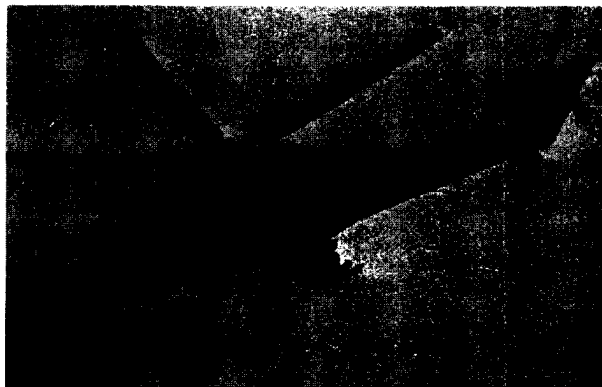


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**The Soviet Hind Helicopter:
Prospects for Exports**

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The MI-24 Hind helicopter is the Soviet entry in one of the most active sectors of the international arms market—attack helicopters. Third World countries are seeking armed helicopters for antitank and anti-personnel missions in conventional warfare and counterinsurgency operations. Moscow has delivered as many as 390 Hinds to 14 Third World countries since 1978. The helicopter's operational shortcomings could limit additional sales over the long term, particularly to new customers. Nonetheless, involvement of Soviet customers in conventional conflicts and counterinsurgencies plus favorable financial terms from the USSR will ensure a substantial number of additional Hind sales, mostly to countries already possessing the system.



Hind D

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Hind Missions and Capabilities

The MI-24 Hind (and its export model, the MI-25) is a large attack helicopter about the size of the standard Soviet transport helicopter, the MI-8 Hip. It has a higher airspeed than the Hip, armor for the cockpit and other components, and formidable armament that can include either a four-barrel 12.7-mm Gatling gun or a fixed twin-barrel 23-mm cannon plus rockets, bombs, and antitank guided missiles. Its ability to deliver a high volume of gun and rocket fire makes it a potent counterinsurgency weapon. The Hind differs from Western attack helicopters in that it has a small cargo- or troop-carrying bay that, along with its rugged fuselage, large engines, and heavy armor and ordnance, makes it the largest attack helicopter in the world.

The Soviets have exported about 15 percent of the Hinds they have built so far despite a competing requirement for attack helicopters to fulfill three missions within their own forces: escort and support of heliborne or airmobile assault operations, close air support for armor and mechanized infantry forces, and operations in rugged and remote areas such as along the Sino-Soviet border. The invasion of Afghanistan in 1979 gave the MI-24 an important counterinsurgency mission as well.

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Soviet Motivations

The Soviets have evidently exported the Hind to expand their arms relationships with the USSR's traditional arms customers, some of which are among Moscow's best sources of hard currency. This consideration may have been particularly important in the cases of Iraq and Syria, which continue to buy attack helicopters of West European origin as well as Hinds. An additional incentive in the case of Peru probably was the desire to make Peru into a showcase of advanced Soviet military hardware that would attract other Latin American customers.

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Hinds exported to the Third World are externally similar to those provided to Soviet forces except that they carry an older antitank guided missile and fire-control system. A few of the advanced systems that may be carried by Hinds in Soviet forces—for example, low-light-level television for night operations—almost certainly have not been exported. The Hind's laser rangefinders probably have been exported, since similar equipment is contained in other Soviet aircraft sold outside the Warsaw Pact.

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Hind Exports

Recipient	1978	1979	1980	1981	1982	1983	1984	Total
Total	34	94	65	40	67	34	56	390

Middle East/North Africa

Algeria	24		13	27				64
Iraq	10	39	12				8	69
Libya		26	6	1	11			44
South Yemen		12						12
Syria				12	25		8	45

Sub-Saharan Africa

Ethiopia			18				4	22
Angola						12	12	24
Mozambique						8	4	12

Americas

Cuba					12			12
Peru						14		14
Nicaragua							12	12

South Asia

Afghanistan		17						17
Vietnam			16		19			35
India							8	8



Most of the initial purchasers of the Hind apparently sought it for use in conventional roles rather than in counterinsurgencies or unconventional warfare. The first three purchasers—Algeria, Iraq, and Libya—deploy most of their Hinds opposite unfriendly neighbors, although Libya has used small numbers in Chad, and Iraq has used them against the Kurds. India, Peru, South Yemen, Syria, and Vietnam also purchased Hinds primarily for conventional warfare against traditional enemies. Peru, to our knowledge, has not used its Hinds in its counterinsurgency against the Sendero Luminoso; and Vietnam, which has had Hinds since 1980, only last year began to use them in a limited way in Cambodia.

About 1979, Moscow also began exporting the Hind to support counterinsurgency efforts. The Soviets found themselves committed to helping suppress insurgencies in several client states, including Angola, Ethiopia, Mozambique, Afghanistan, and, most recently, Nicaragua. All of these countries are using Hinds, or are likely to use them, primarily against insurgents. In addition, Cuba probably uses its Hinds primarily to train pilots that it sends to these countries. Moscow probably provided Hinds in these cases

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not only to nurture arms relationships but also to support its objective of maintaining socialist regimes in these countries. Several of these Hind recipients have very little ability to pay for complex arms, suggesting that in these cases Moscow believes the political benefits outweigh the economic costs.

[redacted]

Combat Performance

The success of the Hind as an export will depend in part on its combat record. It has seen heavy action in Afghanistan and in the Iran-Iraq war and smaller scale use in Angola, Ethiopia, Cambodia, and Chad. These actions have revealed both strengths and weaknesses in the system.

The most commonly praised feature of the Hind is its armament. The volume and precision of its fire have reportedly made it the most feared weapon in Afghanistan.

