



Russia: Bank Assistance for the Energy Sector

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Acronym and Abbreviations

AAA	Analytical and Advisory
CAE	Country Assistance Evaluation
CAS	Country Assistance Strategy
CEM	Country Economic Memorandum
ECA	Europe and Central Asia Region
EMP	Environmental Management Project
FCPF	Federal Centre for Project Finance
GDP	Gross Domestic Product
GEF	Global Environment Facility
IFC	International Finance Cooperation
MEPNR	Ministry for Nature Use and Environmental Protection
MOE	Ministry of Energy
ODS	Ozone Depleting Substances
OED	Operations Evaluation Department
OPE	Oil Production Enterprises
PSA	Production Sharing Agreements
RFG	Russian Federal Government
SAL	Structural Adjustment Loan
SECAL	Sector Adjustment Loan
USAID	United States Agency for International Development

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Preface

This report is one of the background papers prepared as an input to the Russia Country Assistance Evaluation (CAE Task Manager, Gianni Zanini) by the Operations Evaluation Department (OED) of the World Bank. Findings are based on a review of project appraisal and completion reports, sector reports, research papers in the academic literature, and a number of other documents produced by the Borrower and the Bank. The author (a former Principal Evaluation Officer in the Operations Evaluation Department, Sector and Thematic Evaluation Division) visited Russia in February 2001 and interviewed current and retired government officials and Russian experts. Bank staff were interviewed at both headquarters and in the field office. An earlier preliminary version was discussed at a small workshop in Moscow in February 2001, with the participation of central government officials, academics, members of policy research institutes, and representatives of Bank-supported project implementation units. Their valuable assistance and feedback is gratefully acknowledged.

The author is grateful for the comments received on subsequent drafts by OED peer reviewers (Messrs. Jorge Garcia-Garcia and Fernando Manibog), the CAE task manager, other contributors to the CAE background work and ECA staff (Messrs. Peter Thompson, Gary Stuggins, Bjor Hamso, and William R. Porter), and Russell Cheetham (former ECA director of the department including Russia), which have been taken into account in the June 2001 version. However, the views expressed in this paper remain entirely those of the author. They do not necessarily represent the views of the World Bank.

An earlier draft dated June 28, 2001 was sent to the Russian Government for review. Comments were received from Mr. U. Gorlin, a consultant engaged by the Federal Centre for Project Finance (FCPF) on behalf of the Government, and have been taken into account in this paper.

Executive Summary

1. On the supply side, the Russian energy sector, more so than in almost any other country, dominates the economy and affects all other economic activities; in addition, energy production is a major factor in environmental degradation. On the consumption side, energy usage is central to the efficiency of use of all the country's natural resources. All sub-sectors faced the same general transitional environment, with problems related to legal framework, competition, environmental failures, access to investment funds, non-payments or barter payment for their outputs, etc. However, each sector has faced its own unique circumstances, and they have taken quite different paths during their transformations into market-based institutions. Producing industries have few similarities in terms of their industrial structure, organization, future growth path, investment requirements, and prospects; the policy issues that they raise and the actions that they require to become or remain healthy also differ. The oil and gas sectors provide high-value, internationally traded products with relatively low production costs and relatively small labor forces. As a result, these sectors are major sources of foreign exchange earnings, government revenue, and economic rents. The coal and electric power sectors are major sources of employment and produce primarily for the domestic market.

2. The Bank has been active in the energy sector from the very beginning of its work in Russia in 1991. Energy sector issues (production, pricing, taxation, legislation to support joint ventures, and investment requirements) were central themes in the Bank's first Country Economic Memorandum, which was discussed with the Russian Government in September 1992. When the Energy Sector Board undertook a Bank-wide review of the energy component of Country Assistance Strategies (CASs), it found a good discussion of the energy-macro linkages and energy-poverty linkages in the Russia CAS, a thorough discussion of the energy-long term economic growth linkages and the energy-governance and private sector development linkages, but only a limited mention of the energy-environmental sustainability linkages. The 1994 coal sector report stands out as a high-quality analytical and advisory work.

3. The Bank has rightly followed differing approaches to working with each sub-sector, based on its evaluation of the central problems of that sub-sector, and on its assessment of the Government's willingness to accept Bank policy advice for resolving identified problems. The Bank's approach to the energy sector can be characterized as one that took advantage of windows of opportunity in its different sub-sectors by supporting those emergency activities and reform programs for which the Government showed a clear sign of ownership.

4. The results have been mixed, with good outcomes in the coal sector (to date), but unsuccessful attempts to address the policy and institutional reform agenda for Russia's energy industries, especially in oil and gas. In the electricity sector, there has been considerable progress in recent months, with great improvements in cash collections and a new resolve to reform and de-monopolize the sector. There has been little mainstreaming of environmental concerns, in spite of a successful Global Environment

Facility (GEF) project for Ozone Depleting Substances (ODS) reduction, and the national environmental institutions have been greatly weakened.

5. The Bank performed well not only in the coal sub-sector, but also in the electricity and gas sub-sectors, where responsibility for the failure or limited progress of reform rests squarely on the Government's shoulders.¹ In the oil sector, the Bank moved quickly to make a loan that was intended to give itself a "seat at the table" in the discussion of reforming the sector, but it was unable to convince the Government to implement the necessary reforms. The Bank also was not able to influence the oil transport sector, which has been the major bottleneck to expanding oil exports. The Government made a major strategic mistake when it partially divested its shares in the energy monopolies in the early stages of economic reform, prior to their restructuring and the establishment of a regulatory framework. The Bank was unable to influence this decision.

6. More recently, the Bank has begun to have an impact on the policy dialogue in the power sector, with most of the sector policies agreed to in SAL III showing up in the Gref policy paper that was prepared at the request of the current Government.

7. Looking to the future, the Bank ought to:

- extend further lending support to complete the coal sector restructuring program (SECAL III);
- remain engaged with lending and non-lending assistance in improving the efficiency and financing of household energy use;
- remain engaged with policy dialogue and ongoing technical assistance in the restructuring of the energy monopolies;
- extend guarantees and lending for capacity expansion in power generation and transmission, and for oil and gas export pipelines, but only after restructuring is well under way;
- offer assistance to provincial (*oblast*) governments to reduce urban air pollution;
- work with the Government to establish a program for reducing gas flaring in conjunction with oil production operations; and
- press the Government to re-establish a central, independent Environmental Ministry.

¹ The Federal Centre for Project Finance (FCPF) of the Russian Federal Government (RFG) believes that this judgment is not justified.

1. Introduction

1.1 The Bank has been active in the energy sector from the very beginning of its work in Russia. It fielded an energy assessment team to review the situation in the oil, gas, coal and power sectors as part of its contribution to the first Joint World Bank-International Monetary Fund Study of the Soviet Economy (February 1991). More so than in almost any other country, this sector dominates the economy and affects the fundamental workings of all other economic activities. Energy sector issues (production, pricing, taxation, legislation to support joint ventures, investment requirements, etc.) were central themes in the Bank's first Country Economic Memorandum, which was discussed with the Russian Government in September 1992. They touch every aspect of the economy and are central to the country's future growth and the people's well being. Oil and gas exports are critical for Russia's balance of trade and Government revenue, and, at the micro level, district heating facilities (and their needed supplies of coal, oil, gas and electricity) are critical to the survival of the Russian people over the long and harsh months of winter.

1.2 Because of its pervasive influence in the Russian economy, issues related to the energy sector have always been very important in the Bank's country assistance strategy for Russia. When the Energy Sector Board undertook a Bank-wide review of the energy component of Country Assistance Strategies (CASs), it found a good discussion of the energy-macro linkages and energy-poverty linkages in the Russia CAS, a thorough discussion of the energy-long term economic growth linkages and the energy-governance and private sector development linkages, but only a limited mention of the energy-environmental sustainability linkages. The level of CAS discussion demonstrates the importance that the country management has placed on these issues.

1.3 The sector's macro problems are also central to the problems of the entire economy. During the 1990s, the inability of the sector to be paid in cash for its output, and the subsequent decline into a system of payment based on barter trade and promissory notes was symptomatic of and central to the failure of Russia's market economy to function efficiently.² On the consumption side, energy usage is central to efficiency of use of the country's natural resources, and energy production is a major factor in environmental degradation. All productive sectors have been struggling with problems related to energy efficiency and energy pricing. The domestic sector has been struggling with problems of efficiency of energy use in district heating, and in the pricing and subsidies for the supply of electricity and space heating to the domestic sector.³

1.4 However, in implementing its lending program and sector work, the Bank has also recognized that the energy-producing sectors (oil, gas, coal, and electricity) have few similarities in terms of their industrial structure, organization, future growth path, investment requirements and prospects, or the policy issues they raise and actions they

² In the mid- and late 1990s, cash payments averaged less than 20 percent of total sales for the electricity sector (RAO UES), and the gas sector (GAZPROM).

³ These two areas also overlap: improvements in the efficiency of energy use also decrease the production of greenhouse gases.

require to become or remain healthy. The oil and gas sectors provide high-value, internationally traded products, with relatively low production costs and relatively small labor forces. As a result, these sectors are major sources of foreign exchange earnings, Government revenue, and economic rent. The coal and electric power sectors are major sources of employment and produce primarily for the domestic market.

1.5 *Russia's oil sector* is one of the largest in the world. It has large, untapped reserves in over 40 fields that were discovered in the 1970s and 1980s, but never developed. Production fell by over 50 percent between 1987 and 1995 due primarily to insufficient maintenance and replacement funds. The Government's overall objective for the petroleum sector has been to increase production and exports. European markets can absorb as much crude oil as Russia can produce. The sector has been a major contributor to land and water degradation, through spills of oil in exploration, production, and transport activities, and to global warming through greenhouse gas (GHG) generation brought about by the massive flaring of natural gas that is produced from its oilfields in association with oil production.

1.6 *Russia's gas sector* has 40 percent of the world's known reserves. It is a low-cost producer, with most of the gas coming from four super-giant fields. The Government's overriding objective in the gas sector has been to shift domestic energy use from oil and coal to gas. Expanded domestic consumption will not reduce exports, since European markets are absorbing about as much gas as they can. The sector is also a significant source of GHG, as a result of natural gas losses from the transmission and distribution pipeline systems.

1.7 *Russia's coal sector* is a high-cost energy producer relative to gas and oil. Under Soviet economic planning, it was organized and run in a highly inefficient manner that necessitated substantial implicit and explicit subsidies. By the mid-1990s, it was the second largest drain on Government resources (after agriculture). The Government's overriding objective for the coal sector has been to reduce and rationalize production and thereby to reduce (and eventually eliminate) Government subsidies.

1.8 *Russia's electricity sector* is run by RAO UES, the world's largest monopoly. It controls the generation, transmission and distribution of electricity throughout the Russian Federation. As both a producer and a consumer of energy, its profitability depends entirely on the prices that it pays for its primary energy inputs (coal, gas and oil), on cross-subsidization from industry to households, and on its ability to collect outstanding billings. In this last area, it has been highly successful, increasing its cash collections from about 15 percent in 1999 to more than 90 percent in the first quarter of 2001.⁴ It has remained highly centralized, due, in part, to its dependence on its two million-kilometer national grid needed for transmission and distribution of electricity from its far-flung network of generating stations. It has required little investment throughout the 1990s, because demand for electricity was declining even faster than generating capacity, but the scarcity of resources for even routine maintenance and repair

⁴ This has been made possible by the overall changes in Russia's economy environment, not just sector actions.

has led to a rapid deterioration of generation facilities and a decline in system reliability. Massive new investments will be needed if the system is to stabilize and then expand to support a growing economy. The Government's overriding objective for the power sector has been to unbundle generation, transmission and distribution functions and establish a regulatory framework within which private sector investments for new generation facilities could be attracted.

1.9 *All energy sectors* faced the same general post-Soviet environment, as did all productive sectors of the economy. They faced problems related to legal framework, competition, excess employment, environmental negligence, lack of access to investment funds, non-payment or barter payment for their outputs, etc. However, each sector has faced its own unique circumstances, and they have taken quite different paths during their transformations into market-based institutions. The Bank has followed differing approaches to working with each sector, based on its evaluation of the central problems of the sector, and on its assessment of the Government's willingness to accept Bank policy advice for resolving their problems. The Bank's approach to these sub-sectors can, therefore, be characterized as one that taken advantage of windows of opportunity to help these key sectors, by supporting those activities for which the Government showed clear sign of ownership of reform programs that the Bank believed were necessary to move the sector forward.

1.10 As will be seen in the following discussion of the Bank's activities in each sector, the Bank has started its activities in each sector with a significant sector work program. This sector work has enabled it to develop a reasonable understanding of the sector's problems as well as to develop a clear policy and set of goals for its lending and technical assistance activities in that sector. Its programs have, for the most part, been well tailored to the results it was seeking. The results have been mixed. This is not surprising. The unsettled and uncertain environment of Russia during the first ten years of its transition from a highly centralized planned economy to a more open, more market-based one has meant that there has been a great need for assistance on policy reform, even when there was only a small political constituency interested in this advice. Because of their large size and critical importance, the energy sectors have had the most difficult time in making this adjustment. The potential rewards for the economy if the transition process is successfully implemented are great, but the risks of not achieving the desired objectives have always been high. The Bank has had little choice but to act on the opportunities to influence the sector's development as they arose—the sector is too important to ignore.

2. The Household Energy Sector

2.1 Russia's extremely cold winters have made the supply of domestic heating a critical activity for the 75 percent of its population that lives in urban areas, without which survival itself would be problematical. However, energy is only one of several closely linked household services provided by the state. Thus, there has always been a close linkage of policies for the provision of domestic heating, domestic electricity supply and housing maintenance and repair. It is difficult to disentangle the social issues

and economic problems related to allocation of resources, cost controls, welfare benefits, and implicit and explicit subsidy programs related to the provision of these services.

2.2 At the beginning of the 1990s, urban housing and utilities were provided by enterprises or by the state. They were provided essentially free of charge as a complement to low cash wages,⁵ and represented a major element of total labor compensation. During the transformation from a centrally planned economy, the responsibilities for supporting this sector were shifted to municipal governments. This program shifted practically all of the federal government's social expenditure responsibilities to lower levels of government. At the same time, social assets of most enterprises (e.g., housing, education and health services) were being transferred to the municipalities, as part of the mass privatization program. Municipalities became responsible for the repair, maintenance and operation of large district heating facilities, along with the maintenance of the enterprise housing stock, just when the decline of local industries led to the collapse of their tax base.

