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## SOVIET DEFENSE INDUSTRY: CONFRONTING RUIN (SOV 91-10042)

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# Soviet Defense Industry: Confronting Ruin

*An Intelligence Assessment*

CIA HISTORICAL REVIEW PROGRAM  
RELEASE AS SANITIZED  
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# Soviet Defense Industry: Confronting Ruin

*An Intelligence Assessment*

This paper was prepared by  
and of the Office of Soviet  
Analysis, with a major contribution from  
of the Comments  
and queries are welcome and may be directed to  
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October 1991

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### Soviet Defense Industry: Confronting Ruin

#### Key Judgments

Information available  
as of 7 October 1991  
was used in this report.

We estimate that the real value of Soviet defense industry's production declined about 10 percent between 1988 and 1990. Cuts in weapons production have not been offset by increased civil production (see figure 1). [decline during the first six months of this year, and the defense-industrial sector's total production of civil goods probably fell as well. We believe defense industry's output will continue to shrink in the second half of 1991, perhaps at a precipitous rate. This decline has undermined the sector's ability to finance conversion, even as the economic pressure to convert increases. As a result, many defense-industrial facilities are desperately seeking solutions—including Western financial commitments—to stem a hemorrhage of their best workers and to stave off insolvency.] indicates weapons output continued to

The Gorbachev leadership initially thought that conversion would be manageable because defense industry already produced some civil goods and had relatively advanced production facilities and a skilled labor force. However, the leadership assigned new civil production responsibilities in a haphazard fashion—often without regard for whether a plant had any experience in similar types of production. Many defense-industrial plants—increasingly responsible for their own financing—are currently suffering severe cash-flow problems as a result of falling military orders and disruptions in supply chains. Monetary assistance from traditional central sources had eased the fiscal pain of some defense plants, but the nation's deteriorating financial condition increasingly hinders the government's ability to help plants stay solvent.

In the wake of the failed coup, defense industry will contract dramatically and be fundamentally restructured. The weapons orders that sustain the industry will continue to decline—perhaps abruptly—as republics exercise their new political power and as their economic priorities and nascent institutions emerge. Defense-industrial plants' survival will depend on their commitment to conversion, the availability of Western financial assistance, and the political and economic objectives of the republic leaders—especially in Russia and Ukraine:

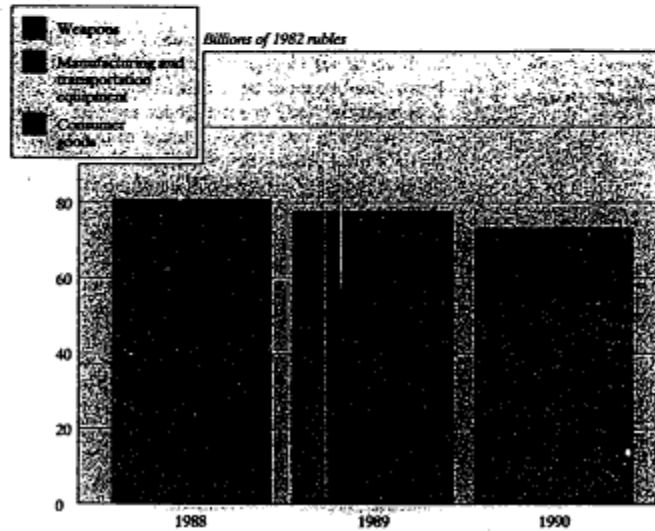
- The failed administrative approach to conversion is probably dead. The market will now force defense-industrial plants to operate efficiently and respond to consumer demand for civil products or go bankrupt.
- Defense industry is now at the mercy of a new group of leaders who are critical of its operations and intend to streamline, reorient, and privatize the sector.

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Figure 1  
Estimated Defense-Industrial Production, 1988-90



- Unless and until Western aid is provided, defense industry will have little funding to retain and retrain workers and retool facilities for civil manufacturing.

The defense industry that emerges from the current upheaval could well resemble the weapons industry of some West European nations—republics may own the largest final-assembly and component plants, but these will be on a short financial leash. Defense industry's size will be determined by what is left of the procurement budget and by the prospects for exports—it will be expensive to maintain much excess (and increasingly obsolete) capacity for mobilization. The base of the future defense industry could, perhaps, consist of the most modern of the current 150 major final-assembly plants and possibly a couple hundred component plants

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Even cut back to this size, however, the defense industry would have the potential to produce in substantial numbers a wide range of technologically advanced weapons. Certainly the huge pool of talented and well-trained engineers, technicians, and laborers ensures the availability of core personnel well into the future, and, while much of today's physical plant and equipment is obsolete by Western standards, there are pockets of excellence. Defense industry's capability early in the next century will depend primarily on the republics' ability to overcome daunting problems in the transition and eventually to provide a stable market environment—to manage their political interrelations, marketize and privatize their economies, downsize and convert defense industry, and then to marshal the latent capabilities of the residual weapons production resources.

