Paul Rivlin

The Russian Economy and Arms Exports to the Middle East

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Executive Summary

Russia is one of the largest arms exporters in the world. Its sales of arms and nuclear material in the Middle East are controversial and threaten its links with the United States and Israel. Nonetheless, it is keen to maintain good relations with those countries. This study examines the economic and political pressures that drive and reinforce Russia's determination to sell weapons to the Middle East, including nuclear material to Iran. It also examines the role that Russia, the largest producer of oil outside the Middle East, assumes in international energy markets in an era of rising oil prices.

Among the main conclusions of this study:

- The Soviet legacy has dominated Russia's transition to a more open market economy. Largely as an inheritance from its Soviet past, Russia has little to export other than arms and raw materials.
- Russia can no longer afford to transfer arms freely as did the Soviet Union for many years. Sales now are driven by profits more than by ideological interests.
- At the same time, Russia's desire to court favor among Middle East states, which in turn can help curb Islamic fundamentalist threats, is a major factor in its foreign policy decisions.
- Economic necessity drives Russia to promote arms sales and energy sales, though not at the expense of foreign policy interests. As long as the political price is not prohibitive, Russia will pursue lucrative arms, nuclear, and energy sales, even at the displeasure of the West.
- As ideological considerations have yielded to economic interests in the drive behind arms sales, certain weapons, especially those with dual use potential, represent greater danger than in the past.
- Russia possesses a vast repository of energy reserves, and oil was the principal factor for the economic recovery of the last few years.
- With the collapse of the Soviet Union and its political doctrines, the oil industry has replaced the military industry in importance to the state.

- Russia maintains strong economic and diplomatic ties with Israel, and thus is subject to pressures from Israel, as well as the United States, regarding its sales to Arab states and nuclear sales to Iran.

I would like to thank Dr. Mattityahu Maizels of the Department of History, Tel Aviv University and my colleagues at the Jaffee Center for their comments. Natasza Nazet of SIPRI kindly supplied the data on arms transfers. I am, of course, responsible for all errors and omissions.

Introduction

Over the last decade Russia's role as an arms exporter increased on a worldwide basis, both relative to the US and in absolute terms.[1] In the period 1999-2003, Russia was the world's second largest exporter of arms, with sales exceeding $36 billion, in 2003 prices. China and India accounted for two thirds of these sales and the Middle East was the third largest market. This export figure represents a major advance over the years 1994-98, when total Russian arms exports reached $18 billion and US arms exports totaled $76 billion, also in 2003 prices. Table 1 shows how these exports developed in real terms.

Table 1. **Russian Arms Exports, 1992-2003 ($ million, 2003 prices)**

	Total	Middle East	Middle East/Total percent
1992	3,340	408	12.2
1993	4,321	936	21.7
1994	1,870	588	13.6
1995	4,401	987	22.4
1996	5,007	681	13.6
1997	4,101	614	15.0
1998	2,759	495	18.6
1999	5,247	636	12.1
2000	5,631	1,440	25.6
2001	7,765	1,463	15.5
2002	8,387	1,463	17.4
2003	9,815	1,481	15.1

Source: Adapted from data supplied to the author by SIPRI, May 2004.

In the years 1994-98, Russian arms exports to the Middle East exceeded $2 billion and those of the US totaled $17.6 billion.[2] Russia's arms exports to the Middle East increased rapidly in the second half of the 1990s, at a much faster rate than those of other suppliers, and in 2003 alone they totaled almost $1.5 billion. Since 2000, the Middle East has accounted for 18 percent of Russian arms exports and Russia sees the region as an important market for arms and nuclear equipment, one that it is determined to retain. Yet these exports, and especially sales of nuclear materials to Iran, are highly controversial on the international scene and therefore have exacted a political price for Russia in the West and in Israel. This study examines why Russia persists in these sales nonetheless, and why it is likely to do so in the future.

Three principal explanations can be posited to account for the controversial export policy. The first is economic necessity: Russia has little to sell abroad except oil and arms, and the latter provides a vital source of employment for Russian scientists, technicians, and engineers who might otherwise emigrate in search of better professional opportunities. The second explanation is political: Russia has important political interests in the Middle East that are advanced by selling arms and nuclear materials. The third is what might be called "chaos theory": the Russian government lost control and the result was that different public and private sector bodies followed their own interests rather than those of the state.[3]

This study contends that the first two explanations are the key to understanding Russia's Middle East arms export policy. The state of the Russian economy is a function of its Soviet past, and the structure that the Soviets built was a response to their geo-political position, strongly influenced by Marxist thinking (appendix 1). This pattern of development isolated the Soviet Union from world markets and resulted in Soviet goods being uncompetitive on international markets. The Soviet economy developed on the basis of exploiting raw materials, together with heavy industry and large-scale production. The communist system, dominated by an archaic central planning mechanism, was unable to respond to changes in demand, and the economy did not diversify sufficiently. As a result its exports were mainly confined to raw materials and arms. When Russia became an independent state in 1991, it had little to sell abroad except oil, gas, and arms, and it was forced to rely heavily on fluctuating income from oil and gas sales.

The economy underwent a massive contraction as a result of internal political changes, low international oil prices, and massive Russian production. In the early 1990s, hundreds of thousands of skilled workers left the country to improve their economic lot, emigrating to Israel, Germany, the United States, and elsewhere. The Yeltsin government was desperately short of funds and was thus willing to sell assets cheaply and permit newly enriched oligarchs excessive influence in all walks of life in exchange for their financial support. Military and military production budgets suffered hardest, and so the incentives to export arms increased.

Table 2 charts the huge fall in Russian national income and investment between 1990 and 1998. By 2003, after five years of positive growth, Russia's national income was 16 percent lower than in 1991. Between 1992 and 2003, the population declined by nearly 3.5 percent, meaning that the fall in national income per capita was 13 percent. In 2002, investment was less than 25 percent of its 1990 level and half its 1992 level. Insofar as investment is the motor that drives national income, Russia has remained far short of a desirable objective, but this may be a somewhat overly pessimistic view given that much of the investment carried out in the Soviet period and in the first years of independent Russia was misdirected and unproductive. More market-determined investment would likely yield higher returns in the future.

Table 2. **Macro-Economic Indicators, 1990-2004 (1989=100)**

	GDP	Investment in fixed assets
1990	97.0	100.0
1991	92.2	84.5
1992	78.8	49.4
1993	71.9	36.7
1994	62.8	27.1
1995	60.2	25.1
1996	58.1	19.6
1997	58.9	17.7
1998	55.7	15.5
1999	59.2	16.8
2000	65.2	19.6
2001	68.5	22.0
2002	71.7	22.8
2003	77.0	25.5
2004	82.2	n.a.

GDP = Gross Domestic Product

n.a.= not available

Source: UN Economic Commission for Europe, *Economic Survey of Europe, 2000*, no. 1 (UN, New York and Geneva, 2001); *2002*, no. 1, *2004*, no.1 (UN, New York, 2004) and *Economic Survey of Europe, 2005*, no.1 (UN, New York, 2005).

During the period 1993-98, the economy experienced deindustrialization insofar as the share of industry declined by 6.3 percent of GDP. This was due to a fall in manufacturing output and the lower value of oil exports. Agriculture and industry accounted for 42.6 percent of GDP in 1993 and only 35 percent in 1998. Traditional sectors constituted most of the manufacturing industry. In 1999, food, beverages, and tobacco accounted for almost 25 percent of manufacturing output; chemicals, petroleum, and coal for 15 percent; iron, steel, non-ferrous metals, and metal products for 20 percent. The more advanced sectors of electrical, professional, and scientific equipment took only 3 percent.[4]

The economy reached its nadir in 1998, when the ruble collapsed and the economy went into a downward spin. Within a year, higher oil prices, financial and economic reforms, and the effect of devaluation began to turn the economy around. The appointment of Vladimir Putin as prime minister in 1999, and more importantly as president in 2000, was the beginning of political change. He began to take control of the economy by striking at the oligarchs, tycoons who opposed economic reform, benefited from the status quo, and opposed change, often using violence. Putin targeted especially those who controlled the media, the banks, and the oil industry. Oil prices rose sharply between 1999 and 2005, and thus he, unlike his predecessor, had the funds to pay for higher living standards. He also took tighter control over the government machine, closing down the Ministry of Atomic Energy (Minatom), which had asserted too much independence in its operations abroad.

Russia's military exports played a vital role in its economic turnaround. A critical part of the Soviet legacy was a large arms industry, a function of the Soviet Union's political isolation and its experiences in the Second World War and the Cold War. Soviet policy meant that arms transfers were made primarily for political reasons and the economy paid the price through large government subsidies. When the Cold War ended and Russia emerged as an independent state, local demand for its defense products collapsed. Russia could no longer afford to give away arms as the Soviet Union had done, and its ability to buy influence decreased. The need to export arms for economic reasons increased at the same time as the ideological imperative declined. For Russia, selling arms thus became a vital source of foreign economic exchange and a way of financing defense industries threatened with closure. As such, the industry, part of which is relatively technologically advanced, preserves employment at home, especially of key personnel, and helps to maintain markets and influence abroad.

Overall, Russian foreign policy in the 1990s was increasingly driven by economic factors. International trade and debt, currency stability, balance of payments, and integration in the world trade system became priorities. Economic issues played a major role in Russian policy choices, arms being sold rather than given. Economic opportunities drove Russia to seek markets that were shunned by the West. In the Far East this meant China; in the Middle East this meant Iran.[5]

Russia's other main economic asset lies in energy. As the international price of oil hovers around $60/barrel and Saudi Arabian and Iraqi oil installations are subject to terrorist threats and attacks, there is increasing interest in non-Middle Eastern supplies. In 2003, Russia supplied about 11 percent of world oil production but had only 6 percent of world proven oil reserves. By the end of the decade, exploration may reveal that Russia’s oil reserves are much higher than their current proven level. If gas reserves are added then Russia may, at the end of the decade, have larger hydrocarbon reserves than Saudi Arabia. Otherwise, at the present rate of production, Russia’s oil will run out in some twenty-one years. After a process of privatization that has affected much of the oil industry, the Putin government is now trying to bring it under increasing state control. This will give Russia a greater ability to cooperate with OPEC (or to oppose it) than in the recent past, when private sector interests clashed with those of the state.

High oil revenues reduce the imperative for economic reform and for weapons exports. They do, however, provide Russia with the financial strength to withstand Western pressures on its links with Iran. If and when oil revenues decline, Russia will be more exposed to external pressure: how much will be determined by the strength of its non-oil economy, which in turn will depend on the course of economic reforms.

Chapter 1

The Defense Sector

In the Soviet period, the defense sector was organized within an authoritarian political system and a command economy. The experiences of World War II, nationalism, and communist ideology provided the background for a national security strategy calling for large armed forces and extensive military production. The educated population and the existence of mineral resources facilitated this. The economic growth rate slackened in the late 1970s, which spelled an increase in the share of defense spending in the Soviet economy.

While Soviet military technology did not match Western technology at the high end, Soviet "middle technology" was often as good, or better. The USSR countered Western quality with Soviet quantity, but this became increasingly costly in the 1980s and 1990s. Thus:

> The Soviet Union has taken an incremental approach to military research and development. The military has deployed early versions of weapons and equipment with limited capabilities and has gradually improved them. The same basic weapons system has usually been fielded over a period of years in several different variants. Arms designers have relied heavily on integrating components from earlier models into new systems in order to provide stability and compatibility in the production process. The armed forces have tended to favor weapons that were produced in mass quantities, were reliable, and were easy to use in combat over expensive, complex, and technologically superior armaments. Following this rule of simplicity, the Soviet Union has produced many outstanding and tactically innovative weapons. Nevertheless, it has had difficulties producing more sophisticated systems.[1]

These were also the types of weapons available for export.

Soviet leaders became aware of the crippling cost of matching US defense allocations, and attempts were made to reduce military budgets and to increase production of civilian items for domestic use. It was only with Mikhail Gorbachev's rise to power, however, that this approach took a new turn. From 1985, Gorbachev introduced changes in foreign policy, and with that, threats from abroad were reduced by negotiating agreements rather than by increasing arms production. Gorbachev sought to improve relations with the US and the Western powers in order to tailor the need for the costly defense budget. In this context, the signing of the Intermediate Nuclear Forces Treaty in 1987 was a key development. Yet other policies were highly inconsistent: while in the twelfth five-year plan of 1986-90, the allocation of resources to defense was increased, in 1988, the size of the armed forces was reduced, as was military production and the defense budget. Organizational reforms meant that the power of the central authorities declined and centralized military doctrine ceased to guide defense developments. Overall, Gorbachev had considerable success, but not enough to save the economy. While allocations for defense, both for the armed forces and for military industries, declined in the late 1980s the Soviet economy went into ever deeper crisis.

