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USSR: Trading Guns for Butter

An Intelligence Assessment

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USSR: Trading Guns for Butter

An Intelligence Assessment

This paper was prepared by
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**USSR:
Trading Guns for Butter**

Scope Note

Since becoming General Secretary, Mikhail Gorbachev has reduced the traditional priority accorded to weapons programs in favor of activities that would benefit the consumer and the industrial modernization program. This paper discusses the Soviets' resource dilemma and Gorbachev's evolving strategy for enlisting additional defense industry support for his civil programs. A forthcoming paper, *Gorbachev's Strategy for Managing the Defense Burden*, will examine Gorbachev's efforts to hold down the defense burden; assess the potential economic impact of steps he has already taken to reduce defense requirements; and consider additional foreign policy, arms control, and force restructuring initiatives Moscow might make to reduce the defense burden in the years ahead. We are continuing research to determine the impact on weapons production of Gorbachev's changed priorities and to assess the likely economic benefits resulting from the diversion of defense industry resources.

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USSR:
Trading Guns for Butter (U)

Key Judgments

*Information available
as of 23 January 1989
was used in this report.*

Gorbachev's industrial modernization program requires many of the same resources—basic materials, intermediate goods, skilled labor, and capital equipment—needed for weapons production. As early as 1985, many Western observers judged that this effort would lead to intense resource competition between the military and civil sectors. Some Soviet officials, in fact, hinted that a diversion of resources away from the military would be necessary to achieve their economic goals.

But [Soviet weapons acquisition activities since early 1985 has provided convincing evidence that the resources devoted to the production of military hardware have continued to grow during the past four years. In fact, Gorbachev has accepted new highs in Soviet spending on weapons, primarily because he came to power when a number of new-generation weapons were being introduced into Soviet forces.

Since early 1987, however, Gorbachev has been confronted by continuing difficulties with his industrial modernization program and increased demands from consumers for improvements in their living standards. In an attempt to meet its civil goals, the Soviet leadership recently has taken steps to:

- *Revitalize the industrial modernization program by refining and refocusing its goals.* Moscow has ordered the key machine-building sector to step back from its across-the-board effort to modernize its output and to focus on 44 priority areas. It has not, however, scaled back the sector's overall investment and production targets.
- *Carry out a midcourse correction that gives greater attention to consumer needs.* The Soviet leadership is reallocating investment resources toward consumer targets—including housing, food processing, and light industry—and is demanding sharp increases in consumer goods production.
- *Sharply increase the defense industry's contribution to civil production.* In late 1987, the sector was assigned a major role in a program to retool the food-processing industry during 1988-95. This role includes shouldering much of the responsibility for constructing 29,000 enterprises and

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retooling 38,000 enterprises that process agricultural raw materials. In addition, the defense industry has been ordered to significantly increase production of consumer electronic goods and appliances.

Although Moscow has called for unprecedented measures to boost defense industry involvement in its civil agenda, these actions alone will not result in the flow of resources required to revitalize the modernization program and to provide the necessary gains in consumer welfare. Possibly in recognition of this fact, Soviet officials have recently revealed that weapons production will be reduced to free additional resources for the civil economy. In October, the Minister of Medium Machine Building—the most secretive defense industrial ministry and the one responsible for nuclear weapons production—publicly detailed what his Ministry is doing to support civil programs. He was careful to point out that military programs would be cut and that weapons development and production resources would be diverted to civil projects. In addition, in early January the Soviet press reported an interview with the head of the Military Industrial Commission on the defense industry's role in retooling the food-processing industry. He stated that these tasks would result in reductions in weapons production but "no further than the level of sensible and reliable sufficiency" for national defense.

Gorbachev is now seemingly in a position to take even more dramatic steps to secure defense industry resources for his civil programs. Since becoming General Secretary, he has asserted his control over the military decision making process:

- He was successful in gaining approval for the concept of a "reasonable, sufficient defense" in the official statement of Warsaw Pact doctrine published in May 1987.
- The Soviet party conference last June proposed a resolution which stated that all weapons production must be geared toward qualitative measures that accord with defense doctrine, and that resources be released for peaceful purposes.
- The Soviet leader's decisions on INF, withdrawing forces from Afghanistan, and pursuing a rapprochement with China directly help and indirectly hold down future requirements for military hardware.

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The capstone of this four-year effort was Gorbachev's speech before the UN General Assembly in December 1988. He announced that the Soviet military would be reduced by 500,000 men over the next two years and that 10,000 tanks, 8,500 artillery pieces, and 800 aircraft would be cut from Soviet forces in Eastern Europe and the European part of the USSR. He also indicated that the reductions would make a major contribution to the Soviet economy—both by providing personnel to be reintegrated into civil occupations and through converting defense plants to civil production. When questioned about his UN announcements during a meeting in January, Gorbachev stated that the military budget would be reduced by 14.2 percent and the production of arms and equipment by 19.5 percent. These claimed reductions refer to the total Soviet defense budget—not the much smaller spending figure that the Soviets announce publicly—and that they will occur during the next two years.

In the near term, these claimed cutbacks in weapons production most likely will involve land arms and military aircraft—the systems affected by the announced force reductions. The manufacturing technologies used by the facilities producing these types of systems are similar to those required for the production of transportation, construction, agricultural equipment, and civil airliners—products important for improving consumer welfare and for repairing a neglected national transportation network. For this reason, we believe Moscow will move quickly to retool and retrain where necessary, and then use the released plant capacity, capital equipment, engineers, and production-line workers to produce closely related civil goods.

Over the longer term, we expect the impact on weapons production of Gorbachev's changed priorities to be even greater. The fact that Gorbachev's announced cuts are to be fully implemented just as the 13th Five-Year Plan begins suggests that, in preparing the Five-Year Defense Plan, the General Staff is working with a smaller—and probably more modern—set of military forces than originally envisioned, thereby reducing future modernization requirements. Moreover, we believe—that Gorbachev is considering further actions. In fact, the Soviet leader himself recently stated that by January 1991, "our forces will be defensive in nature."

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The Soviets will still need to translate the resource diversions made possible by these lower force requirements into improvements in consumer welfare and progress in the industrial modernization program. As part of their planning for the next five-year period, Soviet officials will need to link the defense industry resources released from the consolidation of weapons production, unilateral cuts, the withdrawal from Afghanistan, the INF agreement, and possibly further arms control agreements to priority civil requirements for equipment. In some instances, Soviet planners may first assess the most critical civil needs for equipment, determine which defense industrial facilities can best meet those needs, and then translate those changes into cuts in specific military programs

While a substantial diversion of resources away from defense will help the leadership in addressing civil modernization issues, they only serve to buy Gorbachev time. In effect, the transfer of resources is yet a further application of traditional Soviet economic strategy of boosting output by applying more resources to the problem. In the final analysis, economic modernization and productivity increases can be realized only through the application of highly controversial and potentially destabilizing economic reforms. The leadership is increasingly aware of the necessity of such reforms and their attendant risks; in all likelihood, the game plan is to use the breathing space gained from a transfer of resources from defense to build rank-and-file commitment to the regime's economic program and otherwise prepare the groundwork for these fundamental changes. Whether this strategy will succeed is highly problematical.

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USSR: Trading Guns for Butter

The Initial Strategy: More Guns and More Butter

Gorbachev announced his industrial modernization program in 1985 in an attempt to reverse the USSR's economic slowdown and to narrow its growing technological gap with the West. When he took over as General Secretary, the country was saddled with:

- An inefficient, antiquated industrial sector with declining rates of growth in both output and productivity.
- An energy sector beset by rising costs and a slight decline in production of oil—its major fuel.
- An inefficient farm sector that, despite large investments, still employed 20 percent of the Soviet labor force, compared with only 5 percent in the United States.
- A consumer scene marked by lengthy queues, rationing of some goods, pervasive black-market activity, and shortages of basic necessities, especially food.

