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Russian Military R&D

Are the Regions Taking Charge?

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Introduction: The Impact of Russia's Future Military R&D Base

As U.S. military planners attack the issue of downsizing forces, one of the most pressing questions they face is the future of Russian weapons acquisition and military R&D. No matter that the Cold War is over and that a chaotic, impoverished Russia is no longer the threat it once was, the substantial remnants of the defense industry of the former Soviet Union (FSU) cannot be casually dismissed.

A justified uneasiness remains among U.S. defense planners concerning the ability of the Russian military-industrial complex to resurrect its former destructive potential. The world's current attention is concentrated on the immediate issue of arms exports as Russia, Ukraine, and other nations of the former Soviet Union conduct a "yard sale" of "surplus" military equipment and technology. Of even greater import, however, is the question of the *long-term* Russian potential to develop a military-industrial base capable of producing and exporting state-of-the-art weaponry, potentially in competition with Western companies.

In light of the consistently gloomy estimates being put out by Russia's highest science officials, it is tempting to dismiss the decimated and disheartened Russian R&D establishment as an impotent shadow of its former self. In 1988, the FSU maintained the world's

largest military R&D establishment, consisting of over 1,500 organizations employing about three million workers. But Ministry of Defense budget allocations for R&D have declined each year since 1989, despite continued assertions by top civilian and military planners that R&D activities must be maintained in order to qualitatively offset force reductions. In 1991, the R&D budget was cut by 15 to 20 percent. These cuts were harsh in some areas, but not universally debilitating to R&D. More draconian measures were taken in 1992, when the military R&D budget was cut by 25 to 40 percent from the already reduced 1991 budget. This reduction, which might be considered "moderate" compared to the 68 percent cut for weapons acquisition, reverberated throughout the R&D establishment.

The effect of these cuts on scientific institutes—not only the military research institutes that were subordinate to the now-defunct defense industrial ministries, but to military-supported Academy of Sciences institutes as well—has been devastating.¹ The number of people involved in science and technology activities as scientists, administrators, and engineers has declined from almost 3 million in early 1991 to 1.1 million at the beginning of 1993, according

¹Since the military funded a giant portion of research carried on in all types of institutes, the evaporation of military R&D funds had a powerful ripple effect throughout the entire R&D system.

to Boris Yurlov, a leading official of the Russian Ministry of Science, Higher Education, and Technological Policy.² And Yurlov has no illusions about the Russian government's ability to reverse this trend. He estimates that in the coming fiscal year it will be impossible for the government to support more than 20 to 25 percent of the country's existing scientific capacity.

This rapid, major downsizing of the R&D establishment, which is still in progress, has crucial implications for the future of the Russian armed forces. The basic question for military planners is whether the downsizing is "incoherent," with much that the military would like to retain being lost, or whether a smaller yet effective R&D sector can emerge. To date, much evidence points to the former: spontaneous responses to negative economic stimuli have played a greater role than rational policy decisions in determining which institutes, programs, and individuals survive.

In the months ahead, much will depend on whether a coherent military doctrine and effective military decisionmaking (funding) mechanism can be put in place before the erosion of military R&D cadres has reached the point of no return. Yet here, as in every major political/economic issue concerning the future of the Russian state, philosophical differences among the leadership have led to fierce and prolonged debate. Although a draft military doctrine has been circulating for over a year, as of 25 May it was still being debated by the Russian parliament's Committee on Defense and Security.³ Given this paralysis, and the economic and financial crisis facing the military R&D establishment, whatever military doctrine is officially adopted should probably be regarded as only a "wish list" for the future Russian armed forces. The extent to which it can be fulfilled will depend on which capacities of the military R&D base manage to survive the current crisis.

Finally, beyond its direct relevance to the future of arms exports and the Russian military, the evolution of the military R&D base will have a vital, indirect impact on Russia's overall economic recovery. The military-industrial complex was a significant portion of Soviet gross domestic product (GDP), with the military's share of national R&D activities and assets even greater.⁴ Many feel that the future of the overall Russian economy and that of the military-industrial complex cannot be

²Delovoy Mir, 16 January 1993.

³Sergei Stepashin, chairman of the committee, told ITAR-TASS on 25 May that the new draft military doctrine is "just a draft" that is still being revised for further examination sometime in the fall.