2.3 The 1992 Country Economic Memorandum (CEM) noted that escalating housing and utility subsidies threatened the fiscal position of local governments. Reform of housing rents and utility tariffs was seen as essential both to relieve the unsustainable burden of subsidies on the budget and to reduce energy losses and waste. Price reform for utilities (and rent to cover maintenance costs) was, therefore, a central element of all major economic reform proposals put forward in the early 1990s, although the scope and pace of price liberalization were highly controversial issues.

Sector Work

2.4 The Bank has advocated rapid, economy-wide price adjustments, including moving progressively toward full-cost recovery for housing and utility services, with targeted assistance provided to the most vulnerable, and argued strongly against the widespread tolerance of non-payment and the continued application of large price discounts to privileged consumers. The Bank implemented a Housing and Utility Services study in 1998. This study observed that municipalities were increasingly unable to support housing and utility subsidies, and that this lack of funds resulted in a growing level of overdue payables to utility companies and a rapid deterioration of the housing stock due to insufficient maintenance. The study argued for an immediate increase of cost recovery up to 50-60 percent.

2.5 Responding to government concerns that many households would not be able to pay full-cost-recovery tariffs, the Bank generally recommended the use of income-tested subsidies to soften the negative impact of rising utility tariffs on low-income households. The study also emphasized the urgency of improving the targeting of social assistance to needy households and the phase-out of price discounts provided to privileged consumers. However, the Bank provided little practical advice on the administration and financing of these income-tested cash transfer mechanisms, and tended to overestimate the coverage of the poor that could be achieved by these mechanisms.

⁵ In 1992, the cost recovery ratio of housing and utility services was below 10 percent.

Lending Program

2.6 The Bank's lending program for district heating has grown from small project components to entire projects. The projects are:

- (i) A relatively small component in the Enterprise Housing Development Project,
- (ii) A larger component in the restructured Energy Efficiency Project (March 1995), and
- (iii) A full-scale Municipal Heating Project (March 2001).

2.7 The Enterprise Housing Development Project component focused on demand-side management approaches to improving the heating efficiency of houses that had been transferred from enterprises to municipal governments. The program has had a great deal of difficulty in meeting its objectives. Five cities allocated substantial resources to engineering studies to evaluate opportunities for insulation retrofitting and heating system improvements. The project started by focusing on retrofitting insulation, which involved many small subprojects. Subsequently it shifted its focus and most of its resources to energy-saving central boiler repairs and upgrades, which had larger individual components and shorter payback periods.

2.8 The Energy Efficiency Project provided financing for cities and oblasts (provinces) to reduce their energy costs by improving the efficiency of their power generation plants and district heating facilities, and for the installation of heat and gas meters. Five cities participated in the initial sub-projects. The results were highly satisfactory in terms of the gas savings achieved and the payback period for most sub-projects. The Quality Assurance Group (QAG),⁶ which is the World Bank's internal review organ for ongoing projects, found that the project was well focused on development impact and that the environmental issues were adequately incorporated in the sub-project feasibility studies. However, the financial crisis of 1998, as well as project management problems resulted in low disbursements and a period of suspension. The Energy Efficiency Project was the forerunner of the recently approved (March 2001) Municipal Heating Project discussed below.

2.9 The Municipal Heating Project followed the policy guidelines set out in the 1998 Housing and Utility Services Review. Cost recovery needed to increase to 60 percent of operating expenditures by negotiations,⁷ and social assistance was to be better targeted to needy households. The investment portion of this project focuses on reducing the cost of heat supply in several medium-sized cities (less than 500,000 inhabitants) through repair and rehabilitation of the heating system and the introduction of modern technology to improve system efficiency and the quality of heat supply. The sector policy includes improving the financial viability of the municipal governments and their heating enterprises. This program included moving from general subsidies to targeted subsidies

⁶ The QAG reviews the progress of projects currently under active implementation and supervision, and reports its findings to the Management of the Region responsible for the project.

⁷ And is supposed to increase to 100 percent by 2003.

for low-income households, to compensate for the higher heat prices need to meet cost recovery objectives.

Possible Agenda for Future Action

2.10 The problems surrounding district heating are central to the most fundamental of survival concerns of the Russia people. They are Russia's most pressing poverty issue. These problems will become ever more critical during the coming decade, as municipal facilities continue to deteriorate, and they are closely intertwined with municipal finance issues, housing infrastructure issues, power consumption issues, gas and electric power sector institutional issues, and urban environmental concerns. Additional lending in this area could have substantial economic and social payoffs and should be given high prominence in the Bank's future lending program.

2.11 Only two Bank studies have been able to use statistical evidence from household surveys to evaluate the extent to which the applied subsidy mechanisms reached their stated objectives. The Bank needs to support an analytical work program that could provide a basis for more specific policy advice on how to implement an appropriately focused household subsidy program covering heating, electricity and maintenance costs.⁸

3. Energy and the Environment

3.1 The Russian Federation has inherited an enormously costly environmental legacy from decades of inefficient economic development that failed to include environmental factors and natural resource management concerns in its development strategies and national investment plans. An industrial incentive system evolved in which a total disregard for efficiency in the use of resources was normal. As a result, industries consumed, on average, more than twice as much energy and raw materials to produce the same final product as in market economies. In the energy sector, the comparison is even more striking, as Russia has the world's most energy-intensive economy.

3.2 Urban air pollution is a major concern for Russia in terms of both premature deaths and economic losses due to the poorer health of its citizens. Air pollution from heavy industry, district heating, and electricity generation is Russia's most important energy sector environmental problem today. Air pollution from vehicle emissions is of growing importance. Oil spills from production facilities and transport pipelines have had a particularly devastating local environmental impact. Massive volumes of natural gas, produced as a byproduct of oil production are flared (burned) at the oilfields, which has added significantly to Russia's CO₂ production. Coal production has led to land subsidence, with concomitant loss of housing, and hazardous slag mountains. Gas

⁸ The FCPF notes that "But the major challenge is the time which this shift would take and, most importantly, the most appropriate methods for that, i.e., how it should be done where there is a growing share of overdue payables to utility companies not only because many Russian households do not pay even relatively low tariffs for housing and utility services because they do not want to, but also for the reason that there are many people who have no money to pay."

production, transport and distribution facilities have sustained large leakages of methane gas, which has a twenty times more powerful greenhouse effect than CO₂.

3.3 A Ministry for Nature Use and Environmental Protection (MEPNR) was first established in 1990, and Russia began to recognize the magnitude of its environmental problems. In 1991 it passed a law on Environmental Protection, which set out a noble set of principles, e.g., every citizen has the right to a healthy and safe environment. This law also mandates an environmental impact assessment review for all development activities and establishes a role for NGOs to assist with monitoring and enforcement. Given the breakdown of the command and control economy, the lack of resources, and conflicting priorities for available funds, these high ideals have yet to be translated into action programs. Environmental issues are still low on the Government list of priorities—federal budget allocations for environment programs are far below what environmental specialist believe are the most urgent needs and are continuing to shrink.

3.4 In a series of complex institutional reorganizations in 2000, the MEPNR was effectively merged with, and subordinated to, the Ministry of Energy (which, in the past, had been primarily concerned with expanding energy output). This new institutional structure was renamed the Ministry of Energy and Natural Resources. This loss of independence has brought into question the new government's commitment to serious environmental reform. The Bank should continue to urge the Government to re-establish and support an independent Ministry of Environment.

Sector Work

3.5 The Bank implemented an Environmental Review in 1992. Since then, its efforts have focused on:

- (i) Improving government policy, regulations, and the institutional framework for environmental management at the federal level and in selected provinces;
- (ii) Preserving and strengthening existing environmental management infrastructure during the period of restructuring the economy; and
- (iii) Supporting economically attractive projects that are “win-win” because the savings from the reduction in use of natural resources in industrial processes are more than sufficient to cover the investment costs.

3.6 In response to the Government's policy of devolving environmental responsibility from the national level, the Bank has focused its technical assistance lending activities on developing replicable oblast- (provincial) and city-level legislation and institutions in core constituencies. At the same time, it is supporting inter-provincial initiatives to transfer knowledge and “best practices” developed under the project. The Bank anticipated that, as the policy and regulatory framework improved over time, it would be able to shift its program to supporting infrastructure investments for improving water supply and sewage treatment facilities, reducing urban air pollution, and improving hazardous waste management. This technical assistance program was implemented

through the Environmental Management Project, discussed below. It was well conceived and well executed. However, Russia is currently a long way from the point where it might put a high priority on these environmental activities.

Lending Program

3.7 The Bank has supported three environmental projects. Two focused on specific, well defined environmental projects: one to mitigate the impact of a major spill from an oil pipeline, and one to assist several enterprises to shift their refrigerant production from ozone-depleting CFCs to other, more environmentally friendly, refrigerant products. This project was financed by the Global Environment Facility (GEF) and supervised by the Bank. The third, a more ambitious Environmental Management Project, provided technical assistance for strengthening environmental control institutions at the federal and provincial level. It also provided financing for industrial “win-win” environmental projects, defined as those projects that would pay for themselves by conserving on the use of environmentally costly inputs (such as energy). In addition, the district heating projects have directly supported improvements in the efficiency of energy utilization.

3.8 The Emergency Oil Spill Mitigation Project was quite successful, due to a strong borrower commitment to effective project implementation. Clean-up was quick and effective; no oil was released into the Kolva River during the spring thaw. Replacement of the riskiest portions of the 720-kilometer pipeline was completed in 1995. In October 1999, crude oil that was spilled was still being stored in open “polygons.” Six of these containment structures were drained and closed in 2000, and the rest are to be closed this year.

3.9 The GEF Ozone Depleting Substance Project (approved May 1996) has been highly successful. All five plants producing CFCs have been closed, and substitute chemicals are now being produced. The mid-1998 QAG report judged the supervision to be of high quality and effective. The Bank was deeply involved in the project implementation process, taking full supervising responsibility for the work of the consultants who designed the project sub-components during project implementation, until the Project Implementation Unit (PIU) unit was considered strong enough to take over that responsibility.

3.10 The Environmental Management Project (EMP) (FY95) was developed on the basis of the recommendations of an in depth Energy and Environmental Review implemented by the Bank in 1992. It had a technical assistance (TA) component whose objective was to help the federal and provincial governments to establish strong policy initiatives, and a lending component that was to support economically attractive “win-win” projects that could be justified from the savings they produce by reducing their use of natural resources. The TA program has resulted in the passage at the federal and provincial levels of several new environmental laws and the regulations needed to enforce them. Expertise under the TA component has been widely recognized by the Federal Government, State Duma, and provincial government stakeholders as a critical element in the country’s ongoing efforts to restructure Russia’s national environmental

management system and to incorporate environmental sustainability into its economic development planning.

3.11 The project's lending component has failed to meet its disbursement objectives. Its design was based on the idea that the first phases of environmental clean-up should be implemented primarily through the identification and financing of cost-effective, financially profitable, environmentally friendly sub-projects, the so-called "win-win" approach. This was a dubious proposition in the context of Russia. While there are undoubtedly many such opportunities, enterprises in transition usually have to cope with the larger problems of surviving in a shrinking market and on the need to modernize their higher-priority operations under conditions of scarce credit. Furthermore, in a transition economy, the lender has the additional problem of identifying which enterprises are creditworthy and would continue to be creditworthy, and which enterprises are unlikely to survive Russia's ever-so-slow move to a competitive, market-driven economy.

Possible Agenda for Future Action

3.12 In the past several years, the environmental agenda has, effectively, been marginalized, both by the client and by the CAS process. At the country level, after the elimination of the MEPNR, the Ministry of Economy has tended to ask, "Why bother about the environment, when we have so many other issues to resolve?" At the Bank, funding to support the development of a program has been difficult to find. There does not appear to be any room for such activities in the SAL and CAS programs, and attempts to "mainstream" an environmental lending program and Analytical and Advisory (AAA) work has not been successful.

3.13 New measures will have to be implemented if Russia is to improve its environmental performance and reduce the deleterious impact of the energy sector on human health. The second phase of the Energy and Environment Review will focus on the Rostov province. It is expected to identify and evaluate all the main issues of urban air pollution in this specific environment, and to recommend practical solutions to these problems, solutions that should be replicable in other provinces of Russia.

3.14 The flaring of associated gas from oil field production is one of the major sources of GHG in Russia. It could be greatly reduced if Gazprom were to permit oil companies to supply this gas to the trunk pipeline or to smaller northern cities that do not have access to piped gas. The Government needs to consider instituting a reward and penalty system that would encourage companies to reduce this flaring to a minimum. Norway does this by charging companies the economic value of the gas, which it estimates at US\$3.50 per thousand cubic feet (MCF). Kazakhstan has told Western oil companies that they will not allow any flaring of gas during the exploitation of the newly discovered oil field in the Caspian. In the U.S., companies are allowed rapid write-offs of gas utilization investments. Since most oil companies have a backlog of projects with much higher rates of return than marginally profitable gas recovery projects, funding might be a problem. To encourage oil companies to implement gas flaring reduction projects, the Bank should consider working with the GEF to establish a revolving fund that would lend

for such projects. This fund could reinvest the repayment stream to continue to expand the program.⁹ A GEF fund could also reduce the risk for commercial banks that might participate in the project lending. IFC might also consider joining with GEF on establishing such a fund, since the risk of default would be low for loans made to oil-producing companies with good cash flows. However, all such projects would require Gazprom's active support in transmitting the gas to the consumer.

4. The Oil Sector

4.1 When Russia joined the Bank, the oil sector, which was the country's most important foreign exchange earner, was in a steep decline. The Bank believed that, if the institutional and legislative structures could be improved to the point where international oil companies were willing to invest, the sector could absorb investments on the order of US\$40-\$50 billion over a ten-year period, and become the country's engine for renewed economic growth. If these institutional reforms could be implemented, IFC would have been able to play a major role in supporting private sector investment, while the Bank could support the Government investment program in Production Sharing Agreements (PSAs).