The new Soviet leader immediately established as one of his top priorities an industrial modernization program that called for the widespread replacement of outdated plant and equipment and the rapid introduction of advanced, high-quality manufactured goods.

The focal point for this effort was the machine-building sector, which produces not only the capital equipment needed for industrial modernization but also nearly all Soviet military hardware and most major consumer goods, including appliances, automobiles, and consumer electronics. Civil machine building was assigned ambitious targets in 1986-90—the 12th Five-Year Plan (FYP):

- Output was to increase by 43 percent during 1986-90. Targets for high-technology equipment were even higher. For example, planned growth was 125 percent for numerically controlled machine tools, 225 percent for robots, and 330 percent for processing centers.

- By 1990, 60 percent of the sector's production equipment was to have come on line during the preceding five years. To reach this goal, investment in civil machine-building ministries was to rise by 80 percent, while the withdrawal rate for old equipment was to quadruple by 1990.

The consumer, for his part, was explicitly called on to wait a number of years for the payoff from this program. Production of consumer goods was scheduled to grow very slowly so as not to compete with the resources needed for the production of capital equipment.

Protecting Defense

At the time Gorbachev announced this program, many Western observers thought the required productivity gains would not be forthcoming and that the Soviets would thus be hard pressed to find the extra resources needed to upgrade civil industry. Since the defense industry—which is part of the machine-building sector—has historically produced a sizable share of the USSR's capital equipment and consumer goods, it was in a good position to directly support the modernization program (see inset). Moreover, many of the resources required by civil machine building and the rest of civil industry also were needed for weapons development and production. Thus, many Western analysts judged early on that the modernization program would involve intense competition between the military and civil sectors for some basic materials, component parts, skilled labor, and capital equipment.

Some Soviet officials, in fact, hinted that a diversion of resources away from defense would be required to achieve their economic goals [

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*The Soviet Defense Industry:
Support for the Civil Sector*

Of the 16 industrial ministries that make up the machine-building complex, nine—collectively referred to as the defense industry—specialize in military hardware while the other seven produce primarily civil goods. The bifurcation of these ministries does not mean, however, that production is neatly segregated. The civil ministries produce military items such as armored vehicles and missile launchers, while the defense industrial ministries produce a variety of civil goods. In fact, we estimate that the share of civil products in the output of the defense industry grew from at least 20 percent in 1965 to more than 30 percent in the early 1980s.

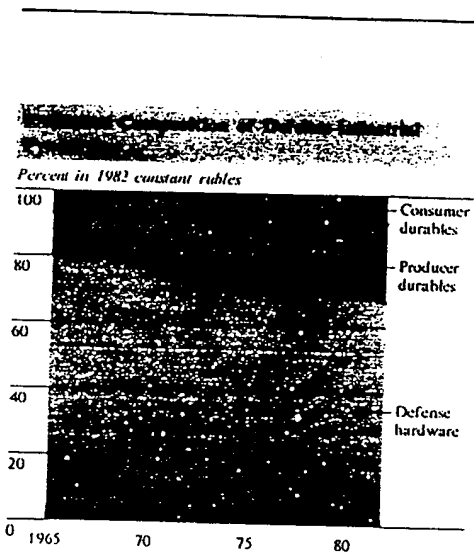
Gorbachev called on the defense industry to increase its support to the civil sector during his first year in office:

- The sector was directed to improve the quality and slightly increase its production of consumer durables, such as television sets and refrigerators.*
- An analysis of Soviet production plans indicate that the defense industry was to boost its production of high-technology capital equipment, including computers, microelectronics, and machine tools.*
- The leadership transferred several high-level defense industrial managers to civil projects and, according to classified and open-source reporting, directed the defense industry to transfer some specialists and technologies to the civil sector.*

- In June 1986, Politburo member Lev Zaykov stated that "it has been decided not only to make more active use of the defense sectors of industry to produce civilian and consumer goods, but also to involve them in the retooling of light industry, the food industry, public catering, and trade."*

When the response was halfhearted, the leadership criticized individual managers, but we saw no signs that they were forced to carry out these tasks.

For the most part, Gorbachev appeared to expect the defense industry to meet his demands through improved efficiency rather than a diversion of resources. During a speech in Minsk in 1985, Gorbachev reportedly told the military leadership that it would have to be more efficient before it could ask for more spending. In subsequent speeches he returned to this theme and suggested that the defense industry, like the rest of the work force, must do better. Soon after that, we saw evidence that the leadership had imposed specific measures to cut down on waste within the defense industry. For example, the sector was directed to extend the service lives of a number of weapons in production and to use its capital equipment more efficiently



Selected Defense Industry Output: Estimated Share of Total Production in 1982

Consumer Durables	
Refrigerators	50
Washing machines	33
Tape recorders	90
Television sets	100
Producer Durables	
Numerically controlled machine tools	30
Computers	75-90
Tractors	15

the economy was virtually on a "war footing" and claimed that "economists calculated that only half the increase in production sought by the leadership could be achieved without a substantial diversion of resources away from the military." Moreover, Gorbachev-

said that the burden of military spending was a primary stumblingblock on the path of economic revival.

At the same time, however, Gorbachev also faced compelling reasons *not* to divert defense industry resources to civil projects. Specifically, he first had to:

- *Secure a more benign international security environment.* The deterioration in East-West relations following the invasion of Afghanistan in 1979 and the subsequent refusal of the United States to ratify the SALT II Treaty had contributed to a growing tension among Soviet leaders. Moreover, the West, led by the United States, had begun to step up its defense effort
- *this buildup was used to justify a "war scare" in the Soviet Union by the early 1980s. In fact, Gorbachev claimed in 1985 that the strategic environment was more dangerous than at any time since World War II.*

- *Ensure that several high-priority weapons programs successfully entered production.* Despite extensive efforts to modernize during the 1970s, the Soviet defense industry continued to be hampered by difficulty in introducing and assimilating new production technologies.¹ As a result, the sector had experienced delays in producing several new weapon

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systems during the late 1970s and early 1980s, which had exacerbated the USSR's technological lag behind the West. Moreover, with several new-generation weapons still in the latter stages of development, Gorbachev was under pressure to speed, rather than to delay, their introduction.

- *Develop a broader political base.* When Gorbachev took over as General Secretary and head of the Defense Council, most decisions regarding developmental weapons programs and production schedules for the 12th FYP had already been made or were in the last stages of discussion. He probably did not have the wide-based support that would have been needed to overrule many of these decisions—if he had wanted to—because prodefense officials, such as Gromyko, Ligachev, and Chebrikov, were influential members of the council.

Moreover, Soviet leaders may well have believed that civil industry was potentially capable of achieving its ambitious performance targets and that they would be able to avoid having to transfer substantial defense industry resources to civil programs. Initially, the Gorbachev regime expressed high hopes for accomplishing its economic goals by sharply improving productivity in Soviet industry; it tasked civil industry to simultaneously increase production and improve the quality and technological level of its output in the 12th FYP. Gorbachev remanded the plan repeatedly, each time seeking more strenuous targets for industrial production and investment. He and others in his regime were publicly optimistic and, in all likelihood, privately hopeful that top-down administrative levers would be sufficient to spur industrial workers to achieve these tough targets by sharply improving their productivity.