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## Scope Note

This paper tracks the halting progress of conversion and examines how defense industry's financial condition deteriorated as it attempted to respond to central guidance and market forces simultaneously and how defense industry will most likely respond to further cuts in weapons production, greater decentralization, and possible foreign assistance. It considers these issues in light of the unsuccessful 19 August coup engineered against the Gorbachev leadership by hardliners from the party and the military-industrial complex. By also updating our analysis on the changing composition of defense industry's output, this paper continues the effort to test the validity and usability of published Soviet defense-industrial and budget data. Other papers in this series include the DI Technical Intelligence Report SOV 89-10085 [ ] December 1989, *USSR: Estimating the Composition of the Defense Industry's Output*; DI Research Paper SOV 90-10026 [ ] June 1990, *Defense in the 1989 Soviet State Budget: Still Not Credible*; [ ]

[ ] and DI Research Paper SOV 91-10021 [ ] May 1991, *The Soviet Release of Defense Spending Data to the United Nations: Less Than Meets the Eye*.

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## Soviet Defense Industry: Confronting Ruin

### Background

The Soviet defense-industrial sector has long been at the apex of the Soviet command economy, enjoying near absolute priority on resources (see inset). Because its immense productive capacity was purposefully developed to exceed the immediate needs of the huge Soviet military machine, defense industry has long been tasked to manufacture consumer goods and capital equipment. Defense-industrial plants produce a wide range of manufacturing machinery and have pioneered the development and production of advanced manufacturing technologies in Soviet industry. Defense-industrial plants are major manufacturers of equipment for the agricultural sector and the railroad industry. Dual-use items—such as ships, aircraft, and communications equipment—also come from defense-industrial enterprises. Finally, defense industry produces a wide range of consumer goods in large quantities—from washing machines, to vacuum cleaners, to automobiles—and defense-industrial ministries are the lead organizations for manufacturing certain goods, such as high-demand consumer electronics.

The procurement and force cuts Gorbachev set in motion in December 1988 began to undermine the traditional basis for defense industry's sheltered lifestyle. Gorbachev's plans to convert defense industry meant that its civil production would no longer be just a sideline but would constitute the majority of its output. Ultimately, defense industry's continued existence as a separate sector would be determined by economic—not ideological—criteria. Moreover, members of defense industry's central planning apparatus and its associated vast and costly party control mechanism soon realized that they, too, would have to justify their jobs on economic grounds.

Defense industry's support for the orthodoxy the coup plotters represented was based in large part on fears that further cuts in weapons production, combined with pressure to convert and adapt to market reforms, would lead to the dismemberment of defense industry and a consequent loss of status and possible financial ruin. Ironically, the failure of the coup has destroyed

### What Is the Soviet Defense Industry?

*Through years of extensive investment, the Soviets have developed an immense defense-industrial base of 3,000 to 5,000 facilities, including about 150 major final-assembly plants, thousands of component and material production facilities, and over 1,500 research, development, and test facilities. Defense-industrial production is heavily concentrated in the Russian Republic (70 percent) and Ukraine (15 percent), with the rest scattered among other republics. Within the Russian Republic, three major centers—Moscow, St. Petersburg (Leningrad), and the Urals region—have the greatest number of defense-industrial facilities.*

*Traditionally, the Soviets have centrally managed this complex—the Military Industrial Commission (VPK) has controlled defense-industrial output and ensured supplies to the sector's plants. As a result, the defense industries have been relatively insulated from the bottlenecks and shortages that have plagued the rest of the economy. Over the past few years, however, a combination of factors—conversion, economic reform, and the heightened economic chaos throughout the nation—has reduced the sector's traditional insularity and made it more vulnerable to the country's economic problems.*

*Since 1988 the leadership has enlarged the sector by giving it civil plants to meet new civil obligations. The leadership hoped that extension of defense industry's traditional resource priorities and application of the sector's highly regarded technological expertise would quickly modernize long-neglected civil industries. In March 1988, 260 food-processing and light industry (textiles and footwear) machine-building plants were resubordinated to the sector as part of the food industry modernization program. In June 1989 defense industry absorbed the facilities of the dissolved Ministry of the Medical Equipment Industry, and the Ministries of Civil Aviation and Communications were moved into the sector.*

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not only many defense industrialists' careers, but also what slim chance there once was for an orderly breakup of defense industry. The sector now faces many radical changes at a time when it is both insolvent and bereft of leadership.