In the final years of the Soviet regime and at the beginning of the 1990s, supplies to military producers became erratic, conversion programs from military to civilian production failed, defense spending was further reduced, exports plummeted, and as a result, output in the defense sector fell. The military, in return for their support in the final convulsions of the communist regime, managed to squeeze resources out of the state budget, and consequently defense spending in 1990 was higher than in any other year of peace.[2] The Soviet defense sector had an across-the-board capability, but with the breakup of the Soviet Union, Russia forfeited this.[3] Specifically, the Soviets distributed defense industry plants throughout the USSR. The majority of these plants were in Russia, but the system of interdependence proved problematic with the dissolution of the USSR, since there was pressure to maintain links with companies and plants located in other former Soviet states. There was also pressure to increase the independence of those structures left in Russia, yet the financial means to do this declined as the Russian economy experienced a massive contraction in the early 1990s.[4]

Russian defense spending fell sharply in the period 1992-98. This was the result both of the sharp deterioration in economic conditions and the lower priority given to the military. The volume of resources allocated for defense was not enough to finance the reorganization of defense industries. In 1991, research and development accounted for 16.7 percent of national defense spending; by 1995, the share had fallen to 8.5 percent.[5] Since then there has been an increase in defense spending. Measured in year 2000 prices and exchange rates, Russia's military expenditure rose from a low of $7.1 billion in 1998 to $11.4 billion in 2002. In the period 2000-3, it was estimated to have increased by an annual average rate of 10 percent in real terms. The 2004 budget envisaged a 1-2 percent real increase.[6]

Production policy also underwent a significant shift in the post-Soviet period. In the 1990s, an amalgam of Soviet-inherited defense-related institutions, including the security services and the Ministry of Defense, were retained while other factors assumed new influence. These included presidential controls, privatized defense companies, and other large oligarchies that moved from state control to private ownership. In the first half of the 1990s, efforts to restructure defense output concentrated on the conversion of military to civilian production. From 1997-98, the emphasis shifted towards increasing and modernizing the production of military items. This was accompanied by measures to rationalize the system, concentrate production, and reduce excess capacity. Privatization was most actively pursued in the period 1992-95, and in 1995, the privatization of the defense sector came to a halt. Two large banking groups became the main non-state actors in the industry and came into conflict over the control of the Sukhoi design center and two major shipyards in St. Petersburg. These and other groups continued to fight for the control of those defense producers that had large foreign order books. Another very active group was the managers, who in the process of privatization became the owners of the firms they had run.

In 1992-93, foreign policy and national security strategy reflected the liberal-reformist belief that Russia was not threatened from abroad, that the military-industrial complex was an obstacle to change, and that the armed forces had much less importance than before. In the period 1994-2001, a more centrist outlook emerged: Russia was threatened by NATO's expansion and by Islamic separatism in the Caucasus. This doctrine required the modernization of the armed forces and the stabilization of military spending. The results are shown in table 3. In the early 1990s, civilian output produced in the defense sector fell much less sharply than military production. The main reason was that as a result of government spending cuts, demand for military output fell more sharply than that for civilian products. In 2000, there was a rise in defense sector production and employment as a result of President Putin's decision to increase defense allocations. Between 1997 and 2003 military output rose by 169 percent. Despite this, in 2003, military production was only a quarter of its 1991 level.

As of December 31, 2000, there were 1,631 enterprises in the arms industry; 701 were state-owned and 470 were state-owned joint stock companies, accounting for 80 percent of production and almost 85 percent of employment in the industry.

The remaining 460 companies were privately owned.[7] Another source, using slightly different definitions for early 1999, claims that military production for the local market accounted for 17 percent of the output of military industries; military exports, 37 percent; civilian production for the domestic market was 35 percent; and civilian exports, 11 percent.[8] Overall, in 2001, following years of plant closures and manpower dismissals, two million people worked in the defense industry complex, including some 370,000 in military research and development.[9] In 2002, also after major cuts in manpower, the armed forces numbered 1.1 million.[10] As such, there was a substantial rise in the military arms industry, though far from a full recovery. With the collapse of the Soviet Union and its political doctrines, the power of the military-industrial complex declined and its place was taken by the oil industry.[11]

Table 3. **Index of Output and Employment in the Defense Production Sector, 1992-2003 (1991=100)**

	Total output	Military output	Civilian output	Employment
1992	80.4	49.5	99.6	90.3
1993	64.6	32.5	85.6	79.9
1994	39.2	19.9	52.6	78.2
1995	31.2	16.6	41.3	67.1
1996	22.7	12.8	29.1	58.6
1997	19.7	9.4	28.7	52.7
1998	19.2	9.9	26.5	47.3
1999	25.5	13.5	34.1	44.6
2000	32.0	17.5	41.0	45.1
2001	33.4	17.2	45.8	n.a.
2002	38.8	21.5	48.4	n.a.
2003	45.0	25.3	54.8	n.a.

Source: SIPRI Yearbook 2000, p. 318; Julian Cooper, "The Future of the Russian Defense Industry," in Roy Allison and Christopher Bluth, eds., *Security Dilemmas in Russia and Eurasia* (London: Royal Institute for International Affairs, 1998), p. 97; SIPRI Yearbook 2004, p. 434.

Military Exports

States sell arms to further either domestic or foreign policy goals, or a mixture of both. The foreign policy objective for peacetime arms sales is to support friendly states in expanding their military capabilities, and to acquire influence over them in the process. The domestic goals are first, to benefit the national economy through export revenues and employment; and second, to maintain the defense industry and its long-term viability by achieving economies of scale, preserving infrastructure, and recouping research and development costs.

The economics of Soviet and Russian arms exports evolved against the background of foreign policy considerations. During the Cold War, Soviet arms exports were motivated by foreign policy and security considerations, frequently to the detriment of the economy. They served the country's ideological interests and were also designed to maintain its political spheres of influence. Weapons sales were heavily subsidized and were often, in effect, given away. As a result of the increasing use of subsidies, Soviet military exports rose from $700 million in 1965 to a height of $21.9 billion in 1987.[12] Military exports to non-socialist countries peaked in 1989 when they reached $11.9 billion. In the 1970s, the USSR tried to expand its relations with oil-rich states that it hoped would pay for weapons. It also encouraged Arab unity in the hope that the richer Arab states would pay for the armaments that it sold to the poorer ones.[13] Between 1975 and 1990, however, the USSR received only 56 percent of payments due in cash and barter commodities.[14] The balance was the economic cost of political decisions.

Following the end of the Cold War and the collapse of the Soviet Union, economic motives for arms exports overtook political ones. There was a greater emphasis on the need to raise revenue so as to pay for wheat imports from the West.[15] Russia had little to export apart from raw materials, and therefore selling military equipment was considered vital. Exports were considered a way of maintaining the arms industry and helping the ailing national economy. Nuclear exports were seen in a similar light. However, according to an official Russian report, of the $16 billion sold in 1990, cash receipts came to only $900 million.[16] By 1995, the value of arms exports exceeded domestic procurement by 60 percent. Most of the proceeds of exports went to producers rather than to the state budget and so the financial fate of producers was increasingly tied to exports.[17]

Between 1992 and 2003, Russian arms sales increased substantially and in 2003 they were three times their 1992 level in real terms (table 1). Most of this represented increased arms sales to China and India: sales to China – the major Russian market – were approximately $20 billion, and to India, the second largest market, were approximately $13 billion. The Middle East, the third largest market, likewise accounted for part of the growth of these years.

The primary purpose of foreign policy in the late Soviet and early post-Soviet period was to create a non-threatening external environment. For Gorbachev, Yeltsin, and Putin, domestic economic and political developments were paramount. As in the early period of Soviet rule, the concentration on domestic development, together with relative shortcomings in military strength, produced a foreign policy of accommodation, retrenchment, and risk avoidance.

During the final period of Gorbachev's rule in the USSR and during the initial period of Yeltsin's leadership of the Russian Federation, Moscow moved from a competitive Cold War posture toward cooperation with the West, in an effort to obtain assistance for its economic and political development. The Warsaw Pact dissolved, and most of its members (along with some former Soviet states) soon declared their interest in reorienting their security establishments toward NATO. Moscow's support for revolutionary movements was withdrawn, and states that had enjoyed Soviet support in their respective regional conflicts were pressured to settle those conflicts. Left-leaning regimes that were Soviet-supported and had formerly acquired large quantities of arms on easy terms found themselves labeled "political hooligans" by foreign minister Andrei Kozyrev. In 1995, as part of the policy of cooperation with the US, Vice President Gore and Prime Minister Chernomyrdin agreed to halt further Russian sales of weapons to Iran and to complete delivery of arms already in the pipeline by 1999. Ties with the United States apparently could outweigh profit motivations in the arms industry, primarily for their potential assistance to Russia's faltering economy.

The pro-Western policy phase in Russian foreign policy ended before Kozyrev left office, and the change in direction became even more pronounced when Yevgeni Primakov succeeded him as foreign minister in early 1996. Primakov also set about rebuilding Russia's relations with Iran, Iraq, and Syria, and arms exports were justified in terms of building a coalition against American regional and global hegemony. However, Russia did not breach the international sanctions forbidding weapons sales to Iraq, and it had limited success in arms sales to Syria, mainly because of failure to resolve the heavy debts owed by the Syrians for sales during the Soviet period.

This fluctuation in Soviet and Russian policy occurred in the context of the global arms market, in which the USSR has been a major player. The market declined drastically in the late 1980s and 1990s, largely because of the end of several regional conflicts. In 1988, the developing countries' arms market was worth $61 billion; by 1991 it had fallen to $29 billion, mainly due to the end of the Iran–Iraq war. It continued to decline to $15 billion in 1995, before rising again to about $20 billion in 1999. The value of arms sales to developing countries fell to $12.9 billion in 2000 and then increased to $13.4 billion in 2001 and to $15.4 billion in 2002. In the early

1990s, the fall in the value of Russia's arms transfers to the Third World was steep, but since 1998, it has increased in both absolute and relative terms. In 1998, Russia accounted for 22 percent of arms transfers and was the second largest exporter. In 2003, it became the world's largest exporter, accounting for 37 percent of world arms exports.[18] Table 4 shows that exports dominated military sales in most sub-sectors, and this dependence on exports – a trend that began in the early 1990s – increased between 1996 and 1998 (the most recent years for which there are figures).

Table 4. **Export Dependency of Defense-Related Industries, 1996-98**

Share of arms exports in military sales (percent)

	1996	1997	1998
Aerospace	66.1	60.7	84.0
Armaments	40.4	41.8	46.5
Radio	21.4	15.2	68.4
Communications	3.6	18.4	19.4
Electronics	5.0	4.6	6.8

Source: Ksenia Gonchar, *Russia's Defense Industry at the Turn of the Century*, Bonn International Center for Conversion (BICC), Brief no. 17 (Bonn: BICC, 2000).

Chapter 2

The Nuclear Industry

Russia has a huge nuclear industry. Much of its activity is centered in ten closed cities with a combined population of 760,000 people, of whom 130,000 work in nuclear facilities, half on civilian projects. Since the 1980s the number employed in the nuclear weapons programs has been cut by about 50 percent,[1] and by 1996, 90 percent of output in the nuclear industry was for the civilian sector.[2]

With thirty nuclear reactors in operation, Russia's installed nuclear capacity is 22 gigawatt (GW), and in 2000, nuclear power accounted for nearly 5 percent of the country's total power consumption. Most of Russia's nuclear power plants, however, are old, and the nuclear power industry has been badly affected by the transition to a market economy. Four reactors that were over thirty years old (the maximum prescribed service life for a reactor) have been shut down, but seventeen of the country's thirty operating units are over twenty years old. By 2005, twenty-four of the country's nuclear reactors will be twenty years old or older, with nine of them over thirty years. The most recent development in the field was the opening in March 2001 of a 1,000-megawatt (MW) reactor at the Rostov Nuclear Power Plant.

Russia's energy strategy is to increase its use of nuclear power over the next twenty years to meet domestic electricity needs. Because natural gas exports to Western Europe are expected to increase, gas will not provide a major new source of domestic energy. Additional nuclear capacity will be needed, but the weak financial state of the industry forced the Ministry of Atomic Energy (Minatom), to extend the life of existing units rather than build new ones. Minatom strove to complete construction of five nuclear reactors that have been under construction since the 1980s, as well as to build twenty-five new reactors over the next twenty years. Western nuclear experts have expressed serious doubts about Russia's ability to finance the construction of the planned twenty-five additional reactors without foreign investment.

Indeed, since the collapse of the Soviet Union the demand for nuclear products has fallen sharply because Russia does not have the funds to maintain nuclear programs on a Soviet scale. As a result, wages in the industry have fallen and unemployment has increased. There were concerns that Russian nuclear scientists might emigrate and sell their knowledge and/or services to foreign countries or terrorists. To increase its ability to finance domestic nuclear projects, Russia is attempting to export nuclear power plants. The first of such plants, a $1.2 billion project for two 1,000-MW reactors, was sold to India, to be installed by 2008.[3] More controversial was Russia's involvement in Iran's nuclear program, but it too should be seen in this context, as an important export market. The value of reactor sales in the period 1997-2003 is shown in table 5.

Table 5. **Exports of Nuclear Reactors, 1997-2001 ($ million)**

1997	1998	1999	2000	2001
368	390	656	513	560

Source: UN, *International Trade Statistics 2000* (New York: UN, 2001) and *2001* (New York: UN, 2003).

In 2004, Minatom was replaced by the Federal Atomic Energy Agency (Rossudostroenie). This represented a downgrading and loss of political power and independence for the nuclear industry. The agency lost rights and responsibilities previously enjoyed by Minatom, and its size will be reduced. Questions connected with nuclear weapons will be decided together with the Ministry of Defense.

Chapter 3

The Energy Sector

Russia is the world's largest exporter of natural gas and the second largest exporter of oil. It has the world's largest gas reserves, the second largest coal reserves, and the eighth largest oil reserves. It is also the world's third largest energy consumer after the US and China. In 1988, Soviet oil production (which came mainly from Russia), peaked at 12.6 mb/d and equaled 20.9 percent of world output. By 1991, it had fallen to 10.4 mb/d or 16.2 percent of world output. This was due to disruption of production in the chaotic conditions that prevailed during the collapse of the USSR, as well as in the early years of transition in Russia. Production continued to decline until 1998, but it has since then risen as the economy has strengthened. Gas production followed a similar pattern, although the changes in output were less dramatic than those in oil. More significant, however, is that the role of the energy sector in the Russian economy has grown to the dominant position, supplanting arms as the leading, most influential source of income.