Keeping Weapons Programs Intact

resources devoted to the production of military hardware increased during 1985-88. We observed only a few disruptions to selected weapons development and

production programs—and most of these probably were not related to economic stringencies (see inset).³

Gorbachev had, in fact, accepted new highs in spending on military hardware. After a decade of no growth, the value of military hardware procured from the defense industry has grown in real terms by about 3 to 4 percent per year since 1985 (see figure 1). Expenditures for military aircraft grew by 4 to 5 percent per year, in large part because the aircraft being produced are larger, more sophisticated, and therefore more expensive. The growth in value of output of the missile industry has been even more dramatic. After declining by nearly 10 percent annually during the first half of the 1980s, outlays on missile production have increased since then at an average rate of nearly 7 percent per year. Likewise, spending on the production of naval ships and submarines has also increased steadily since Gorbachev assumed power in 1985, although the surge in output had already started in the early 1980s.

The main factor behind this upturn in military hardware expenditures is that Gorbachev came to power when a number of new-generation weapons were being introduced into Soviet forces. During the past four years, the Soviets have introduced expensive new systems in all categories of weapons:

- *Missiles.* The SS-24 rail- and silo-launched ICBMs, the SS-25 road-mobile ICBM, and the SS-18 Mod 5 ICBM have all entered series production.
- *Aircraft.* Two new transports—the light An-74 Coaler and the heavy An-124 Condor—were introduced. The Tu-160 Blackjack bomber entered production. Production of three major fighter programs either began or accelerated.

³As part of the INF Treaty, the Soviets are eliminating three classes of missiles and have publicly announced that some associated facilities are being converted to civil production. However, to date we have not seen any evidence of these conversions.

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*The Soviet Defense Industry Under Gorbachev:
Limited Signs of Civil-Military Competition*

Since Gorbachev became General Secretary, we have identified only one case—involving the Mi-26 helicopter—of competition between civil and military customers. The Soviets view their Mi-26 helicopter as essential for both civil and military uses because it can quickly transport objects weighing up to 20 tons over long distances—to remote air force units or to oil and gas fields in the far north. L

Civil production of the Mi-26 may have interrupted or competed with military production, but to date, however, we have not seen evidence that production of helicopters for the military has dropped.

- *Land arms.* Production of a new tank—referred to as the FST-1—began. C
- *Naval ships.* The Delta-IV SSBN, Akula SSN, and Sierra SSN submarines all entered production, and the Typhoon SSBN continued at a steady rate. The new Baku-class VTOL carrier was completed, and long leadtime expenditures of at least two, and possibly three, Tbilisi-class aircraft carriers began.
- *Space systems.* The Mir space station, the S17 heavy lift launch vehicle, and the space shuttle all were introduced during this period as well as new communications and reconnaissance satellites.

The Soviets also appear to be continuing a massive resource commitment to the research, development, test, and evaluation (RDT&E) of military programs. L

Our analysis indicates that the Soviets have not scaled back the resources they commit to military RDT&E since Gorbachev became General Secretary. In addition C

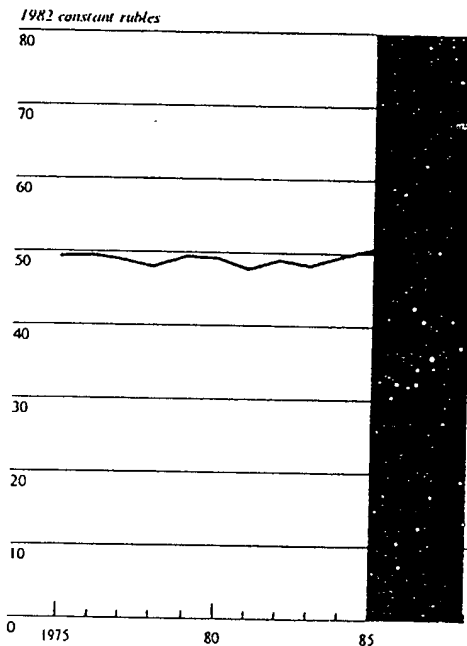
Moscow has at least 105 major weapon systems in advanced development—almost the same number we estimated in the early 1980s.

* It must be noted, however, that some civil R&D activity takes place at these facilities. While we attempt to adjust our estimates to eliminate civil-dedicated resources, our ability to do so is limited.

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Figure 1
USSR: Estimated Expenditures for
Military Hardware, 1975-88



The Evolving Strategy: Revising Economic, Social, and Military Priorities

Refining and Refocusing Civil Modernization

Gorbachev's program to modernize civil industry got off to a relatively good start. By the end of 1986, Soviet leaders were almost euphoric about the progress being made, but their optimism came to an abrupt end at the beginning of 1987. Most notably,

civil machine building—the key sector for modernization—was unable to cope with the demands being placed on it and began falling far short of targets for output, quality, and plant modernization. When the situation did not improve by the fall of 1987, the leadership grew impatient and critical. This pressure, however, only promoted a sense of desperation among machine builders.⁵

Soviet officials and economists have acknowledged disappointment in the progress that civil machine builders have made since 1985 in:

- *Improving product quality.* Press reporting of statements by high-level Soviet officials indicates that "no fundamental improvements" in quality have been made.
- *Increasing the technological level of their output.* Although published data indicate that the technological level of civil machinery has improved considerably, Soviet officials publicly admitted last summer that these figures overstate the actual progress.
- *Upgrading their own production base.* For example, Soviet economist Leonid Albalkin stated that the increase in investments in machine building had "not yet become noticeable" in the sector's performance.
- *Supplying the rest of the economy with equipment.* In September 1988, a high-level machine-building official stated that "the requirements of the majority of sectors of the national economy for necessary equipment were still not being satisfied." He also conceded that production plans for civil machine builders exceeded their potential by two to three times and that this situation would not improve in the near future.

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Although civil machine builders will not be able to reach their 12th FYP targets, Gorbachev and his allies are not backing away from the modernization program.⁴ Instead, they are taking steps to revitalize the program by refining and refocusing the underlying strategy. In September, Aleksandr Kamenev, First Deputy Chairman of the Bureau for Machine Building, admitted that it was necessary to abandon attempts to improve all of machine building immediately because there simply were not enough resources. He announced that the sector has been directed to step back from its across-the-board effort to modernize its output and to focus on 44 priority areas (see table 1).

The leadership has refocused machine builders' efforts, but it has not scaled back overall investment and production targets. In line with the 44 priority areas, the draft 1989 plan includes sharp increases in consumer-related production by the machine-building sector. At the same time, the plan calls for an intensification of the development of machine tool building, instrument building, electronics, and electrical equipment—the same industries targeted for preferential development in the original 12th FYP goals. Similarly, the leadership has revealed that an additional 3.6 billion rubles will be invested in civil machine-building's research base.

Raising the Priority of the Consumer
Gorbachev's assumption that the Soviet consumer would be willing to wait his turn proved to be just as flawed as his plan to achieve economic modernization goals through improved productivity. The leadership's decision to defer most improvements in consumer welfare while simultaneously calling on workers to redouble their efforts created tensions from the start. *Glasnost*, in particular, served as a catalyst to galvanize public outrage over the lack of tangible returns from *perestroika*. We believe that, by the end of 1987, the consumer was actually worse off than he was in early 1985, when Gorbachev assumed the post of General Secretary. The consumer scene is still marked by lengthy queues, rationing of some goods, pervasive black-market activity, and shortages of basic necessities, especially food

⁴ For example, the Soviet press reports that during a December 1988 Politburo meeting attention was drawn to the "inadmissibility of any deviation" from the program for modernizing machine building.