[redacted]

The main problem with the Hind, according to Third World observers, is its size, which makes it an easy target for air defenses. It lacks the thin silhouette of some Western helicopters, notably the Cobra. Although the cockpit is well armored, there are large areas on the aircraft, including parts of the cargo bay and the tail boom, which are unprotected and which contain vital hydraulic lines and control surfaces. In Afghanistan the Hind's worst enemy has been the heavy machinegun, especially when the helicopter operates in valleys where rebel gunners can fire on it from above. Afghan insurgents have also scored hits with shoulder-launched SA-7s

[redacted]

[redacted] The presence of even modest air defenses has forced Hinds to fly higher and minimize their on-target time, reducing their overall effectiveness. The Hind has also been criticized for its lack of agility (a result of its large size and weight), which reduces its ability to evade ground defenses and to fight air-to-air engagements.

[redacted]

Market Experience

The Hind has been sold mainly to customers that traditionally have bought large numbers of helicopters from the USSR. It has not proved successful in opening new Third World markets for the Soviets. Many countries that operate small numbers of Soviet MI-8 Hips, like Congo, Guinea, Madagascar, Mali, and Zambia, have not purchased the Hind, probably because most of them do not need to counter insurgencies, are unable to pay, and are wary of the Soviets—in part because of experiences in earlier deals. For its part, Moscow may be unwilling to sell to countries more closely aligned with the West.

[redacted]

[redacted] Mozambique and Nicaragua, Hind recipients that had not previously been important Soviet helicopter customers, are special cases. Both are fighting for survival against insurgencies and are isolated from Western suppliers—Nicaragua for political reasons and Mozambique by an inability to afford Western payment terms.

Moreover, the Hind lacks what is normally one of the most attractive features of Soviet equipment—a low price. In the case of large cargo helicopters, the Soviet asking price for the MI-17 is about \$2.8 million, while Western manufacturers were recently asking over \$6 million for somewhat smaller models. In the attack helicopter market, however, the top of the Western line, the US Cobra, is now being sold to Jordan for \$3.3 million and to Pakistan for \$5.2 million each (prices that probably exclude some avionics and armament).

[redacted] Although such figures must be

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regarded as approximate, the Hind clearly does not have a decisive price advantage over Western attack helicopters. In addition, a country that cannot afford an aircraft like the Cobra can turn to any of several much smaller Western helicopters, which are cheaper than the Hind and better in some ways, notably in maneuverability. The main advantage of the Hind for a poor country is that in a benign air defense environment it can be used for utility as well as attack purposes. [redacted]

Prospects

The Hind is likely to continue to help Moscow reinforce arms supply relationships it has already established. Some current Hind customers are likely to make additional large purchases because the system has an established place in their forces. The Soviets also may offer attractive financial terms to mitigate the noncompetitive price of the Hind. Others, like Syria and Iraq, are showing increasing interest in Western helicopters as combat weaknesses in the Hind become apparent, but they will probably continue to buy some Hinds to maintain their fleets. So far, however, the Hind has not proved attractive to countries that are not in some way already tied to the Soviets. [redacted]

The Soviets currently have in the late stages of development two attack helicopters, the Havoc (MI-28) and the Hokum (a Kamov product). Design improvements, advances in key subsystems, and the absence of a cargo bay should make them more capable in attack missions than the multirole Hind. Production rates for the new models, however, are likely to be slower than for the Hind because of the use of advanced technology and more exacting manufacturing procedures. We therefore expect the new models to augment, rather than totally replace, the Hind in Soviet forces. Moscow is likely to export one or both of its new attack helicopters to preferred customers within a few years of their entry into Soviet service, as it has done recently with some other advanced systems, but we expect the Hind to remain the main Soviet export attack helicopter at least through the end of this decade. [redacted]

Implications

Moscow's experience with the Hind suggests that the Soviets will have to overcome several problems if they

wish to retain or improve their position in the highly competitive world arms market. The failure to sell the Hind outside a select circle of traditional customers in large part reflects Moscow's traditional lack of aggressive marketing of military equipment. Unlike the Soviet civil aircraft exporter, Aviaexport, which has recently conducted demonstration flights of the AN-32 transport aircraft in much of the Third World, the military exporters (notably the Tenth Main Directorate) apparently wait for customers to come to it. This probably results from Soviet reluctance to sell military equipment to countries in which technical details might be compromised. If Moscow persists in selling advanced military equipment only to countries with which it already has reliable political relations, however, it is unlikely to enlarge its circle of arms customers much further. Such a policy would also reduce Soviet ability to use arms sales to open the way to political influence. [redacted]

Even among its traditional arms customers, Moscow will almost certainly find itself under increasing pressure to provide even more recent technology. If Moscow procrastinates on exporting new models, some customers could be tempted by highly competitive Western equipment. The Hind experience suggests that Moscow can rise to this challenge, although the expected lower production rates for newer Soviet equipment may make the export decision more difficult in the late 1980s than in the 1970s. In addition, the fact that Moscow still has not exported Hinds with its latest missile or fire-control systems suggests that it may try, at least initially, to withhold a few of its most advanced subsystems from even its best customers. [redacted]

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Other Topics

Soviet Oil Production: Short-Term Outlook

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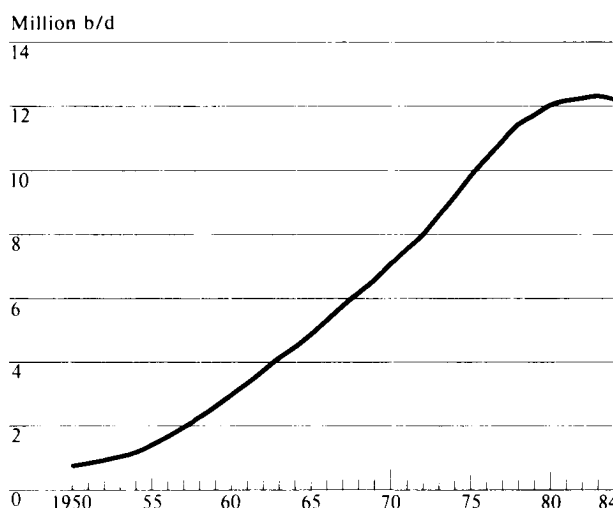
Posting its first annual decline since World War II, production of Soviet crude oil and gas condensate slipped to 12.23 million barrels per day (b/d) in 1984. The decline—by 100,000 b/d—from the rate in 1983 reflects a host of problems associated with the advanced age of most of the USSR's largest oilfields, and it may continue. With West Siberian oil production stagnant or possibly declining and output in other regions falling, a nationwide decline of about 200,000 to 300,000 b/d is possible this year. If it occurs, the Soviets might have to cut back their net exports for hard currency if they are to satisfy domestic oil requirements and maintain their exports to Eastern Europe.