⁴Although an exact figure for defense spending in the Soviet Union is elusive, the *direct* defense bill may well have been 20 to 25 percent of GDP, according to many respected Russian and Western estimates.

separated and will rise or fall together. Just as the military-industrial complex needs a viable and strong overall economy to succeed, the Russian economy cannot recover without redistribution of resources from the military to the civil sector. This is especially true of science and technology, which serve as a critical input to and a multiplier for production.

Therefore, an understanding of the emerging Russian military R&D structure is critical for the United States in the long run. Policy decisions made today on topics ranging from weapons systems development to foreign aid will be best informed by understanding the long-run military production capabilities of Russia.

Ironically, however, during this new era of openness, analysts are besieged by a flood of information about the formerly secret Soviet defense complex but find themselves more uncertain than ever about the workings of its Russian successor. If, previously, we were dealing with a relatively homogeneous, standardized, centralized system, whose dynamics analysts had carefully tracked over the decades of Communist rule, now we are faced with a political and economic culture in a state of prolonged flux. In the present chaotic environment, we no longer know the most fundamental facts about the Russian weapons acquisition system: who decides the number of programs under way, how and whether these programs will be financially sustained, which requirements will be met, and which organizations will be retained for military R&D. Further, we must recognize that our ignorance of these matters may be insuperable for some time, as long as the Russians themselves fail to legalize and implement a new system and continue operating on an inconsistent, ad hoc basis, incomprehensible even to themselves.

The Growing Regional Role in Russian R&D

Having made the case for why U.S. policymakers should be interested in the nature of the emerging Russian R&D base, we are faced with the task of how to examine what is still a primordial soup. Our basic hypothesis, based on preliminary research and observations, is that the most fruitful approach to the issue will be a regional one. The inevitability of such an approach is dictated by two factors: (1) the powerful centrifugal forces at work in Russia today and (2) the distinctive regional breakdown of Russian R&D resources and establishments. Fully one-third of R&D institutes are located in Moscow and Leningrad, with 17 percent of the total number in Moscow alone. These are followed by Novosibirsk, Sverdlovsk, Rostov, Nizhnyi Novgorod and the independent-minded

republic of Bashkortostan. Over 45 percent of R&D institutes are located in these seven regions.⁵

Under the old Soviet system it was not possible to speak of regional science policies whose objectives were distinct from those of the Union as a whole. Today, regional science policies are being developed, but under conditions of conflict and scarcity: state science authorities, badly strapped for funds, have tended to shift responsibility for R&D to local authorities, which have even fewer resources than federal ones.⁶

Thus we must focus on two levels when seeking to understand the emerging Russian military R&D sector—the federal and the regional. There are essential elements needed to sustain a viable R&D base, including financial support, resources (capital, labor, materials), identification of a market, infrastructure, decision-making (based on military doctrine and other factors), and organizational structures. At present there is tremendous flux and uncertainty as to whether these basic elements are provided at the federal or regional level. Moscow has traditionally supplied essential guidance on military doctrine and priorities, along with the requisite resources, finances, and direction to satisfy these requirements. But, as noted above, the long-awaited military doctrine has yet to be passed. Until it is, not just Western analysts but Russian defense plant and research institute directors lack the most basic information about technological priorities, i.e., about what elements of the system will be funded and thereby survive.

These same directors are not, however, sitting idle while paralysis continues on the national level. Decisionmaking points are shifting; power is devolving to the local level as local authorities attempt to fill in the funding and planning gaps left by shattered central authorities. To understand the emerging military R&D base, then, it will be necessary to look not only at Moscow, but at regions such as St. Petersburg, Nizhniy Novgorod, Sverdlovsk, Chelyabinsk, and Udmurtia, where government, business and scientific leaders, and individual enterprises are laying the foundations of a more decentralized, market-driven system.⁷ We must stop viewing Russia as a monolithic whole and sensitize ourselves to its diversity. Just as the “military-industrial complex” is by no means an undifferentiated mob of

⁵See Chapter 3 of *Science in Russia, Today and Tomorrow*, Russian Academy of Sciences Analytical Center for Problems of Socio-Economy and Science Technology Development, Volume 2, Moscow, December 1992, pp. 32–44.

⁶Ibid.

⁷It is also important that the *regional level* not be treated as a monolithic whole. It is as yet unclear what role the region is playing in maintaining and establishing an R&D structure, and what is attributable to the innovative actions of individual institutes and bureaus.

reactionaries, so Russian military R&D must be seen in its geographic and technological heterogeneity.