4.2 The Bank believed that lending could produce rapid tangible results in terms of increases in oil production, a high economic rate of return, and a significant increase in foreign exchange earnings, while providing the basis for an extended dialogue on improving the sector's institutional framework. Thus, while the risk of failing to meet its goal of transforming the sector was great, the potential rewards for the Russian economy were also great. And even if the technical assistance provided did not lead to the institutional and legal reforms needed to transform the sector, the lending program would still provide significant direct benefits to the economy.

Lending Program

4.3 The Bank made two oilfield rehabilitation loans to increase oil production from operating oilfields. Each rehabilitation loan supported the efforts of three Oil Production Enterprises (OPEs) to reverse the trend of declining production by investing in rehabilitating operating oil fields. The Bank's projects financed the importation of oilfield consumables and down-hole electric pumps that were needed to bring closed wells back into production. Because they were essentially maintenance investments in already operating oil fields, their economic rates of return (at international prices) averaged over 60 percent. However, for reasons discussed below, the Investment Completion Reports for the two projects rated the overall outcome as unsatisfactory, the sustainability as unlikely, and the institutional development impact as modest. OED concurred with these ratings.

⁹ Such a fund would be, in effect, a new lending instrument for GEF, which currently only provides grants, and has not yet undertaken a grant-based revolving fund.

4.4 The investment projects did meet the original objective of helping to reduce the risk that Russian oil production would fall so far that exports to hard currency markets would substantially decline. However, this strategy for assuring the maintenance of hard currency revenue may have been made on the basis of an overly narrow view of the Government's underlying sector objectives. The problem should have been defined in the broader sense of how to assist Russia to maintain and even to increase oil exports as a critical element in maintaining the country's fiscal stability. Project design failed to focus on this objective.

4.5 First, the pipeline transport system, which was operated by the state monopoly Transneft, was the major constraint to increasing exports to European Union countries. The Bank implemented a major oil pipeline system Transport and Export Study (financed primarily by USAID), which clearly laid out the weaknesses of the current system and made significant recommendations for institutional reform. This was followed by Bank lending for a feasibility study for a Baltic Pipeline System. This pipeline project was included in the Bank's lending program, but was never financed by the Bank. It was not supported by the Government, primarily because it would have required substantial reform in the oil transport system, which Transneft and the Government were unwilling to consider at that time.¹⁰ Throughout the 1990s, the Bank was unable to get the Government to agree to break the monopoly status of Transneft or to get Transneft to make the investments needed to increase its export capacity. Therefore, it is unlikely that the increase in production from the six enterprises supported by Bank loans had any impact on exports. Instead, the new quota system, which was based on each company's total production (as a percentage of total Russian oil production), may have just created an incentive to increase total oil production, without increasing the volume of exported oil.¹¹ This process had the effect of increasing the total volume of oil available in the domestic market, effectively depressing domestic oil prices far below international levels.

4.6 Second, the lack of funds may not have been the primary cause for the decline in Russian oil production. There is evidence to suggest that the decline in investment was a rational economic decision by the OPEs to maximize their profits, after they were finally freed from government quantitative production controls. The net prices received for oil sold on the domestic market were so low (and even negative at times, due to the nature of the taxation system) that it would have been financially irrational to invest in expanding, or even maintaining, production. After the Government reimposed tariffs on imported equipment, several of the OPEs cancelled large portions of their loans because they found that the proposed investments could not generate enough revenue to repay the loans. Furthermore, Russian oil production rose significantly in 2000, shortly after total revenue and profitability increased when international prices rallied towards the end of 1999.¹²

¹⁰ The first phase of the Baltic Pipeline system is currently being implemented by Transneft.

¹¹ It should be noted that Transneft has implemented a series of measures, such as installing flow improvers and increasing storage capacity at the port of Novorossiysk, to increase export capacity over the past few years, and the Region expects that, with declining production from eastern Russian producers who use the Transneft system, export capacity will move into surplus in the not too distant future.

¹² While total exports did not increase, profits from exports did, and, because export quotas were allocated on the basis of total production, OPEs had an incentive to increase production to become eligible for larger crude oil export quotas. Since the increased oil production went primarily to the domestic market,

4.7 Third, it may have been more efficient to increase the amount of crude oil available for export by improving the efficiency of Russia's oil refineries than by increasing crude output. The Russian refining sector is based on old and inefficient technologies. It has almost no secondary refining activities needed to increase the amount of high-value "white" products (light fuel oil, kerosene, diesel and gasoline), and reduce the amount of low-value "black" products (heavy fuel oil). This lack of adequate secondary cracking facilities resulted in much more crude oil being needed to meet the domestic "white" product demand. This problem increased as the number of cars and trucks using these products increased exponentially in the 1990s, and it continues to increase. The Bank implemented a major study of the refinery sector, and found that there were strong needs for modernization. It also tried to prepare a refining rehabilitation project with a foreign partner, but, in the end, the Government rejected foreign direct investment. After all of the refineries were privatized between 1995 and 1997, primarily as part of the "loans-for-shares" privatization program, the Bank decided to discontinue work in this area.

Sector Policy

4.8 The Lending Program established a useful vehicle for the Bank to provide a substantial program of technical assistance on issues related to the establishment of the institutional, legislative and taxation framework needed to attract the large-scale foreign investment that the sector required for long-term growth. This technical assistance program was well conceived and well executed, but was insufficient to overcome the hurdles of Russia's internal politics, and went substantially unheeded. The legislative reforms that the Bank supported were initiated, and some of them were passed by the Duma, but the reform movement ran out of steam before the Government could establish a fully consistent framework needed to encourage direct foreign investment in the sector. The sector's assets were too large to be left unexploited by the oligarchs who had such a strong influence on Russian economic and political policy during the first half of the 1990s. They were privatized in late 1995, in a less-than-transparent "loans for shares" privatization program, the implementation of which was closely tied to Mr. Yeltsin's run for a second term as president in 1996. By early 1997, it became clear that the new owners of Russia's oil assets were uninterested in the rapid growth of oil production if this meant working with foreign oil companies, and they were unwilling to support legislation that would facilitate foreign entry into the sector. All progress in improving the legislative framework stopped. Work on the implementation of a joint venture investment project for the development of a new oil field, on which the Bank had been working jointly with IFC, stopped when the foreign sponsor withdrew. Technical assistance efforts in the sector were greatly curtailed, and the Bank shifted its attention primarily to the implementation of the projects it was financing.

domestic oil prices remained stable. The relation between domestic and world prices was not a simple one, however, since large spreads between the two provided opportunities for some refineries to export lower-valued heavy oil products.

4.9 The privatization program also negatively impacted project implementation. Under the new ownership structure, financial decision-making shifted from the oil production enterprises (OPEs) that were implementing the projects, to the new owners, bank holding companies. These new owners were more interested in extracting rent than developing and implementing long-term investment programs. The change in ownership of the implementing agencies should have triggered a Bank reassessment of the project objectives, especially when it became clear that the authority for project investment decisions was shifted from the OPEs to their bank holding company owners. Instead, the Bank took the position that increased oil output was sufficiently important to the Russian economy that the Bank should continue to support project implementation, even though Bank funds were now being provided to the subsidiaries of private-sector holding companies, with which the Bank had no direct relational agreements. However, the Energy Division did take the unusual step of immediately downgrading the “Development Objectives” performance rating of both oil rehabilitation projects from “satisfactory” to “unsatisfactory” to bring to the attention of Bank Management the negative policy impact of this massive transfer of public assets to private gain. Further disbursements stopped in 1998, when the borrowing entities failed to meet their repayment obligations to the Russian Government as stipulated in their onlending agreements. In total, only US\$760.5 million of the loans totaling US\$1.1 billion were disbursed.

Possible Agenda for Future Action

4.10 The Bank no longer has a role to play in the now mostly privatized oil production sector. However, there is still a great need for restructuring and rationalization in the oil pipeline transport sector, where Transneft is the monopoly pipeline operator. The pipeline transport industry remains a Government monopoly because it provides the Government with a convenient lever of power over the independent and powerful petroleum sector. Continuing to make Transneft the sole operator of oil pipelines will also limit Russia’s ability to de-bottleneck this critical sector, and will greatly reduce the incentives for foreign companies to invest in the sector.

4.11 Bank work in the sector should continue in the context of possible future SAL adjustment operations, with the focus on eliminating the monopoly position of Transneft and bringing the sector’s legal and institutional framework to a level where foreign private investors will feel comfortable in undertaking joint ventures with domestic companies, or even undertaking new exploration activities on their own. This program should include improvements in legislation related to access to both oil and gas pipelines. Access to oil pipelines is particularly important for new oil ventures, since they would need to export their oil to service their loans and repatriate their income. It is difficult to see what constituency the Bank can tap into to bring about progress in these areas. If appropriate legislation were to be passed, the Bank might consider lending to this critical transport infrastructure sector.

5. The Gas Sector

5.1 The gas industry is exceptionally large and important in the Russian economy. Gas production is equal to twice the total gas consumption of the entire European Union. Moscow consumes as much gas as does France. The sector is dominated by Gazprom, which owns and operates all of Russia's gas supply pipelines and all of its giant gas fields. Their production costs are low. Over 80 percent comes from four super-giant gas fields in Siberia and is fed through an extensive multi-country pipeline system that was built under the Soviet regime, with no current debt obligations. Gas reserves are more than adequate to meet current and foreseeable demand for many decades, especially since gas demand has declined and continues to decline across the region. While there is some scope for increased exports to Europe, there is a limit to the amount of Russian gas that Europe was willing to import, given the market constraints and concerns over security of supply. The gas sector's contribution to Government resource mobilization remained low throughout the 1990s: statutory tax rates were low and the tax structure failed to capture monopoly or resource rents.

5.2 The Bank made several attempts to help the Government rationalize its gas sector policy and to implement gas sector projects. While neither Sal I nor SAL II dealt with issues of the gas sector, a substantial portion of SAL III included conditionality that was designed to help the Government to implement a more transparent gas policy. The objective was to de-monopolize Gazprom by establishing national companies for each existing gas corridor and independent provincial distribution company. In addition, a new methodology would be established for gas pricing tariffs and gas transmission. Model contracts would be developed for transactions between gas producers and gas transmission companies, and excise taxes for gas production would be revised. None of these measures was implemented. This is not surprising, given Gazprom's financial and political strength. It is not clear why the Bank thought that it could get Gazprom to operate in a more transparent manner, when it could not get Gazprom to agree to a reform program. It probably should not have expended any additional staff time and political capital in introducing gas-related policy matters into SAL III.

5.3 On the project side, the Bank wanted to support the gas distribution companies in their efforts to reduce the amount of gas lost from their systems. Gazprom, which had agreed to be the implementing agency for the Greenhouse Gas Reduction component of the project never followed through to establish the project PIU, so the project component failed. The Bank also devoted considerable efforts to preparing a pilot project with Sibneft for processing and transporting gas that otherwise would be flared to small towns in Siberia. This effort also foundered when Gazprom failed to support the legislation that was needed to make it viable.

6. The Coal Sector

6.1 The problems of the coal sector, as outlined in the Bank's first Russia Country Economic Memorandum (September 1992), were similar to those previously faced by

Britain, Poland, and Germany. Each country's coal sector had been operated by a single monopoly with massive cross-subsidization between low- and high-cost mines. In 1993, coal prices were liberalized and allowed to respond to market forces. At the same time, rail transport subsidies were eliminated, putting more pressure on uneconomic mines. Coal subsidies ballooned, reaching one percent of Russia's GDP in 1993 and 1994, with a devastating impact on the Federal Government's budget. The Government began to reduce subsidy payments, effectively starving the sector for funds. Driven by the loss of markets, the loss of government funding, and the failure of many users to pay their bills, the subsequent retrenchment process was both ad-hoc and chaotic. Many mines were unable to pay wages for months at a time. Others stopped production, causing immense social distress and political tension. Coal miners were taking industrial action, including street protests in provincial capitals and in Moscow. Other workers, who could no longer afford to work without wages, simply quit. Employment in RosUgol's coal workforce fell from 914,000 in 1992 to 819,000 in 1994.

6.2 In 1993, the Bank joined with the Government to implement a detailed province-by-province analysis of the coal sector's problems. The report's findings were widely distributed and discussed within the Russian Government, and published as a Bank Sector Report entitled *Restructuring the Coal Industry: Putting People First* (Report 13187-RU, December 1994). This report took the position that employment reduction, with or without mine closures, needed to be managed in a socially responsible manner, within the context of an adequate social safety net. It argued that the process by which employment reduction was handled would be crucial to the acceptance of the overall restructuring program by mining communities. After substantial and extended internal discussions among all the affected parties, the government's inter-ministerial Coal Committee issued a consensus document on *Basic Trends for Coal Restructuring*, outlining the basic elements of the Government's long-term strategy to transform the coal industry into a sustainable and competitive sector.

6.3 The study was also used as the foundation for establishing a dialogue on a restructuring plan for the sector that the Bank could support, which would focus on improving the prospects for affected mine workers and their communities. The project that emerged was designed to support a structural adjustment process that would (a) shift resources away from unsound investments aimed at maintaining or expanding production, and (b) put primary emphasis on closing uneconomic mines and establishing a social safety net for miners and mining communities negatively impacted by the mine closing and restructuring program. Stakeholder consultation, based on quantified, systematic social assessment techniques, played a critical role in the success of the Bank in the coal sector, and was one of the key building blocks for increasing support for reform in Russia—a lesson for the future in sector reform, as is pointed out in the other paper.

6.4 By 1996, the Government had begun to make some progress in implementing its restructuring program. Coal subsidies had been reduced to below 0.50 percent of GDP. However, even this still massive support expenditure (of about US\$2.0 billion), which was larger than the industry's total wage bill, was insufficient for many mining

companies to keep their wage payments current. Nor were these subsidies being used to effectively restructure and downsize the sector. Instead, nearly half of the funds were being allocated for “price supports,” essentially payments to mining companies to cover operating losses and new investment, often in mines that had no prospect of ever becoming financially viable. By supporting uneconomic mines, the subsidy program was effectively blocking, rather than assisting, the restructuring process. But it was doing little to help the mineworkers—wages in some provinces were still 3 to 6 months in arrears, and miners were initiating serious labor stoppages.

6.5 The challenge facing the Government was how to close about half of the existing mines over an economically reasonable period of time and in a systematic and orderly manner, but in a way that would minimize the hardship on displaced miners and their communities. To accomplish this, the Government needed to shift the use of Federal subsidies from underwriting the operating and investment costs of uneconomic mines to underwriting activities needed to facilitate the closure of these same mines. The challenge facing the Bank was to help the Government to establish a system that would meet these goals, particularly the goals of protecting the displaced miners and their communities.