Gas

By the end of 2004, Russia's proven reserves of gas, the largest of any single country, were equal to two thirds of that of the Middle East (table 6). Russia's gas sector was much more developed than its Middle East counterpart and its production was three times as large. Natural gas accounts for over 54 percent of Russia's energy consumption.

Gazprom, the Russian natural gas monopoly, is the world's biggest gas company and accounts for 94 percent of Russia's gas production and 23 percent of world output. It represents about 8 percent of the country's GDP and contributes about 25 percent of tax revenues to the federal budget. Gazprom is world leader in the prospected reserves of gas; it has licenses for the development of 140 gas and gas condensate deposits with commercial stocks of gas exceeding 30 trillion cubic meters, half of which are already being exploited.

Table 6. **Russia and the World Gas Balance, 2004**

Natural Gas: Proven Reserves, end 2004

	Trillion cubic meters	Share of total (percent)	R/P *
Russia	48.0	26.7	81.5
Middle East	71.7	40.8	+100
USA	5.9	2.9	9.6

* R/P = reserves/current production ratio in years

Natural Gas: Production 2004

	Billion cubic meters	Share of total (percent)
Russia	589.1	21.9
Middle East	279.9	10.4
USA	542.9	20.2

Natural Gas: Consumption 2004

	Billion cubic meters	Share of total (percent)
Russia	402.1	15.0
Middle East	242.2	9.0
USA	242.7	24.0

Source: BP, Statistical Review of World Energy, 2005.

The only Soviet ministry to be turned into a corporation, Gazprom symbolized many of the problems facing Russia, with 38,000 employees and a huge volume of physical assets including all of the country's gas production, pipelines, and other enterprises. Since becoming a corporation, Gazprom has bought additional assets. The last Soviet minister for the gas industry was Gazprom's founder, Victor Chernomyrdin, who became deputy prime minister for energy in May 1992 and later that year became prime minister. In the latter capacity he reinforced the company's monopoly strength and organized an insider privatization, selling shares in the company to its managers and employees. Gazprom became known as a state within the state.[1] Notwithstanding its monopoly over the industry, however, there are doubts about Russia's ability to raise its natural gas production given Gazprom's declining budgets and the low levels of investment in recent years.

Oil

Russia has proven oil reserves of 60 billion barrels, with deposits in western Siberia, Tiumen-Pechora, eastern Siberia, the north Caspian Sea, and Sakhalin Island. There are many other remote regions that may contain oil, and the country's hydrocarbon reserves may prove much larger once these areas are explored. These are the eighth largest reserves in the world. According to a Western analyst based in Moscow, by 2010, Russia's oil reserves may be 180 billion barrels, three times their current proven level.[2] If gas reserves are added then Russia may, at the end of the decade, have hydrocarbon reserves 50 percent higher than Saudi Arabia's current level. This would change the balance between Russia and Saudi Arabia, but only on the unlikely assumption that no further discoveries were made in Saudi Arabia.

In 1980, Russian oil income was estimated at $127 billion in 2000 prices. In 1986 it was just below a third of that level, at $42 billion. In 2003, it reached $53 billion.[3] Crude oil is Russia's primary export, and the increase in oil prices in recent years has had a major effect on the Russian economy. It is the main factor that lifted the economy out of the recession brought on by the 1998 crisis and has been the main factor behind the fast growth since 1999. Between 1998 and 2000, revenues from oil exports tripled, mainly because of the increase in international prices but also as a result of higher production levels. Changes in the ruble-dollar exchange rate also affected the domestic value of export revenues. In 1999 the increase in oil revenues was equal in value to 2.7 percent of GDP. In 2000 it was equal to 6.3 percent and in 2001 to about 4 percent. The cumulative gain in those three years was just over 10 percent, accounting for just under half of the growth of the economy. For every one dollar per barrel increase in the international oil price, between 0.35 percent and 0.5 percent was added to Russia's GDP and $800-900 million to the government's revenues.[4] A fall in the oil price had similar effects in the opposite direction. Thus, long periods of high oil revenues carry the danger of "Dutch disease": a strong balance of payments resulting in a strong exchange rate with a consequent loss in competitiveness and thus slower economic growth.

Most of Russia's oil production comes from western Siberia. Following the collapse of the Soviet Union, Russia's oil industry, which accounted for approximately 90 percent of the former Soviet Union's oil output, fell upon hard times due to decreased domestic industrial demand and a decline in drilling and capital investment. Russia began privatizing its oil sector in 1993. The first phase, which involved organizing state-owned enterprises as joint-stock companies, ended in 1994 and resulted in the creation of a group of large oil companies. The new owners organized their activities so as to minimize tax payments and moved large volumes of funds abroad. This took place against a 40 percent fall in local demand for oil in 1995.[5] By 2004, the export of funds, the non-payment of taxes, and other independent activities by the oligarchs provoked President Putin to take action against them. Another aspect of the reform program was to raise domestic prices of oil (and gas) closer to world levels: in 1991, the domestic price of oil was 13 percent of its international level. In 1996 it was 69 percent. (The change in gas prices was even more dramatic during that period: it rose from 3 percent to 65 percent).[6]

Table 7. **Russia and the World Oil Balance, 2004**

Oil: Proven Reserves, end 2004

	Billion barrels	Share of total (percent)	R/P ratio
Russia	72.3	6.1	21.3
Middle East	733.9	61.7	81.6
USA	29.4	2.5	11.1

Oil: Production, 2004

	Thousands of barrels a day	Share of total (percent)
Russia	9,285	11.9
Middle East	24,571	30.7
USA	7,241	8.5

Oil: Consumption, 2004

	Thousands of barrels a day	Share of total (percent)
Russia	2,574	3.4
Middle East	5,289	6.7
USA	20,571	24.9

Source: BP, Statistical Review of World Energy, 2005.

Table 7 shows that in 2004, Russian oil production, although down from its peak of 19.1 percent in 1987, equaled 12 percent of world output, nearly double its share of world reserves. This was in sharp contrast to the Middle East, where the share of world production was under half of that of reserves – despite the fact that the cost of drilling oil was much lower than in Russia. This reflects the greater risk premium that international oil markets place on Middle East oil.[7]

Following the fall of the early 1990s, oil exports rebounded in the mid-1990s. The devaluation of August 1998 led to a further increase in exports, and high international oil prices since 1999 have made exports even more profitable. In 2001, domestic consumption of oil came to 2.38 million barrels a day (mb/d) and Russia increased its net oil exports to 4.91 mb/d, making Russia the world's second largest oil exporter, after Saudi Arabia. In early 2002, Russian production briefly exceeded that of Saudi Arabia. The cost of producing oil in Russia is higher than in most of the oil cartel states; while Saudi Arabia and some other Middle East producers can profit from a price of $10 per barrel of oil, Russia incurs a loss on anything less than $12 a barrel.[8]

Although Russia is not a member of the Organization of Petroleum Exporting Countries (OPEC) the government tried to limit oil exports in line with the cartel's requests. Privatized Russian oil companies did not comply. Despite Russia's agreement with OPEC to reduce the country's oil exports by 150,000 mb/d in the first and second quarters of 2002, oil exports increased during that period. New export channels, such as the Baltic Pipeline System, provided a powerful disincentive to Russian oil producers to reduce their output. When the government levied higher export tariffs and set crude oil export quotas in an attempt to limit the country's oil exports, Russian oil companies increased their oil product exports. The government abandoned its agreed-upon export cuts as of July 1, 2002. Moreover, Russia's oil exports would be even higher if they were not restricted by a lack of pipeline capacity. The country's main export pipeline, the 1.2 (mb/d) capacity Druzhba pipeline, is operating closer to its capacity than it did for many years. Many of Russia's pipelines are in a state of disrepair, and official figures indicate that almost 5 percent of crude oil produced in the country is lost through illegal tapping of pipelines.[9]

The increase during the last five years in oil prices and Russian oil exports has meant that the foreign trade sector has played a much more important role in the Russian economy. In an attempt to bring the private sector, especially privately-owned oil companies, under greater government control, the government has taken steps to help encourage future foreign investment. This investment will be crucial for further exploration and exploitation of Russia's hydrocarbon resources. Yet despite Russia's large oil and gas resources and the privatization of its oil companies, foreign investment in the oil sector has been limited. After the initial phase of restructuring, many foreign oil companies waited for legal changes and for the business environment to improve before investing in Russia. Since August 1998, when the financial crisis deterred many investors, the country's investment climate has improved, but foreign investment in Russia's oil and natural gas sectors over the past decade remains under $10 billion. Some partnerships with foreign companies began in 1998-99, but conflicts over corporate governance and investor protection period dampened investors' enthusiasm.

In May 2002, Presidents Bush and Putin announced the start of a US–Russian energy dialogue. One of the main aims of the dialogue was to encourage US investment in the Russian oil sector. The first summit was held in Houston in October 2002 and was attended by the US secretaries of energy and commerce, their Russian counterparts, and executives from US and Russian oil companies. During the conference it was announced that Russian oil would be added to the US Strategic Petroleum Reserve. In recent years, total US imports have averaged 9-10 million barrels a day (mb/d), and imports from Russia have increased from 24,000 barrels a day (b/d) in 1998 to 160,000 b/d in 2002.[10]

In November 2001, Russia refused to cut back its oil production in accordance with OPEC demands, and it since ceased its opposition to the construction of the Baku-Ceyhan pipeline for transport of Caspian oil to the West through Turkey. It thus acknowledged some common interests with the US on energy issues.[11] President Putin has recognized the crucial importance of oil revenues for Russian development and his takeover of Yukos, the country's largest private oil company, effectively nationalized a large source of foreign exchange.

LukOil

LukOil is Russia's largest oil company and oil refiner. Its crude oil production has remained stable at about 1.5 mb/d for some years, but its oil refining volume and natural gas production has increased. Its audited proven crude oil reserves equal 14,576.5 million barrels and audited proven natural gas reserves were 13,215.9 bcf (374.2 bcm), an aggregate of 16.78 billion barrels oil equivalent. At current production rates, the company's proven oil reserves, mostly located in western Siberia, have a life span of over thirty years. LukOil's total refining capacity is 1.15 mb/d (including overseas assets).

LukOil has investments in several pipeline projects, including the Caspian Pipeline Consortium international pipeline and other domestic crude and refined product pipelines. It has a joint venture with Conoco to study the feasibility of constructing a pipeline to transport oil from its fields in western Siberia through the Timan-Pechora region to its temporary terminal at Varandei Bay.[12] The company also owns some 4,000 gasoline stations worldwide.

Chapter 4

Russia and the Middle East

Two broad issues arise when considering Russian economics and foreign policy in the Middle East. The first is the issue of self-definition: the collapse of the USSR meant that Russia's geographic/strategic position was defined anew – including the fact that access to fresh water ports in the Baltic and the Black Sea was reduced. Because its economy was closely linked to the economies of other former Soviet Union states (FSU) under the USSR, Russia found itself forced to rely heavily on them.

The second issue is that of organizational structure and domestic political influences on foreign policy. As Russia emerged from its Soviet past, a number of schools in foreign policy thinking evolved. One was the liberal, universalistic direction personified by Foreign Minister Andrei Kosyrev, which emphasized the importance of close ties to the West for political as well as economic reasons. The centrists envisaged greater reliance on domestic economic and military resources in order to bolster Russia's international status. Nationalists saw Russia as a superpower that could be reconstructed using centralized control. Communists wanted to reinstate the Soviet system and the foreign policy that accompanied it. Finally, ultra-nationalists led by Vladimir Zhirinovskii demanded a nationalist policy that threatened Russia's neighbors. In the 1990s, Russian foreign policy was influenced by all of these schools of thought.[1]

The main actors in Russian foreign policy have been the president and his staff; the Foreign Ministry; energy conglomerates such as LukOil, Gazprom, and Transneft, which have close ties to Russia's business and banking communities; the Defense Ministry; the Atomic Energy Ministry; the Ministry of Foreign Economic Relations; Rosvooruzheniye, the state-owned arms exporting company; and private sector businessmen with political connections.

LukOil, Russia's largest oil company, is the leading example of independent foreign policymaking. In 1994, LukOil came into conflict with the Foreign Ministry, when the ministry insisted that none of the five Caspian Sea littoral states act independently in developing Caspian oil. When LukOil signed an agreement with the Azerbaijan International Operating Company to develop oil in the Caspian, it explicitly recognized Azerbaijan's right to extract oil from its sector of the sea. In March 1996, LukOil joined Chevron and Mobil in a consortium to build an oil pipeline from the Tenghis oilfield in Kazakhstan to the Russian port of Novorossisk. Kazakhstan, like Azerbaijan, claimed the right to extract oil independently from its sector of the Caspian, its previous efforts to market the oil having been blocked by Russia's control of transport pipelines.

For Russia, the Middle East is an important economic market. Table 8 shows that exports to the Middle East increased in current dollars by some 175 percent between 1995 and 2003. The share of total Russian exports going to the Middle East rose from 3.9 percent in 1995 to 6.6 percent in 2002. It should be noted that Russia exports oil and gas to Turkey, but the quantity and value of these sales are unknown.