#### Conversion: Soviet Claims . . .

In 1989 the Soviets announced ambitious plans to increase defense industry's civil production. These plans call for the sector's civil production to grow by more than 10 percent per year from 1988 through 1995 and for the share of civil production in total defense industry output to rise from a claimed level of 40 percent in 1988 to 65 percent in 1995.

Soviet officials originally claimed that they were on track in meeting their goals, although they have yet to release a detailed breakout of defense industry's total production. In October 1990, then Chief of the General Staff Mikhail Moiseyev said defense industry's civil production accounted for 42.6 percent of total defense industry output in 1989. The Soviets have not yet indicated what defense industry's final 1990 civil production share was, although in August 1990 then Premier Nikolay Ryzhkov implied that the civil share would reach 50 percent, slightly exceeding the planned level.<sup>1</sup> The State Committee for Statistics (Goskomstat) report on the economy through September 1990, however, warned that conversion had "obviously" begun to slow down at the end of the third quarter. The Goskomstat report on the Soviet economy in 1990, released in January 1991, admitted that there was "a decline in the overall volume of production in defense industries in conjunction with conversion. . . . A drop in the production of military output was not offset by a quite substantial increase in the output of civilian products and consumer goods." It was not until July 1991 that the CPSU Central Committee Commission on Conversion claimed that the proportion of civil output ". . . is now over 50 percent."

<sup>1</sup> Ryzhkov stated that, through July 1990, total production in the defense complex had risen by 4 percent over the first seven months of 1989, while civil output had risen 15 percent and military output had fallen 4.6 percent. This implies a civil share of 44 percent for the first seven months of 1989. The draft plan for 1990, released in October 1989 by Gosplan First Deputy Chairman Valentin Smyslov, called for the share of civil production to reach 49.2 percent.

After nearly three years of conversion, Soviet claims regarding the program's progress and its benefits to consumers assumed a more realistic tone. Commentators in 1991 spoke about the number of plants that will be converted—most recently former First Deputy Prime Minister Vladimir Shcherbakov claimed that 600 plants would be converted, an increase from the 400 to 500 previously claimed. What they often are describing, however, is not a reorientation of military lines but merely increased production of civil goods on existing lines or new production using excess capacity (see inset). Indeed, statements by former Soviet Prime Minister Valentin Pavlov and the CPSU Central Commission on Conversion suggest that, from 1988 to mid-1991, conversion—in the strict sense—was responsible for, at most, one-fifth of defense industry's increased consumer goods output. Some Soviet officials have admitted privately that only a handful of defense-industrial facilities were to be totally converted. In contrast with earlier, optimistic statements on the potential benefits of conversion, defense-industrial ministers and their enterprise directors conceded in mid-1991 that conversion is costly, that their plants are suffering financial hardship, and that time is required for the nation's most technologically advanced sector to shift to increased civil production, particularly during a move toward a market system.

#### . . . And CIA Estimates

To assess the Soviets' claims and to evaluate their capabilities to shift defense industry resources from military to civil production, we independently estimate the value of defense industry's output of weapons, consumer durables, and producer durables, using a building-block approach.<sup>2</sup> Our estimates indicate that Soviet claims artificially inflate the share of civil production in defense industry's output. First, defense industry's civil output share was increased by bureaucratic fiat in 1988, when a civilian machine-building

<sup>2</sup> See DI Technical Intelligence Report SOV 89-10085.

<sup>3</sup> December 1989, *USSR: Estimating the Composition of the Defense Industry's Output*. The estimates of the total value of weapons production are taken directly from the CIA's assessment of the quantities produced of missiles, naval ships, combat aircraft, and other weapons valued in constant 1982 prices.

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**Claims.** Both in public interviews and **C**  
*The Soviets have made general claims about the number of plants and R&D facilities undergoing conversion. Soviet journalists and defense industry plant managers have also publicly **C** named specific facilities involved in some aspect of conversion:*

Weapons production plants claimed to be converting	600
Specific plants identified	250
R&D facilities claimed to be converting	205
Specific R&D facilities identified	50

**Evidence.** We have **C** **C** including press **C** **C**—that has indicated increased or new civil production at defense-industrial facilities and has allowed us to track conversion at plants where we believe military production has dropped or will decline:

Plants producing new or more civil goods	140
Major weapons plants where military production has declined	35
Major weapons plants where military production lines have been altered	3
Specific R&D facilities where some conversion activity is occurring	15

ministry was disbanded and some 260 civil machine-building enterprises were resubordinated to defense industry. The Soviets include output from these 260 enterprises when they calculate defense industry's civil output. Second, much "civil" output consists of high-quality capital equipment—such as advanced machine tools—designed for and used in weapons production.<sup>1</sup> Finally, and most important, a high-ranking official of the Ministry of the Defense Industry recently revealed that the civil output share is

<sup>1</sup> For example, on 30 March 1991 the Minister of the Shipbuilding Industry told Soviet television that "the shipbuilding industry satisfies 60 to 70 percent of its own needs in equipment and machinery."

artificially high because the Soviets aggregate weapons, industrial goods, and consumer goods using different valuation measures (types of prices). Weapons and industrial goods are valued using enterprise wholesale prices, and consumer goods are valued using retail prices. Retail prices on consumer goods include both transportation costs and the selective, highly differentiated, and often massive "turnover tax."

We used the methodology developed in the earlier report, together with economic statistics the Soviets released for 1989 and 1990, to update our analysis. We estimated defense industry's output of consumer goods and production machinery and combined these with our building-block estimates of Soviet weapons production to calculate defense industry's production breakdown for 1989 and 1990. Although the shares we calculated for the period 1988-90 are somewhat different from the ones the Soviets have announced, their trends track well over time with the corresponding CIA estimates (see table). The 1990 share estimate, as well as the production estimates for total defense industry output and its output of consumer goods, appear consistent with the slowdown in conversion that the Soviets admitted in September 1990.

Despite progress in shifting the balance between defense industry's weapons and civil production, however, defense industry fell far short of its goals for increased civil output. CIA estimates show that Soviet weapons production decreased by 10 percent in both 1989 and 1990. Defense industry's output of consumer goods increased by 5 percent in 1989 and by 10 percent in 1990, providing a modest, but much-needed, benefit to the Soviet consumer. At the same time, however, defense industry's output of manufacturing equipment, after increasing by 6 percent in 1989, only increased by 2 percent in 1990. As a result,

\* We earlier hypothesized that the Soviets might have classified items such as military transport aircraft as civil production—and not as weapons—thus artificially boosting the share of civil production. In view of this new information, this assumption was probably incorrect.

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Share of Defense and Civil Production in Total Defense Industry Output

	1988	1989	1990	1991*
<b>Soviet claims</b>				
Defense	60	57	50*	Under 50
Civil	40	43	50*	Over 50
<b>CIA estimates</b>				
Defense	69	66	62	
Civil	31	34	38	
Producer durables	18	19	21	
Consumer goods	13	15	17	

\* Information as of July 1991.  
 \* Announced plan.

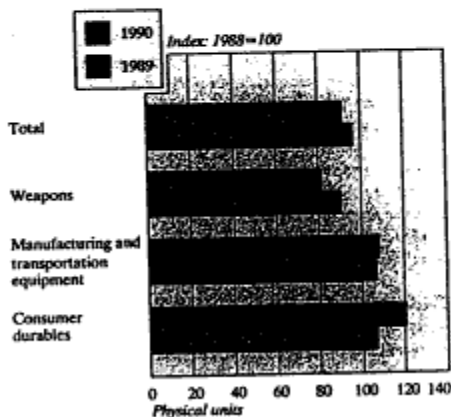
defense industry's production of civil goods increased by 5 percent in both 1989 and 1990. Estimated total defense industry output—weapons and civil goods—fell by 4 percent in 1989 and 6 percent in 1990 (see figure 2).

**Preliminary Results for 1991**

Defense industry's output was continuing to fall before the coup attempt. As the overall Soviet economy shrunk and general supply disruptions increased, defense industry was finding it even more difficult than in 1989 and 1990 to transform the production potential freed by cuts in weapons orders into additional civil production. Efforts to convert efficiently were probably also hindered by conflicting orders to defense industry. In February then Prime Minister Pavlov called for more capital equipment production—relative to consumer goods production—even though the original plans to rapidly expand consumer goods output were apparently still in place.