6.6 The core concept of this agreed restructuring policy was to shift the focus of the coal subsidy program away from financing wage payments and investments in uneconomic mines, and towards the closing of uneconomic mines in a clear, transparent, and monitorable manner. This meant that subsidies would be focused on supporting a priority program to cover the costs of closing uneconomic mines and the costs of a social safety net program. This safety net would include payment of back wages, severance and disability claims, and social counseling (*predisplacement consultations*) and retraining for displaced and retiring miners. It was also intended to include investments in environmental remediation and clean-up, repair of social infrastructure, and replacement of housing undermined by previous mining activities.

Lending Program

6.7 The first adjustment loan to support coal sector restructuring (SECAL I for L3955 for US\$500 million) was approved in June 1996. The aim of SECAL I was limited to the establishment of a socially sustainable policy and institutional framework for restructuring the industry. The social safety net program was designed to assist miners who would be losing their jobs during the rationalization process. It insured that they would receive the back pay owed to them, legal redundancy allowances and disability payments, and counseling and other services to help in finding new employment. This was a major improvement over previous conditions, where many of the most inefficient mines had reacted to cash shortages by simply not paying their workers for many months, and then simply closing down, leaving their miners and their communities stranded. The safety net program also emphasized the need to provide funding for the maintenance of the social infrastructure (housing, health services, and education) that the municipal governments had to assume after the closing of the mines.

6.8 The Government's performance under SECAL I substantially met the program's major objectives. By 1998, coal subsidies were nearly cut in half in real terms. One-third of these subsidies was earmarked for mitigating the social impact of mine closing and downsizing. Social assets and non-core activities were divested from productive coal companies and transferred to municipal governments. Over 90 mines were closed during 1994-1997, and employment declined by over 40 percent. Social subsidies (emergency housing and heating repairs and job creation activities) were distributed directly to the local communities, rather than through the mining companies.

6.9 SECAL II extended the objectives of SECAL I by strengthening the implementation of the safety net program and adding a substantial mining company privatization element. The ultimate sector goal was the elimination all subsidies and the privatization of all mines that had not been closed, so that the Government could withdraw from all direct support for the sector. The restructuring and the concomitant downsizing has been a very difficult process, one that has had to be continually supported and fine-tuned during implementation. The process was thrown off course by the 1998 financial crisis. The project was subsequently restructured from one large tranche to six smaller, discrete tranches. All of the original project objectives were maintained. The Bank's and the Government's perseverance has paid off; project objectives are being met. Two-thirds of the industry has been restructured, with over 160 mines closed by the end of 2000. In the beginning of 1996, 16.6 million tons representing some 6.5 percent of a all coal produced came from privatized mines. As of October, 2001, 65.5 percent came from fully privatized mines, and another 11.2% came from mines with over 75% private ownership. While many inefficient mines were closed in this period, coal production has remained actually increased from 255 million tons in 1996 to 258 million tons in 2000. The level of subsidies has fallen to less than 0.2% of GNP, and redundant miners have received their safety net payments. The process was greatly delayed due to the change in government in mid-2000, primarily because there was no political will to make the hard decisions on the fate of the last 70 or so mines that did not yet have restructuring programs. However, progress is now being made (October 2001), and there are good prospects that the Government will make the further hard decisions needed to complete the process over the next several years. SECAL II has been extended for another year, and there are ongoing discussions about the possibility of a SECAL III to help complete the restructuring process.

Possible Agenda for Future Action

6.10 While the Bank-supported restructuring program has been an unqualified success in many ways, it has yet to be completed. Many issues still need to be confronted to meet the program's original goals. These issues will remain if the Government carries out its plan to eliminate all coal sector subsidies by the end of 2002. First, and foremost, the restructuring program is not yet complete: between 25 and 40 mines taking heavy losses are still operating without restructuring plans. For the mines that have been substantially closed, the Government has yet to allocate even 20% of the funds promised for the rehabilitation of the social infrastructure. Most of the restructured mining companies still have massive debt overhang, primarily owed to the government. This debt is the result of

the unpaid federal, provincial and local taxes and assessments that remained on the books of the restructured companies and the fines engendered by their non-payment. This debt overhang will make it extremely difficult for them to obtain loans for new investment needed to ensure their continued operation.

6.11 The resolution of these problems will require careful consideration and strong political will. They provide a strong basis for arguing that, if the Government fulfills its commitments to continue the process of sector restructuring, the Bank should support a third Coal SECAL loan to complete the job started in SECAL I and II. A SECAL III loan would provide the Bank with an opportunity to negotiate an agreed framework for working out the solutions for these problems, and it would provide the basis for the Government to extend its Coal Subsidy program for the several years that will be needed to implement the program.

6.12 If these problems are not resolved, the sustainability of the coal industry will be in jeopardy. The new owners and management live under the constant threat that the Government could put the companies into bankruptcy and re-nationalize them or give them away to other groups. If they are unable to borrow for new investment, it will just be a matter of time before they will become technically non-viable. If the Government stops its subsidy program before it fulfills its obligations to the affected municipal governments, then large numbers of miner families will be left in non-viable living conditions. If these problems are not resolved, the Bank's coal sector restructuring program "with a human face" will have failed in its efforts for establishing the sector's long-term sustainability.

7. The Electric Power Sector

7.1 In the early 1990s, RAO UES ran the Russian electric power sector as a state monopoly. It was the largest power company in the world and it suffered from all of the excesses of the Soviet economic system. While there has been a significant decline in power generation capacity over the 1990s, demand declined faster than supply, so there have yet to be any widespread power shortages.

7.2 The sector's major problems have been:

- *Non-payment and non-cash payments:* In 1995, 30 percent of electricity bills were unpaid, and another 59 percent was paid through non-cash settlements (barter, bilateral debt settlements, and promissory notes). RAO UES avoided paying cash to many of its creditors, particularly for its primary energy inputs and its tax obligations. The lack of transparency of most of these transactions also facilitated tax avoidance and personal rent seeking.
- *Operating inefficiencies:* In the first half of the 1990s, employment increased by almost 40 percent, while output declined by about 20 percent. Higher costs and lower cash generation have led to under-investment in maintenance and refurbishment, which further reduced technical operating efficiency.

- *Uneconomic dispatch*: Although Russia has several million miles of transmission lines to distribute power over its wide network of power plants, it does not have an effective national dispatch system. Inefficient dispatch (that is, the operation of generation plants with high variable costs instead of those with low variable costs) is estimated by the Russian Institute of Energy Research to have cost over US\$1 billion per year by the mid-1990s.
- *Price distortions*: Industry tariffs in the mid-1990s were four times those of households. Tariff policy also reflected the implicit subsidization of those who avoided paying their electricity bills. This situation has greatly improved over the past year, although there are still substantial distortions in the tariff system.
- *Need for new investment*: In the next five years, half of Russia's non-nuclear power plants will have exceeded their rated service lives. Russia's primary problem will, therefore, be how to ensure sufficient investment in new generating capacity to meet the growth in demand as the economy begins to revive.¹³

The Bank's Strategy

7.3 The Bank's strategic objectives in the power sector have always been to improve sector performance and provide the basis for private investment through the implementation of the objectives it has set for power sector reform in all countries. These include unbundling of generation, transmission, and distribution activities, privatizing of generation and distribution, creation of a market-based dispatch system, and an independent regulator.

7.4 The Bank first met with RAO UES to talk about a program of structural reform in 1992. At that time, RAO UES showed no interest, and that was the end of the dialogue for several years. The change in leadership after the 1996 elections brought in new management at RAO UES. In early 1997, the new Chief Executive approached the Bank to provide technical support to help structure his reform program. The Bank saw this as a window of opportunity to make a substantial impact on the Russian economy by helping to restructure the largest electric power monopoly in the world. The Bank was aware of the fluidity of the political situation and the possibility that political changes could close this window of opportunity at almost any time. The Board approved a US\$40 million Electricity Sector Reform Technical Assistance Project in June 1997. The Board document explained that "while the project offers significant benefits, it carries corresponding high risks and an equally high profile. Government commitment to reform is of recent origin, and may not be sustained long enough to allow full realization." QAG judged the project's overall quality at entry, its concept, its objectives approach, and its risk assessment as highly satisfactory.

7.5 Unfortunately, the Chief Executive was replaced shortly after the project was approved and the staff of the PIU was dismissed. In the power vacuum that followed, the Federal Energy Commission (FEC) and the Ministry of Energy (MOE) both decided that they wanted access to the technical assistance funds. Negotiations dragged on for almost

¹³ The current estimate is for a 5 percent annual growth rate for the economy.

three years. The problem was finally resolved in early 2000, with the project being restructured into three separate subprojects, one for each of the three concerned entities (RAO UES, FEC and MOE).

7.6 During this period, the Bank's sector policy dialogue was implemented primarily through the three SAL loans. Its technical assistance efforts focused on establishing an electricity regulator and an economic dispatch system, and on getting the Government to raise electricity prices to economic levels. On both scores it was partially successful. In addition to providing advice and support for the establishment of an electricity regulator, it was instrumental both in getting the regulator funded in the Federal budget, and, subsequently, in getting the Government to allocate the promised funds so that the regulator could hire staff and set up shop. Electricity prices were increased, and, by 1996, average prices reached about 4 cents per kWh.¹⁴ However, there were still large cross-subsidies from the industrial sector to the household sector. The Government had agreed under SAL I to eliminate the cross-subsidy in two years, but, after the financial crisis of August 1998, the Government was unwilling to add to inflationary pressures by raising power prices. SAL II started the reform process again by establishing an inter-ministerial working group to pursue sector reform agenda, and by creating an independent Financial Operator that was to establish a competitive wholesale electricity market.

7.7 SAL III went further, with the Government issuing a resolution requiring RAO UES and the provincial distribution companies (*Energos*) to establish separate accounts for generation, transmission and distribution, as a preparatory stage for making them separate entities, and establishing simplified procedures for termination or reduction of energy supplies to non-paying customers. The second and third tranches of SAL III were to establish efficiency-based dispatch rules and retail pricing guidelines, and to begin the process of establishing independent generating companies and privatizing the provincial distribution companies (the *Energos*).¹⁵ The financial crisis of August 1998 derailed SAL III before the objectives of tranche two and three were met. However, the energy sector program agreed to and publicized under SAL III has continued to influence the debate on the restructuring of RAO UES. The current restructuring program owes much of its intellectual framework to the dialogue carried out in the context of SAL III. The *Gref Report*, which was initiated by Mr. Putin, and which outlined policy actions that the Putin Government should consider taking, proposes institutional changes that fully reflect the discussions that led up to the agreement on actions for SAL III, initiatives that the Government undertook under SAL III, and the follow-up work that was done in preparation for a proposed SAL IV.

7.8 The Bank under SAL III encouraged the establishment of a legal mechanism and the use of disconnections to discourage non-payment. There was little improvement in this area until mid-1999, but the new Government has shown its determination to eliminate this problem, and the improvement in 2000 was dramatic. Cash collections for

¹⁴ At the time, California wholesale distributors were paying 4-5 cents per KWh for power from new generating plants using gas-fired turbine technology.

¹⁵ At least ten *Energos*'s were to be privatized

the power sector increased from 17.6 percent in the first quarter of 1999 to over 90 percent in the first quarter of 2001.

Possible Agenda for Future Action

7.9 The outcome of the restructuring program is still open (as of March 2001). Even after the program is approved, much will depend on how it is implemented. Results are likely to vary widely among the provincial power companies (Energos). The general consensus at this time is that, after the restructuring, the real operational reform will still have to be implemented at the Energo level. Not all Energos and their provincial governments (oblasts) will be ready for real reform. Although UES has majority voting rights in most Energos, it has little real power when provincial ownership and provincial political interests are resistant to reform. The Bank and IFC will have to work together with those oblasts that are interested in real, transparent reform, in the same way that the Bank has been working with state governments in India to implement state-by-state reform necessary to attract private-sector investment.

7.10 Achieving adequate new generation capacity will be a massive challenge for Russia. IFC and the Bank both should play significant roles in helping to overcome this challenge. Once the sector reform process is implemented, IFC can lead the way in promoting private sector participation. However, the private sector is unlikely to be willing to take on all the risks in this sector. The Bank will need to help by establishing a loan guarantee program. It will also need to consider direct lending to the sector, both for transmission projects and to provide additional financing for some of the government's share of joint-venture investments.

7.11 Sector reform and the establishment of an independent regulatory body are essential elements in improving sector performance and attracting foreign investment. There are many other risks that will need to be addressed. Potential investors will be concerned with the heightened level of financial risk if tariffs are inadequate to cover the full costs of the generation and distribution systems. In addition to the political risk related to lack of confidence in an "uncertain rule-of-law" regulatory environment, there will be the additional risk that income in rubles needs to be converted into dollars at an exchange rate that will allow the producers to service their foreign capital costs. Under these circumstances, the Bank's general approach to sector reform, which, in the past, has included the establishment of a competitive spot market for wholesale electricity sales, needs to be rethought. Even after the implementation of price reforms, payment discipline, technology upgrades in metering and dispatch, and structural reform, there will still be a high risk that there will be an insufficiently timely investment in supply to meet growing energy demand. In Russia's situation of insufficient growth in capacity and less than transparent competitive markets, free price competition needs to be tempered with a set of well defined controls on maximum wholesale prices and other regulatory controls and consumer protections, in light of recent experience. Otherwise Russia could find itself in a similar situation to that of California, as electricity demand begins to outstrip supply

8. Conclusion

In the energy sector, the Bank has had to contend with the entire gamut of problems of a centrally planned economy in transition: monopolies, price controls, export controls, inappropriate and inefficient technologies, excessive labor utilization, lack of expenditure on repair and maintenance, lack of long-term investment planning, non-economic investment decision making, and overwhelming politicization of the reform process, with a substantial amount of rent-seeking at all levels of the bureaucracy. The Bank did not have a broad strategy to attack these institutional problems at the national level. Instead, it tried to analyze the specific problems of each sector and identify specific actions that could improve the situation in that sector. This was a reasonable approach. Neither the Bank nor any other foreign institution could have tackled these problems at a generalized level. Each sector has moved towards its own reform program, at its own pace. The best the Bank could do was to provide appropriate technical assistance and advice for sector improvement when the Government was willing to listen, and provide funding for meeting projects that supported urgent sector objectives, such as increasing oil production, and rationalizing the coal sector. It is not surprising that policy successes have been few and far between.¹⁶ Ten years is a short time to accomplish the degree of change that is needed. In fact, the Region would argue that ten years is an unrealistically short period of time. Clearly, the early expectations of rapid reform were highly unrealistic.