The breakdown of central authority and simultaneous growth of regionalism has been decried by many in both Russia and the West as a disastrous slide into anarchy. Another possibility, however, is that the new regionalism in R&D, as in politics and economics in general, could be a promising seedbed for a reinvigorated scientific infrastructure.⁸ It is important to examine the limits of regionalism and the nature of newly forming regional-central relations.

Possible Regional-Federal Models for a Future Russian R&D Base

Three primary cases emerge for Russia's R&D base. First, it is possible that the regional R&D activities will grow increasingly independent of the center. In this case, the regions might become autonomous arms exporters, with other countries as their central client rather than Moscow. A second possible model is that the R&D structure developed at the regional levels will eventually be pulled together into a coherent national plan. Here it is the regions that drive national policy (a bottom-up model). Finally, it is possible that a more centralized model will emerge, the classic top-down “Soviet-style” approach in which the Russian central government manages to pull together its own plans and imposes them on the regions. A shift in political trends giving greater weight to those who advocate stronger central authority might tip the scales in this direction.

In addition to these “pure” models, there are a variety of hybrid cases with disparate roles for regional, national, and international entities. In one scenario, for example, policies that support public goods (i.e., military R&D for key programs) would be centralized, others would emerge and develop from the regions, while a third class would be driven by foreign demand. This would represent one model of a decentralized, market-based economy. All of these models must be examined with respect to the more fundamental question of what kind of R&D base will emerge, with what capabilities in terms of arms production and technologies.

It is impossible at this time to determine which of these models will be realized.⁹ But we can understand the dynamics at work in their formation by examining the elements essential to the functioning of any R&D

⁸This is not to say that there will be no national role in military R&D. Clearly, there are advantages to integration, and to a national role in certain key elements necessary to support a viable R&D base.

⁹The authors tend to lean toward model two, where the policies and practices developed at the regional level will necessarily drive the formation of national policy. This model has to some extent been proved valid in the political arena, where power devolved to the then-republic level and led to the breakup of the Soviet Union.

system. These elements include financial support, resources (capital, labor, materials), identification of a market (the customer is the Russian military or foreign clients), infrastructure (supply network, transportation system, etc.), decisionmaking and organizational structures, and so forth. By examining the viability of each of these basic elements and determining whether they are provided at the national or regional level, we can begin to discern the outline of emerging federal-regional R&D relations.

Federal-Regional Relations: Cooperation or Conflict?

One fact that immediately becomes apparent in even the most superficial survey is that models of federal-regional relations are being hammered out within a context of multilayered political conflict. While the Constitutional Assembly in Moscow attempts to endow regions and republics with legalized, universally recognized rights and obligations, guerrilla warfare between regional and federal powers remains the norm.

In the **Chelyabinsk region**, for example, a major military industrial center in the heart of the Urals, the political struggle has been concentrated mainly between the Communist-dominated Regional Soviet (headed by Peter Sumin, a former second secretary of the Regional Communist Party Committee), which has consistently sabotaged Yeltsin's edicts, and the Regional Administration (headed by pro-Yeltsin governor Vadim Solovyov). In this case, the conflict is between reform-minded federal representatives, who have been pushing Yeltsin's privatization program, and reactionary legislators, who have enlisted directors of military plants in the battle to maintain the status quo. In a telling example of the impact of national politics on the local level, the Sumin forces backed off their attempt to oust Solovyov from the governorship and scuttle the privatization program after Yeltsin's substantial victory, both nationally and in Chelyabinsk itself, in the April referendum.¹⁰

Another dimension of the federal-regional struggle is illustrated by the situation in **Udmurtia**,¹¹ where 80 percent of the republic's production formerly came from

defense plants. Faced with drastic cuts in military orders and the absence of a viable state conversion program, Udmurtia took the initiative in developing its own conversion program. But this bottom-up initiative, as the first deputy chairman of the Udmurt Council of Ministers, Vitaliy Solovyov, was quick to admit in February 1993, was largely dependent upon the central budget. While conceding that, at present, "conversion is such an expensive undertaking that local budgets cannot withstand the tremendous burden," Solovyov proposed that regional resources be used to promote self-financing of conversion, i.e., through the sale of oil, civilian products and, above all, locally produced weapons. He was bitter toward federal authorities "which for decades have become accustomed to taking everything away from the regions and issuing what they consider necessary for local needs afterwards." But the prime target of his resentment was the state export companies, which, according to Solovyov, were incompetent to tell local authorities which of their weapons were exportable: While Moscow export firms told them there was no world market for Kalashnikov rifles, local manufacturers knew better. For this reason, Solovyov advocated the creation of "regional [export] companies with joint capital which are closer to the manufacturing plant and the region's problems." The sense of time running out, of foreign markets being lost while Moscow bureaucrats procrastinated, pointed to a situation in which regional authorities would feel justified in taking matters into their own hands with regard to arms exports. If such were the case, they could be expected to be guided by economic considerations and to ignore international standards for nonproliferation of specific weapons systems. Recognition of this potential danger may well have motivated the extraordinary central government decree of May 1993, which granted Udmurtia a host of expanded rights and benefits, including increased financial aid, the right to retain revenues derived from the sale of weaponry and natural resources, and increased control over the republic's export policy.¹²