Table 8. **Russian Trade with the Middle East, 1995-2004 ($ million)**

	1995	2000	2001	2002	2004
Exports					
Egypt	394	449	426	489	374
Iraq	-	90	187	367	167
Jordan	17	35	20	18	33
Kuwait	-	6	9	82	3
Lebanon	78	198	228	112	137
Saudi Arabia	28	55	66	137	208
Syria	75	95	89	138	209
UAE	194	178	222	386	273
Yemen	-	29	5	205	89
Algeria	120	120	130	169	291
Libya	78	23	11	24	54
Morocco	66	61	134	197	111
Tunisia	59	94	55	91	99
Total Arab	1,031	1,433	1,582	2,414	2,048
Iran	249	630	894	752	1,319
Israel	215	473	507	618	688
Turkey	1,632	3,098	2,980	3,349	4,754

	1995	2000	2001	2002	2004
Total Middle East	3,205	5,634	5,963	7,133	8,809
World	82,913	105,565	103,139	107,110	134,377
Middle East/ World (%)	3.9	5.3	5.8	6.7	6.6
Imports					
Egypt	37	5	12	21	39
Jordan	13	1	-	2	3
Lebanon	6	3	5	4	2
Saudi Arabia	-	2	1	2	-
Syria	11	11	17	2	14
UAE	73	23	3	16	3
Algeria	66	7	-	-	1
Morocco	4	89	47	58	78
Tunisia	2	5	6	1	5
Total Arab	212	146	91	102	145
Iran	27	54	34	50	61
Israel	133	146	172	221	319
Turkey	542	348	509	724	916
Total Middle East	914	694	806	1,086	1,441
World	68,863	49,125	58,982	66,243	81,654
Middle East/ World (%)	1.3	1.4	1.4	1.6	1.8

Source: IMF, Directions of Trade Yearbook 2002, Yearbook 2003, Yearbook 2004; and Israel: Central Bureau of Statistics, Foreign Trade Statistics Monthly, First Quarter 2004, Foreign Trade Statistics Monthly, First Quarter 2005.

Arms Exports to the Middle East

The creation of an independent Russian Federation after the collapse of the USSR was accompanied by a change in Middle East arms supplies policy. Russia's financial needs became a much more important factor in decisions to sell military equipment. At the same time, the arms industry emerged as a semi-independent lobby in promoting such sales.[2] The Middle East market included states that had large debts to Russia, such as Iraq and Syria, others with whom it had important economic relations, such as Turkey and Iran, and significant trading partners, such as Egypt.

Relations with Turkey and Iran are of major importance for Russia, particularly in view of these countries' influence in Central Asia and Transcaucasia and the potential threat they pose to Russia's influence in those regions. They are also its main export markets in the region. In 2002, Turkey was the largest market for Russian exports in the Middle East, accounting for nearly 48 percent of its exports to the region. Sales to Iran accounted for 11 percent. The Persian Gulf is also a Russian priority because the oil-rich states have the ability to pay. Moscow has sought, though not always successfully, to balance its policy among Iran, Iraq, and the Gulf Cooperation Council (GCC) states. Given the limited range of products – both military and civilian – that Russia has to offer, the GCC has not proven to be a large market.

Russia operates in the Middle East within the context of its Soviet legacy, but it cannot offer the subsidies that the USSR bestowed or that the United States provides through its military aid to Israel, Egypt, and others. Due to its desire to achieve economic gains from weapons transfers to the Middle East, the pressure to sell has grown since the Soviet period, and the potential effect on Middle East security may therefore have risen.[3] Ironically, the Soviet Union appeared at times as the defender of Islam, developing anti-Western alliances with Muslim countries. The war in Chechnya, as well as Russia's perceived pro-Serbian policy in Bosnia and Kosovo, diminished its standing in the Arab and Muslim world in the late 1990s. Russia is now deemed by many as an enemy of Islam. The change has reduced Russia's standing in the Arab world, and created the appearance of a common front with Israel against Islamic fundamentalism.[4]

Table 9 shows the extent of Russian arms sales to the Middle East between 1992 and 2003. These figures are what the Stockholm International Peace Research Institute calls "trend indicator figures." They are based on actual deliveries and reflect "both the quality and quantity of the weapons transferred. The value reflects the transfer of military resources"; it does not reflect the money value or payments received for the weapons transferred.[5] The Middle East was the third largest market, after China and India, worth about $10 billion (in 2003 prices), or about 17 percent of its total arms exports. The largest purchaser within the Middle East was Iran, ($3.7 billion) followed by Algeria ($2.3 billion), and the UAE ($1.8 billion). Other significant markets were Yemen, Syria, Kuwait, Sudan, Egypt, and Turkey. Between

1992 and 1999, Russian arms exports averaged about $620 million a year in 2003 prices. Between 1999 and 2003, they rose to a total of $6.5 billion, or nearly $1.3 billion a year.

The volume of Russian arms sales was strongly influenced by the ability of Middle East countries to pay for sales. This was largely a function of fluctuating oil revenues, which in turn were a function of changes in the price of oil. In the period 1992-98, oil prices were weak; by 1998, oil prices had slumped to a low of about $12/barrel. Since then they have increased, reaching over $50/barrel in March 2005. Predictably, therefore, sales reflect the influence of oil. Sales grew in the period from 1998, marked especially by purchases by Algeria, Iran, the UAE, and Yemen.

Table 9. **Russian Arms Exports to the Middle East, 1992-2003 ($ million, 2003 prices)**

	Total	Algeria	Egypt	Iran	Kuwait	PA*	Sudan	Syria	Turkey	UAE	Yemen
1992	408			248						160	
1993	936			725					20	191	
1994	588	194	7	96	8				6	271	6
1995	987	406		58	188	1			55	279	
1996	681	72		312	103	10			153	51	
1997	614		190	288						136	
1998	495			302				28		165	
1999	636	189	66	290				28		65	
2000	1,440	312		402				591		60	75
2001	1,202	544		450			188				20
2002	1,463	148		394			77	21		232	590
2003	1,481	614		423				21		389	42

* Palestinian Authority

Source: Adapted from data supplied to the author by SIPRI, May 2004. Rows do not add up to totals because of rounding.

Iran

The Soviet Union and Russia have long had important interests in Iran. The Soviet Union shared a 1,250 mile border with Iran and although Russia does not, it is concerned about Iran's influence on neighboring states and on Russia's twenty million Muslims.

In the 1960s and 1970s, Iran was the USSR's third largest trading partner in the developing world, after India and Egypt: Soviet arms were first supplied to the Shah's regime in 1967. The USSR provided credits, after the US refused, for the Isfahan steel works, but this did not cause a shift in Iranian loyalty from one superpower to the other in the way that the finance and construction of the Aswan dam in Egypt did. The Soviets welcomed the Islamic Revolution of 1979, insofar as it was anti-Western. Given its close relations with Iraq, the USSR sold few weapons to Iran during the Iran-Iraq war. Between 1980 and 1983, new weapons sales agreements came to $615 million; in 1984-87 they were only $5 million.[6] However, after the Iran-Iraq war ended, the international embargo on Iraq pushed the Soviets towards Iran. In 1989, the speaker of the Iranian parliament, Hashemi Rafsanjani, signed a framework agreement in Moscow on arms supplies and cooperation in the development of nuclear energy. This was followed by a large increase in deliveries, which over the years 1987-91 totaled $2.1 billion.[7] With the end of the war in Afghanistan and the fall of communism, Russia became a much more attractive source of supply for Iran from an ideological point of view.[8]

In 1995, Russia and Iran signed an agreement that included a $780 million contract for Russia to build a 1,000 megawatt light water nuclear reactor at Bushehr. This was a project started by a West German consortium in 1974 but halted following the 1979 revolution, which resulted in an end to German involvement. About 80 percent of the construction was completed at that time. Bushehr was bombed several times by Iraq during the 1980-88 Iran–Iraq war. The 1995 agreement with Russia called for completion of two 1,300-MW pressurized light water units as well as the supply of two modern VVER-440 units. Since then, work has proceeded at Bushehr, but not on any of the other projects agreed on. The costs of the Bushehr project have also risen.

In the early 1990s, the US put strong pressure on Russia to restrict its arms and nuclear sales to Iran, and in 1995, Vice President Gore and Prime Minister Chernomyrdin signed an agreement that limited these sales. The agreement was canceled by President Putin in November 2000, and the following month, the Russian defense minister paid the first visit of a defense minister to Iran since the 1979 revolution. In March 2001, President Khatami visited Moscow and President Putin announced that Russia would conclude new arms supply agreements with Iran. A technical-military agreement to this effect was signed in October 2001.[9] At the same time, Presidents Khatami and Putin agreed to expand bilateral cooperation on nuclear power. In November 2001, Russia delivered the first reactor body to Iran, and in July 2002 Minatom outlined a plan to build a total of six 1,000-MW reactors in Iran by 2010, including four at Bushehr and two at Akhvaz. According to the International Atomic Energy Agency, Russian-designed reactors would not be licensable in Western countries because they do not have all of the mandatory safety features.

Russia's assistance to Iran is a project that is highly politically charged. The United States has argued that Iran has sufficient oil and natural gas reserves for power generation, and that nuclear reactors are expensive, unnecessary, and could be used for military purposes. Although Iran is a signatory to the Nuclear Non-Proliferation Treaty, US opposition is based on the premise that the "project would be used by Iran as a cover for maintaining wide-ranging contacts with Russia's nuclear entities and for engaging in more sensitive forms of cooperation with more direct applicability to a nuclear weapons program."[10] Thus, the US strongly opposed the project and provided Russia with information pointing to the existence of an Iranian nuclear weapons program. In May 2002, US energy secretary Spencer Abraham met with Minatom head Alexander Rumyantsev, who stated the Russian position that Bushehr "is not a source of proliferation of nuclear material." In June 2003, President Putin said that Russia would continue building a nuclear power station for Iran, but demanded that Tehran's nuclear program come under stricter international control. This statement was made a day after the G-8 urged both Iran and North Korea to curb their nuclear programs. According to Putin, Russian nuclear cooperation with any country would be "based on the extent to which their programs are open and placed under the control of the IAEA." In a reference to worries that rivals might take the Iranian deal from Russia he said: "We are categorically opposed to bringing in any problems which could be used for unfair competition, including on the Iranian market." Russian officials have stated that the Bushehr project is consistent with a civil nuclear program, and deny US accusations that oil-rich Iran has no need for nuclear power and is secretly trying to acquire atomic weapons.[11] Construction on Bushehr was to be completed by March 2004, but as a result of delays – described as technical – completion **is** scheduled for 2006**.**[12]

In August 2004, Iran said that the plant will start operating in October 2006. Since 2002-3, Moscow has refused to supply fuel to the Bushehr reactor until an agreement is in place that guarantees the safe and timely return of the reactor's spent fuel.[13] In February 2005, Iran and Russia signed an agreement to return spent nuclear fuel from the Busher nuclear power plant, a move that paves the way for Iran to have Bushehr become operational. According to the agreement, Russia will provide the fuel needed to run the Bushehr plant, but the spent fuel will be sent back to Russia to ensure that Tehran does not extract plutonium, which could be used to make an atomic bomb. The two countries still disagree on who will pay for its return. After signing the agreement, the Russian ambassador to Iran was quoted as saying that "there will be no grounds to state that Iran may use nuclear fuel for other than peaceful purposes."[14]

There are different interpretations of Russia's policy on the supply of nuclear material to Iran. One view is that there was not so much a policy as a lack of coordination and control in Russia between bodies keen to sell – such as Minatom – and the foreign ministry, which was concerned about relations with the US and others. Indeed, Minatom, headed until 1997 by Viktor Mikhailov, posted far more ambitious sights than President Yeltsin on the sale of nuclear reactors to Iran, including a gas centrifuge system that would enable Iran to produce nuclear weapons. Nor were Yeltsin and Mikhailov the only ones to differ on Iran. In December 1996, when Foreign Minister Yevgeni Primakov, on a visit to Iran, praised Russian-Iranian cooperation, the defense minister, Igor Rodionov, warned that Iran was a potential military threat to Russia.[15] A second interpretation of Russian policy is that Russia's interest in assisting Iran stemmed precisely from US opposition to such relations. A third idea sees Russia as muddling through with a balancing act of sorts: it wanted to sell civilian nuclear material for economic and political reasons but did not want to sell weapons of mass destruction to Iran or enable it to develop them. Finally, there are those who affirm all these interpretations as essentially correct. Russia's trump card was its willingness to sell what Western countries would not. This partly compensated for the fact that it could not afford to offer credit to the extent that Western countries did.[16]

Beyond nuclear materials, Russia has also supplied Iran with conventional military equipment. Between 1992 and 2000, it sold three Kilo-class submarines, over 200 T-72 tanks, and ten Su-24 and eight Mig-29 aircraft. Iran has also bought licenses to produce T-72c and BMP-2 armored fighting vehicles.[17] Finally, Russia is suspected of helping Iran in the development of ballistic missile technology. There have been reports that Russia has sold SS-4 SSM technology and has assisted in the development of a dual use communications satellite system. In 1998, the US imposed sanctions on a number of Russian research institutes that were accused of being involved in these projects.