The Soviet leaders recently implemented a series of personnel and administrative changes that reflect distress over the oil industry's problems. A large number of production managers in West Siberia were fired, and Nikolay Mal'tsev was replaced as Petroleum Industry Minister by Vasiliy Dinkov, who as Minister of the Gas Industry scored notable successes in the rapid development of West Siberian natural gas production. Vladimir Filanovskiy-Zenkov, chief of the oil and gas section of the State Planning Committee (Gosplan), will be Dinkov's new deputy. No new combination of administrators, however, is likely to restore growth in oil output.

Background

Soviet oil production soared for three decades—from 750,000 b/d in 1950 to a record 12.33 million b/d in 1983 (figure 1). The ready availability of oil in turn prompted a massive conversion of Soviet industrial facilities from coal to oil.

Figure 1
USSR: Oil Production, 1950-84



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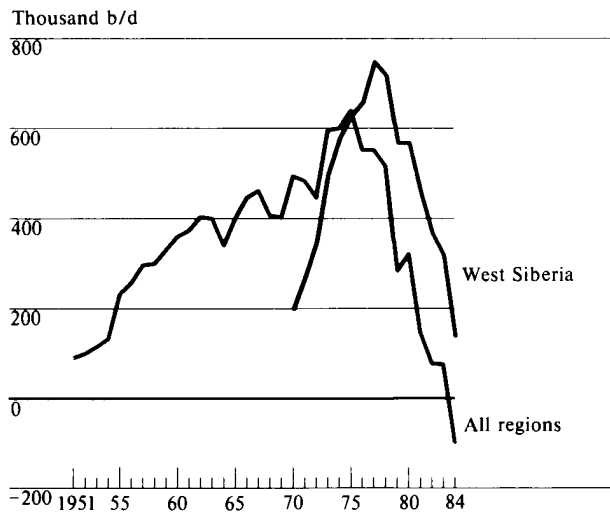
The period was characterized by annual production increments of generally increasing size until 1975, after which growth tapered off (figure 2). Oil output reached 12.03 million b/d in 1980 and inched up to the 12.33 million b/d posted in 1983.

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Figure 2
USSR: Year-to-Year Change in
Oil Production, 1951-84



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In 1984, production in West Siberia's Tyumen' Oblast increased by only 140,000 b/d—about 200,000 b/d less than the planned increment. This was too little to cover the declines in oil output elsewhere in the USSR, let alone provide for any net growth in oil output nationwide. The overall result was the drop of 100,000 b/d.

High-Level Concern

The slowdown in the growth of Tyumen' production and the region's below-plan performance in 1983 and 1984 caused consternation in Moscow and brought West Siberian operations under high-level scrutiny. In late 1983, leading officials from Gosplan, the oil ministry, and the Communist Party mounted an on-site investigation, according to the Soviet press. Early in 1984 the depth of leadership concern was shown by the assignment of a deputy oil minister as chief of oil operations in Tyumen'. The continuing dissatisfaction culminated in the firing of most of the managers of the region's production associations late in the year and the replacement of Mal'tsev in February 1985.

Several news articles indicate that, in an unprecedented move to improve efficiency, two major organizations that control oil operations in the European USSR have been given responsibility for three West Siberian production directorates.

In a parallel effort, the party apparatus is focusing on mobilizing Tyumen' workers to meet oil and gas production plans. Vladimir Dolgikh (candidate member of the Politburo and party secretary concerned with energy matters and Siberian development) has cited poor management as a basic problem. Oil officials, he said, had failed to foresee the growing requirements for artificial lift and to provide for adequate maintenance and logistic services. Dolgikh attributed part of the failure to laxity on the part of local party units and called upon party members to coordinate their activities more effectively.

Problems in Tyumen'

The most serious technical problems affecting Tyumen' oil production are occurring in the production associations that manage Samotlor and Federovo, two of the largest oilfields in the USSR. Difficulties are accumulating, especially those associated with water injection systems and the sharply rising water content of fluid recovered from producing wells. Samotlor's pressure-maintenance and oil-gathering systems, for example, have severe corrosion problems. The oil flow lines leak, and the lines for the waterflood system are so corroded that full pressure cannot be maintained. With the average water-cut (the percentage of water in the fluid produced from oil wells) estimated to exceed 50 percent, oil production is declining at both fields.

Bright expectations for a newly developed area north of Fedorovo apparently have dimmed. Soviet press articles cited serious production shortfalls and reported that some newly drilled wells were not flowing. Many wells at the Sutorminsk field have been switched over to pumps far earlier than was envisaged in the original development plan. If the reservoir characteristics in nearby oil deposits resemble those at Sutorminsk, oil extraction from the whole new area may require more wells, equipment, manpower, and time than the planners anticipated.