Having concluded that improved consumer welfare was necessary to engage worker support for modernization, and for his regime's programs in general, Gorbachev has adopted a major midcourse correction designed to get the momentum going in the consumer sector.⁵ Soviet planners have clearly departed from the original 12th FYP targets by setting across-the-board increases in production targets for consumer goods and services. Production of consumer goods is slated to grow in 1989 by 7 percent rather than the original target of 5.7 percent. Retail sales of consumer goods are to rise 6.1 percent over the plan targets for 1988, and services, 8.1 percent. Spending on housing, education, the environment, pensions, and other social services will also be increased. To meet longer term goals for consumer goods, large increases in investment in food processing, light industry, housing, and other social purposes are planned. Moreover, at least 16 of the 44 priority areas for equipment are clearly intended to benefit the consumer.

Tapping Defense Industry's Potential

In an attempt to ensure that there are sufficient supplies of capital equipment and consumer goods to recharge his modernization program and to improve consumer welfare—and in recognition of the difficulty of obtaining this equipment elsewhere (see inset)—Gorbachev has directed the defense industry to increase its civil production sharply. Moscow's efforts to expand defense industry's role in its civil agenda first became apparent in October 1987. During a Central Committee conference, Premier Nikolay Ryzhkov presented the defense industrial ministries with a specific plan for their involvement in a major program to retool the food-processing sector. He declared that they, along with other machine-building ministries, would be required to increase deliveries of equipment to food-processing plants by "fourfold to ninefold by 1995." In addition, in February 1988 the Central Committee and the Council of Ministers passed a

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Table 1
The Soviet Demand for Equipment: 44 Priority Areas

Major Emphasis	Number of Areas	Specific Emphasis	Likely Additional Needs *
Social development	4	Consumer goods, medical equipment, publishing and printing equipment, one not reported	In particular, color television sets, video cassette recorders, refrigerators, and freezers; diagnostic equipment; finishing, tanning, and footwear equipment for light industry; knitting machines
Food program	8	Automated processing complexes, scaled-down equipment for brigades and private farms, advanced technologies, five not reported	Processing equipment for the dairy industry, stainless steel equipment, packaging equipment, measuring equipment, equipment for processing fruits and vegetables, beverage equipment, refrigerated storage
Transportation	12	Subway trains, local trains, improved buses, compact cars, eight not reported	Locomotives with improved braking and electronic systems; freight cars—including refrigerated and special-purpose rolling stock; train communications and control equipment; boats, including icebreakers; mechanized loading and unloading equipment
Construction machinery	6	General construction equipment, road-laying equipment, road-repair equipment, three not reported	
Fuel and energy equipment	3	None reported	Motors, engines, and valves; geophysical equipment, high-quality, noncorrosive steel pipes
Metallurgical equipment	3	None reported	Scrap steel processors, electric arc furnaces, rolling mills
Machine-building equipment	3	None reported	Machine tools, computers, electronics/electrical equipment
Chemical and forestry equipment	5	None reported	Processing equipment with automated controls; noncorrosive tanks; engineering plastics; stainless steel, titanium pipes, and valves

* As part of their effort to refine and refocus their industrial modernization program, the Soviets have set 44 priority areas for machine building. Because they have not released complete information on these priorities, we have used other reporting to help fill in the gaps.

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Will Gorbachev Look to Eastern Europe and the West for Help?

Gorbachev could turn to Eastern Europe or the West for further help in meeting these demands for equipment, but we believe a sharp increase in imports is unlikely and, in any case, would not significantly close the gap between supply and demand. Moscow could step up the pressure on Eastern Europe for more and higher quality machinery, but such demands would produce only marginal benefits because of the economic constraints faced by Eastern Europe as well as strong resistance in those countries to helping the Soviets. At the same time, Gorbachev has clearly stated that he does not want to rely on Western imports because they inhibit indigenous technological advance. Moreover, we believe Moscow will not sharply increase its foreign debt for fear of the economic leverage it would give Western governments and bankers and out of concerns for servicing a heavy debt burden in the future. Nevertheless, the Soviets are looking to Western imports to help provide at least some quick gains in consumer welfare. In recent months Western banks have negotiated credit lines with the Soviet Union worth \$6-9 billion, mostly for purchases of equipment for the production of consumer goods. But even stepped-up borrowing would provide only a drop in the bucket for an economy that produces roughly \$2 trillion worth of goods and services annually

joint resolution on retooling light industry. The resolution specifically directed six of the nine defense industrial ministries to increase production of equipment for light industry by 150 percent during 1988-95.

Evidence of an even larger civil role for the defense industry was provided by the restructuring of the civil ministry responsible for producing a large percentage of Soviet consumer durables and capital equipment for consumer-related industries. On 1 March 1988, the Ministry of Machine Building for Light and Food Industry and Household Appliances was disbanded and most of its 260 plants resubordinated to the

defense industry. The Ministry's former leader, Lev Vasil'yev, was appointed a deputy chairman of a Council of Ministers Commission—probably the Military Industrial Commission (VPK)—responsible for the effort and has retained authority over these enterprises.

normally it would require seven to 10 years to modernize food-processing and light industry facilities, but the leadership wants results in two or three years and "that is possible if you enlist technically advanced sectors in the solution of the problem."

Moscow did not stop with these actions. In August of this year, the leadership bolstered its commitment to the consumer by publishing in quick succession three resolutions dealing with improving consumer welfare. One of the resolutions specifically calls on eight of the nine defense industrial ministries to improve the quality and increase their production of televisions, refrigerators, and freezers. In addition, it directs unspecified ministries (defense industrial ministries) to convert production capacity currently being used to produce "production and technical goods [weapons] for which demand is falling" to production of consumer goods. Since the publication of these resolutions, several Soviet economists and officials have also claimed that the defense industry will be required to convert some weapons manufacturing facilities to consumer goods production.

The Soviet leadership's actions to increase defense industry's responsibility for providing immediate gains in consumer welfare is clearly reflected in the 1989 plan, which calls for sharp increases in consumer-related production that far exceed original 12th FYP targets. For example:

- Defense industry and civil machine-building ministries are to begin producing at least 200 types of equipment for the agroindustrial complex—more than four times the number introduced in 1988. Overall, production of equipment for the food-processing sector is scheduled to increase by 25 percent in 1989.

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Deliveries of equipment to light industry are scheduled to increase by 12 percent in 1989. The plan also calls for the defense industry to put its best design efforts into the production of over 1,000 types of new equipment for light industry.

Production of "nonfood" consumer goods is to exceed five-year-plan targets by 8.6 billion rubles. The largest increases are planned for color television sets and videocassette recorders—which we estimate are produced entirely in defense industry.