In June 2003, there was a flurry of Russian statements – albeit contradictory – on its involvement in Iran's nuclear program. Denials of significant involvement in what is banned by the UN have been followed by promises to verify the state of affairs and stop sales if Iran does not adhere to strict IAEA controls. The Russian approach has been described by Victor Mizin, then head of the office for UN Peacekeeping and Sanctions at the Russian Foreign Ministry. His comments are relevant today:

> While certain people in Russia pay lip service to the politically-correct notion that proliferation is dangerous, if one looks at the countries that are known as 'rogue states', (in official Russian parlance, Moscow rejects the notion of rogue states), all of those countries are former clients of the Soviet Union: North Korea, Libya, Iraq and others. And unlike the situation faced by the United States, the deployment of any ballistic missiles does not threaten Russian troops stationed abroad. There is also no political community in Russia – like in the United States – strong enough to influence the voting in the Parliament.
>
> That is why one always hears very politically correct words from Russian political scientists about the concerns that Iran is developing missile capabilities. No one in the Russian political elite is seriously considering the threat of this development….
>
> Iran remains a very important market for the remnants of the Russian military industry. The collapse of the economy in Russia literally prods the best of Russian industry (the most technologically saturated companies), which have now lost state government procurement orders, literally to search for clients abroad. Russia officially considers the Bushehr reactor deal, for example, legitimate because Iran is under IAEA safeguards.
>
> Iran is also a very important market for Russian conventional armaments, and as … is well known, this issue slowed Russian adherence to the Wassenaar Arrangement. Many arms experts in Russia believe that Iran is another untapped market for Russian weapons, and therefore there is no rational basis for ending arms sales to this country, even after fulfilment of current contracts as was agreed in bilateral US-Russian talks. These experts now consider Iran, since the death of Ayatollah Khomeini, just another country that actually has ceased supporting terrorist activity and is no less democratic than some U.S. allies in the Middle East. These feelings are quite widely shared by the Russian political elite.[18]

Iran is an important market for Russia. Between 1995 and 2002, Russia sold about $4.3 billion of goods to Iran, apparently excluding arms. The annual volume tripled between 1992 and 2002, facilitated by the increase in Iranian oil income. Two Russian commentators have stated that the 2003 agreement to supply Iran with 300 BMP-2 infantry fighting vehicles at a cost of $60 million saved a Russian factory from closure. But there are additional, non-economic reasons: one is Iran's role in opposing the spread of Wahabism from Afghanistan. The same commentators also suggested that if Iran signs the IAEA's Additional Protocol and thus satisfies West European demands, Russia will face much more competition from the Europeans on Iranian markets.[19]

Russia views Iran as a strategic partner, especially vis-à-vis Central Asia and the Caucasus. Preservation of ties and cooperation with Iran is a means of ensuring that its interests in the Middle East and Caspian regions will be taken into consideration. Moreover, it considers cooperation with Iran as essential for preventing a Muslim backlash in response to Russian actions in Chechnya. The official Iranian view of the conflict, as an internal Russian matter, has limited international efforts by Muslim countries to band together against Moscow. Nevertheless, Moscow's policies show that it eyes Tehran as a potential threat to important Russian interests, and Russia's security services targeted Iranian efforts to acquire from Russia technologies and materials that could advance its nuclear weapons programs. Russia's cooperation with Iran in this field thus does not stem solely, or even primarily, from financial interests. Because it deems relations and cooperation with Iran as important to national security, it will not jeopardize those relations for the sake of short term material incentives or fear of US condemnation.[20]

President Putin has appeared intent on maximizing export revenues from sales to Iran and thus has welcomed Iran's isolation from the West. He has aimed to maintain Iran's agreement not to encourage Islamic extremism in the southern areas of Russia, especially in Chechnya and in neighboring former republics of the USSR. Despite this, he has striven to avoid a break with the United States and the EU. This means that Russian policy towards Iran is likely to remain pragmatic, determined week by week and even day by day. Russia will continue to export nuclear material and conventional weapons to Iran as long as the political and economic price in the West is not too high. Relevant decisions will be made at the highest level in Russia: Putin has asserted his control by converting the once powerful Minatom to a government agency. In this way he will try to ensure that policy towards Iran serves the interests of the state rather than those of different organizations in Russia's government and military industrial complex.

Iraq

The USSR began supplying military equipment to Iraq in 1958. During the 1980-88 war with Iran, the Soviet Union supplied arms on a large scale to Iraq: over 1980-83, deliveries came to $12.2 billion; in 1986-89 they totaled $10.9 billion, and in 1990, $400 million.[21] With the imposition of UN sanctions on Iraq, Soviet and then Russian deliveries ceased, while at the same time relations with Iran improved. As a result of these and previous deliveries of weapons, Iraq incurred a $7 billion debt to Russia, which the latter is keen to see repaid. This is one of the reasons for its continued interest in Iraq's oil industry.

Soviet involvement in the Iraqi economy dates back to 1972 when the Iraqi oil fields were nationalized. Russian oil companies operated in Iraq within the framework of Russian government policy, relying on the government's pipeline monopoly to move oil into Russia and to export it. Prior to the 2003 war, two Russian oil groups operated in Iraq. The first was Zarubezhneft, set up by the Foreign Economic Affairs Ministry to explore and develop petroleum resources abroad. Its role was to produce monetarizeable assets and use sales of crude oil to pay off Iraq's debt to Russia. The second group consisted of private oil companies; the largest and most financially powerful, was LukOil.[22] In 1987 LukOil, as the head of a Russian consortium, signed a contract to rehabilitate the West Qurna field near Basra. Work was delayed by UN sanctions against Iraq, and in December 2002, Baghdad cancelled the contract.[23] Russian companies expressed concern that oil deals they had signed with Iraq while Saddam Hussein was in power would be handed to US oil companies after the 2003 war. In June 2003, President Putin expressed his appreciation that President Bush had not moved to punish Russia for its opposition to the war.[24]

Israel

The USSR and Israel reestablished consular relations in 1987 and resumed full diplomatic relations in October 1991 after they were severed in the wake of the June 1967 war. In December 1991, the Israeli embassy in Moscow was reopened and the Soviet/Russian embassy was reopened in Tel Aviv. An important link between the two countries is the presence in Israel of about one million immigrants from the former Soviet Union who have arrived since 1989 – in addition to almost 150,000 who emigrated to Israel in the 1970s, during the period of US-USSR détente.[25]

In 1995, Russia and Israel signed a Memorandum on Mutual Understanding in Military Cooperation, which envisaged the development of contacts between the defense ministries of the two countries. This agreement was renewed in 2000 for an additional five-year period. Military cooperation between Russia and Israel differs significantly from that between Russia and other Middle East states, in that Israeli technology has been added to Russian aircraft rather than Russia selling weapons systems to Israel. The two countries have cooperated on upgrading Russian equipment, most significantly aircraft, though this activity has not always run an even course. In April 2000, the US vetoed the sale to China of the Phalcon airborne early warning system, which used the Russian A-50 airframe and Israeli electronics and avionics. As a result of the US veto, Israel cancelled the sale two months later. In the spring of 2003, the US approved the sale of the Phalcon to India. For Russia, the access to Israeli technology is a significant factor that can make some of its military products more marketable.

Cooperation has also extended to the realm of space technology. In 1998 Israel launched the Techsat-2 with the help of a Russian rocket launcher. Photo images are currently transmitted by EROS-A (Earth Remote Observation System), a commercial satellite made by Israel Aircraft Industries and launched from Siberia in December 2000. In the spring of 2003, the Russian and Israeli defense ministries signed two agreements covering intellectual property, designed in part to protect Russian rights when Israel sells Russian-made platforms with its military technology added to them.[26]

Another area of potential cooperation is in the transport of oil. Israel has a 42-inch diameter oil pipeline between Eilat on the Red Sea and Ashkelon on the Mediterranean. This is believed to have a capacity of 400,000 b/d, with possible expansion to 1-1.2 million b/d (and 18 million barrels of storage capacity). It was originally designed to transport Iranian oil northwards. In 2003, the Eilat-Ashkelon Pipeline Company completed a project that will enable oil to be piped southwards, with the aim of making it available to Russia. The pipeline would enable Russia to sell its oil in South and Southeast Asia with lower shipment costs than those incurred by using the Suez Canal or the Egyptian SUMED pipeline. Russia's Tyumen Oil Company (as well as Kazakh interests) has reportedly expressed interest in the possibility of exporting crude via the Mediterranean and the pipeline to Eilat, where it could be loaded onto VLCCs (Very Large Crude Carriers) for shipment to markets in Asia. This would represent an alternative to the Suez Canal, which can accommodate only smaller tankers. In October 2003, it was reported that the Swiss trader, Glencore, planned to ship 1.2 million barrels of Kazakh crude and 600,000 barrels of Russian Ural oil through the line, at a cost of 26 cents/barrel. Although this was a small contract, it was followed by others. In December 2004, the director of the pipeline company confirmed that 20 million tons of oil from the countries in the FSU had been piped south to Eilat for shipment to Southeast Asia.[27]

In December 2004, Israel decided to examine a plan to import Russian gas through an underwater pipeline that would go from the southern Turkish port of Ceyhan to Haifa. Israel had rejected proposals from Gazprom, the Russia state gas producer, to buy Russian gas as not cost effective, but these are now being reconsidered in view of new forecasts for Israeli demand and supplies currently planned from Israeli, Palestinian, and Egyptian sources.[28]

Russia also has interests in the Israeli civilian market. Israel is its second largest market in the Middle East (tables 9 and 10). In addition to merchandise exports, revenue from Israeli tourists – primarily former Russians – is also significant. Table 10 gives the breakdown of Israel's trade with Russia in 2004. It shows that Russian exports to Israel, totaling $688 million, were dominated by sales of diamonds, base metals, and other mineral products and chemicals. Israeli exports to Russia came to $319 million, of which over $130 million was machinery and other manufactured items.

Russian policies toward Israel reflect the end of dominant ideological policies. Russia's assessments of the relative strengths and weaknesses of Israel and the Arabs are realistic and are no longer influenced entirely by ideological considerations. The USSR tried to change the balance by strengthening the Arabs militarily and attributed Israel's strength to its being an extension of American power. Russian policy continued the change begun by Gorbachev, to limit or avoid military support for the Arabs, but to exploit, where possible, relations for commercial purposes, including arms sales. It also recognizes, in contrast to the traditional Soviet view, that Israel's military, technological, and economic strengths are extensive as well as genuine and indigenous, and not merely the result of imports or foreign assistance.

The pragmatic and non-ideological approach to Israel has been made possible as a result of the resumption of diplomatic relations and far better access to Israeli society through contact with one million Russian-speakers in Israel. Ignorance about Israel dominated Soviet policy due to both ideological hostility and lack of access to Israel. Since 1990, this has changed, and the Russian embassy in Tel Aviv provides information to Moscow that balances what is received from Arab capitals. The Israeli embassy in Moscow provides Russian leaders, officials, and others with access to current Israeli thinking and standing. Israel is now perceived by Russians as a relatively strong country with which Russia has no conflict. Israel can thus serve as a partial window to the West, due to its close relations with the US. Since the outbreak of the second intifada in September 2000, Russia has called for continued negotiations to solve the crisis and has voiced relatively little criticism of Israel.

Table 10. **Russia's Trade with Israel, 2004 ($ million)**

	Exports	Imports
Animals and animal products	0.2	0.4
Vegetable products	38.1	36.2
Animal or vegetable fats or oil	0.0	0.4
Prepared foodstuffs, beverages, tobacco	25.3	6.3
Mineral products	0.2	28.5
Chemicals	37.9	21.0
Plastics, rubber	35.3	1.0
Raw hides, skins, leather, furs	0.0	0.0
Wood, etc.	0.0	13.8
Wood pulp, waste and scrap paper	2.5	5.0
Textiles	3.9	0.1
Footwear, etc.	0.0	0.1
Stones, plaster, cement, asbestos, ceramics, glass	0.6	0.7
Pearls, precious stones, metals, inc diamonds	20.7	449.1
Base metals	14.1	117.3
Machinery, electrical equipment, image and sound recorders, etc.	133.2	4.1
Vehicles, aircraft, vessels, and associated transport equipment	2.1	0.5
Optical, photographic, measuring, checking, medial equipment	4.2	2.4
Miscellaneous manufactured	0.4	0.8
Works of art	0.1	0.0
Miscellaneous and unclassified	0.4	0.0
Total	319.2	688.0

Source: Israel Central Bureau of Statistics, Quarterly Bulletin of Foreign Trade, March 2005.
N.B. Columns do not add to totals because of rounding.

Conclusion

With the exception of arms, Russia has never been a major exporter of manufactured goods. Traditionally, the USSR exported raw materials and this trend has been reinforced in Russia in recent years because of the increase in oil prices.[1] The sale of arms, therefore, represents one of the few areas where Russia's manufacturing industry has a competitive international position. It also provides employment for skilled workers and scientists otherwise unemployed by the economy. Arms production and exports is a means of keeping this vital manpower in the country and funding research and development.

In the 1990s, Russian foreign policy was increasingly driven by economic considerations, and thus over the last fifteen years, Russia's leaders have viewed arms sales as primarily an economic objective with a relative political price. The cost of Western – and Israeli opposition – has not yet proven to be exorbitant. Although Russia's arms transfers to Middle East countries are quantitatively smaller than those of the West, especially the US, some of them involve the sale of technology for indigenous production and dual use technology that can be directed to the development of weapons of mass destruction.[2] Ironically, given the essentially political nature of Soviet military transfers and aid, the potential dangers of these arms sales in terms of proliferation have increased under the more pragmatic and less ideological Russian regime.

With regard to sales of nuclear equipment to Iran, there were political benefits and costs. The political gain was Iran's willingness not to encourage fundamentalism among Russia's Islamic citizens and neighbors in the Caucasus. In economic terms, it was thought that defying US opposition might well lead to Russia being rewarded with further orders for nuclear materials (which has not materialized because cooperation has not gone beyond the Bushehr project), arms, and civilian products. Russia's total exports to Iran have grown at a healthy rate, even though they have been conditioned on the availability of Iranian oil revenues.