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What Went Wrong

The shortfall in West Siberian production can be traced in part to overoptimism: the quality of the newly exploited reserves has not met official expectations. Another factor is the failure of Soviet industry to supply pumps and other oilfield equipment in adequate quantity and quality. As a consequence, Soviet planners and oil industry leaders are falling behind in the race against rising investment and manpower requirements. [redacted]

Lower Well Flows

Last April a *Pravda* article commented that many Soviet oil wells had stopped flowing naturally, and the oil now had to be "extracted," literally—pulled out of the ground. To do this, the article added, the production associations had to have special equipment (pumps, workover rigs, and tools) in amounts and kinds that they were not receiving. The situation is particularly serious in Tyumen', where some of the new wells will not flow. Moreover, according to oil industry officials and some Soviet geologists, recent experience shows that the initial Soviet reserve estimates for the Tyumen' oilfields were exaggerated and the estimated recovery rates were too high. [redacted]

When Soviet oil industry planners and managers continue to use such estimates (which understate the difficulty of reaching production goals) as a basis for ordering equipment and allocating manpower, production shortfalls are inevitable. The original planning error is then exacerbated by frequent failures in equipment, electricity supply, and logistic support. [redacted]

Rising Requirements for Investment and Manpower

Since 1980, high-ranking Gosplan officials have pointed out the alarming decline in the average flow of new wells—from 1,183 b/d in 1975 to 518 b/d in 1980 and an estimated 277 b/d in 1981-85. In late 1982, Oil Minister Mal'tsev illustrated the problem by pointing out that, to achieve a 20,000-b/d increase in oil production (allowing for normal depletion rates), the USSR had drilled 265,000 meters of wells in 1970 and 866,000 meters in 1980, but would have to drill 7 million meters of wells in 1985. [redacted]

A fundamental factor underlying many of the oil industry's production problems is the increasing age of the oilfields. The dozen largest fields in West

Siberia have been in operation for 12 to 15 years. Giant fields play a vital role in maintaining steady growth in total output even though their production slows down after a decade or so of exploitation. As oil is extracted, the natural reservoir pressure declines, reservoir permeability tends to decrease, and the water-cut increases markedly. These changes speed up the use of artificial lift, and pumps break down more frequently because of corrosion and the buildup of salts in the well bore. [redacted]

Such conditions multiply the requirements for well maintenance. Tyumen', however, reported a shortage of 100 workover crews in 1984. Furthermore, in the hostile Tyumen' environment each workover crew is expected to maintain 55 to 85 wells scattered over difficult terrain, whereas in the mild climate of Baku a single crew looks after 29 wells. The lack of appropriate maintenance in West Siberia results in idle wells and lower production there. [redacted]

Oil production planning is fraught with uncertainty even under the best of circumstances. It appears, however, that Soviet planners have repeatedly missed windows of opportunity for timely and efficient acquisition and use of equipment. A glaring example of ineptitude was reported by *Izvestiya* last April. In 1980 the Tyumen' oil administration submitted a 1985 production goal of 6.8 million b/d, using this figure as the basis for its equipment orders and investment plans. Moscow raised the goal to 7.5-7.6 million b/d but did not allocate additional funds, equipment, or manpower. On the contrary, in December 1984, according to *Izvestiya*, the administration's investment allocation was reduced for unspecified reasons. [redacted]

Outlook

Soviet oil output in 1985 probably will be well below the planned 12.56 million b/d—it may not even match the 12.23 million b/d posted in 1984. We base this conclusion on the recent production record and on Soviet media evidence of continuing difficulties. Daily oil production in the first quarter of 1985 was 11.92 million barrels, a figure well below the planned level and 300,000 b/d below the average production level [redacted]

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achieved in 1984. With oil production in the key West Siberian region growing less rapidly—and possibly flattening out or even declining—we estimate that a further decline nationwide is possible this year. Efforts to check the decline will become progressively more costly in terms of manpower and investment resources. [redacted]

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In the longer run, the USSR will have to reconsider its Long-Term Energy Program, which postulates that nationwide production of crude oil and gas condensate will hold steady at a high level through the end of the century. Given the situation in West Siberia, the leaders may find that to carry out these plans they would have to divert to the oil sector an unacceptably large share of national investment. [redacted]

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Last year, Moscow was apparently able to raise exports by increasing reexports of OPEC oil, trimming domestic consumption, and drawing down domestic stocks. If production shortfalls are larger in 1985, Moscow may be unable to satisfy domestic oil requirements and maintain exports to Eastern Europe without some cutbacks in net exports for hard currency. The Soviets have sold very little oil on the spot market since January, and they suspended shipments to many West European and Japanese customers in February and March. Some exports were reported in late March, but at a slightly lower level than a year ago. Whether the Soviets will be able to maintain or increase sales during the rest of the year is unclear at this time [redacted]

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**The Soviet Tank Industry:
Modernization for the 1990s** [redacted]

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The USSR, driven by the need to build tanks with increasingly expensive and complex components and subassemblies, has undertaken sweeping changes in the production methods of its tank industry over the past decade. Overall production of tanks has declined, while the industry's plant and equipment holdings have grown dramatically. This modernization will enable the Soviets to produce increasingly sophisticated and capable tanks more efficiently. [redacted]

tanks variously incorporate laminated nonhomogeneous armor, advanced fire control, improved diesel and gas turbine engines and power trains, variable-height suspension systems, and equipment for the use of armor-piercing ammunition and tank-fired guided missiles—all substantial advances over 1960s-vintage tanks. These more sophisticated components have led to a marked growth in cost (see figure 1). [redacted]

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The Postwar Tank Industry

After World War II, the Soviets produced a generation of medium battle tanks (the T-54, T-55, and T-62) that were simple in design, easily manufactured, rugged in operation, and that could be operated by crewmen with limited mechanical training. Large-scale manufacture of these tanks was facilitated by the application of traditional Soviet manufacturing practices, including the use of proven designs, standard, off-the-shelf components and subassemblies, and standardized, labor-intensive fabrication methods. Institutional continuities in the industry also contributed to the ability to manufacture tanks rapidly and in large numbers. The tank industry has a centralized executive structure, stable organizations and research teams, and plants that have manufactured tanks or related equipment for almost half a century. [redacted]

Modernization

The incorporation of these new components and subsystems, combined with growing unit costs and production requirements, led the Soviets to modernize manufacturing processes throughout the 1970s at their three primary tank assembly plants—in Omsk, Kharkov, and Nizhniy Tagil²—as well as at numerous component supplier plants. [redacted]

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New tactical requirements and the development in the mid-1950s of new tank technologies in the West compelled the Soviets to introduce in the mid-1960s a radically new tank—the T-64. However, the tank was produced using manufacturing technology that was little changed from that employed for the previous generation, and various production problems were encountered. [redacted]