Finally, defense industry is being called on to strengthen its support for other consumer-related industries:

- Open-source reporting indicates that the Ministry of the Aviation Industry has come under increased leadership pressure to complete the development of its three new civil airliners by the early 1990s.
- On 21 November, the Chairman of the USSR State Committee for Construction stated that the Ministry of the Defense Industry—and possibly other defense industrial ministries—will produce equipment for the construction of new housing. He indicated that about 40 percent of the plumbing fixtures used in the Soviet economy by 1995 would be produced by the defense industry.
- One of the resolutions on improving consumer welfare directed the defense industry to produce equipment for consumer leisure activities and health care during 1991-95.
- The Ministry of the Communications Equipment Industry and the Ministry of the Radio Industry were tasked to set up a broad network of consumer electronics service centers

At least some of the defense industrial ministries were initially apathetic about their new civil assignments, and, at first, the leadership responded to such indifference with carrot-and-stick measures. To provide an incentive for the defense industry to produce civil goods, the Council of Ministers passed a decree in mid-September 1988 that allows the sector to retain profits from above-plan production of consumer

goods—previously it had to remit most profits to the state. In addition, the leadership publicly criticized the sector for not taking its civil responsibilities seriously. But through the end of 1988 the defense industry reportedly made little progress in designing and producing new products for the civil sector

During the past few months, the Soviet leadership has turned up the heat on the weapons producers. For example, during a televised meeting of the Council of Ministers in mid-October, Premier Ryzhkov rebuked Chairman of the VPK Igor Belousov for defense industry's failure to boost production of machinery for food processing over the past year. Ryzhkov ordered the defense industry to staff newly acquired civil plants quickly with its best people and to integrate production of food-processing equipment into its mainstream—weapons production. He warned that anyone who failed to get with the program "is making a big mistake."

Probably in response to the public nature of the criticisms and heightened leadership pressure, Lev Ryabev, Minister of Medium Machine Building—the most secretive defense industrial ministry and the one responsible for nuclear weapons production—publicly detailed what his ministry is doing to support civil programs during an interview reported in the Soviet central press on 9 November. He explained how his ministry is planning to sharply increase production of equipment for the dairy industry and for private consumers. Moreover, he was careful to point out that:

- "A number of military programs are being cut" and that two enterprises designed for the production of military hardware will convert to civil production.
- Twenty-five people from the Ministry have been appointed as chief designers for civil projects.
- More than 40 MSM enterprises have been given specific targets relating to production for the dairy industry.
- The extra funds needed to reequip the newly acquired enterprises will come from "internal redistributions" of investment.
- Lithium technology—which probably has been used in nuclear weapons and tritium production—will now be used to produce commercial batteries.

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Finally, in early January *Izvestiya* reported an interview with Igor Belousov on defense industry's tasks in retooling the food-processing industry. According to the VPK chief, the enterprises acquired by defense industry when the Ministry of Machine Building for Light and Food Industry and Household Appliances was disbanded are capable of fulfilling only one-third of the plan. Consequently, defense industry plants must perform the remainder of the work:

- The sector will shoulder much of the responsibility for constructing 29,000 enterprises and retooling 38,000 enterprises that process agricultural raw materials. It must provide nearly half of the 37 billion rubles' worth of equipment that will be installed in these facilities during 1988-95.
- Two hundred design bureaus involved in weapons research will be responsible for designing 3,000 new types of food-processing equipment. The total volume of research and development work will increase sevenfold.
- Two hundred and fifty defense industry production facilities will produce food-processing equipment and "some" weapons production plants under construction are being converted to civil production.

When asked if the conversion of his sector's plants might weaken Soviet defenses, Belousov said that his nation's defense policy "must result in arms deliveries being reduced no further than the level of sensible and reliable sufficiency for the defense" of the USSR and its allies

The Course Ahead: Fewer Guns, More Butter

Considering Additional Initiatives

We believe the Soviet leadership has already decided to divert substantial defense industry resources in response to the increasing pressures to demonstrate tangible success on the civil side. In table 2, we outline the strategies the Soviets may be considering, and in many cases have already begun implementing. The first three options are undoubtedly the most appealing

to the Soviet leadership because the defense industry—if successful in implementing them—would boost civil output without scaling back weapons development and production. Soviet leaders appear serious about improving the efficiency of the defense industry and have already taken steps to remove unnecessary bureaucratic layers and to force the sector to hold down production costs. Thus, we expect them to press the defense industry to achieve as much growth in civil production as possible through such measures as using equipment during more hours of the day, increasing the use of scrap metal, and boosting worker productivity. Similarly, the leadership may choose to reduce surge capacity in favor of consolidating weapons production at fewer facilities in order to better utilize weapons production floorspace while freeing capacity for civil programs.

The defense industry, however, will not be able to achieve all of its goals through improved efficiency. For this reason, other strategies—which involve diversions of resources away from military production—also will have to be used. As Ryabev said, plans are already under way to implement the fourth, fifth, and sixth options in the Ministry of Medium Machine Building. In addition, one of the resolutions released in the summer of 1988 and statements by Soviet officials indicate that Moscow plans to convert some weapons plants—possibly those with long-established weapons programs—to civil production. Soviet leaders probably believe these strategies give them the flexibility they need to direct resources toward priority areas, even though the defense industry will have to switch from a defense-related activity to a civil activity. Thus, they may already have decided to reassign additional military equipment designers, engineers, and construction crews to civil research and construction projects, and to convert more weapons manufacturing facilities to civil production.

We also believe Moscow is considering the last three options in the table because they would be relatively easy to implement in the near term and would not require additional or different production activities. As an alternative to scaling back military production,

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Table 7
Illustrative Strategies for Increasing Defense Industry's Support to Civil Programs

Strategy	Resource Requirements	Potential Impact on Civil Program	Potential Impact on Defense
Requires improvements in efficiency			
Increase deliveries of capital goods to civil factories by expanding production at defense industry plants.	Would require double shifting and additional supplies, materials, components, and labor.	Potentially substantial. Defense industry has the capacity to expand production of high-quality equipment, if labor and materials are made available.	Probably limited as long as labor and components are not diverted from defense production.
Increase output of consumer goods using defense industry production lines currently devoted to the manufacture of those goods.	Larger work force for double shifting, additional supplies, materials, and components.	Substantial. Only about 10 percent of defense industry's output is consumer durables. Doubling the value of this output probably would be feasible and would add nearly 5 billion rubles to the total annual output of consumer durables.	Limited. Minor disruptions at the factory level as some workers were shifted to civil production lines. Disruptions would increase if supplies such as microelectronics were diverted.
Consolidate weapons production at fewer plants to free final assembly floorspace for civil production.	Reallocations of and possibly additions to the labor force and new and different capital equipment and supplies.	Moderate. Would provide final assembly floorspace but only limited workers, materials, and components.	Minimal in the short run. Possible substantial reduction in surge capacity needed for mobilization.
Requires changes in responsibilities			
Design new consumer goods and capital equipment rather than weapons.	A refocus of selected elements of the research base from defense work to civil applications.	Substantial in the long run. The best trained and equipped research and design resources are currently devoted to military programs.	Limited in short run, given long gestation period for new weapons, but could be substantial over the long run.
Increase output of civil goods using production lines currently devoted to the manufacture of military hardware.	New capital equipment to retool production lines, different supplies, and possibly training for the work force.	Limited in the short run, but substantial in the long run. Plants could only produce common-use durables (trucks, aircraft) in the short run. Eventually they could expand capacity in other areas.	Substantial. Would reduce near-term as well as long-term weapons production capacity.
Renovate facilities currently producing civil goods, construct new plants for civil production, and build apartment complexes for the employees.	Construction crews, materials, and equipment.	Substantial in the long run. Would expand and improve the capacity devoted to production for private consumers and would enable the plant managers to attract better and more employees.	Substantial in the long run. Construction crews, materials, and equipment probably would be diverted from military-related projects.
Requires delivering the same product to a different customer			
Maintain weapons production, but increase military exports and use the revenues for civil programs.	No additional resources required.	Substantial if the revenues are in hard currency and can be used to purchase high-quality Western equipment. Lesser effect if dealing in soft currency.	Moderate. Lower quantities of military hardware would be delivered to Soviet forces. However, surge capacity would be retained.