Through the first six months of 1991, output growth rates for defense industry's production of selected consumer goods were mixed (see figure 3), and its total output of consumer goods fell by 2 to 3 percent. This performance, however, was relatively good compared with that of most other sectors of the Soviet

Figure 2  
 Defense-Industrial Production of Selected Goods, 1989-90



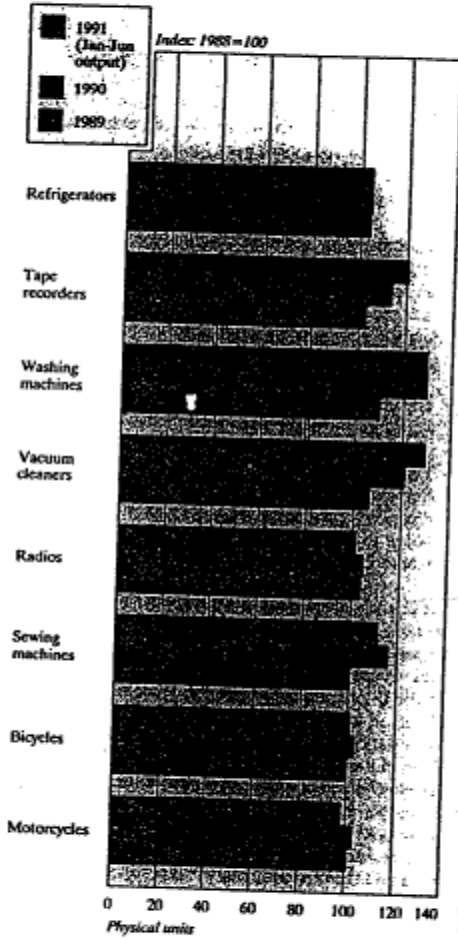
economy, where activity fell sharply. Defense industry's output of manufacturing equipment also most likely dropped in the first half of 1991, and [ ] indicates that weapons output continued to decline—although we have yet to estimate by how much. On balance, defense industry's total output continued to fall during the first six months of 1991, extending its economic slump to two and a half years.

Defense industry's output will most likely shrink at an even faster pace, perhaps precipitously, in the second half of 1991. Weapons production is likely to be hardest hit, as the failed coup attempt has given the republics leverage to initiate immediate cuts. Civil production will also suffer. The various republics will most likely issue contradictory instructions to the

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**Figure 3**  
**Defense-Industrial Output of**  
**Selected Consumer Goods, 1989-91**



defense-industrial facilities located on their territories. Moreover, defense industry will not be spared the effects of the general chaos spreading throughout the Soviet economy.

**The Consequences of Declining Sales**

Many defense-industrial plants—increasingly responsible for their own financing—have suffered severe cash-flow problems as a result of falling military orders. For example

... a former small-scale producer of T-80 tanks that the plant has had to lay off 10 percent of its workers and tripled its tractor prices in order to meet its operating costs. Financially strapped defense plants have received some of their traditional monetary assistance from central sources, but the nation's deteriorating financial conditions increasingly hinder the government's ability to help defense-industrial plants stay solvent.

The Pavlov government claimed to be sensitive to defense industry's financial problems. Then First Deputy Prime Minister Shcherbakov stated in August 1991 that the government was concerned about the sector's financial problems, particularly their impact on workers. The only offer of financial assistance he extended, however, was specific investment for five priority areas in conversion—civil aviation, commercial shipbuilding, space, communications, and new metals and materials—which could provide only limited relief for the financial difficulties of the plants. In July the Soviets of plans to create a conversion fund in 1992—financed by a 3-percent tax on defense output—but prospects are dim that such a fund will materialize. Center and republic disputes concerning contributions killed a similar fund created in 1990, and these disputes have been exacerbated in the wake of the 19 August coup.

Plant managers' reactions to their financial straits range from trying to increase civil output, to ceasing production of military orders that are unprofitable, to searching for export sales. However, those plants that try to cover losses in military orders with increased

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civil production—such as the St. Petersburg Arsenal, a producer of naval guns—have complained that sales of civil goods are not as lucrative. Typically defense plants are designed for small-scale series production of goods—where production occurs on a job-shop basis and output ranges from less than 100 to a few thousand units—instead of mass production, where output can range from a few thousand to tens of thousands. Batch production does not provide for economies of scale—which are key to many areas of civil production, particularly consumer goods. The Soviet press reports that the costs of producing some types of food-processing equipment at partially converted factories can run 10 to 50 times more than the costs at plants that specialize in making such equipment. Defense industry's attempts to pass on its costs have been mixed—orders for food-processing equipment have reportedly declined substantially because customers rebel against what they perceive as price gouging

At the same time, reduced military orders are increasing the unit costs of weapons, and even plants with long traditions in weapons production are rejecting unprofitable military orders

in August 1990 that officials at the Khar'kov Malyshev Tank Plant decided unilaterally to cease tank production after the Ministry of Defense reduced its tank order by one-third; however, that this decision was reversed later that year. Defense industrialists looking for export sales face the twin challenges of overcoming negative impressions about the performance of their equipment in Iraq during the Gulf war and the inability of their traditional customers to pay cash for their purchases.