These economic and political factors explain Russian arms and nuclear exports to the Middle East. If in the early and mid-1990s these sales were due to organizations in Russia that operated independently of the government, this is no longer true. President Putin has decisively reasserted central control, not only over the nuclear energy industry with the abolition of Minatom, but also over the private sector, including the arrest of the head of Yukos, Mikhail Khodorkovsky, and other measures. Similarly, the government has asserted control over privately-owned oil companies, which gives it tighter control over oil production and increases its leverage over policies toward OPEC. The weakened private energy sector in Russia is increasingly subordinate to government oil policy. In addition, the oil and gas industries are likely to provide most of the finance for Russia's modernization in the coming years, especially if the speculations that Russia has huge undiscovered reserves of oil are confirmed.

It thus is safe to presume that the Russian government will pay even more attention to oil markets than in the past. It will want to ensure stability of demand in its Western markets, but will also want to maintain good relations with Middle East producers so as to benefit from their markets, and in the case of Iraq recover its debt. Having taken over Russia's largest private oil conglomerate, the government will now benefit more directly and to a greater extent from high oil prices. This means that energy policy, foreign policy, and domestic financial policies will become more interdependent.

The Russian government's power and status are expected to increase in world energy markets and in the international political arena. Middle East oil producers – most notably Saudi Arabia, but also Iran, and after a future settlement of its current woes, Iraq – will likely find it in their interest to maintain good relations with Russia, if only to enhance their ability to influence Russian oil policy. They will presumably try to ensure that Russia has interests in the region that it will not want to upset with the "misuse" of its oil, and which Russia will find it worthwhile reciprocating.

As for Israel, strategic, economic, and cultural interests encourage good relations with Russia. Israel is a small market for Russia, and therefore its economic weight as a customer is limited. Cooperation in military and civilian technology already exists, while cooperation in military intelligence, especially regarding Islamic terrorism, is in both countries' interest. Overall, Israel's influence over Russia is limited by its size, but its connections with the West, especially with the US, are keenly appreciated by Moscow.

The main problem affecting relations between the two countries is Russia's determination to sell weapons and some nuclear material to Iran and weapons to Arab states such as Syria. Russia has shown some sensitivity to Israeli concerns, suggesting that the missiles it plans to sell to Syria will not be of the kind that can be used by Hizbollah in Lebanon, but it is far from clear that these reassurances have satisfied Israel. President Putin's April 2005 visit to Israel, the first ever by a Russian head of state, underlined the importance that Russia attaches to maintaining ties with Israel while it continues its arms sales policies elsewhere in the Middle East.

It is in Israel's interest that Russia succeeds in creating stronger economic links with the West. The Russian economy needs not only export markets but diversification and modernization. Closer links with the West – and in a modest way with Israel – can contribute by providing modern technology, management, and investment. This will help Russia move from being an economy deeply reliant on oil and gas to a more balanced one that provides more employment and higher levels of income. That in turn will help to reduce poverty and unemployment. Bad socio-economic conditions also provide fertile ground for extremists calling for radical change inside Russia, which threatens the wellbeing of the 250,000 Jews living in Russia as well as relations with Israel.

In January 2001, President Putin stated that Russian foreign policy should promote economic interests and improve Russia's foreign image. The question was whether the two were compatible or mutually exclusive, at least in terms of Western interests. Economics and foreign policy have clashed regarding the Middle East, but here other strategic factors have come into play to determine policy. Ensuring Iran's cooperation vis-à-vis Muslim groups in Russia and on its southern borders as well as its diplomatic support in the Islamic world meant that nuclear and arms sales continued, though within limits defined by President Putin. This policy will presumably continue as long as the price – in terms of relations with the US and the EU – remains affordable. If the US or the EU begins to consider economic sanctions, or if they agree on a strong condemnation of Russian policy, then Moscow is likely to reconsider.

Appendix I

The Development of the Russian Economy

The Soviet Economy 1917-1991

The Bolshevik rise to power in 1917 was cemented in 1922 with the establishment of the Union of Soviet Socialist Republics. The early economic crises that largely resulted from the nationalization of all large factories, the ban on private trade, government appropriation of surplus supplies from more economically prosperous peasants, and the introduction of rationing prompted a large drop in agricultural output – and an average annual inflation of 100 percent. In 1921, the New Economic Policy (NEP) attempted to restore the economy through legalized private trade, liberalized prices, and the reduced role of the state. Taxation replaced state acquisition of agricultural output. Strategic industries – including war industries – remained nationalized, but their management was decentralized and they were operated on a more commercial basis. The NEP was successful in increasing output: by 1928, national income and industrial and agricultural output were 10 percent above their 1913 level. This policy was a pragmatic response to a complex and difficult economic situation, but did not suit the regime ideologically.

In the mid-1920s, the Communist Party took over direction of the economy through the central planning administration in Moscow. In 1928, the first five-year plan for the industrialization of the economy was adopted. The private sector rapidly disappeared, and between 1930 and 1936 agriculture was collectivized. Collectivization and famine resulted in the deaths of several million people (3.5-6). The government increased the share of foodstuffs that it obtained from the agricultural sector by persuasion or terror, and with the widespread use of forced labor and terror achieved a fundamental change in the structure of the society and the economy. The USSR experienced rapid economic growth under the five-year plans until 1941, a sharp contrast with the slump and mass unemployment that prevailed in those years in the US and Western Europe. As a result of Soviet growth experience, and in reaction to the failure of Western economic policies during the colonial period, many developing countries imitated the Soviet model after 1945.[1]

Germany invaded the USSR on June 22, 1941. Within a few weeks, German forces had reached the suburbs of Leningrad, Smolensk, and much of the Ukraine. In the summer of 1941 and 1942 entire industries had to be evacuated from German-occupied and German-threatened areas. Hundreds of thousands of people were evacuated to the Ural Mountains, Siberia, and Kazakhstan. By September 1942, however, Soviet production of arms and military equipment reached the level of the summer of 1941. During 1942, with much of European USSR either occupied or directly threatened by the Germans and with most of the industrial centers of the region either inoperative or only partly functioning, the USSR managed to produce 23,500 tanks, 25,000 airplanes, and 35,000 guns – far more than Germany. Between 26 and 27 million Soviet citizens and soldiers were killed in the war; the destruction of industrial capacity was huge and the Germans stole massive amounts of industrial equipment and agricultural produce. It was against this background of massive loss of life (even by Soviet standards) and destruction that the USSR emerged victorious from the Second World War. It now controlled much of Eastern Europe.

The Soviet Union's military achievements in the war were made possible by economic ones. The basic structures and mechanisms of control in the Soviet economy put forward in the first five-year plan and that served the country so well in war remained effective until the mid-1980s. They were nominally in place until the collapse of the Soviet Union in 1991. Economic growth was rapid, even during World War II, and this suggested that the centralized control mechanism was effective as long as there were significant increases in inputs such as labor and capital. Between 1928 and 1940 the Soviet economy grew by an annual average rate of 5.8 percent.[2] In the 1950s the annual growth rate peaked at 6 percent, declining to 5.2 percent in the 1960s, 3.7 percent in the 1970s, and 2 percent in 1980-1985. In the period 1986-91, the last six years of the USSR, the annual growth rate was –1.3 percent.

Heavy industry (including iron, steel, coal, machine tools, energy, and railway equipment) was the leading sector in the early plans. It was developed, on the basis of Marxist-Leninist thinking, in order to provide the inputs and capital equipment needed by other, lighter industrial sectors and by agriculture. The economy was largely closed to foreign trade. Heavy industry retained its dominant role throughout the Soviet period and was one of the main legacies that Russia and the other former Soviet states inherited in 1991. Lighter industries, which directly supplied consumer needs, received greater emphasis after World War II. State control and large investment allocations served the economy well until the 1950s.[3] By the 1960s, however, the economy had become too large and diverse for central planning to be effective. Furthermore, the ongoing problem of how to organize agriculture remained and the failure of agricultural policies was one of the factors that in 1964 led to the removal from power of Communist Party first secretary Nikita Khrushchev. The Soviet system maintained full employment, but incentives for technological progress were limited. Economic growth was mainly the result of increases in inputs of labor and capital, rather than higher productivity due to technological progress.

Khrushchev was succeeded by Leonid Brezhnev, whose eighteen years of conservative policies were later held responsible for the economic woes that afflicted the USSR from the 1970s. Brezhnev died in 1982; his successor, Yuri Andropov, a former head of the KGB, seemed to recognize the need for reforms, but died after only fifteen months in office with few achievements. In 1984, Andropov was succeeded by Konstantin Chernenko, who died in 1985. He was too ill for most of his brief period in office to achieve any significant measures.

In 1985, Mikhail Gorbachev became first secretary of the Soviet Communist Party. He was in his fifties when he took office, far younger than his three aged predecessors. During his six years as first secretary and president of the USSR he was responsible for the dramatic and far reaching changes in domestic politics, economics, and foreign policy. He strongly criticized the conservative policies of his predecessors and announced domestic and foreign policies within the framework of what he called *glasnost* (openness) and *perestroika* (restructuring).

Gorbachev inherited both an economy that was suffering slow growth and a costly war in Afghanistan. There were increasingly obvious gaps compared with economic performance in Western countries. He began by emphasizing the need to move from extensive to intensive growth, improve quality control, and reduce the consumption of alcohol, which was a major source of tax revenue. In 1986 and 1987, the fall in international oil prices hit the economy, the budget deficit continued to widen, and the government borrowed more from the banks at the expense of enterprises. In 1987, a law on state enterprises was introduced: firms were given more freedom to set output levels and prices. These partial measures did not produce significant results and by 1989 it was clear that the economy required more fundamental reform.

In June 1990, the Russian legislature approved a declaration of Russian state sovereignty and its secession from the USSR; that same month the Russian Communist Party was abolished. Within a year and a half, eleven of the fifteen USSR member states declared independence. The USSR ceased to exist and fifteen independent states succeeded it, the largest of which was the Russian Federation.[4] In 1990, the USSR's GDP was estimated at $819 billion; the Russian Federation's GDP was estimated at $483 billion, (in 2000 prices and exchange rates). Russia accounted for 66 percent of its industrial output, 91 percent of its oil production, 63 percent of its electricity output, and 53 percent of its grain production.[5]

The Development of the Russian Economy since 1991

Russia inherited from the Soviet Union an economy that was centrally controlled and suffered from negative growth. Largely closed to imports, it relied heavily on exports of oil and gas – which collapsed in value in the early 1990s. Its agriculture was weak and its industry was biased towards large-scale production of investment goods and military production.

The most striking economic development that occurred following the breakup of the Soviet Union was the collapse of output, employment, and welfare. Output began to fall prior to the collapse of the Soviet Union and continued thereafter.[6] Indeed, all of the countries in the former Soviet Union and Eastern Europe experienced large falls in output and consequent declines in income during the period of transition towards a market economy. This is the case, even though the fall of output may have been exaggerated because its overvaluation in the communist system artificially boosted the base. There was an underground economy that accounted for 12 percent of GDP in 1989 growing to 42 percent of GDP in 1995. If allowance is made for the underground economy, in 1995, GDP was 74 percent of its 1989 level compared to an official figure of 60 percent.

Another important development was the reduction in the number of shortages and what has been called "value detraction": much of what was produced at the end of the Soviet period and in the early years of transition was sub-standard. Perfectly good raw materials and agricultural produce were, in effect, ruined during the production process. The production process increased the national income recorded in official accounts even though in reality value was reduced. The collapse in manufacturing output reflected the reduction in this value detraction. The positive side was an increase in exports of raw materials and intermediary goods that had previously been consumed in Soviet production of partly unwanted goods.

An additional factor contributing to the fall in output was the collapse of state trading arrangements between the USSR and the communist states of Eastern Europe and between countries in the former Soviet Union. Finally, public investment, including in the military and military production sector, was reduced in the transition period. This was ultimately a positive process because so much of what had been invested in was unwanted, inefficient, and environmentally damaging, but the initial effects were to reduce demand and output.[7]

In the late 1980s, the Soviet state was weakened by refusals to pay tax and the ignoring of state orders. This trend essentially continued in Russia until the early 1990s, years marked by numerous changes in economic policy and extensive use of Bolshevik-style orders from above, reliance on monetary policy (high interest rates), and little in the way of fiscal policy (taxation). Following a failed coup in 1993, President Yeltsin was able to push forward his economic program.[8] All this took place against a background of collapsing investment, falling output, and rising unemployment (tables 2 and 11).

Yeltsin's governments failed to replace fiscal policies associated with central planning with those appropriate for an emerging market economy. They did not tax the private sector or provide vitally needed social security to a population experiencing the severe hardship associated with economic transition and the move toward a market economy. They also failed to install and support the minimal level of law enforcement needed to enable and encourage the development of market forces. Furthermore, the state itself was not transformed: it remained a central planning organ years after central planning had officially ended, and it failed to change itself into a market-supporting organization. As a result, in the early 1990s many economic assets and in part the state itself were virtually captured by the "oligarchs" who staunchly opposed further economic reform. From 1997-98, however, a significant number of oligarchs became convinced of the need for reform. Having acquired state resources at massively undervalued prices, the tycoons had more to gain from cleaning up corporate governance and attracting foreign investors than from squabbling over the few still non-appropriated crumbs of what was left to be privatized.[9]

The Socio-Economic Costs of Transition

"Transition" was the change in the system of economic management that curtailed government interference in the economy. This involved cuts in government spending, reductions in the number and extent of government controls, and privatization. The process of transition had significant economic effects in terms of output losses and reduced employment. The transition, accompanied by hyperinflation that massively reduced the real value of wages, generated a huge increase in poverty. The number of people living in poverty rose from 2.2 million in 1987-88 to 57.8 million in 1993-94, or from 2 percent of the population to 39 percent.[10] This in turn resulted in undernourishment, a decline in school enrollment, deterioration in health, increased mortality, a reduction in fertility, and a smaller population. Unemployment rose and inequality in the distribution of income and wealth increased. Furthermore, with the breakup of the Soviet Union, some 25 million ethnic Russians living in non-Russian parts of the USSR ceased to be members of the leading ethnic group and often lost their citizenship. Millions moved to Russia, leaving their property behind, but many failed to find employment in the deteriorating economy of the early 1990s and this added to severe social strains.