Table 2
Illustrative Strategies for Increasing Defense Industry's
Support to Civil Programs (continued)

Strategy	Resource Requirements	Potential Impact on Civil Program	Potential Impact on Defense
Increase deliveries of capital goods to the civil sector by diverting capital equipment intended to support weapons production.	No additional resources required.	Substantial. Over 25 percent of defense industry output is high-quality capital equipment, much of which we now estimate is used to retrofit weapon-production facilities.	Substantial in the long run. In essence, this strategy would mortgage future production capability by postponing upgrades.
Increase deliveries of materials and component parts to the civil sector by diverting them from weapons production.	No additional resources required.	Substantial. For example, higher quality steel would enable the food-processing industry to manufacture better containers that would lessen food spoilage. Increased availability of electronic components and circuits would improve production processes and the quality of finished goods.	Substantial. Diversion of higher quality steel and other raw materials as well as electronic components, which are in short supply, would certainly constrain weapons production and cause delays in deliveries of weapons.

Note: Strategies most likely would be combined. This table does not address another broad set of strategies—one based on changing priorities of purely civil programs within defense industry.

the Soviets could export more of their newer weapons, particularly for hard currency. Although the Third World debt situation and the growing export competition from countries like Brazil, China, and Israel would complicate such efforts, there is already some evidence that the Soviets are trying to move in that direction.⁸ The currency generated from these sales could be used to purchase consumer goods or capital equipment. In addition, large-scale weapons exports would enable the Soviets to maintain production at higher, more economical rates, which in turn would reduce average costs. Along these same lines, defense industrial plants producing multipurpose capital equipment, semiprocessed materials, or component parts could support Gorbachev's civil agenda by shipping their output to civil rather than to military

⁸ For instance, the Soviets exported over 25 percent of the relatively new MiG-29 Fulcrums they produced during 1987-88, whereas historically they have tended to export only those systems that have been series-produced for several years.

customers. These measures would improve not only the quality of the inputs needed to produce civil goods, but also would upgrade the production technologies used.

Although we can only speculate on when and to what extent these various strategies will be implemented, we believe Moscow will enlist substantial defense industry resources for its civil programs. Our initial analysis—laid out in detail in the appendix for the land arms (tanks and light armored vehicles) and aircraft industries—suggests the Soviets could realize substantial economic benefits from implementing on a broad scale the various diversion strategies outlined. In fact, we believe the Soviet leadership has *already decided* to divert substantial defense industry resources in response to the increasing pressures to

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demonstrate tangible success on the civil side. In particular, we expect Moscow to turn to the defense industry for additional:

- **Production capacity.** We assess that the Soviet land arms and aircraft industries have excess capacity. Thus, Moscow is likely to consolidate weapons programs in these industries at fewer facilities and to convert the excess capacity to civil production. In addition, we have identified several weapons programs that the Soviets may decide to curtail early, cancel, or scale back in order to use the resources to manufacture high-priority civil equipment (see table 3).

- **Research capabilities.** The Soviets have publicly expressed a desire to reduce the development time and improve the quality of their weapon systems. Thus, we would expect them to at least maintain their commitment to high-technology weapons that are key to future force modernization plans. They may compensate, however, by initiating fewer developmental programs and reassigning some equipment designers and test facilities to civil projects.

- **Investment resources.** All of the defense industrial ministries have construction crews that build and refurbish facilities. We believe that some of these resources will be used to build facilities for designing and producing civil equipment, new housing for the employees of these facilities, and transportation links. In doing so, however, the Soviets risk delaying the introduction of new weapon systems

Although Moscow already has decided to divert at least some defense industry resources to civil uses, we should not be surprised by the fact that we have not seen any direct evidence of such a shift.⁹ Altering the

⁹To date, Soviet press reports and television have been the source of much of our information on defense industry's support to civil programs. However, such public statements are intended, in part, to send a positive message to Soviet consumers and to the West. Consequently, claims of cuts in military programs or diversions of defense industry resources may be exaggerated. Moreover, open-source reporting has been and probably will continue to be event and inconclusive.

guns-versus-butter ratio requires more than a budgetary adjustment and takes time to implement. New designs must be developed and tested, production plans must be changed, financial, material, and human resources must be reallocated; new production processes must be set up; and the goods that emerge must be priced and shipped to customers. Moreover, once resource diversions actually begin, it will take time for us to identify and accurately assess any resulting reductions in weapons development or production.

Scaling Back Weapons Production

Gorbachev is now in a position to take further, drastic actions to secure additional defense industry resources for his civil programs. Since becoming General Secretary, he has gradually strengthened his control over the military decision making process, in large part to hold down the future demand for military hardware.¹⁰ For example:

- He was successful in gaining approval for the concept of a "reasonable, sufficient defense" in the official statement of Warsaw Pact doctrine published in May 1987.

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Table 3
USSR: Some High-Priority Civil Needs That Could Be Met
by Scaling Back Weapons Production

Industry Involved	Potential Areas for Further Expansion of Civil Production	Weapons Programs That Might Be Affected
Land arms industry	Components for agricultural equipment, buses, compact cars, locomotives and rolling stock, mining equipment, all-terrain vehicles	Production of modern tanks and artillery pieces probably will be scaled back as part of the announced unilateral cuts.
Aircraft industry	New-generation civil airliners, heavy-lift helicopters, turbines, aluminum-based consumer goods—such as lamps and children's toys	The Havoc or Hokum attack helicopters—which have not entered series production as expected—could be delayed. The Yak-41 VSTOL program appears to have suffered some setback in its development program and could be significantly changed and delayed.
Shipbuilding industry	Construction equipment, distillation towers for refineries, oilfield equipment, kitchen utensils and supplies, pleasure boats	The planned number of aircraft carriers to be constructed could be reduced. Production of SSBN and/or diesel submarines could be cut back.
Missile industry	Electronic components, engineering plastics, chemicals, cameras, washing machines	The Soviets have had difficulty manufacturing the Sa-12 surface-to-air missile and could delay or scale back the program. The SS-18 Mod 5 ICBM—the USSR's most costly strategic system—represents a significant improvement in Soviet ability to destroy hardened targets. Even without a START agreement, the Soviets could deploy considerably fewer than the 308 SS-18 Mod 4's in the field previously. In the event of a START agreement, ICBM and SLBM production would be reduced.
Electronics, radio, and communication equipment industries	Telecommunications networks, communications equipment, electronic components, medical equipment	Electronic components would be released as a result of cutbacks in production of weapon systems. Some air defense radar upgrades could be postponed.

Note: The civil products listed in this table represent what we assess to be potential areas for expanded production by the defense industry beyond what we already have identified.

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• The Soviet party conference in June 1988 proposed a resolution which stated that all weapons production must be geared toward qualitative measures that accord with defense doctrine, and that resources be released for peaceful purposes.

• The Soviet leader's decisions on INF, withdrawing forces from Afghanistan, and pursuing a rapprochement with China help directly, and indirectly hold down future requirements for military hardware.