The financial bind—as well as the loss of the perquisites and prestige that usually accompany weapons production—has caused defense industry to lose highly skilled workers. These workers have sought employment elsewhere (particularly with privately owned cooperatives), are unemployed, or are attempting to emigrate to the West. The CPSU Commission on Conversion reported in July 1991 that many enterprises are on the "verge of bankruptcy" and that defense workers' relative wages had slipped sharply. Defense industry's money problems have made it even more difficult to provide the

social benefits—better housing and access to necessity and luxury items—associated with military production. In addition, many workers and managers in the sector believe that working on civil goods wastes their skills:

they lost 50,000 workers during the period 1988-90, and the Ministry of Defense Industry, which lost 70,000 workers during that same time, feared additional work force losses because 35 percent of its enterprises lacked money to provide those social benefits needed to retain personnel.

the nation's premier artillery production facility, claimed workers were upset because their jobs were abolished or changed and wages were lowered, and many left or joined a private cooperative that was renting part of the facility.

The Chel'yabinsk Tank Plant lost 30 percent of its work force after it ceased tank production in 1991.

that his military orders had dropped 40 percent since 1988, and, although he hoped to transfer workers to civil production, he feared many of his specialists would leave.

As financial conditions at their plants deteriorate and workers migrate elsewhere, defense industrialists have expressed fears about their financial ability to man and maintain the weapons production base

Other plants, such as the St. Petersburg Arsenal, are concerned that additional cuts in military orders will force them to face decisions on closing down weapons production lines and then determining whether to keep them intact or tear them down completely. Some plants have torn down parts of their military production lines—

the Chel'yabinsk Tank Plant has allegedly placed nonconvertible equipment in storage

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#### Seeking a Solution

As defense industry struggled to adjust to declining military orders and meet the leadership's demands to produce more goods for the civil economy, the Soviets looked to internal and external sources for solutions to ease the sector's financial plight. Despite statements on decentralizing Soviet industry, Pavlov and his colleagues continued to call for centralized management of defense industry and to promote state orders to keep its plants supplied with production materials and customers for their goods. In August 1991 the Pavlov government also provided some details of the "clarified" conversion program it had promised in June. According to Minister of Economics and Forecasting Shcherbakov, the plan directed defense industry's efforts into five previously noted priority areas that play to the sector's perceived strengths and called for defense industry to increase consumer goods production and output of medical equipment. Defense industrialists probably were pleased with this approach because it required less reorientation of their plants and workers.

During the past year, reformers proposed their own changes for defense industry that would further shrink its size and alter its method of operating within the Soviet economy. First submitted in the fall of 1990, the Shatalin plan proposed that defense industry be scaled down to 20 to 30 percent of its current size by stripping the sector down to government-owned weapons final-assembly facilities. All other industry would be privatized within a market system. During June 1991, Soviet economist Grigoriy Yavlinskiy and academics at Harvard University's Kennedy School of Government proposed a plan to reform the Soviet economy into a market-oriented system—like the Shatalin plan it also called for streamlining defense industry and privatizing most of the sector's facilities. Both of these reform plans died after President Gorbachev tried to merge them with the more conservative reform programs of the Ryzhkov and Pavlov governments.

After three years of conversion, with results ranging from limited progress in consumer goods to dismal failure—particularly in manufacturing machinery to retool the food-processing industry—Gorbachev and his advisers opted to seek Western assistance for

defense industry conversion. During the London Economic summit of the G-7 nations in mid-July 1991, Gorbachev admitted that the Soviet Union could not solve its economic problems without Western economic assistance and presented defense industry conversion as a priority program for foreign investment. He proposed a cost of approximately \$30-40 billion for conversion assistance and identified three areas for foreign investment:

- Commercializing dual-use projects—Gorbachev believes Western firms could work jointly with Soviet defense industry on short-term investment schemes to develop commercial projects for established Soviet capabilities in aviation, shipbuilding, space, and communications.
- Profound reorientation of defense industry—Gorbachev stated that this program would require long-term investment aimed at transforming a significant part of defense industry to the output of transportation systems, agricultural machinery, and a wide range of consumer items.
- Government-assisted programs for the environment and national security—assistance in these areas would be aimed at developing technologies for safely eliminating chemical, nuclear, and conventional weapons and establishing early warning systems to prevent unauthorized or terrorist-instigated launches of nuclear weapons.

The G-7 nations did not immediately respond with as much assistance as Gorbachev desired. They took little action to redirect their traditional forms of financial aid—loans for specific food or consumer goods exports—and such aid provides only minimal assistance to defense industry. The Soviet Union was promised "special associate status" with the International Monetary Fund (IMF) and the World Bank, but this will not make it eligible for the billions of dollars it requested for conversion.