¹⁶ The view of the FCPF is that: “The main conclusion that should be made in respect of the ten-year co-operation between the World Bank and the Russian Federation is that its major positive aspects are neither connected with the financial support provided by the Bank (the amount of which being negligible in terms of Russia’s economy) nor contained in specific projects, notwithstanding the fact that some of them (especially those in coal) considerably impacted the sectors in which they were realised. In [our] view, the principal benefits for Russia from its co-operation with the Bank are in the following:

- the positive experience gained, the introduction of advanced social, economic and management technologies, some elements of western mentality acquired by Russian government officials and a large number of experts during their joint work with the Bank;
- the progress in legal and institutional reforms that would not have been achieved without the Bank’s assistance in the period under review;
- the creation of barriers to making decisions that would have a negative social effect if adopted by pushing through the Duma.

Energy and the Environment Review

Sector Performance and Challenges

Pollution:

1. The Russian Federation has inherited an enormously costly environmental legacy from decades of inefficient economic development that failed to include environmental factors and natural resource management concerns in its development strategies and national investment plans. The major environmental problems today are:
 - *Air Pollution* from electricity generation facilities, district heating, refineries, and heavy industry, and, of growing importance, vehicle emission. Considering adverse effects on human health as a criterion, energy sector-related urban air pollution is a major concern for Russia in terms of both premature deaths and economic losses due to poorer health of its population.
 - *Water Pollution* from oil production and transport, coal production, heavy industry (ferrous and non-ferrous, chemicals and petrochemicals, pulp and paper), and inadequately treated municipal waste, as well as from farm runoff fertilizers; and
 - *Hazardous Waste* from nuclear energy, oil reefing, and abusive industrial waste management sites.

2. Although the constitution of the Soviet Union imposed an obligation on the State to ensure the protection and rational use of the environment, the environmental protection system was highly fragmented and uncoordinated, with as many as 70 government agencies claiming some responsibilities. The first central administrative organization for environmental protection, the State Committee for Environmental Protection (Goskompriroda) was only established in 1988. In 1990 this organization was upgraded to Ministry status (USSR “Minpriroda”), which was transformed in 1992 into the Ministry of Environmental Protection and Natural Resources (MEPNR).

3. In 1991 Russia passed a law on Environmental Protection, which set out a noble set of principles, such as every citizen has the right to a healthy and safe environment. This law also mandates an environmental impact assessment review for all development activities and establishes a role for NGOs to assist with monitoring and enforcement. Given the breakdown of the command and control economy, the lack of budgetary resources and the conflicting priorities for available funds, these high ideals have yet to be translated into action programs. To further aggravate the situation, policy implementation has been met with strong resistance from other ministries that had previously been responsible for environmental issues within their respective sectors (but had treated as these issues as subordinate to their main production objectives). In the spring of 2000, the Ministry of Energy (which in the past had been mostly concerned with expanding energy output) was merged with MEPNR and renamed the Ministry of Energy and Natural Resources.

4. The main obstacles to developing a strong environmental program have been:
 - *Unreliability of basic environmental data:* Lack of funding forced MEPNR to rely on industrial enterprises to provide data on pollution from their own facilities. Deliberate misrepresentation was prevalent.

- *Ineffective environmental laws and regulations:* The legal institutions needed to enforce the law are not strong enough to enforce the laws.
- *Poorly defined organizational responsibilities:* The new Russian constitution provided substantial autonomy to the provincial and local governments in many areas, including environment. Responsibilities are dispersed among many agencies at the federal and local levels.
- *Inappropriately stringent criteria for emission standards:* Most industries in Russia do not have the capacity to comply with the very stringent and idealist air and water quality standards, which has led them to question the credibility of the Government's environmental reform program.
- *Inadequacy of medium term investment funds:* the Banking system is ill equipped to provide medium term investment funds needed for any industrial investments, including those needed to improve environmental performance.

Energy efficiency and greenhouse gas:

5. The Soviet central planning system lacked any incentive system for efficiency in the use of resources. As a result, industries consumed, on average, more than twice as much energy and raw materials to produce the same final product as they did the market economies. In the energy sector the comparison is even more striking, as Russia has the world's most energy intensive economy. The most recently available data shows that Russia uses 1.0 ton oil equivalent (TOE) per US\$1,000 of GDP, compared with Poland's 0.98 TOE, Finland's 0.25 TOE, and Germany's 0.15 TOE per US\$1,000 of GDP.

6. The international environment is also affected by Russia's inefficient use of energy resources, in that it leads to the excessive production of CO₂, a major constituent of greenhouse gas (GHG). The Russian Federation signed the Rio Declaration in 1992, committing itself to a substantial reduction in GHG emissions. At that time, Russia accounted for 17 percent of the total GHG emissions of the OECD countries and economies in transition, and is the second largest emitter after the United States. Despite sharp reductions in CO₂ emissions, due to precipitous decline in the production from heavy industry, particularly those industries using coal as their primary energy source, Russia remains the world's third largest emitter of CO₂ from energy.

7. In 1996 the government established a Federal Agency for Energy Efficiency and passed an Energy Efficiency law that established standards for energy consumption and certification, as well as rules for energy audits and the evaluation of energy efficiency. In 1998 a National Environmental Action Plan for 1999-2001 prioritized support to energy and resource saving technologies. However, the organizational, legislative and financial framework for energy efficiency investment has progressed very slowly, and key issues, including low energy tariffs, large-scale non-payment for energy usage, and lack of investment in obsolete capital stock remain largely unresolved

8. The flaring of associated gas from oil field production is one of the major sources of GHG in Russia. Official estimates put the gas flaring at 8 BCM billion cubic meters (BCM) per year in the early 1990s, and about 7 BCM in the late 1990s. Actual numbers have been estimated at three to four times that amount, an immense waste of resources and a major contributor to global warming. However, Gazprom and the oil producers have shown little interest in implementing a gas flaring reduction program, primarily because Gazprom has been unwilling to

take any gas that they produce.¹⁷ Methane gas from pipeline transport and distribution systems is another major source of greenhouse gasses. Further substantial reductions in CO₂ emissions are possible by improving the efficiency of energy utilization, in both industrial and the domestic uses. Improving energy usage could also generate significant economic and financial benefits, since it would free more liquid fuels for export and provide opportunities to sell emission quotas to OECD countries. Improving the efficiency of energy use in household heating is discussed under the chapter on household heating.

9. The challenges in the environmental field have been, and still are:

- to help establish workable environmental regulations and achievable medium term environmental improvement objectives and strengthen provincial environmental enforcement institutions;
- to create incentives to greatly reduce wasteful practices of flaring gas associated with oil production;

Evolution of the Bank's Sector Assistance Strategy

10. The Bank implemented an Environmental Review in 1992. The strategy that it developed from this review was imbedded in its FY95 Environmental Management Project. This strategy focused on:

- (i) improving government policy, regulations and institutional framework for environmental management at the federal level and in selected provinces;
- (ii) preserving and strengthening existing environmental management infrastructure during the period of restructuring the economy;
- (iii) supporting economically attractive projects that are "win-win" because the savings from the reduction in use of natural resources in industrial processes are more than sufficient to cover the investment costs; and
- (iv) mobilizing donor funds that might not otherwise be available to support priority environmental management activities;

11. The Bank is supporting the Russian Government's policy of devolving environmental responsibility from the national level. To achieve meaningful results the Bank is focusing on the development of replicable oblast and city level legislation and institutions in the core constituencies in which it is working. At the same time, it is supporting inter-provincial initiatives to transfer knowledge and "best practices" developed under the project. This approach was expected to shift over time, as the policy and regulatory framework improved, to supporting infrastructure investments for improving water supply and sewage treatment, reducing urban air pollution, and improving hazardous waste management. However Russia is currently a long way from the point where it might put a high priority on these environmental activities.

¹⁷ As long as Gazprom has the dual role of gas producer and gas transporter, it will always want to sell its own gas, since its cost of producing this gas is extremely low. The cost of producing associated gas is significantly higher, since there is a significant cost associated with compressing this gas to meet trunk pipeline pressure. Furthermore, given the size of the gas reserves controlled by Gazprom, the appropriate depletion allowance for Russian gas is very low. With some 30 percent to 40 percent of the world's reserves, the depletion premium is, in fact, probably close to zero. This would also suggest that the appropriate economic price for gas used in Russia is substantially below its border price (which is currently approximately equivalent to the fuel oil equivalent price) or the price that is currently being charged.

12. In addition to its efforts to help Russia improve its broad policy framework, the Bank has also implemented lending operations that respond to critical environmental problems. In FY95 it approved an Emergency Oil Spill Mitigation Project (to repair a Siberian pipeline and contain the spilled oil from reaching the basin's river system), and since FY96 it has been implementing two GEF projects, one to eliminate the production of CFC (which causes ozone depletion in the stratosphere) and the other Greenhouse Gas Reduction Project. It has also provided support for the National Strategy Study for the Reduction of Greenhouse Gas Emissions, which was financed by the Swiss and Finish Governments.

13. The Bank has also supported several energy related environmental initiatives, including:

- A demand side management energy efficiency component in an Enterprise Housing Development Project;
- A Gas Distribution Rehabilitation Project, to reduce gas leakages in transmission and distribution systems for the city of Volgograd; [subsequently dropped when the city's financial condition deteriorated after the 1998 financial crisis.]
- TA project to reduce methane in municipal sewage treatment in Rostov [No information available];
- A study on the opportunities for the use of geothermal energy (funded by the Danish Government) [No information available]; and
- A study evaluating the possibility of using wind for renewable electricity production for small, isolated communities, replacing diesel fuel [No information Available].

Assessment of the Bank's Products and Services

Environmental Sector Work:

14. The Bank's environmental sector work in Russia followed closely similar work that was done for Poland, Hungary, the former Czech and Slovak Republics, Rumania, and other formerly socialist countries. The Bank's first Russian Country Economic Report, *Russia Economic Reform (1992)* had an extensive section on the Russian Environment. Given the size and scope of the environmental problems in Russia, the work presented a broad-brush view of the problem. The Eastern European work cumulated in *the Environmental Action Program for Central and Eastern Europe*, which was formally endorsed by the Ministerial Conference "Environment for Europe" in April 1993. The approach envisaged by these works included a multi-pronged approach for its initial efforts, which included strengthening institutional and regulatory controls, investing in projects that provide both economic and environmental benefits (the win-win concept), harnessing market forces, concentrating on local problems and involving local people, and setting realistic and enforceable standards. All of these objectives were highly desirable. They formed the basis for the 1994 Environmental Management Project discussed below.

15. The CAS of December 1999 emphasized that air pollution in urban areas caused by heating, power generation, transport and industry is one of the most critical environmental problems faced by Russia today. The CAS also posited that, as the world's third largest emitter of GHGs, and with significant potential for their reduction through energy efficiency, the use of renewables, and carbon sinks, Russia should be a central player in international efforts to address priority global environmental issues.

16. In FY00 the Bank undertook an *Energy and Environment Review* for the Russian Federation, which gives an overview of the impact that energy has on environment and the

possible strategies that could be followed to minimize this impact. The review presented a litany of Russia's energy related environmental problems, from air pollution from inefficient coal fired power plants to ground and groundwater pollution from sloppy oil field operational practices. It recommended focusing on air pollution problems which have both local and global repercussions, by (i) providing technical assistance for improving local environmental health conditions by reducing air pollution in urban areas; and (ii) lending to help reduce GHG emissions through the introduction of cost reducing, energy efficient technologies. This review would have provided a stronger basis for future action if it had first reviewed the strengths and weaknesses of the Bank's lending and technical assistance program in these areas over the past decade. The proposed strategy, of focusing reform efforts on just one province as a test case makes eminent sense.¹⁸ QAG judged the paper to be of marginal quality, with little or no original analysis and data subject to challenge. However, the work was apparently successful in opening an effective dialogue with Russian environmental colleagues as well as in establishing cross-sectoral linkages inside the Bank.

The Emergency Oil Spill Mitigation Project:

17. As an emergency project, the objective was limited to those that had a direct impact on the area affected. The short term objectives were: (i) to stabilize the oil spill before the 1995 spring thaw to minimize amount of runoff and thereby minimize ecological damage in the Pechora River Basin; and (ii) to rebuild critical pipeline elements to support safe operations in the near term. The slightly longer-term objectives were: (i) to extend the cleanup program to minimize damage to the impacted areas and people; and (ii) to identify and implement other measures to mitigate future oil spills. The QAG rated the overall project quality as highly satisfactory. It stated that "the Bank's ability to quickly prepare/appraise this project, and even include a significant institutional building component is noteworthy." There was strong borrower commitment to effective project implementation.

18. Clean-up was quick and effective. The primary objective, of avoiding a potential environmental disaster of major proportions, was achieved; no oil was released into the Kolva River during the spring thaw (and floods). The remaining oil was collected the following spring. In addition, the replacement of the riskiest portions of the 720-mm pipeline was completed in 1995. In October 1999 crude oil that was spilled was still being stored in open "polygons." Six of these containment structures were drained and closed in 2000, and the rest are to be closed this year.

19. Site remediation (clean-up after the spilled oil was removed or had soaked into the ground) was initiated in 1996 and has continued to expand over the past three years. 100 hectares were restored in 2000. The social mitigation program started very slowly. Lack of information was critical problem. Project design also included a dewatering plant, to reduce future pipe corrosion. It would have been useful if it also had additional measures to mitigate new spills, especially a SCADA leak detection system.

The GEF Ozone Depleting Substance Project (approved May 1996)

20. This ongoing project has been highly successful. All five plants producing CFCs have been closed, and substitute chemicals are now being produced. The mid-1998 QAG report judged the supervision to be of high quality and effective. The Bank was deeply involved in the

¹⁸ The Rostov province was chosen. It is an industrial and coal-producing province with major environmental problems and few international support programs.

project implementation process, taking full supervising responsibility for the work of the consultants who designed the project sub-components during project implementation, until the PIU unit was considered strong enough to take over that responsibility. However, half-hearted support and commitment of the MinFin impeded rapid implementation progress.