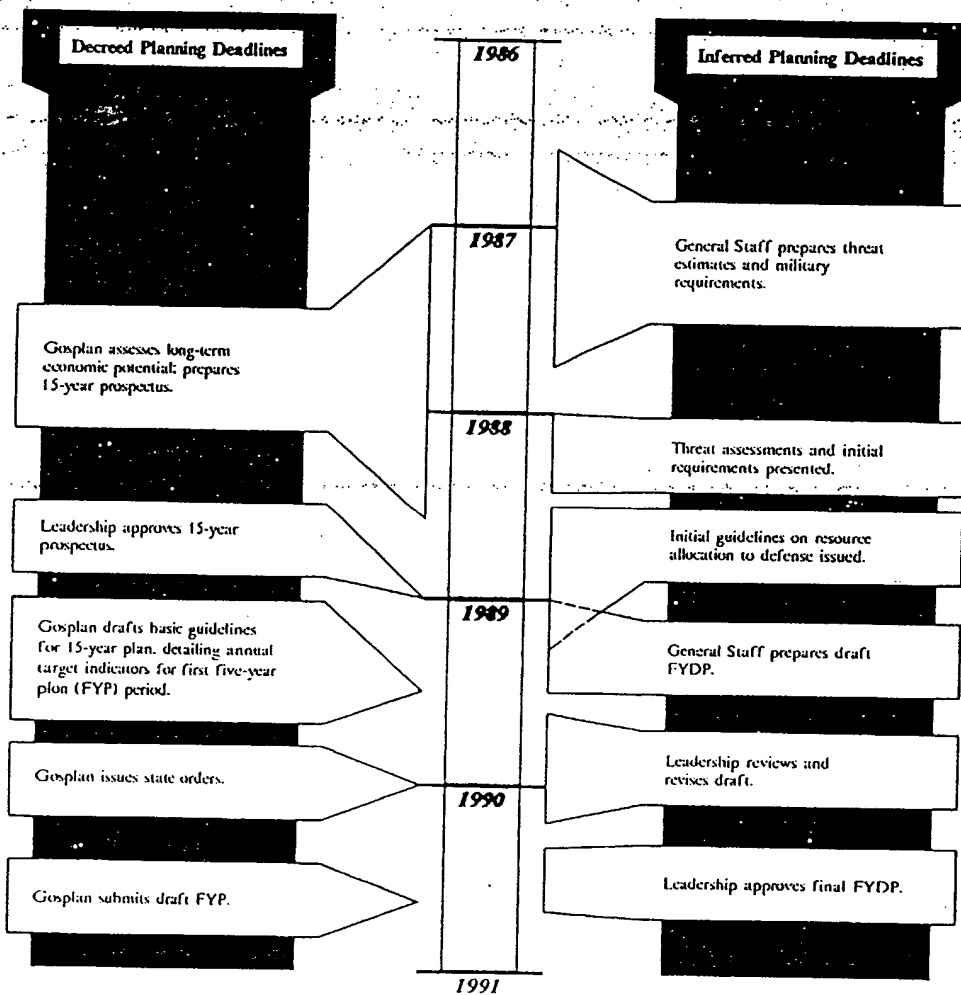
The capstone of this four-year effort was Gorbachev's speech before the UN General Assembly in December. He announced that the Soviet military would be reduced by 500,000 men over the next two years and that 10,000 tanks, 8,500 artillery pieces, and 800 aircraft would be cut from Soviet forces in Eastern Europe and the European part of the USSR. He also indicated that the reductions would make a major contribution to the Soviet economy—both by providing personnel to be reintegrated into civil occupations and through converting defense plants to civil production. When questioned about his UN announcements during a meeting in January, Gorbachev stated that the military budget would be reduced by 14.2 percent and the production of arms and equipment by 19.5 percent. Further reporting indicates that these claimed reductions refer to the total Soviet budget—not the much smaller spending figure that the Soviets announce publicly—and that they will occur during the next two years

In the near term, these claimed cutbacks in weapons production most likely will involve land arms and military aircraft—the systems affected by the announced force reductions. The manufacturing technologies used by the facilities producing land arms and aircraft are similar to those required for the production of transportation, construction, agricultural equipment, and civil airliners—areas important for improving consumer welfare and for repairing a neglected national transportation network. For this reason, we believe Moscow will move quickly to retool and retrain where necessary; and then use the released plant capacity, capital equipment, engineers, and production-line workers to produce closely related civil goods

We expect the impact on weapons production of Gorbachev's changed priorities to be greater during the 13th FYP (1991-95). The fact that Gorbachev's announced cuts are to be fully implemented just as the next FYP begins suggests that, in preparing the Five-Year Defense Plan, the General Staff is working with a smaller—and probably more modern—set of military forces than originally envisioned, thereby reducing future modernization requirements (see figure 2). Moreover, we believe that Gorbachev is considering further actions. In fact, the Soviet leader himself recently stated that by January 1991, "our forces will be defensive in nature." Thus, we would not be surprised to see an announcement this spring of an additional unilateral withdrawal of forces along the Sino-Soviet border and a reduction in some naval forces, including older aircraft carriers and attack submarines. In addition, Gorbachev could reap political and economic benefits by implementing proposed changes in Soviet strategic forces. For example, the Soviets have already agreed as part of a draft START agreement to a 50-percent reduction in their heavy ICBM force and appear even now to be deploying their newest and heaviest missile—the SS-18 Mod 5—in a manner consistent with these proposed reductions.¹⁴ Should the treaty die on the negotiating table, Gorbachev may not deploy more than the 154 heavy missiles the draft now sanctions as an international peace gesture consistent with the Soviets' new "defensive" military posture.

Resource diversions made possible by these lower force requirements must be translated into improvements in consumer welfare and progress in the industrial modernization program. As part of their planning for the next five-year period, Soviet officials will need to link the defense industry resources released from the consolidation of weapons production, unilateral cuts, the withdrawal from Afghanistan, the INF agreement, and possibly further arms control agreements to priority civil requirements for equipment. In

Figure 2
Milestones of the Five-Year Defense Plan (FYDP) Planning Cycle



Note: Decreed deadlines are established by joint CPSU Central Committee/USSR Council of Ministers resolution.

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fact, in some instances, Soviet planners may first assess the most critical civil needs for equipment, determine which defense industrial facilities can best meet those needs, and then translate those changes into cuts in specific military programs.

While a substantial diversion of resources away from defense will help the leadership in addressing civil modernization issues, they only serve to buy Gorbachev time. In effect, the transfer of resources is yet a further application of traditional Soviet economic strategy of boosting output by applying more resources to the problem. In the final analysis, economic modernization and productivity increases can be realized only through the application of highly controversial and potentially destabilizing economic reforms.¹¹ The leadership is increasingly aware of the necessity of such reforms and their attendant risks; in all likelihood, the game plan is to use the breathing space gained from a transfer of resources from defense to build rank-and-file commitment to the regime's economic program and otherwise prepare the groundwork for these fundamental changes. Whether this strategy will succeed is highly problematical.

¹¹ For information on the economic reforms that have already been introduced and the controversial ones being discussed, see DI Research Paper SOV 88-10042, June 1988, *Soviet Economic Reforms: An Interim Report Card*.

Appendix

**Increasing Civil Production in
Defense Industry: Selected
Case Studies**

In an attempt to determine how Moscow might specifically task the defense industry to reduce or consolidate weapons production in order to contribute to civil programs, we have postulated case studies for the aircraft and land arms industries. Each case study assesses the industry's capability to support civil programs and the civil products we would expect it to produce, weapons programs that might be affected, and facilities that might be candidates for conversion to civil production

Aircraft Industry

The Soviet aircraft industry is in a good position to increase its support to Gorbachev's civil agenda because it has historically produced civil aircraft and helicopters in addition to a wide range of consumer goods and capital equipment. Because Soviet consumers—both private and industrial—have an immediate need for these products, the political leadership will most likely look closely at the aviation industry for ways to squeeze out sharp increases in civil production.

First, Moscow may require the industry to produce more Mi-26 Halos—a heavy-lift helicopter in high demand by both the military and the civil sectors.