Gorbachev's proposals failed to address Western governments' concerns that the Soviets would use financial aid to expand conversion without changing the

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program's focus from diversion—the transfer of expertise or labor or materials to increase a defense plant's output of the civil goods it has traditionally produced—to the replacement of military assembly lines with lines devoted to civil output. Diversion is cheaper and easier than replacement—in the short run—but diversion also enables the Soviets to retain a weapons production mobilization base.

The Soviets subsequently applied for full membership status in both the IMF and the World Bank; however, they would be ineligible to receive funds from these organizations until after they were approved for membership—a process that takes two to five years. Moreover, the financial benefits of such membership would not be immediately forthcoming to the Soviets upon receiving admission to these organizations because these agencies generally provide financial aid only after the applicant takes action—such as slashing government spending, including defense—to address the root cause of its financial difficulties. Thus, conversion aid from such international lending institutions could be contingent on the Soviets' first taking actions that further increase the financial pressures on defense industry.

Gorbachev also offered some specific strategies for private foreign investment in conversion, including direct investment in defense industry firms and outright purchase of existing enterprises and those currently under construction. Thus far, however, he has been unable to attract much interest from Western firms, which have found conversion to not always be a profitable undertaking (see inset). The Gorbachev leadership also pitched conversion to Japan and recently allowed a large group of Japanese government, financial, and industrial representatives to tour defense-industrial plants as part of discussions on conversion assistance.

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#### *Lessons From the US Experience*

*US weapons manufacturers have had a great deal of experience attempting to convert to civil production as they tried to cope with cyclical declines in defense orders. To tap into that experience, in June 1990 the Office of Soviet Analysis, together with the United States Air Force Academy, hosted a conference analyzing the lessons of US industrial conversion initiatives for the Soviet conversion program. Senior managers from every sector of US defense industry presented case studies on their companies' conversion efforts and shared their evaluations of various Soviet conversion strategies.*

*The US managers highlighted the pitfalls in conversion. They cited two frequent sources of failure—when a new civil product draws on technologies the firm has little experience with and when the corporations' design practices and overhead costs, keyed to the requirements of the weapons procurement process, drive up the price of a civil product far beyond what could be charged in a competitive market. Both problems are evident in the Soviet conversion program.*

*Most of the US manufacturers abandoned narrow conversion projects in favor of a fundamental reorientation of corporate business lines. To accomplish this, they drew heavily on external financial, technical, and marketing expertise—readily available in the US market economy. For this reason, the US managers doubted that the Soviet conversion program would succeed without fundamental reform of the Soviet economy*

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#### *Aftermath of the Coup*

Threatened by conversion's disruptions and the specter of market reforms, defense industrialists have publicly and privately resisted change, and this opposition led to the participation of key defense industrialists in the 19 August coup against Gorbachev. For

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months, defense-industrial plant managers had complained about their plants' problems with conversion—in September 1990 they signed a letter in *Pravda* warning that the sector was in "dire straits," and, in February 1991, *Sovetskaya Rossiya* published a letter from defense industrialists to Gorbachev and Pavlov requesting funding for conversion. A strong indication of defense industry dissatisfaction with leadership policy occurred in July 1991, when Oleg Baklanov, a leading defense industrialist who was serving as first deputy chairman of the Defense Council, blasted conversion in a roundtable discussion printed in *Moscow den*. Baklanov and Aleksandr Tizyakov, a defense-industrial careerist and president of the traditionalist Association of Industrial Enterprises, eventually became prominent participants in the coup against Gorbachev and since then have been arrested and charged with treason.

The postcoup shakeup has strengthened leaders determined to implement the radical economic reforms long resisted by defense industry. Newly installed Minister of Economy and Forecasting Yevgeniy Saburov stated the views of reformers when he told *Komsomolskaya pravda* on 30 August that "the defense complex must cease to exist as a kind of single entity separate from the country's economy, sucking Russia's blood." Saburov and others such as reform economists Stanislav Shatalin and Grigoriy Yavlinskiy, a member of the interim economic committee created after the coup to manage the economy, believe defense industry should be limited to final-assembly facilities, and the rest of its plants should be privatized. As the leadership's plans evolve over the next few months, defense-industrial plants will be stripped of their traditional priorities, lose their subsidies, and be forced to balance their books or go bankrupt

Any reform program from the center, however, will have to come to terms with the aims of the republics, who are claiming control of defense-industrial facilities on their territory—particularly the Russian Republic and Ukraine, where the vast majority of defense-industrial facilities are located. Both the Russian Republic and Ukraine have claimed jurisdiction over all enterprises within their borders, and the Russian Republic has stated that it plans to consolidate weapons production at selected facilities and

convert other defense plants to civil production. However, republics that perceive security threats, such as Azerbaijan and Armenia, might increase weapons production and convert civil plants to weapons output. Even if military orders do increase in some republics, plant managers there will have to face the challenge of rebuilding their work force and forging new supply relationships before they can meet new production requirements.