The Environmental Management Project (EMP):

21. This project has technical assistance and a subproject lending components. Most of the specific outputs of the TA program will be delivered, and are expected to have a positive development impact on environmental policies at both the federal and provincial level. Expertise under the TA component has been widely recognized by the Federal Government, State DUMA and provincial government stakeholders as a critical element in the country's ongoing efforts to restructure Russia's national environmental management system and to incorporate environmental sustainability into its economic development planning. However, the lending component has failed to meet its disbursement objectives.

22. This lending component was based on a sector strategy concept that the first phases of environmental cleanup should be implemented primarily through the finding and financing of cost-effective, financially profitable, environmentally friendly sub-projects; the so called "win-win" approach. This was a dubious proposition in the context of Russia. While there are undoubtedly many such opportunities, enterprises in transition usually have to cope with the larger problems of surviving in a shrinking market and on the need to modernize their higher priority operations under conditions of scarce credit. They are seldom willing to attach much importance to win-win projects, even if they were financially viable, as long as they had other investment priorities that would create much higher returns. Furthermore, in a transition economy, there was the additional problem of identifying which enterprises were, and would continue to be creditworthy, and which would be bankrupted as Russia moved, ever so slowly, to a competitive, market driven economy.

23. The Bank was unable to find a Russian apex organization willing to take the enterprise credit risk. The MinFin did not want to take it. It proposed laying the risk off on the provincial (oblast) governments, who were closer to the potential borrowers and were therefore in a better position to evaluate their capabilities and prospects, and who were more directly interested in the local environmental problems and solutions. But then the MinFin decided that the oblast governments were also a credit risk (since they already were heavily indebted to the Central Government). The next choice could have been to use commercial banks for apex institutions, since the companies that are now borrowing for environmental projects had, for the most part, been privatized. The problem here has been that since the August 1998 crisis, most of these banks have less than adequate credit ratings themselves, and lending through them would be running at cross purposes to the World Bank's reform agenda for the Russia banking system. The result to date is that only one sub-project has been implemented. This problem was very similar to the problem of the energy saving projects implemented in Hungary in the early 1990s. While most of these projects were successful, in that they greatly improved energy efficiency, they were implemented primarily because they provided a basis for obtaining foreign exchange for new investments that was otherwise unavailable to the enterprises, as confirmed by the rapid decline in applications when the foreign exchange market was liberalized. However, many of the enterprises eventually went bankrupt before they fully repaid their loans, during a period of rapid transition to an open economy.

Gas Distribution Project (March 1995):

24. This project was presented to the Board along with the Energy Efficiency Project. It was designed to improve Volgograd's gas pipeline distribution system and to install new meters for industrial, commercial and apartment blocks users. It was to be implemented by the gas distribution company in Volgograd Gorgas, a privatized enterprise 51 percent owned by its employees. It was cancelled before it was made effective because Volgograd Gorgas's financial condition was found to be too weak to guarantee repayment of the loan, and continued low gas prices reduced the city's incentive to borrow for the project.

The Greenhouse Gas Reduction Project:¹⁹

25. This project had several components, including (i) development of reliable estimates of GHG emissions from oil and gas production, (ii) identifying of ways to reduce these losses; an assessment of the potential for reducing methane leakages from gas field production units, from long distance transmission pipelines and from low pressure distribution networks; and (iii) identifying investment opportunities for reducing GHG by improving energy efficiency usage in industry, power generation, and district heating uses. The first two components were to be supervised by Gazprom, the gas pipeline monopoly and owner of most of the non-associated gas production facilities. However, Gazprom failed to support establish the PIU and pay for its local costs, as agreed in the project documentation. These project components collapsed without this basic support. For the third component, about thirty subprojects were identified and submitted by the Ministry of Fuel and Energy and proposed for implementation under the Environmental Management Project, discussed above.

Assessment of Development Effectiveness Impact

26. As can be seen from the above discussion, the Bank's lending program had mixed results. The projects with specific, clear-cut, objectives, including the Ozone Depletion Project and the Emergency Oil Spill Project have been highly effective in meeting important needs. These that focused on improving the energy efficiency in district heating systems have also been reasonably effective in meeting the dual objectives of reducing energy use and maintaining critical heating services. The remainder of the Environmental program appears to have suffered from an understandably over-ambitious agenda which has been met with kind words but unconcerned and unresponsive audiences in the Government and in the enterprises that will have to make the investments needed to begin to see improvements. Direct lending to support a wide range of industries to improve their energy performance with a win-win project is unlikely to work any better in the future than it has in the past in other countries.

27. Several new environmental laws and the regulations needed to enforce them have been approved at the federal and provincial levels. However, it is still obvious that environmental issues are very low on the Government list of priorities; federal budget allocations for environment are by far, below even most urgent needs and continue to shrink. Furthermore, in the spring of 2000 the Government eliminated the Ministry of Environmental Protection and Natural Resources and its functions under the Ministry of Energy, which previously had been only concerned matters related to energy production. This has put into question the new government's commitment to serious environmental reform.

¹⁹ The GEF financed a portion of the Energy Efficiency Project.

28. Environment programs have, effectively, been marginalized, both at the client level as well as at the Bank CAS level. The Ministry of Economy takes a broad view of the country's economic problems and suggests, in effect, that the environment must take a back seat to the many other issues that need to be resolved. The Bank's efforts have, therefore been to promote an appreciation for the impact of environmental problems on economic growth. However, funding for the sector work needed to build a constituency for environmental projects has been scarce. Both SAL and CAS discussions have focused on other issues.

Attribution of the Bank Program Results

29. The specific remediation projects were well designed, with goals that were accepted by the borrowers and easily quantifiable for follow-up. Borrower ownership, followed by strong Bank supervision, made good results possible.

30. The gas flaring reduction efforts have not been successful primarily because the institutional structure is not in place to discourage them. The Bank also devoted considerable efforts to preparing a pilot gas flaring reduction project with Sibneft for processing and transporting flared gas to small towns in Siberia, which also foundered when Gazprom failed to support the legislation that was needed to make them viable. Gazprom does not appear to be willing to make the effort to implement such small projects, and private oil producing companies have found that the opportunity cost of using their own capital for these projects is significantly higher than their potential rate of return. Only in places like Nigeria, Norway or Kazakhstan, where there may be serious economic and political repercussions to doing nothing and "wasting" the country's natural resources, do oil companies finance marginal gas recovery projects.

31. Environmental issues are prominent in many sectors of the economy besides power generation and industrial activities, including: housing infrastructure, motor vehicle transport (which also involves refineries industries), oil and gas production (gas flaring) and pipeline transport system (leakages), and coal mining. In all these sectors energy conservation policies (including pricing) and energy quality improvements are needed, and associated investments are needed. Management does not appear to have allocated the budgetary resources needed to get such joint projects. And the paucity of environmental issues and solutions in these areas of work, suggests that the concerned infrastructure groups have been unwilling to use their own resources initiate new joint program proposals during this period of the declining allocation of Bank budgetary resources for Russia. But the lack of environmental projects (or project components in mainstream investment project) is, undoubtedly, also a reflection of the country's own priorities. As a result, little is being done to move the broad environmental improvement agenda forward. Nevertheless, the specific remediation projects, including the oil spill remediation project and the ozone depleting substance project have made significant impacts on the problems that they were designed to address.

Agenda for Future Action

32. New measures will have to be implemented if Russia is to improve its environmental performance and reduce the deleterious impact of the energy on human health. The Bank should take a strong position on environmental matters. In particular it should push for the reinstatement of an independent Ministry of Environmental Protection and Natural Resources. Without such a change, there is little hope that any significant progress can be made in this area.

33. At the applied level, the second phase of the Energy and Environment Review will focus on the Rostov province. It is expected to identify and evaluate all the main issues of urban air

pollution in this specific environment, and to recommend practical solutions to these problems, solutions that should be replicable in other provinces of Russia.

34. Gas flaring is one of the major sources of GHG in Russia. Flaring could be greatly reduced if Gazprom were to permit oil companies to supply this gas to the trunk pipeline or to smaller northern cities that did not have access to piped gas. The Government needs to consider instituting a reward and penalty system that would encourage companies to reduce this flaring to a minimum. Norway does this by charging companies the economic value of the gas (which it estimates at US\$3.50 per thousand cubic feet (MCF)). Kazakhstan has told western oil companies that they will not allow any flaring of gas during the exploitation of the newly discovered oil field in the Caspian. In the U.S. companies are allowed rapid write-off of gas utilization investments.

35. Since most oil companies have a backlog of projects with much higher rate of return than marginally profitable gas recovery projects, funding might be a problem. To encourage oil companies to implement gas flaring reduction project the Bank should consider working with the GEF to establish a revolving fund that would lend for such projects. This fund could reinvest the repayment stream to continue to expand the program.²⁰ A GEF fund could also reduce the risk for commercial banks that might participate in the project lending. IFC might also consider joining with GEF on establishing such a fund, since the risk of default would be low for loans made to producing oil companies with good cash flows. However, all such projects would require Gazprom's active support in transmitting the gas to the consumer.

²⁰ Such a fund would be, in effect, a new lending instrument for GEF, which currently only provides grants, and has not yet undertaken a grant-based revolving fund.

Energy Usage in the Household Sector

Sector Performance and Challenges

1. Russia's extremely cold winters have made the supply of domestic heating a critical activity to the 75 percent of its population that lives in urban areas, without which survival itself would be problematical. But there has always been a close linkage of policies for the provision of domestic heating, domestic electricity supply and housing maintenance and repair in Russia. It is difficult to disentangle the social issues and economic problems related to allocation of resources, cost controls, welfare benefits and implicit and explicit subsidy programs related to the provision of these services.

2. At the beginning of the transition period, Russia subsidized household utilities (and rents) to the point of providing them practically free of charge, as was the normal practice in socialist economies. When the Government lifted price controls from most goods in the early 1990, it continued to control domestic rents, space heating and electricity, along with foodstuff, oil and gas because they were considered basic living essentials. As a result, at the end of 1992 the cost recovery ratio of housing and utility services was below 10 percent. Utility tariffs for industrial consumers were substantially increased in 1993. Residential tariffs were also increased, but less dramatically, due to concerns over the anticipated social impact. While further increases of residential tariffs have occurred since then, Russian households continue to pay prices that are significantly below supply costs for all utility services. The difference between residential tariffs and costs is covered partly from the budget, and partly from surcharges on industrial consumers. The subsidies provided through low utility tariffs are augmented by the tolerance of non-payment that emerged in the second half of the 1990s. As a result, the average cost recovery ratio of residential utility services has remained very low.

3. In the fiscal decentralization program that began in 1992, the federal government shifted practically all expenditure responsibilities in the social sphere to lower levels of government. In the following two years, as part of the mass privatization program, the social assets of many enterprises were transferred to the municipalities, doubling the housing stock on their balance sheet. At the same time that the responsibilities of the municipalities increased, their tax base collapsed, as local industries went into decline. The seriousness of the situation was highlighted in the 1996 CEM, which argued for "aggressive action . . . by the local authorities to increase cost recovery from households, improve energy efficiency, develop competitive housing maintenance markets, clarify property rights, and implement targeted housing subsidies for vulnerable groups." This made the implementation of utility tariff adjustments and the parallel introduction of targeted social protection programs much more difficult to implement.

4. As provinces and municipalities grappled with their new problems in the course of the 1990s, they began to acquire experience with the various mechanisms designed to mitigate the social impact of utility price increases. A decision of the Council of Ministers in late 1993 introduced a system of housing allowances to begin in January 1994, with considerable leeway given to provincial and local authorities to determine most parameters of the housing allowance programs (utilities and rent). By 1995, most municipalities had developed housing allowance programs, using 10 percent as the burden limit for utilities (i.e., households that spent more than 10 percent of their income on their utility bill were eligible for assistance).

Evolution of the Bank's Sector Assistance Strategy

5. The 1992 Country Economic Memorandum (CEM) noted that escalating housing and utility subsidies threatened the fiscal position of local governments. Reform of housing rents and utility tariffs was seen as essential both to relieve the unsustainable burden of subsidies on the budget and to reduce energy losses and waste. Price reform for utilities (and rent to cover maintenance costs) was, therefore, a central element of all major economic reform proposals put forward in the early 1990s, although the scope and pace of price liberalization were highly controversial issues.

6. A Bank study of poverty in Russia, issued in 1995, found that the coverage of the housing allowance programs was rather poor (only 5-10 percent of eligible households were participating). The study proposed a number of options to mitigate the adverse effects of utility price increases on households, including: (i) lifeline tariffs; (ii) preferential tariffs, earmarked cash transfers, or vouchers for the certified poor (based on social worker evaluation); and (iii) increases in the minimum cash benefit rates for pensioners, general unemployment benefits, and other non-earmarked cash transfers to the poor. The study gave preference to the third option in order to avoid the proliferation of different kinds of social assistance administered by different agencies. However, the study added that it might not be realistic to expect that adequate compensation could be provided for utility price increases through general social assistance in the short term, and, therefore the adoption of option (i) or (ii) as a transitory mechanism might be advisable for a limited period.

7. Similar recommendations were made in the Bank's second adjustment loan to Russia in 1997 (by this time, the burden limit was increased by most municipalities to 15 percent). The report supporting SAL II noted that the objective of poverty reduction could, in principle, be best served through targeted general cash transfers, as part of the overall social assistance program. It acknowledged, however, the need for sector-specific support mechanisms, such as lifeline tariffs when the coverage of general cash transfers was inadequate due to administrative and other constraints.

8. The Bank's study of Housing and Utility Services, issued in 1998, noted that the fiscal position of municipal governments had continued to worsen as wholesale energy prices were liberalized. Municipalities were increasingly unable to support housing and utility subsidies, which resulted in a growing stock of overdue payables to utility companies and a rapid deterioration of the housing stock due to insufficient maintenance. The study argued for an immediate increase of cost recovery up to 50-60 percent. It was expected that this tariff increase would set in motion serious saving efforts on the consumer side, and would also help the local authorities to pinpoint the real demand for social support. The study emphasized the urgency of improving the targeting of social assistance to needy households and the phase-out of price discounts provided to privileged consumers.