Between 1992 and 1998, unemployment increased rapidly and the economy shrank (table 11). In industry, the volume of employment fell much more sharply than in the economy as a whole because that was the sector most squeezed by the recession. This was due to the effects of transition and government spending cuts, including those in the military sector. There have been improvements in recent years with a decline in poverty, but serious problems remain.[11]

Table 11. **Employment and Unemployment, 1992-2002**

	Unemployment percent labor force*	Employment in industry 1989=100	Total employment 1989=100
1992	5.2	94.1	95.3
1993	6.1	91.8	93.7
1994	7.8	82.0	90.6
1995	9.0	75.7	87.8
1996	10.0	72.2	87.2
1997	12.2	65.8	85.6
1998	13.3	62.5	84.2
1999	12.2	63.1	84.6
2000	9.8	64.2	85.1
2001	8.7	64.8	86.5
2002	8.8	64.1	86.5
2003	8.3	62.4	86.3
2004	7.5**	n.a.	n.a.

* those not in employment and actively seeking work
** January-June
Source: UN Economic Commission for Europe, *Economic Survey of Europe 2004*, no. 1 (UN, New York and Geneva, 2004) and *Economic Survey of Europe 2005*, no. 1 (UN, New York and Geneva, 2005).

The 1998 Crisis

By 1997, after years of falling production and rising unemployment, Russia's economy suffered heavily from fiscal imbalances, rising government debt, a weak banking system, and falling tax revenues. Foreign investment in productive assets was very low, but high interest rates on government bonds attracted short-term capital from abroad. The Asian crisis and world economic slowdown affected the economy from 1997 mainly because of the fall in international oil prices and declining Russian oil production. In 1992 Russia produced 8 mb/d; in 1998, it produced 6.2 mb/d. As a result, between January-June 1997 and January-June 1998 the current account of the balance of payments deteriorated sharply. In the autumn of 1997, there was a large drop in capital inflows. At the end of the year, the value of shares on the stock market fell sharply and Russia's foreign reserves fell by over 25 percent. As the government could no longer rely on foreigners to buy its bonds, it was forced to increase the effectiveness of the tax system. In early 1998, the economy was in recession, tax revenues declined, exports were weak, and interest rates rose. Debt servicing accounted for 40 percent of expenditures in the federal deficit. By the summer, a number of banks had defaulted on forward contracts with foreigners. Further interest rate increases were followed by more bank defaults and a collapse of the internal payments system. In August 1998, there was a steep devaluation of the ruble (which had been subject to central bank influence and had fluctuated within a limited band) and a moratorium on payments to foreigners was announced.[12]

Although changes instituted early in 1998 failed to prevent the financial collapse of that summer, they did provide the basis for gradual recovery from the end of that year and for the reforms enacted by President Putin after 2000.[13] In 1992 the private sector accounted for 25 percent of GDP; in 2000, as a result of privatization, it accounted for 70 percent.[14] Apart from the devaluation of the ruble, which increased the competitiveness of the economy, measures were taken to improve the fiscal and judiciary systems, to rehabilitate the banking system, and reduce the level of government interference in private sector activity. From mid-1999, Russia also benefited from the increase in the international price of oil. Between 1999 and 2001, GDP rose by over 14 percent.[15] Most of this growth was due to increased use of what had been idle capacity. This process wound down in 2001-2 as much of Russia's capital stock was too old and neglected to permit further use; future growth will therefore depend on new investments.[16]

Foreign Trade and the Balance of Payments

Russia experienced major changes in the scale and pattern of foreign trade and in the balance of payments between 1992 and 2002. Since the late 1990s, the increase in the value of exports has prompted the rapid growth of the volume of foreign trade. This helped the domestic economy grow and as a result imports increased. Between 1995 and 2002, exports to the European Union (EU) increased by about 50 percent while those to Eastern Europe and the former Soviet Union virtually stagnated. The increase in exports to the EU consisted mainly of oil and gas. The EU and FSU far outweighed the US and the Middle East (defined as the twenty-two members of the Arab League, Iran, Israel, and Turkey) in their importance as export markets.

In recent years, Russian exports have increased much faster than national income and so maintaining good relations with export markets has become an increasingly important consideration in foreign policy. Table 12 shows that Russia's exports are dominated by fuel, raw materials, and basic goods. Together they account for over 90 percent of exports. Fuel products, including crude oil and gas, accounted for 58 percent of exports in 2003. Other raw materials accounted for 19 percent; chemicals 6 percent; textiles, clothing, paper, and wood also took 6 percent. Machinery, equipment and instruments accounted for only 9 percent. This included military exports and hi-tech. Although hi-tech exports rose by 40 percent, in absolute terms they remained very small, constituting only 3 percent of exports in 2003.[17] In 2003, arms exports came to $7 billion in 1990 prices or about $10.5 billion in 2003 prices.[18] This equaled 97 percent of total exports of machinery, equipment, and instruments, but only about 8 percent of total exports. The government was very concerned to maintain and if possible expand these sales so as to diversify exports and fund the development of military technology and retain skilled manpower in the defense industries. The two were, of course, connected: if there were exports and if revenues came into the economy, then employment could be maintained.

Despite current account surpluses that totaled some $174 billion between 1993 and 2002, Russia accumulated large debts abroad. It inherited debts from the USSR: in 1999, $54 billion out of a total foreign debt of $103 billion was a Soviet legacy.[19] Additional debt accumulated by Russia was the result of large-scale government borrowing designed to cover budget deficits. Russia was also owed large amounts by countries that it (or the Soviet Union) had assisted, especially Iraq and Syria of the Middle East contingent. Finally, there were huge outflows of private capital by oligarchs and criminal groups.

Table 12. **Merchandise Exports, 1997-2003 ($ million)**

	1997	1998	1999	2000	2001	2002	2003
Food, etc.	1,407	1,187	764	1,299	1,460	2,177	2,689
Fuel products	38,061	27,649	30,601	52,142	51,746	56,006	72,769
Oil & products	20,819	13,619	18,828	34,361	32,775	38,585	50,748
Gas	15,644	12,696	10,850	16,118	17,243	15,359	19,312
Wood & paper	3,502	3,406	3,594	4,276	4,237	4,692	5,355
Textiles, clothing, & leather	1,290	1,098	881	892	775	841	902
Stone, ore, gems, & precious metals	3,929	5,129	4,922	5,593	4,647	5,340	5,915
Chemicals	6,577	5,588	5,677	6,801	6,899	6,781	8,388
Metals	16,715	14,708	14,147	16,682	13,929	14.347	17,387
Machines, equipment, & instruments	8,176	7,317	7,257	8,394	9,671	9,179	10,778
Other	786	562	1,275	1,442	1,260	1,427	1,709
Total *	80,363	66,643	69,119	97,521	94,622	100,790	125,891

* excluding exports to Belarus
Source: IMF: Russian Federation, Statistical Appendix, Country Report 04/315, September 2004, p. 31.

The Oligarchs under Yeltsin and Putin

The industrial structure of the Soviet Union was dominated by large enterprises and monopolies. Soviet economic thinking in production and heavy industry favored large scale. The two often went together in that economies of scale and the location of raw materials favored large plants. In 1988, 73 percent of Soviet plants had more than 1,000 employees. Of these, 22 percent had 10,000 employees or more. By way of comparison, in 1985, only 26 percent of US firms had 1000 employees or more. Monopolies included sewing machines, where 100 percent of output came from one enterprise, hydraulic turbines (100 percent), and steam turbines (95 percent).[20] Soviet ideology emphasized investment in capital goods industries that produced the "means of production." As a result, in 1990, 75 percent of industrial capacity was in the heavy capital goods sector and only 25 percent was in consumer goods.

This had hardly changed by 2001 when the shares were 74 percent and 26 percent, respectively.[21]

As a result of the Soviet emphasis on large-scale heavy industries, one of the main problems confronting the Russian economy after 1991 was the dominant role of large monopolies. This was particularly true in the energy and military production sectors. The privatization process under Yeltsin began before any attempts were made to break up these monopolies and thus the monopolies transferred to the private sector.[22] Monopoly profits accrued to those who had bought the privatized companies, resulting in huge wealth and political influence for the small elite.

A closely related problem was the prevalence of large-scale crime, the most notorious aspect of Russia's transition from communism to capitalism. This also had its origins in the communist period but, with the partial breakdown of the state in 1991, criminal and semi-criminal elements came to the fore. One reason was that there was so much to be gained by acquiring state property that was being privatized. The systems of privatization were far from transparent: often personal connections were enough to have state property transferred to private hands. Former communist officials were often most advantageously placed to take over assets because they had the best insider information. The government and many abroad wanted rapid privatization to make the transition from communism to capitalism irrevocable.

In theory, a property-owning class would be a guarantor of democracy, but in practice many of those who were enriched by the privatization process were ex-communist officials or those who had close connections to the party. Industrialists, who became known as oligarchs, received high interest rates on government bonds, but paid little or no tax as a result of weak fiscal policies and ineffective tax administration. They also benefited from huge implicit subsidies on energy and other commodities that were sold at below-market prices by the government. Criminal gangs played a huge role in the economy: according to official estimates in the early 1990s some 40,000 enterprises and one third of Russia's banks were controlled by criminals. At the same time, the government stated that there were 9,000 criminal groups in existence with 100,000 members. Presumably, many others that it did not know about also existed.[23] Their origins were in the Soviet system in which criminal activity had been rampant. The extent of Russia's informal economy appears in appendix 2.

In 2004, President Putin reasserted government control over the oligarchs. Changes were most dramatic in the oil industry with the arrest and trial of Mikhail Khodorkovsky, head of Yukos, the country's largest private oil company. This has led to greater government intervention in some sectors, and more control over who could invest in Russia. Power was increasingly in the hands of the bureaucracy, controlled by the president, rather than in the private sector. Although the oligarchs transferred huge sums of money abroad, and often acted illegally, they transformed outdated assets inherited from the Soviet period into thriving and increasingly transparent businesses. It remains to be seen whether the former security officials appointed by Putin to run much of the administration are as effective.[24]

Appendix II

Comparative Data: Russia, USA, Germany, and Israel, 2003

	Russia	USA	Germany	Israel
Population (mns.)	143	291	83	6.7
Population growth (average annual, 1990-2001)	-0.3	1.2	0.3	2.8
GNP ($ bns.)	375	10,948	2,085	105
GNP/head ($)	2,610	37,610	25,250	16,020
GNP($bns. ppp*)	1,279	10,914	2,267	128
GNP/head ($, ppp*)	8,820	37,500	27,460	19,200
Merchandise exports ($ bns.)	135	724	748	32
Merchandise Imports ($ bns.)	74	1,350	493	36
Informal economy as percent of GDP (1999-2000)	46.1	8.8	16.3	21.9
Defense spending ($ bns.)	10.6**	405	35	10
Defense spending (percent GDP)	2.6	3.7	1.5	9.5

* ppp = purchasing power parity
** Budget of the Ministry of Defense
Source: World Bank, *World Development Report 2005*; IMF, *International Financial Statistics*, July 2002; Friedrich Schneider, *Size and Measurement of the Informal Sector in 110 Countries around the World* (Washington DC: World Bank, 2002); IISS, *Military Balance, 2003-2004* (Oxford: Oxford University Press, 2003); Shai Feldman and Yiftah S. Shapir, eds., *The Middle East Strategic Balance, 2003-2004* (Brighton: Sussex Academic Press and Jaffee Center for Strategic Studies at Tel Aviv University, 2004).

Notes

Notes to Introduction

1. Arms is defined here as major weapon systems (aircraft, armored vehicles, artillery, radar systems, missiles, and ships), according to SIPRI's usage.
2. Stockholm International Peace Research Institute (SIPRI) Yearbook 1999 (Oxford: Oxford University Press, 1999), p. 426.
3. Anders Aslund, *Building Capitalism: The Transformation of the Former Soviet Bloc* (Cambridge: Cambridge University Press, 2001), p. 405.
4. UN Economic Commission for Europe, *Economic Survey of Europe, 2002*, no. 1 (Geneva: UN, 2002).
5. One reason for Russia's commitment to the Paris Club group of international creditor countries was to maintain its international financial credibility. In addition, as a Paris Club member, Russia hopes to retrieve the $140 billion it is owed by Iraq, Libya, Syria, and others.

***Notes to Chapter 1**, The Defense Sector*

1. Library of Congress, *Country Study: Former Soviet Union*, 1989, www.lcweb2.loc.gov.
2. Ksenia Gonchar, *Russia's Defense Industry at the Turn of the Century*, Bonn International Center for Conversion (BICC), Brief no. 17 (Bonn: BICC, 2000), p. 12.
3. Julian Cooper, "The Future of the Russian Defense Industry," in Roy Allison and Christopher Bluth, eds., *Security Dilemmas in Russia and Eurasia* (London: Royal Institute for International Affairs, 1998), p. 95.
4. There is an interesting parallel between the integrated Soviet defense industry that broke apart when the USSR collapsed and the West European attempts to create multilateral defense companies on the basis of existing national ones. Defense contractors in Russia and other former Soviet states have tried to retain their links despite new political and economic borders. Those in Western Europe are developing on the basis of even freer trade and closer political cooperation between countries.
5. Cooper, "The Future of the Russian Defense Industry," p. 96.
6. SIPRI Yearbook 2003 (Oxford: Oxford University Press, 2003), pp. 318, 350; and SIPRI Yearbook 2004 (Oxford: Oxford University Press, 2004), p. 332.
7. SIPRI Yearbook 2002 (Oxford: Oxford University Press, 2002), p. 348-49.
8. Gonchar, *Russia's Defense Industry at the Turn of the Century*, p. 23.
9. SIPRI Yearbook 2001 (Oxford: Oxford University Press, 2001), p. 351.
10. SIPRI Yearbook 2002, p. 311.