The installation of automated equipment will facilitate the manufacture of higher quality components and reduce costs. It will enable the Soviet tank [redacted]

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During the 1970s, two new tank models and at least four variants were introduced, including the T-64A and B, the T-72 and its variants, and the T-80. These [redacted]

² The three main tank plants now operational are the Malyshev Transport Machine Building Plant No. 75 at Kharkov, the October Revolution Heavy Machine Building Plant No. 174 at Omsk, and the Kaganovich Ural Railroad Car Plant No. 183 at Nizhniy Tagil. The Lenin Tractor Plant in Chelyabinsk resumed limited production of T-72 tanks in August 1982. [redacted]

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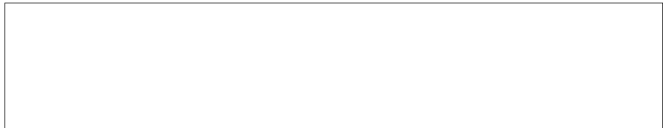
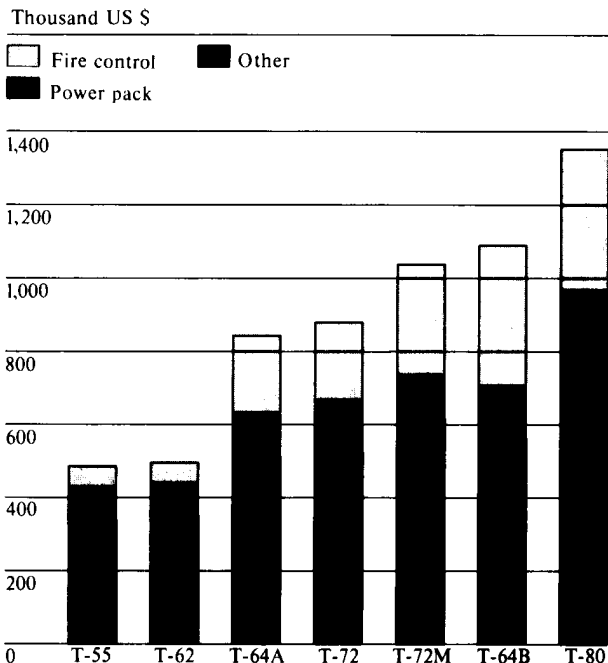


Figure 1
Estimated Procurement Costs for Soviet Main Battle Tanks



Note: The procurement costs expressed in this article are estimated in 1982 dollars and are not actual Soviet expenditures. Dollar cost estimates are intended to represent what it would cost the United States to produce the Soviet design using US production technology, input prices, and profit margins. Dollar cost estimates cannot be used in isolation to draw inferences about the relative effectiveness of Soviet equipment or the relative burden on Soviet industry.

Source: Strategic Cost Analysis Model

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industry to process materials that are harder to shape, meet closer component tolerances, and decrease the leadtime required to gear up for new tank programs. The use of numerically controlled (NC) or computer-aided numerically controlled (CNC) machine tools drastically reduces materials handling, preparation time, setups, machining time, and material consumption (see table 1).

Such automated machine tools enable the manufacturer to perform metal-cutting or finishing operations with great precision and speed even on complex surfaces. A machining center, with its magazine of

several dozen automatically installed tools, can perform complex machining operations on the same workpiece, which would otherwise be done on several conventional machines. Thus, CNC machining centers with sensors, such as those bought from the Italians, will enable the Soviet tank plants to do contour milling on tank turrets in three dimensions or to switch easily to continuous-path cutting and finishing on the upper hull. Once a large enough array of NC machine tools is integrated into production lines, Soviet tank plants will be able to change over quickly to machining parts for two or more tank models simultaneously, or to shift quickly from one tank program to another. This will also enhance Soviet industrial mobilization potential in wartime, when civilian production is shifted to defense at dual-use plants.

Foreign Machine Tool Acquisitions

In the mid-1960s the Soviets also began to step up the importation of precision industrial equipment from the West for the tank industry. We have identified 20 Soviet acquisitions, including rotary forging equipment for gun barrels; multiaxis CNC machine tools capable of handling very large castings, such as tank turrets; presses for the fabrication of steel plates and other components; and foundry, mold line, and casting shop equipment used in the manufacture of engine cylinder block castings. The imported equipment has enabled the Soviets to fabricate components more precisely, cheaply, and efficiently. The tank industry will probably continue to install Western equipment, given the lack of high-quality conventional tools and the relative scarcity of advanced manufacturing process technology in the USSR.

Expansion of Production Capacity

To accommodate the modern production equipment and processes, the Soviets expanded and rebuilt their main tank plant facilities. Soviet tank plants historically had undertaken new programs using renovated facilities or additions to general purpose buildings of standard design. In 1971, however, beginning with the construction of a new final-assembly building at the Kharkov tank plant, the Soviets augmented traditional expansion with a new approach—designing buildings dedicated specifically to accommodate modern,

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Table 1
Savings in Machining Time ^a

Part Machined	Time Required With Conventional Machine Tools	Time Required With NC Machine Tools	Type of NC Machine Tool Used
Bracket	3 hrs. 46 min.	42 min.	machining center
Gear housing	13 hrs.	60 min.	machining center
Plate	1 hr. 16 min.	48 min.	drill press
Shaft	8 hrs.	36 min.	lathe

^a The machining for this study was done in US plants, but the same equipment could produce the same results anywhere.