9. A subsequent Bank analysis completed in 1999, which relied on 1996 household survey data, found that raising tariffs to full-cost recovery levels would have increased the share of households with medium to high housing utility burdens (defined as 20 percent or more of total household expenditures) from 12 percent to 54 percent. But even after adding the cost of subsidies needed to bring the burden of all these families down to 20 percent, the net effect on municipal budgets would have been a saving of more than 50 percent of the actual cost of across-the-board subsidies. The study also provided a brief overview of the advantages and disadvantages of sector specific mechanisms to help the poor to cope with increased housing and utility costs (lifeline tariffs, vouchers, and earmarked and non-earmarked cash transfers). The

study recommended the application of earmarked cash transfers, such as the existing housing allowance program, with the caveat of significant improvements in the selection procedure to ensure that the funds would be better focused on the poor.

10. The Bank has financed three projects that support improvements in the domestic heating sector. They are discussed below.

Assessment of the Bank's Products and Services

Policy Advice:

11. The Bank advocated rapid, economy-wide price adjustments, including moving progressively toward full-cost recovery for housing and utility services, with targeted assistance provided to the most vulnerable, and argued strongly against the widespread tolerance of non-payment and the continued application of large price discounts to privileged consumers.

12. Responding to government concerns that many households would not be able to pay full cost recovery tariffs, the Bank generally recommended the use of income-tested subsidies to soften the negative impact of rising utility tariffs on low-income households. However, the Bank provided little practical advice on the administration and financing of these income-tested cash transfer mechanisms, and tended to overestimate the coverage of the poor that could be achieved by these mechanisms. A possible explanation for this oversight is the insufficient amount of analytical work that supported and substantiated the Bank's advice. For Russia, only two Bank studies relied on statistical evidence from household surveys to evaluate the extent to which the applied subsidy mechanisms reached their stated objectives.

The Enterprise Housing Development Project:

13. One component of this project focused on demand side management approaches to improving the heating efficiency of houses that had been transferred from enterprises to municipal governments. The program has had a great deal of difficulty in meeting its objectives. Five cities implemented substantial resources into engineering studies to evaluate opportunities for insulation retrofitting and heating system improvements. The results suggested that such detailed studies were, for the most part, unnecessary for the level of complexity found. Most of the cities had to drop out or greatly reduce their programs after the 1998 financial crisis weakened their ability to repay foreign exchange-denominated debt. The project-financed insulating retrofitting involved many small subprojects, and eventually shifted its focus and most of its resource to energy-saving boiler repairs and upgrades, which proved to have much shorter payback periods.

The Energy Efficiency Project (March 1995):

14. This was a pilot project to provide financing for cities to reduce their energy costs by improving the efficiency of their power generation plants and district heating facilities, and for the installation of heat and gas meters. Five cities participated in the initial subprojects. The results were highly satisfactory in terms of the gas savings achieved and the payback period for most sub-projects. The QAG found that the project was well focused on development impact and that the environmental issues were adequately incorporated in the sub-project feasibility studies. However, the financial crisis of 1998, as well as project management problems, resulted in low disbursements and a period of suspension. The Energy Efficiency Project was the forerunner of the recently approved (March 2001) Municipal Heating Project discussed below. This activity

has had strong support from the municipalities because it has the potential to substantially reduce their energy utilization costs.²¹

The Municipal Heating Project (March 2001):

15. This project followed the guidelines set out in the 1998 Housing and Utility Services Review. Cost recovery needed to increase to 60 percent of expenditures by negotiations,²² and social assistance was to be better targeted to needy households. The investment portion of this project focuses on reducing the cost of heat supply in several medium-size cities (less than 500,000 inhabitants) through repair and rehabilitation of the heating system and introducing modern technology to improve system efficiency and the quality of heat supply. The sector policy includes improving the financial viability of the municipalities and heating enterprises in terms of cost recovery and shifting from general to targeted subsidies for low-income households, against a background of increasing cost recovery and higher heat prices.

Assessment of Development Effectiveness Impact

16. Russia has achieved only modest progress in its efforts to strengthen payment discipline and to phase out price discounts to privileged households. As a result, several subsidy mechanisms coexist today, providing more support to the middle class than to the poor, with a concomitant detrimental impact on the financial health of the utilities, on industrial competitiveness, and on local and central government budgets.

17. Several investment projects have attempted to make a contribution in the area of improving heat supply, with varying degrees of success. However they are all working, in that they are conserving on fuel consumption. The problem has always been that the individual investments are relatively small and spread out over cities in all parts of the country. The lack of funding for maintenance over the past decade has seen an alarming deterioration in municipal heating systems. The failure of several systems in the Far East of Siberia last winter has demonstrated the weaknesses inherent in Russia's entire district heating infrastructure, and the unsustainable nature of the current institutional arrangements. The development effectiveness has been hindered in the past by the broad nature of the objectives of previous projects and the lack of focus on the specific sector issues. The District Heating project covers only 0.2 percent of the country's systems. The impact of the Bank's program will, in the longer run, be determined primarily by whether it can be duplicated in the other 99.8 percent.

Attribution of the Bank Program results

18. It is extremely difficult for the Bank to work with a large number of small borrowers, each of which has to have a well developed financial structure (to ensure minimum cost coverage and debt service), as well as a detailed technical rehabilitation plan. There are always problems with getting the municipalities to increase their prices sufficiently to meet Bank targets on income generation.

²¹ The RCPF concludes that "it is desirable to conduct a more detailed comparative analysis of the initial objectives and the results attained, to relate actual social and economic benefits to costs for individual project participants where possible, and to perform an ex-post evaluation of the overall social effect from the project."

²² And is supposed to increase to 100 percent by 2003.

Agenda for Future Action

19. District heating will become an ever more pressing issue in Russia as municipal facilities deteriorate over time. This is probably Russia's most pressing poverty issue, since it is the country's most fundamental of survival issues. The problems are closely intertwined with municipal finance issues, housing infrastructure issues, power consumption issues, gas and electric power sector institutional issues, and urban environmental concerns. Additional lending in this area could have substantial economic payoffs and should be given high priority in the Bank's future lending program.

The Oil and Gas Sectors

Sector Performance and Challenges

Background

1. As noted in the first Russian CAS (May 1992), Russia is the world's largest producer of oil and gas. However oil production had fallen from a peak of 570 million tons in 1987 to just under 455 million tons in 1991, and appeared likely to continue to fall by 15 percent per year under existing circumstances. In fact, it fell to a low of about 300 million tons in 1995 before stabilizing. The reasons for this decline were the depletion of currently producing reservoirs, and under-investment in maintenance and rehabilitation of existing productive oil fields, caused, primarily, by low energy prices and predatory taxation policies that left the Oil Production Enterprises (OPEs) with inadequate cash flows. Oil exports were also dropping, and by 1992, were only one-half the level of 1988. Russia's productive capacity could not be maintained and its unexploited reserves could not be commercialized without massive new investments. Many large fields discovered in the 1980s remain undeveloped ten years later (some 35 in Western Siberia alone) and vast unexplored areas have the potential for substantial additional reserves. In 1992, the Bank estimated that it would take US\$5 billion per year just to stabilize oil production levels.

2. Natural gas is an even more important resource than oil for Russia. With about 40 percent of world gas reserves, massive volumes of recoverable reserves on tap from four super-giant gas fields and a well developed gas pipeline system connecting its fields to all major Russia and Western European consumption markets, Russia had little need for major new investments to maintain output. Gazprom owns these super-giant fields and had (and still has) a monopoly on gas transmission facilities. Gas production has been much more stable than that of oil, but, even though it has not fallen, in 1992 Russia experienced difficulties meeting its gas export commitments, due primarily to significant transmission losses. Because it has such a high volume of gas reserves and such a low cost of production, the economic opportunity cost for gas supplied to domestic use is little more than the cost of the domestic pipeline transport.²³ Gazprom has, therefore, been able to justify gas prices well below the cost of alternative fuel (fuel oil or coal).

Oil Pricing Policies

3. The entire system of energy prices (which were based on each field's production costs), export licenses, and taxation in existence in 1992 was a relic of the Soviet command and control economy. The result was an inefficient and irrational system that distorted all energy markets. Energy was one of the strategic items excluded from the general price liberalization program of January 1992, and, despite three administrative price increases, oil prices were at about 30 percent of world levels, and natural gas prices reached only about 25 percent of European prices by the end of 1993.

4. During its sector policy discussions with the Bank in 1992-1993, the Government agreed to allow crude oil prices to rise slowly towards their appropriate export parity level. It lived up to this agreement. In accordance with its commitments under the first Oil Rehabilitation Loan, the Government continued to allow domestic price increases during 1993 and 1994 and to implement

²³ Immense reserves and limited markets lead to a "depletion premium" of almost zero.

a phased reduction in export duties (to be completed by mid-1996). In 1995 it fully freed the domestic crude oil market. As conditions for Board approval of the Second Rehabilitation Loan (L3989 approved June 6, 1995), it also eliminated export quotas and licensing for oil and gas products and production cost-related limits on producer prices. In addition there was to be open access to unconstrained oil export capacities; transparent, non-discriminatory rules of access; rights for constrained capacities in a market-oriented fashion, and the establishment of a secondary market for export quotas. This action, together with the earlier reforms, allowed market supply and demand forces to bring domestic oil prices close to international parity. However, crude oil export volumes were still constrained by capacity limitations of Russia's export pipeline system. And when domestic demand weakened following the economic turmoil in late 1998 (and the fourfold increase in the ruble-to-dollar exchange rate), oversupply in the domestic market led to a widening of the domestic-export price gap. When international oil prices rose dramatically in late 1999 the Government reimposed export taxes to siphon off some of the sector's windfall profits. Increasing oil pipeline export capacity and improving the transparency of export allocations are both areas of continuing concern, which must be resolved for Russia to expand the sector's export earning potential.

Taxation

5. While continuing to keep oil prices at well below international levels, the Government was also using the sector as its major revenue source, and stripping the operating companies of resources needed for new investment. The taxation regime was based on gross revenues, rather than on profits, which, at the prices levels of the 1980s and early 1990s left little room for the operating companies to recover their capital costs, or even to generate sufficient foreign exchange to cover the costs of imported materials and equipment needed for normal maintenance and replacement investments.

6. Nevertheless, fiscal revenues from the oil and gas sector remained at about half the level that might have been expected from international comparisons throughout most of the 1990s. In the oil sector low revenues were the result of infrastructure constraints on oil exports, an inefficient refining sector, weak tax administration, and an inappropriate tax structure. These elements combined to keep well-head prices low, with subsequent disincentives to expand crude production. The gas sector's tax burden remained low because statutory tax rates were low and the tax structure failed to capture Gasprom's monopoly and resource rents. In addition, not all taxes were paid, and the prevailing system of noncash settlements facilitated the avoidance of taxes. One IMF study estimated that a more aggressive gas sector taxation policy could have raised between 0.7 and 1.0 percent of GDP, without affecting the sectors efficiency.²⁴

7. The Bank was unable to convince the Government (or the IMF) of the potential benefits of shifting from a taxation system based on gross volume of production to one based on net income (profits). This highly inefficient taxation policy made it difficult for the companies to maintain their operations when prices were low, as they were through 1999, and is now making it almost impossible for the Government to share adequately in the windfall profits that the oil companies have achieved from the rising oil prices that began in 1999. The Government has, however, introduced a stepped export tax levy tied to international oil prices that has improved the Government's share of export oil profits; however, the system is a crude and clumsy

²⁴ Dale Gray, IMF Working Paper 98/34

substitute for an efficient profit-based tax structure.²⁵ Profit-based pricing with the necessary international accounting standards and oversight reviews is one of the reforms that are still needed. Benchmarking of prices to reduce transfer pricing and under-billing, a first step in this process, is currently being discussed (March 2001).

Foreign Investment

8. The legal and tax framework needed to be revised in order to establish a contractual framework essential for attracting foreign investment in new oil sector joint ventures. The Government's substantial progress in introducing new legislation in these areas during 1993 and 1994 was an important consideration in the Bank's decision to make two loans in the sector, even though many policy and tax issues still needed to be resolved. The Bank believed that it needed to have a significant sector lending program to establish and maintain its credentials as an active sector participant, if it were to continue to provide useful advice. This advice was provided, and the Government accepted much of it. Subsequently, the legislative proposals that the Government put forward were subverted in the rough and tumble of the parliamentary process in this tumultuous period. The amended Production Sharing Agreement (PSA) legislation passed in 1998 owed much to the SAL III dialogue between the Bank and the Government. However, it too was inadequate, and was not followed by adequate enabling legislation or necessary changes in the tax code. The package failed to meet the minimum requirements of potential foreign investors, and little investment was realized to date.²⁶

Pipeline Transport

9. Transneft is Russia's monopoly oil pipeline operator. Administratively assigned access quotas have also been used for extra-budgetary allocations to such entities as the Orthodox Church. Most importantly, however, the system in force today has created another serious obstacle to the participation of foreign investment in the development of the oil sector's resources. International oil companies place a high value on strong guarantees that the oil they produce could be sold in hard currency markets. Without these guarantees, they are unable to finance oilfield development costs.

10. Limitations on export capacity have effectively segregated the domestic and export markets, thus ensuring that the spread between European and domestic gas prices will grow when domestic demand falls (as it did after Russia's 1998 financial crisis) or when World and European prices increase (as they have in the past year).

11. In the gas sector, the problem is that Gazprom controls both the gas pipeline and most of the country's producing gas fields. It is, therefore, in a position to stifle competition by denying market access to independent gas producers. The Bank has discussed these issues with subsequent Russian Governments. However, even when a Government has agreed that something needs to be done, opposition by the sector's vested interests has made it impossible to push the appropriate legislation through the Duma. The Bank's efforts in this sector have focused primarily on issues related to more efficient pipeline operation.

²⁵ Current estimates are that the Government's export taxes have allowed it to retrieve about 20 percent of the recent windfall profits, far lower than the level of about 70 percent achieved in many other oil exporting countries.

²⁶ The RCPF points out that it is also necessary to improve the general investment climate in Russia and reduce political risks to encourage sector investment, which certainly could not have been done within the Bank-supported oil rehabilitation loans.