11. Igor Khripunov, "The Politics and Economics of Russia's Conventional Arms Transfers," in Gary K. Bertsch and William C. Potter, eds., *Dangerous Weapons, Desperate States* (London and New York: Routledge, 1999), pp. 131-61.
12. Christopher Davis, "Country Survey XVI, The Defence Sector in the Economy of a Declining Superpower: Soviet Union and Russia, 1965-2001," in *Defence and Peace Economics*, 2002, Vol 12, pp. 145-77.
13. Gur Ofer, "Economic Aspects of Soviet Involvement in the Middle East," in Yaacov Ro'i, ed., *The Limits to Power: Soviet Policy in the Middle East* (London: Croom Helm, 1979), pp. 67-96, 368-70.
14. Davis, "The Defence Sector in the Economy of a Declining Superpower," p. 158.
15. Mark A. Heller, *The Dynamics of Soviet Policy in the Middle East: Between Old Thinking and New*, JCSS Study no. 18 (Tel Aviv: Jaffee Center for Strategic Studies at Tel Aviv University, 1991), p. 17.
16. Igor Khripunov, "The Politics and Economics of Russia's Conventional Arms Transfers," p. 132.
17. Cooper, "The Future of the Russian Defense Industry," p. 99.
18. SIPRI Yearbook 2003, pp. 449, 472.

***Notes to Chapter 2**, The Nuclear Industry*

1. SIPRI Yearbook 2002, p. 587.
2. Cooper, "The Future of the Russian Defense Industry," p. 97.
3. "Nuclear Threats Initiative, Russian Nuclear Exports to India," www.nti./dp/nisprofs/ russia/exports/ rusind/ nuclover.htm (December 1, 2004).

***Notes to Chapter 3**, The Energy Sector*

1. Aslund, *Building Capitalism*, pp. 183-86.
2. Brunswick/UBS bank quoted by Alexander's Gas and Oil Connections, 2 June 2004, gasandoil.com/ goc/company/cnr42298.htm.
3. EIA, Non-OPEC Oil Revenues, June 2003 (eia.doe.gov).
4. UNECE, *Economic Survey of Europe*, 2002, no. 1; and Goohun Kwon, "The Budgetary Impact of Oil Prices in Russia," IMF, Working Paper, August 2003, p. 7, www.imf.org/ external/ country/rus/rr/2003/ pdf/080103pdf.
5. Fiona Hill, *Energy Empire: Oil, Gas and Russia's Revival* (London: The Foreign Policy Centre, 2004), p. 11.
6. Yegor Gaidar, ed., *The Economics of Transition* (Cambridge, MA and London, England: MIT Press), p. 705.
7. Calculated from BP, Statistical Review of World Energy, 1990, 1994, 2004 editions.
8. *Middle East Economic Survey* (MEES), 9 September 2002, p. D2.
9. *International Herald Tribune*, 5 February 2003.
10. *MEES*, 7 October 2002, A8.
11. Brenda Shaffer, *Los Angeles Times*, 21 February 2002.
12. eia.doe.gov and Lukoil.com.

***Notes to Chapter 4**, Russia and the Middle East*

1. Richard Sakwa, *Russian Politics and Society* (London and New York: Routledge, 2002), p. 361, and *Ha'aretz*, 7 September 2004.
2. Oksana Antonenko, "Russia's Military Involvement in the Middle East," *Middle East Review of International Affairs* (MERIA) 5, no. 1 (March 2001).
3. Antonenko, "Russia's Military Involvement in the Middle East."
4. Shlomo Avineri, *Israel-Russia Relations* (Washington DC: Carnegie Foundation for International Peace, 2000).
5. SIPRI Yearbook 2003, pp. 536-37.
6. Anthony H. Cordesman and Abraham R. Wagner, "*The Lessons of Modern War, Vol. II, The Iran-Iraq War* (Boulder: Westview Press Inc., 1990), p. 49.
7. *World Military Expenditure and Arms Transfers 1991-1992* (Washington DC: US Arms Control and Disarmament Agency, 1994).
8. Ephraim Kam, *From Terror to Nuclear Bombs: The Significance of the Iranian Threat* (Tel Aviv: Ministry of Defense, 2004), p. 66.
9. Kam, *From Terror to Nuclear Bombs*, p. 69.
10. Robert J. Einhorn, Assistant Secretary for Nonproliferation, testimony before the Senate Foreign Relations Committee, Washington DC, 5 October 2000, cited in Brenda Shaffer, *Partners in Need: The Strategic Relationship of Russia and Iran* (Washington DC: The Washington Institute for Near East Policy, 2001), Policy Paper no. 57, p. 70.
11. Iran, Country Analysis Brief, August 2004, eia.doe.gov.
12. Iran Country Analysis Brief, March 2005, eia.doe.gov.
13. Brenda Shaffer, *Jerusalem Post*, 7 October 2004.
14. Islam on Line, 27 February 2000, http://www.islamonline.com/cgi-bin/news_service/middle_east_full_story.asp?service_id=7339.
15. Robert O. Freedman, "Russian-Iranian Relations in the 1990s," *Middle East Review of International Affairs* (MERIA) 4, no. 2 (June 2000), meria.idc.ac.il.
16. Shaffer, *Partners in Need*, pp. 66 and 74.
17. Antonenko, "Russia's Military Involvement in the Middle East."
18. Quoted in Carnegie Endowment for International Peace, Proliferation Brief, Vol. 3, no. 22, July 25, 2000. The Wassenaar Arrangement, signed in 1996, is an international agreement providing controls on the export of conventional arms and dual use goods and technologies.
19. Anton Khlopov and Vasily Lata, "Iran's Missile and Nuclear Challenge: A Conundrum for Russia, Nuclear Control," *Yadery Kontrol* (Digest of the Russian Journal Nuclear Control, Moscow: Pir Cente for Policy Studies in Russia) 8, no. 3-4 (2003).
20. Brenda Shaffer, *Partners in Need*, pp. 66, 74.
21. Anthony H. Cordesman and Ahmed S. Hashim, *Iraq: Sanctions and Beyond* (Boulder: Westview, 1997), p. 227.
22. Florence C. Fee, "Russia and Iraq: the Question of Russian Oil Contracts," *Middle East Economic Survey* 46, no. 14, 7 April 2003.

23. Energy Information Agency, Department of Energy, Country Profile, Iraq, www.eia.doe.gov/emeu/cabs/iraq.html and Fee, op cit.
24. Reuters, 3 June 2003.
25. Avineri, *Israel-Russia Relations*; and Central Bureau of Statistics (CBS), Immigration to Israel 1999, publication no. 1173, 2002. (Jerusalem: CBS, 2002).
26. *Ha'aretz*, 9 June 2003.
27. Energy Information Agency, Department of Energy, Country Analysis Brief: Israel, April 2004 (www.eia.doe.gov/emeu/cabs/israel.html); *Ha'aretz*, 15 December 2004.
28. *Ha'aretz,* 20 December 2004.

Notes to Conclusion

1. UNECE *Economic Survey of Europe 2004*, no. 1, p. 113.
2. Anthony H. Cordesman, "The Strategic Impact of Russian Arms Sales and Technology Transfers, Statement before the House Committee on International Relations," 25 March 1999. (www.CSIS.ORG).

Notes to Appendices

1. Paul Rivlin, *Arab Economic Policy and Performance* (Boulder: Lynne Rienner, 2001), chapter 1.
2. Gur Ofer, "Soviet Economic Growth, 1928-1985," *Journal of Economic Literature* 25, no. 44 (1987): 1767-1833.
3. Stanley Fischer, "Russia and the Soviet Union: Then and Now," in Olivier Jean Blanchard, Kenneth A. Froot, and Jeffrey D. Sachs, eds. *The Transition in Eastern Europe*, Vol. 1, pp. 221-36.
4. G. Wheatcroft and R.W. Davies, "Population," in R.W. Davies, Mark Harrison, and S.G. Wheatcroft, eds., *The Economic Transformation of the Soviet Union 1913-1945* (Cambridge: Cambridge University Press, 1994), pp. 57-81.
5. UNECE, *Economic Survey of Europe, 1991-1992*, pp. 136-46.
6. Aslund, *Building Capitalism*, p. 113.
7. Aslund, *Building Capitalism*, pp.125-35.
8. Robert Service, *A History of Modern Russia* (London: Penguin, 2003), pp. 522-26.
9. Daniel Treisman, "How Different Is Putin's Russia," *Foreign Affairs* 82, no. 6 (2002): 58-72.
10. Based on a World Bank definition of poverty of income per capita of up to $4 per day at 1990 international prices.
11. Michael Ellman, "Social Costs and Consequences of the Transformation Process," in United Nations Economic Commission for Europe, *Economic Survey of Europe, 2000*, no. 2/3 (New York and Geneva: United Nations, 2000), p. 137.
12. OECD, Economic Survey: Russian Federation, March 2000 (Paris: OECD, 2000), p. 44.
13. Proska Mohacsi Nagy, *The Meltdown of the Russian State* (Cheltenham: Edward Elgar, 2000).

14. European Bank for Reconstruction and Development, (EBRD), Transition Report, 2001, (London, EBRD, 2001), p. 188
15. Russian Economic Report, May 2002, www.worldbank.org.ru.
16. Russian European Centre for Economic Policy, *Russian Economic Trends* Vol. 11, no. 4 (Oxford: Blackwell, 2002).
17. United Nations Economic Commission for Europe, *Economic Survey of Europe, 2004*, no. 1 (New York: UN, 2004) p. 113.
18. This is a crude estimate because the SIPRI data, on which the calculation is based, is not market price figures.
19. United Nations Industrial Development Organization (UNIDO), Industrial Statistics, 2002. (Vienna: UNIDO, 2002).
20. Fischer, "Russia and the Soviet Union Then and Now," pp. 240-41.
21. Alexander A. Dynkin, "Russia's Economic Transition: Preliminary Outcome," in *Proceedings of the Industrial Development Forum and Associated Round Tables: Round Table 6, Transition in Eastern Europe: 15 Years After*, Vienna, 2003 (Unido.org), p. 404.
22. Sakwa, *Russian Politics and Society*, pp. 289-90.
23. Anil Markandya and Alinya Averchenkova, "Reforming a Large Resource-Abundant Economy: Russia," in R.M. Auty, ed., *Resource Abundance and Economic Development* (Oxford: Oxford University Press, 2001), pp. 277-95; and Sakwa, pp. 79-80, 289-90.
24. *Financial Times*, 5 August 2004; and Marshall I. Goldman, "Putin and the Oligarchy," *Foreign Affairs* 83, no. 6 (2004): 33-44.

JCSS Memoranda 2003–Present

(in English unless otherwise noted)

No. 79, November 2005, Paul Rivlin, *The Russian Economy and Arms Exports to the Middle East*.

No. 78, November 2005, Yoram Schweitzer and Sari Goldstein Ferber, *Al-Qaeda and the Internationalization of Suicide Terrorism*.

No. 77, September 2005, Mark A. Heller and Rosemary Hollis, eds., *Israel and the Palestinians: Israeli Policy Options* [Hebrew].

No. 76, June 2005, Yoram Schweitzer and Sari Goldstein Ferber, *Al-Qaeda and the Globalization of Suicide Terrorism* [Hebrew].

No. 75, March 2005, Uzi Eilam, *L'Europe de la Défense* [Hebrew].

No. 74, December 2004, Paul Rivlin and Shmuel Even, *Political Stability in Arab States: Economic Causes and Consequences*.

No. 73, November 2004, Shaul Kimhi and Shmuel Even, *Who are the Palestinian Suicide Bombers?* [Hebrew].

No. 72, October 2004, Aviezer Yaari, *Civil Control of the IDF* [Hebrew].

No. 71, July 2004, Anat Kurz, ed., *Thirty Years Later: Challenges to Israel since the Yom Kippur War* [Hebrew].

No. 70, June 2004, Ephraim Asculai, *Rethinking the Nuclear Non-Proliferation Regime* [Hebrew].

No. 69, January 2004, Daniel Sobelman, *New Rules of the Game: Israel and Hizbollah after the Withdrawal from Lebanon*.

No. 68, November 2003, Ram Erez, *Civil-Military Relations in Israel: Influences and Restraints* [Hebrew].

No. 67, October 2003, Asher Arian, *Israeli Public Opinion on National Security 2003*.

No. 66, October 2003, Shlomo Gazit, *Between Warning and Surprise: On Shaping National Intelligence Assessment in Israel* [Hebrew].

No. 65, June 2003, Daniel Sobelman, *New Rules of the Game: Israel and Hizbollah after the Withdrawal from Lebanon* [Hebrew].

No. 64, May 2003, Shmuel L. Gordon, *Dimensions of Quality: A New Approach to Net Assessment of Airpower*.

No. 63, January 2003, Hirsh Goodman and Jonathan Cummings, eds., *The Battle of Jenin: A Case Study in Israel's Communications Strategy*.