[Redacted]

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special-purpose tooling and equipment. New production buildings at Omsk and Kharkov now combine under one roof administration and engineering, small-parts production, the fabrication of large components, finishing, and final assembly. These buildings also enable the Soviets to use the new equipment properly, providing, for example, the more vibration-free environment required by automated precision machine tools and the strong foundation needed for the employment of overhead cranes with twice the carrying capacity of those used previously. [Redacted]

as low as 2,100 tanks in 1983 (see figure 2). [Redacted]

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In addition to the growth of assembly facilities, there has been an increase in the size of the outside supplier network in the tank industry. [Redacted]

The large-scale changes caused by the construction of modern facilities and the refurbishment of others along with new methods of production and administration undoubtedly contributed to the slowdown in production. Even after new facilities and supplier relationships are fully operational, however, the involved fabrication and assembly requirements of complex, modern tanks suggest that larger facilities will be required to support the previous level of tank assembly. [Redacted]

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Problems and Outlook

Tank production has not risen in step with the expansion of facilities. We estimate that annual production peaked at 4,500 tanks in 1969—primarily because of large-scale serial production of the last of the older generation tanks, the T-62, at Nizhniy Tagil. Thereafter, total annual production fell, in part because the Soviets introduced new and more complex tanks. Even production of the T-72, the tank with the greatest design inheritance, at Nizhniy Tagil during 1974-79 fell far short of the maximum annual output reached for the T-62. Indeed, we estimate that total annual output for all three major tank plants dropped

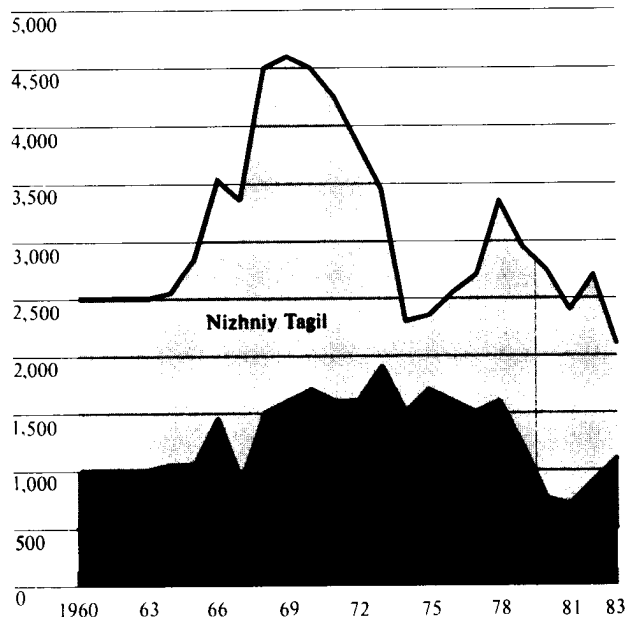
Despite the advances of the 1970s, the dissemination of new technology has been slow, and the Soviet tank industry continues to face problems in modernizing. The industry is still having difficulty bringing equipment up to Western standards and securing adequate supplies of sophisticated components. For example, in the 1970s, grinders, important in armored vehicle production, were produced in the USSR in only one

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**Figure 2
Production of Soviet Main
Battle Tanks, 1960-83**



Source: Strategic Cost Analysis Model

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plant and in small numbers because of the shortage of parts, such as spindles and precision bearings. Another example involves gear-cutting machine tools, which have not reached the quality of American Gleason machines.

The Soviets also express concern over the slow pace of production automation. Emigre sources indicate, for example, that welding automation has gone very slowly in the tank industry because of the reluctance of some plant managers to undertake automation, which is seen as too risky. Other reasons include:

- The belief that manual welding by skilled welders is in some cases better than automated welding.
- The unwillingness of plant managers to install specific automated systems, including robots, until these have been proved in the West.
- The absence of welding specialists with automation or computer experience.
- The shortage of key components for automation, including controls, microprocessors, and computers.

The tank industry also experienced problems in the use of Soviet NC machine tools and automated welding systems and other equipment—the result of a lag in Soviet electronics, unsophisticated control systems, problems with hardware and hydraulics, and the lack of qualified service personnel and programmers. We believe uneven progress and resistance to innovation will impede Soviet efforts to modernize the industry.

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The expansion of the vendor network in the tank industry has brought additional problems. Frequently, suppliers do not meet production quotas, and, from time to time, parts and materials required at the main tank plants are in short supply. The maintenance of quality control over vendor parts also poses a problem. Sometimes vendors themselves struggle with upgrading their own production processes and cannot meet production schedules or quality requirements successfully.

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The upgraded, concentrated tank assembly backed by a large network of specialized component manufacturers should produce savings that will partly offset rising costs. We believe that plant modernization will continue into the 1990s, based in part on acquisition of Western equipment. The versatility and production flexibilities inherent in the new facilities and equipment should afford greater possibilities for converting existing plants and lines to support new programs, rather than constructing entirely new dedicated facilities. Thus, the heavy initial outlays generated in modernizing the industry in the 1970s and 1980s may enable the USSR to save considerably in the 1990s on costs for equipment, floorspace, process time, and labor.

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Educating the Agricultural Labor Force: Winning the Battle But Losing the War?

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Soviet agriculture has traditionally been short of skilled workers, and the problem has worsened in the 1980s. With the emphasis on rapid mechanization and widespread use of more sophisticated cropping and livestock-raising practices, the level of training and skills of the work force must be raised. But the quality of education in rural areas continues to suffer from ill-equipped schools, outdated training equipment, and underpaid and undertrained teachers. The low prestige of agricultural occupations in turn makes it hard to attract qualified students.

Retaining better educated workers on the farms has proved to be even more difficult. Skilled workers are especially dissatisfied with living and working conditions in rural areas. The regime is offering various incentives such as lump-sum financial grants and interest-free housing construction loans to make agricultural employment more attractive. Thus far, however, the improvements do not go far enough to substantially raise the average quality of the agricultural labor force.¹

Background

The shortage of skilled labor is reflected in the annual influx of mechanics and other skilled workers from industry and other sectors, mostly during the harvesting season of July through mid-October. Moreover, the number of machinery operators has not kept pace with the growth of machinery and equipment on farms, so that industrial enterprises frequently "loan" farms mechanics and other skilled workers on a year-round basis. These measures provide a critical substitute source of skilled workers but lead to work disruption in nonagricultural sectors and a more-than-usual indifference to machinery maintenance and harvesting losses.