We also have evidence that the Soviet aircraft industry currently has excess capacity and, within the next few years, could have more:

Soviet leaders will undoubtedly want to retain some of this excess capacity in the aviation industry for future military production and for manufacturing spare parts for aircraft no longer produced but still in

service. Nevertheless, they may well take steps to reorganize and consolidate the industry to improve its efficiency and to increase its capacity for civil production.

One course of action the leadership might be considering is to continue to reduce the number of plants involved in the final assembly of military aircraft and to increase the number that produce major subassemblies. The production of modern complex aircraft is beyond the capabilities of most plants: too many parts, too much technology, and too much high-priced tooling and equipment are required. In recent years the Soviet aviation industry has increasingly relied more on subcontractors for component parts, but the potential and need for additional contract work—such as the manufacture of wings and fuselages—is great. Soviet leaders almost certainly would encourage the industry to move in this direction because it would support their overall economic goals of reducing costs and improving efficiency and product quality and, at the same time, it would benefit both civil and military aircraft production.

Beyond increased subcontracting, the aircraft industry could use some of its excess capacity to produce additional transport aircraft for the civil sector. The Soviets have already allocated floorspace for production of the three civil airliners they currently have in development. However, 12 of the 44 priority areas recently announced for machine building involve production of equipment for the transportation sector. Thus, the leadership could decide to direct additional facilities to assemble the new civil airliners once they begin series production in the early-to-middle 1990s in order to upgrade Aeroflot's domestic fleet.

In addition, the leadership may have already directed the aircraft industry to sharply increase its production of consumer goods. The aircraft industry controls an estimated 80 percent of the Soviet aluminum industry and has historically produced aluminum-based products—such as cooking utensils, washing machines, lamps, and toys—for civil customers. We anticipate that some of the industry's processed aluminum, plant floorspace, equipment designers, assembly line workers, and capital equipment will be redirected from

military applications to projects concerned with the development and production of new, high-quality consumer goods.

Tank Industry

The Soviets currently have an extensive network of facilities devoted to the production of tanks.

The level of manufacturing technology applied in Soviet tank plants is comparable to that of Western facilities, and the expansion and modernization of their tank industry since the 1960s has given the Soviets a capacity far in excess of their peacetime needs. Historical rates of tank production suggest that the tank industry today is operating at only 30-50 percent of full capacity, even though modern tank manufacturing is actually more complex and dependent on a larger network of specialized suppliers.

Most of these improvements were initiated before Gorbachev came to power, and they have reflected a continuing effort by the Soviet military to modernize the production base and increase the output of its

premier ground forces weapon system. Given the situation today, the current leadership may view the upgrading of these plants as a logical first step in consolidating tank production at the largest and most modern manufacturing facilities.

Soviet officials have stated the planned Soviet reduction in force of 10,000 tanks will be accompanied by a decreased demand for new production. Their options include:

- Reducing the rate of output at the tank production plants while maintaining their full capacity for wartime surge production.
- Consolidating the production of fewer tank models at the most capable plants and releasing excess capacity to civil programs.

Simply reducing production while maintaining the mobilization capacity at each plant is the least cost-effective option for the Soviets. The opportunity cost of letting production lines and the work force sit idle in reserve ignores the civil sector's desperate need for high-quality machine tools and skilled workers.

We believe that the Soviets have the most to gain by consolidating production of fewer tank models at only two or three plants, even though wartime surge capacity would be diminished. The Soviets have produced up to four different model tanks simultaneously. Moreover, recent models have been produced by at least two plants.

While this reorganization would lessen the flexibility of the tank industry, eliminating redundancy would reduce the number of plants competing for scarce resources and enable the Soviets to more efficiently develop, manage, and support increasingly complex and expensive tank programs. Moreover, continued plant modernization—spurred by returns from diverting defense industry resources to the machine-building and electronics industries—will help the tank industry meet future military requirements for quality as well as quantity.

The resources made available in a reorganization of tank programs could be used to increase production of civil goods that are in great demand in transport, agriculture, mining, and construction.

With some conversion, these plants could support the manufacture of railcars, tractors, excavators, or other heavy equipment already associated with or built in factories adjacent to the tank assembly facilities. (S NF)

The existing support network, heavy manufacturing capability, and experience with defense technologies at Chelyabinsk and Khar'kov, however, would best prepare them to assume production of other military vehicles, such as infantry fighting vehicles and self-propelled artillery. The consolidation of such programs at these two plants could set in motion a chain of events that would free resources in the light armored vehicle and artillery industries to support more civil manufacturing at factories with dissimilar military and civil programs.

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Although retooling and retraining at Soviet tank plants would slow the conversion to civil goods manufacturing, dedicating plants exclusively to the production of either military equipment or consumer durables would lead to the most efficient utilization of increasingly expensive resources needed to supply the Soviets' civil modernization campaign. These resources include raw materials and intermediate products, such as railcar axles, which can be produced quickly in the same rotary forges now turning out gun barrels. The reduction in tank production, consolidation of programs, and redistribution of resources would have a ripple effect throughout the network of industries supporting tank manufacturing and the civil economy. In fact, the most immediate and significant benefit to the civil economy most likely would be derived from the numerous subcomponent suppliers whose specialized products, such as engines and electronics, are in high demand.

Light Armored Vehicle Industry

Although light armored vehicles (LAVs) were not included in Gorbachev's announcement of conventional force reductions and we do not expect total LAV production to decline, the realignment of programs in this industry suggests that some resources could be redirected to civil projects. Soviet production of LAVs originated in the tank, automotive, and tractor industries because of similar requirements for plant layout and tooling as well as common design and construction characteristics. Over the last 40 years, LAVs have been produced at nine plants, six of which still assemble infantry fighting vehicles, armored personnel carriers, or armored reconnaissance vehicles. Since about 1980, however, an increasing percentage of total LAV output has been produced at two specialized plants dedicated solely to LAV programs.

These facilities, which may have underutilized defense-manufacturing resources, may be poised to increase output of LAVs again when systems in development are ready for production.

2 We estimate that expansion and modernization at these two plants has given the Soviets sufficient capacity to meet their future military requirements. Thus, while low-rate production of such specialized LAV variants as command and reconnaissance vehicles may continue at a number of tractor plants, resources made available by the apparent shift in LAV production activity away from dual-production plants are not critical to current or projected LAV programs.

With some plant retooling and work force retraining, the Soviets could use some of the excess capacity to produce high-quality components for agricultural machinery. Soviet officials have stated that farmers do not necessarily need sharp increases in deliveries of agricultural machinery but that, instead, they need machinery that is of high quality and is better suited to their needs. The LAV industry should be able to help in this area. After having been expanded and modernized, the plants have foundries, forges, and machine shops on site, which could be used, for example, to process steel ingots into component parts for civil goods. Thus, Moscow could task the workers in these facilities to produce components for agricultural machinery, or to move excess equipment to existing agricultural machinery plants to upgrade their production processes—which would free plant capacity for production of other high-priority civil goods.

3 We also believe the Soviets may convert some of the excess LAV capacity to the production of cars and/or buses. Initially, Moscow did not give high priority in the 12th FYP to the automotive industry. With the new emphasis on the consumer, however, car and bus production has been targeted as a priority area for

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machine building. We believe that the automotive industry will have difficulty boosting production of these items in the near term without a diversion of at least some defense industrial production capacity. The Kurgan Wheeled Tractor Plant—one of the LAV facilities believed to be underutilized—probably would be a candidate for conversion because it is located near the Kurgan Motor Vehicle Plant, which has an established supply network, specialized materials, trained labor, and capital equipment designed for manufacturing wheeled vehicles.

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