#### Outlook

Defense industry will contract dramatically and be fundamentally restructured. Economic disarray has led to a breakdown in the sector's resource base and redoubled pressure to cut defense spending. Moreover, the reformers' victory over the hardliners means that advocates of a market-oriented economic reform will be preeminent, so defense industry will have to operate more efficiently and cost consciously as well as be responsive to consumer demand. Finally, the dissolution of the Communist Party and the ouster of high-level defense industrialists and military commanders who directly or indirectly supported the coup have deprived the sector of allies who traditionally have protected its interests during resource or reform decisionmaking.

The political changes and economic turmoil that have been accelerated by the failed coup have generated widespread promises of Western humanitarian aid and made debt rescheduling and Western government assistance for conversion highly probable. The domestic turmoil makes near-term private investment by Western firms less likely unless businessmen's investments are insured by Western governments.

Unless and until Western aid is provided, however, defense industry will have to struggle with little financial relief in sight. The sector's total output is likely to continue to fall as plants suffer from declining weapons orders and continue to experience problems transforming production potential freed by these cuts into additional civil production. Falling sales will make it even more difficult to find funding to retain and retrain workers and retool facilities for civil

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manufacturing and to obtain needed supplies—creating the potential for a vicious downward spiral. Problems will most likely be especially severe in cities such as St. Petersburg (Leningrad) and Moscow and in the Urals region, where defense industry is the major employer. Russian leaders, such as the Chairman of the USSR Committee for the Management of the National Economy, Ivan Silayev, have urged that the state pay the wages of defense industry workers during the conversion process, but such an action would both increase the exploding budget deficit and undercut the immediate financial imperative to convert.

Further, defense industry is at the mercy of a new group of national and republic leaders who are critical of its operations, have stated their intentions to streamline the sector and implement reforms in its weapons development and production activities, and plan to abandon the administrative approach to conversion. Russian Defense Minister Kobets, even before the failed coup, had called for virtual dismemberment of the defense industry sector—a plan that appears more radical than that advocated last summer in the Shatalin program. Shatalin called for 70 to 80 percent of defense industry plants—those that produce all or primarily civil goods or dual-use components—to be withdrawn from the defense-industrial sector and transferred to republic jurisdiction and privatized. Kobets has gone even further than Shatalin by advocating consolidation of weapons production at a subset of the remaining component and final-assembly plants and shifting the sector's other facilities to purely civil production. Under this plan, financial necessity would ensure that defense sector plants moved out of defense industry will either convert quickly or go bankrupt. Moreover, even those weapons production plants that remain in defense industry would have to adjust to a decentralized supply system in which they will not enjoy priority access to materials and skilled workers, and their managers will have to scramble to keep their plants supplied.

Recently, some proposals that would dismantle defense industry have emerged, although the need for arms exports to earn hard currency together with the military's desire to salvage key weapons programs will probably prevent a total weapons production halt.

Russian Republic Vice President Rutskoy, who is in charge of Russian defense industry conversion, announced in mid-September that he had proposed halting weapons production for three years. In early September, the USSR Deputy Minister of Defense Industry said the Committee for the Management of the Economy was considering ending all weapons production.

Although we cannot predict with certainty either the exact nature of defense-industrial downsizing or the rapidity of the process, the defense industry that emerges could well resemble, structurally, the weapons industry in some West European nations—republics may own the largest final-assembly and component plants, but these will be on a short financial leash. Defense industry's size will be determined by the procurement budget and the prospects for hard currency exports—it will be too expensive to maintain much excess (and increasingly obsolete) capacity for mobilization. The base of such a future defense industry could, perhaps, consist of the most modern of the current 150 major final-assembly plants and possibly a couple hundred component plants

Even cut back to this size, however, defense industry would have the potential to produce in substantial numbers a wide range of technologically advanced weapons. Certainly the huge pool of talented and well-trained engineers, technicians, and laborers ensures the availability of core personnel well into the future, and, although much of today's physical plant and equipment is obsolete by Western standards, there are pockets of excellence. Defense industry's capability early in the next century will depend primarily on the republics' ability to overcome daunting problems in the transition and eventually to provide a stable market environment—to manage their political interrelations, marketize and privatize their economies, downsize and convert defense industry, and then marshal the latent capabilities of the residual weapons production resources.