The gap in educational attainment between urban and rural workers has narrowed considerably since 1970 and will narrow even further as the older, less well-educated generation dies off. Still, according to the

¹ There are about 25 million workers employed in socialized agriculture—12 million on state farms and 13 million on collective farms. During the period 1950 to 1983, agricultural employment declined from 46 percent to 19 percent of total socialized employment.

Table 1
USSR: Educational Attainment of the Labor Force

Percent

Level of Education	Urban		Rural	
	1970	1979	1970	1979
Higher	9.0	13.0	2.5	4.2
Secondary ^a	33.9	48.8	17.6	35.3
Less than secondary and primary ^b	51.1	36.2	63.6	54.7

^a Includes incomplete higher, specialized secondary, and general secondary education. The data are taken from published census results on the highest level of education attained by all those who were employed at the time of the census.

^b Excludes less than primary.

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1979 census, 70 percent of collective farmers had not completed secondary education, and more than one-third of those classified as engineers and technicians in agriculture did not have formal technical training.

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The Quality of Rural Education

Soviet authorities frequently complain about the low quality of all levels of education in rural areas. Rural general education has been shortchanged on resources; schools are generally small and staffed with poorly trained faculty. Some schools do not offer even certain basic courses because of the shortage of trained staff. Farm officials also criticize the quality of the training of rural vocational-technical school graduates, citing ill-equipped schools, outdated training equipment, and poorly qualified teachers.

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Vocational-Technical Schools

Vocational-technical schools, which train students for skilled blue-collar trades, supply about half of agriculture's demand for new workers. During 1981-85, vocational-technical schools will graduate 13 million workers, of whom about 3 million will be trained in rural schools for agriculture. Of the latter, 1.1 million will be assigned to work in Siberia, the Far East, and the Non-Black Soil Zone (NBSZ).

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Although some rural areas have an adequate number of schools, there are many regions where the lack of schools is a serious problem. Yet, despite an apparent priority for school construction, the Ministry of Rural Construction is behind schedule in school commissionings. School construction in some Siberian regions, for example, has not increased even though funding has been allocated. Rural vocational-technical schools are operating in only 70 percent of rural rayons in the USSR. Because of the shortage of schools, rural youth have enrolled in those urban vocational schools which have had difficulty recruiting urban students. In 1983, about half of the students admitted to urban vocational-technical schools in Lithuania came from rural areas.

return after graduation. Education officials accuse farm managers of indifference, claiming they fail to stimulate interest in agricultural occupations either through career counseling or by giving newly trained workers appropriate work and equipment.

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Retaining Skilled Workers on the Farm

In 1982 General Secretary Brezhnev indicated that less than half of all trained agricultural specialists are employed on state or collective farms. About 35 to 40 percent of the higher and specialized secondary school graduates who are directed to farms either do not report for their assignments or leave shortly thereafter—largely because of dissatisfaction with working and living conditions in rural areas.

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Teacher Shortage

Teachers are in short supply at all school grades because of the general unattractiveness of rural life. Teachers are among the lowest paid workers in the USSR and often have to teach subjects that are outside their areas of specialization. This dilutes the quality of rural education and reinforces teacher reluctance to accept positions in the countryside. Many graduates of teachers colleges, particularly those assigned to Siberia or the Far East, either do not report for their assignments or begin making plans to leave soon after they arrive. The teachers' negative attitude toward the countryside also encourages migration among rural young people.

Very few of those trained to operate farm machinery actually end up doing so. For example, about 4.4 million farm machinery operators were trained in vocational-technical schools or on farms during 1981-83, but the total number of operators working in agriculture increased by only 56,000 during that period (table 2). Between 1965 and 1980, the tractor pool in agriculture increased by 58 percent, but the number of tractor and combine operators increased by only 35 percent.

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Some agricultural specialists are dissatisfied because they are not working at the jobs for which they were trained. For example, a survey taken among Central Asian agricultural specialists suggests the degree to which workers are used ineffectively:

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The problem is self-perpetuating; poor-quality training puts rural youngsters at a disadvantage when competing for admission to higher schools, even to higher agricultural schools. This is especially true in Central Asia where many children attend school for only half the year because of agricultural requirements. Special preparatory departments have been organized at higher schools to prepare rural students for college work.

Share of Specialists Surveyed Performing Work Outside Their Job Description Percent

Activity	Collective Farms	State Farms
Perform functions not connected with official duties	81	73
Perform work of subordinates	79	66
Perform low-level paper work	80	53
Coordinate production activities not in official duties	62	48

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Rural vocational-technical schools also find it hard to attract students because of the low prestige of agricultural occupations and widespread criticism of the training. In the Baltic republics, about 30 percent of rural eighth-grade graduates enroll in rural vocational schools, while in Central Asia the share is only 10 percent. Farm managers are reluctant to release young people for training because of the three-year absence from work and the risk that they will not

Table 2 *Thousand operators*
USSR: Farm Machinery Operators

	Number Working in Agriculture ^a		Number Graduated ^b
	Total	Increment	
1979	4,429		1,442
1980	4,461	32	1,488
1981	4,494	33	1,474
1982	4,499	5	1,460
1983	4,550	51	1,473
1984	4,592	42	NA

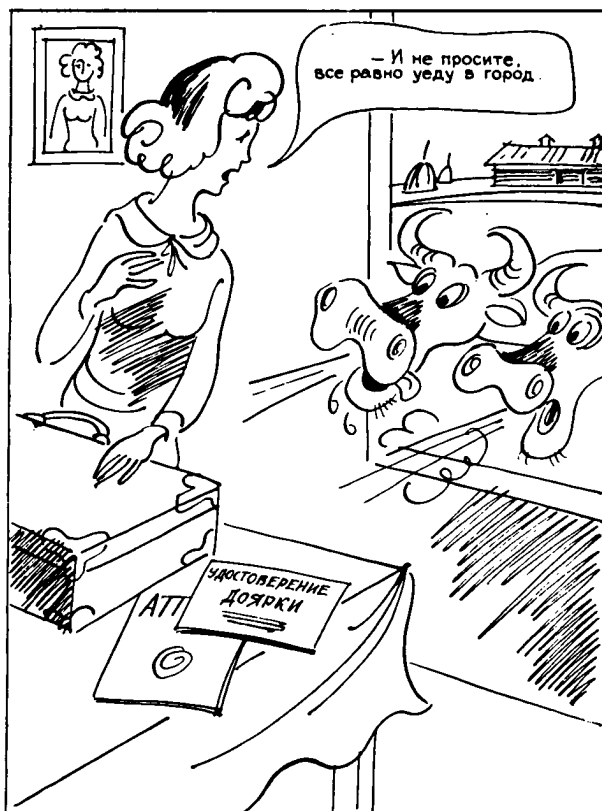
^a Includes tractor machinists, tractor drivers, and combine operators as of April.