The disconnect between central bureaucracies and regional realities takes on an absurdist coloration in the case of **Zelenograd**, the center of military micro-electronics on the outskirts of Moscow. In the wake of production cuts of 32 percent, this major research and production center suffered substantial unemployment. At the same time, the Moscow construction bureaucracy, anticipating the establishment in Zelenograd of an information technology and electronics center that

¹⁰For a detailed description of the Chelyabinsk region, see Vladimir V. Seleznev, "Problems of Reform and Conversion of Military Industry in the Chelyabinsk Region," a paper presented at the RAND-Hoover Symposium, November 16-17, 1992, Washington, D.C. For accounts of the political struggle, see *Rossiyskaya Gazeta*, 2 February 1993, p. 1; *Izvestiya*, 9 February 1993, p. 5; *Rossiyskaya Gazeta*, 15 April 1993, p. 4; *Komsomolskaya Pravda*, 20 April 1993, p. 1; *Rossiyskaya Gazeta*, 28 April 1993, p. 1; *Izvestiya*, 29 April 1993, p. 1; *Rossiyskaya Gazeta*, 6 May 1993, p. 1; and Michael Dobbs' account in the *Washington Post*, 5 May 1993, pp. A28-29.

¹¹*Izvestiya*, 18 February 1993, p. 4.

¹²*Rossiyskaya Gazeta*, 4 June 1993, p. 6. Russian Federation Council of Ministers and Government Decree No. 469, issued 18 May 1993 in Moscow: "On Stabilization of the Udmurt Republic Economy During Conversion of Enterprises in the Defense Complex."

would create 20,000 new jobs, embarked upon a massive apartment-building project. But the center was not funded, and as many as 25,000 residents of the region were forced to work elsewhere. Despite repeated warnings from local authorities on the inadvisability of such extensive housing construction in a region undergoing rapid depopulation, Moscow authorities, afraid to create massive unemployment among the builders, cannot bring themselves to order a halt to the needless construction.¹³

Concluding Thoughts

The above examples of state-regional relations begin to suggest the chaotic, highly variegated context in which regional military R&D configurations will be developing. The direction such configurations take will be strongly influenced by the outcome of the ongoing struggle for national political control, the formulation and implementation of viable economic policies, and the adoption of a military doctrine. Yeltsin's September 21 dissolution of the old parliament was meant to lead to the election in December of legislators who will back his program of economic reform. Yet in the wake of October's violence, with Russia's political groupings in turmoil and opposition to Yeltsin anything but dead, what position a newly elected parliament will take

¹³*Kuranty*, No. 42, 4 March 1993, p. 4.

toward reform measures critical to the military R&D establishment is far from certain. The long-awaited military doctrine, which should set forth priorities for military R&D, still has not been approved. Even when it is released,¹⁴ few believe that it will have sufficient detail to establish needed priorities in areas such as military R&D. Finally, any viability of a military R&D base is virtually unthinkable without a viable economy, and prospects for the Russian economy remain dim. Any scenarios on the nature of the emerging Russian R&D base cannot be divorced from these factors.

Regarding the nature of the Russian R&D establishment that will develop, it is clear that the regions are no longer passive players in the federal-local game, but will now be active in shaping national policy. Over the next few years, we would expect to see the interdependence of regional and state levels develop along new lines, divorced from the old Communist, center-dominated system. Science and industry, both military and civilian, will play a central role in this evolution. Given the unevenness and diversity of the diminished but still vast Russian science establishment, individual case studies, tracing the evolution of the major regional R&D centers, will offer the best insights into Russia's resurgent military potential.

¹⁴The September 1 issue of *Krasnaya Zvezda* cites President Yeltsin as saying that work on the military doctrine has been completed and should be approved at the next meeting of the Russian Security Council.

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