^b Includes those trained in vocational-technical schools for work in agriculture and directly on collective and state farms and other agricultural enterprises.

Rural vocational-technical schools have been criticized for neglecting specialties in short supply—such as animal husbandry, construction, and repair and technical servicing of machinery. Meanwhile, three-quarters of those enrolled in such schools are trained as farm machinery operators, even though most of them take jobs in other fields. [redacted]

It has been especially difficult to keep females on farms because of their dissatisfaction with employment opportunities. Women comprise a substantial portion of technical agricultural specialists: 30 percent of agronomists, more than 50 percent of livestock specialists, and 40 percent of veterinary personnel. But they are greatly underrepresented in line-management positions. Only 1.6 percent of state farm directors and 2 percent of collective farm chairpersons are females, proportions which have remained unchanged since the mid-1950s. [redacted]

Females in agriculture are employed primarily in unappealing manual jobs involving livestock and crop-work—areas that have had low priority in terms of mechanization. With the emphasis on training farm machinery operators, educational and employment opportunities for females are better in urban areas, and young females are more likely to migrate than



A recent graduate with a milkmaid certificate says, "And don't beg me, I'm leaving for the city regardless." [redacted]

Narodnoye obrazovaniye, June 1984

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males. Currently, females comprise 28 percent of total enrollment in vocational schools in Moldavia, but only 7 percent of enrollment in rural schools. The share of female enrollment in rural schools in the RSFSR is about 10 percent. [redacted]

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Another obstacle to retaining skilled workers is the practice of admitting urban students to higher institutes in rural areas to fill enrollment quotas. These students enroll in higher agricultural schools merely to complete higher education, never intending to work on farms. Urban students have also been recruited to fill places in the lower level rural vocational-technical schools, but most return to the city for jobs with higher pay. [redacted]

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Turnover is particularly high among machinery operators who cite the farms' shortcomings in providing workers with adequate housing and equipment in good repair. An additional inducement for experienced operators to migrate is their preference for the regular working hours of a factory schedule. Other reasons for dissatisfaction include the uneven work schedule, nonregulated time off, and shoddy equipment repair service. In addition to the trained workers who leave for jobs in urban areas, many skilled workers take nonagricultural jobs in rural areas. [redacted]

will be given preference for admission to these schools, and special efforts will be made to recruit more females. The quota for females will be set at one-third of total enrollment, and training in nonagricultural occupations in rural areas will be expanded to keep young females from migrating to urban areas. [redacted]

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New Incentives

The regime is trying new measures to attract young people into agricultural training and, after graduation, to convince them to stay on farms. In 1982, several agricultural schools were among about 40 higher education schools excluded from the policy of ending draft deferments for education. Graduates of higher and specialized secondary schools in the fields of agronomy and animal husbandry will receive three years of free housing upon accepting a farm job. In addition, 50 percent of the passenger cars and 30 percent of the motorcycles designated for sale in rural areas are to be earmarked for priority sale to young professionals with agricultural training. [redacted]

In 1981 the admissions policy in higher schools was changed to provide for noncompetitive admission to the correspondence (home-study) division for rural students sponsored by farms. Plans call for increasing the share of students enrolled in these part-time programs in higher agricultural schools from the current level of 46 percent. Educators readily admit the qualitative drawbacks of part-time education, but they believe that workers sponsored by their farms for training in the home-study programs will be more likely to continue working on those farms once they have completed their education. [redacted]

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The authorities recognize the importance of improving rural living conditions in retaining younger workers, in particular, in farm jobs. They have increased salaries and rural homebuilding and are making headway in improving consumer services, medical care, transportation, and cultural facilities. [redacted]

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Similar incentives are being offered to agricultural specialists who will transfer from off-farm administrative positions to employment directly on the farm. According to Mikhail Gorbachev, then the party secretary in charge of agriculture, the abolition of many of the trusts and specialized agricultural associations announced in January 1983 would shift specialists from administrative work back to "practical work" on the farms. As part of this plan, about 8,000 people were transferred in early 1983, including 4,600 in the RSFSR, 1,200 in the Ukraine, 450 in Kazakhstan, and 400 in Belorussia. [redacted]

The prospects for raising the quality of rural education are uncertain at best. The regime has upgraded the plant, the staff, and the curriculum of rural schools. The scheduled increase in teacher salaries this year should make the profession more attractive to young people. More schools are being opened in rural areas, and enrollment in rural general education schools with extended day programs has risen sharply. However, as long as the policy of keeping rural children out of school for weeks at a time to help with the harvest persists, the commitment to improvement will be limited. Moreover, even if rural education does improve, the problems of retaining skilled workers will not be solved. The incentives the regime is offering to make agricultural employment more attractive are not very strong, particularly since the regime has neither the will nor the resources to bring about a substantial improvement in rural living standards, at least in the short run. [redacted]

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Current plans call for expanding and improving training and incentives for vocational-technical students in rural areas as well. General secondary school graduates with animal husbandry training who enroll in rural vocational-technical schools will receive monthly stipends of 96 to 104 rubles. Also, state farm and other agricultural enterprises will pay rural vocational school graduates who accept employment in agriculture lump-sum grants of 500 rubles (equivalent to about 30 percent of their first year's pay). Rural youth

[redacted]

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