Evolution of Bank's Sector Assistance Strategy

12. In the first Russian CAS (May 1992), The Bank focused on achieving a quick supply response in key sectors of the economy as one of the primary objectives and priorities for its assistance. Oil was clearly a key sector. The CAS believed that for the near term, the appropriate central sector objective should be to stabilize oil production (or at least reduce the decline) through rehabilitation of existing oil fields. In the medium-term, it recognized that massive funding and technology transfers would be needed to expand production, and that this could only come from direct foreign investment through joint ventures or Production Sharing Agreements (PSAs). It was estimated that required investment levels in the range of US\$30 to \$40 billion would be needed just to restore production to its 1991 (450 million tons) level by the end of the decade. To attract this massive level of foreign investment, the Government would have to:

- (i) bring domestic energy prices close to international levels;
- (ii) commercialize OPEs so that they can operate on commercial principles;
- (iii) revise the taxation treatment of producers to reflect international practices (e.g., taxation based on net revenue or profits);
- (iv) establish a transparent and equitable regulatory and legal framework for the sector; and
- (v) guarantee open access to export facilities (primarily pipelines).

13. At that time, the government had announced its intention to move domestic energy prices towards international levels in stages over the following two years. It was in the process of drafting petroleum legislation to cover all key issues related to exploration, production and transport. However, the appropriate strategies and targets for enterprise reform, including an updated tax regime, had yet to be developed.

14. The Bank's sector lending program was fully consistent with all three of its basic objectives. Its purpose was to help stabilize oil production in existing developed oil fields. Investments in rehabilitating existing oilfields would yield a rapid increase in production from these fields. The hope was that the corporatization of the OPEs, the shift to market-based pricing and a more transparent system for access to export markets would strengthen the market-oriented focus of these institutions, while a greater availability of oil for export would support the country's macroeconomic stabilization efforts. Most importantly, however, the Bank believed that a substantive lending program was essential to provide the credibility needed to give the Bank "a seat at the table" for sector policy issue discussions.

15. These sectoral policy reform issues, particularly the establishment of an acceptable legal and taxation framework for foreign investment in the sector were key considerations in the third (1994) Russia CAS.²⁷ The Bank had been focusing much of its policy advice in these areas.

²⁷ The second CAS primarily supported the Bank's oil and gas lending strategy. It argued that the immediate priority in the oil sector was the rehabilitation of some 13,000 idle oil wells and associated facilities that had been shut down for lack of adequate investment, at an estimated cost of about \$6 billion over the next few years. The stabilization of oil production at the estimated 1993 level of 350 million tons was estimated to require up to US\$50 billion in new investment (in the following ten years) for the development of new (already discovered) fields. To mobilize the necessary resources, early action on policy reforms would be needed to generate a revenue surplus and promote foreign investment by: (i) raising domestic oil prices to world levels; (ii) rationalizing the system of taxation by reducing excessive

The advice was well designed and appropriate. The recommended new legislative initiatives were essential if Russia was to attract the massive investment needed to effectively develop its petroleum sector. The Bank was also working in collaboration with IFC on a major foreign joint-venture project (a loan and guarantee facility) that would have brought the first large scale international oil company investments into the development of a new major oilfield in Russia.

16. This theme was again echoed in the 1995 CAS. The 1996 CAS noted that changes were needed to the Law on Production Sharing Agreements in order to attract substantial foreign investment required to restore production to levels prevailing in the late 1980s. After the “loans-for-shares” privatization of the oil sector, the 1997 CAS noted that the recent privatization of large enterprises has been marked by a lack of transparency and insider-domination of the process, and that the tax regime and legal framework applicable to foreign investment strongly discouraged needed investments. This CAS pointed out that since new oil sector investments would be led by private sector companies, the Bank intended to withdraw from further lending operations, limiting its participation in the sector to providing support for stalled legal, taxation and regulatory reforms, when requested. Subsequent CASs did not deal with this sector.

Bank Products and Services: A Review and Assessment

Sector work and Advisory Services

17. Bank staff were responsible for the energy sector chapters of the February 1991 Study of the Soviet Economy, and continued to provide advice to the Government on legislation for the legal, tax and regulatory framework needed to encourage private investment in the sector. Starting in 1992, the Bank provided operational support for bilateral grant-financed technical assistance programs focused on developing petroleum sector licensing and taxation legislation (including a framework for production sharing agreements), petroleum sector institutional and enterprise reform, oil transportation structural reform, and gas sector commercialization. Its formal ESW included an updated oil sector review in 1993, a refinery sector outlook review in 1994, and an oil transport structure review in 1995, a petroleum taxation review in 1996, a petroleum sector policy review in 1998, and a review of oil tariff methodologies in 1999. These were all first-rate pieces of work, and provided a significant contribution to the sector dialogue.

Sector Lending Program

18. The program: The Bank made two Oil Rehabilitation Loans (the first, L3623 in FY93 for US\$610 million, and the second L3766 in FY94 for US\$500 million). Each loan supported the rehabilitation of operating oilfields for three independent OPEs. Funds were used primarily for the procurement of drilling equipment and materials, replacement subsurface and surface pipes,

tax burdens and shifting from volume -based to profit-based taxes; (iii) establishing an oil law to provide a legal basis for foreign investment; (v) reforming the Producing Associations to make them more autonomous and commercial in their operations; and (v) promoting international tendering of known oil fields that have not been developed due to a lack of domestic funding.

The Gas sector did not have the same production problems. Priority in the gas sector should therefore focus on (i) increasing the availability of gas through energy efficiency enhancements and reduction of gas flaring; (ii) rehabilitation of the existing gas network to maintain and expand flow capacity; (iii) de-bottlenecking existing export capacity (in concert with downstream transit lines); and (iv) maintain or increase gas production from existing fields, enabling the development of new geographically remote fields. In order to support these objectives, policy actions are needed in pricing, taxation, investment planning, and institutional and legal reforms to promote commercialization and private ownership, including greater scope for market competition.

downhole pumps, reservoir development studies, and, in the second project, environmental clean-up equipment and services. Neither project contained any specific sector conditionality.

19. Implementation: These projects were negatively affected by changes in Government regulations on capital equipment import duties and oil production taxes, which reduced both cash flows available for reinvestment and project commercial profitability. Implementation was also negatively affected by the privatization of three of the six oil production company borrowers under the two loans. This privatization was implemented through the much abused “loans for shares” program initiated by the government in late 1995, and was followed by a rapid decapitalization of the affected entities by their new owners. In 1998, when the privatized borrowers proved unable, or unwilling, to meet the principal and interest repayment obligations from their Bank-funded loans, the Government requested that further disbursement be halted. In the end, only about US\$786 million of the original loans of US\$1,110 million was actually disbursed.

20. Physical Results: The project components that were implemented provided high economic returns, estimated by the ICR to be at least 25 percent, and on average, were over 60 percent (based on international oil prices of US\$15 per barrel). However, changes in the tax laws between when the projects were approved by the board and when they were implemented, greatly reduced the financial rates of return of many of the proposed investment, and when oil prices fell to historically low levels in 1998, financial returns for some investments may have turned negative. In the short term, the production gains made possible by the equipment purchased under the projects are likely to be sustained throughout the productive life of the equipment. However, in the longer term, the sustainability of each company’s production is uncertain, as it will be heavily influenced by their financial condition. This in turn will depend on oil prices, taxation policy, and the financial policies of their parent companies. Constrained cash flows made it more difficult for the OPEs to finance the agreed environmental rehabilitation investments (particularly those of the Second Rehab Project). Most of these investments were not completed by the time the projects closed.

21. Sector Policy Results: When the Bank sent the first and second Oil Rehabilitation loans to the Board, Bank management believed that once the macroeconomic framework was stabilized and an acceptable investment framework was established for direct foreign investment in the sector, the Bank’s role in the energy sector would rapidly decline. However, stabilization never occurred, and, more importantly the legislative and taxation framework was never adequately resolved. Without an acceptable legislative structure for PSAs (including legal rights, taxation, and access to export facilities) international oil companies became disheartened and began to leave the country. The appropriate laws have yet to be enacted, and there is still no significant international investment in the sector. On a sector policy level the Bank’s efforts were unsuccessful, and this lack of success in achieving the fundamental policy objective of attracting foreign investment into the sector has led the Bank to rate the Outcome of the two Oil Rehab projects as unsatisfactory, the institutional development impact as modest, and the sustainability as unlikely.

22. After these first two loans, the Bank decided that additional direct investment in State-owned companies would not further the policy dialogue. It therefore shifted its efforts more directly towards this goal, developing and pre-negotiating a loan that would directly support a joint venture between one of the major domestic oil companies and an international oil consortium. This joint venture planned to develop a major unexploited oilfield had been discovered in the 1980s. This project was eventually dropped from active consideration when it became clear, after the “loans-for-shares” privatization was completed, that the Russian new

owners of the oil companies were not interested in completing the deal on terms acceptable to the international partners.

23. With the transfer of the majority of Russia's oil sector assets to privileged private groups (in 1996), the Government lost interest in pushing the Duma to pass legislation needed to facilitate private foreign capital investment. The Bank, seeing the writing on the wall, ceased allocating resources for the sector reform policy dialogue, and essentially withdrew from further oil sector activities. A gas distribution project, a gas re-injection demonstration project, and an oil transport project were all dropped from the lending program. Unfortunately, as had been predicted, without the legislative reforms, most international oil companies have been unwilling to invest in the sector's further development. A new effort was made to establish a policy dialogue on these issues in the context of the negotiations for SAL III, but these efforts were diluted by the large number of other sector policy conditionalities that were included in this loan. Eventually, the loan sank from the weight of its excessive number of policy objectives. None of its objectives was achieved.

Bank Sector Strategy: An Assessment

24. Although the outcome of the two Oil Rehabilitation projects was judged unsatisfactory, due to the failure of the policy reform agenda, the investment components of the projects were successful in terms of their immediate physical objective of increasing the production of oil. The investment projects did meet the original objective of helping reduce the risk that Russian oil production would fall so far that hard currency exports would substantially decline. However, this strategy for assuring the maintenance of hard currency earnings may have been made on the basis of an overly narrow view of the Government's underlying sector objectives. The problem should have been defined in the broader sense, of how to assist Russia to maintain, and indeed increase its oil exports, as a critical element in maintaining the country's fiscal stability. Considered from this perspective, one could argue that the basic premise on which the oil rehabilitation projects were designed was faulty on three grounds.

25. First, without an expansion of the oil export pipeline system that was controlled by the State monopoly Transneft, oil exports would remain severely limited, no matter what happened to oil production. The Bank implemented a major study on the oil pipeline system (financed primarily by USAID), which clearly laid out the weaknesses of the current system and made important recommendations for institutional reform. The Bank also proposed a pipeline expansion project and included it in their potential lending program. However, this project would have required substantial reform in the oil transport system, which Transneft and the Government were unwilling to consider at that time. The Bank was successful in achieving some improvements in oil export policies, including, most importantly a shift from assigned quotas on a less than transparent methodology, to establishing a system of quotas based on each company's share in total oil production. It also improved the system by getting the Government to establish an open market in the trade of export quotas, so that those who could export most efficiently (due primarily to physical access to the export pipeline) could purchase these quotas. But the Bank was never able to get the Government to agree to break the monopoly status of Transneft or to get Transneft to make the investments needed to increase its export capacity. It is therefore questionable whether the increase in production from the six enterprises supported by Bank loans had any impact on exports. Instead, the new quota system, which was based on each company's total production (as a percentage of total Russian oil production), may have just created an incentive to increase total oil production, without increasing the volume of exported oil. This process had the effect of increasing the total volume of oil available in the domestic market, effectively depressing domestic oil prices far below international levels

26. Second, the lack of funds may not have been the primary cause for the decline in Russian oil production. There is evidence to suggest that the decline in investment was a rational economic decision by the OPEs to maximize their profits, after they were finally freed from government quantitative production controls. The net prices received for oil sold on the domestic market was so low (and even negative at times due to the nature of the taxation system) that it would have been financially irrational to investment in expanding, or even maintaining production. After the Government re-imposed tariffs on imported equipment, several of the OPEs cancelled large portions of their loans because they found that the proposed investments could not generate enough revenue to repay the loans. Furthermore, Russian oil production rose significantly in 2000, shortly after total revenue and profitability increased when international prices rallied towards the end of 1999.²⁸

27. Third, it may have been more efficient to increase the amount of crude oil available for export by improving the efficiency of Russia's oil refineries than by increasing crude output. The Russian refining sector is based on old and inefficient technologies. It has almost no secondary refining activities needed to increase the amount of high-value "white" products (light fuel oil, kerosene, diesel and gasoline), and reduce the amount of low-value "black" products (heavy fuel oil). This lack of adequate secondary cracking facilities resulted in much more crude oil being needed to meet the domestic "white" product demand. And this problem has continued to increase as the number of cars and trucks using these products increased exponentially in the 1990s, and it is continuing to increase. The Bank undertook a review of the refinery sector, and found that there were strong arguments for a modernization lending program. It also tried to prepare a refining rehabilitation project with a foreign partner, but in the end the government rejected foreign direct investment. After all the refineries were privatized between 1995 and 1997, primarily as part of the "loans-for-shares" privatization program, the Bank decided to discontinue work in this area.

28. The conclusion we must draw is, therefore, that the Bank's conceptual approach to the investments need in the oil sector was flawed. It did not adequately address the alternatives for reaching its goal of increasing oil available for export. Similarly, from the policy perspective, the Bank failed to focus sufficient attention on the sector's most fundamental bottleneck. Failure to resolve this problem has meant that Russia has been unable to significantly increase oil exports to hard currency purchasers. Until this problem was resolved, the others, related to the institutional, legislative and taxation reform needed to attract large scale foreign investment, would not have improved sector performance, even if they had been fully successful.

Environment

29. Most of the provinces in which oil is produced in Russia are unmitigated environmental disasters. Historically, only minimal attention has been paid to developing systems that can control oil spills, and no efforts had been made to clean up after such spills. The first Oil Rehab project primarily paid lip service to environmental issues. It took the position that the introduction of new technology, and the repair and replacement of existing leaky oil field pipelines would reduce the environmental field's problems, not increase them. In this matter,

²⁸ While total exports did not increase, profits from exports did, and, because export quotas were allocated on the basis of total production, operating companies had an incentive to increase production to become eligible for larger crude oil export quotas. Since the increased oil production went primarily to the domestic market, domestic oil prices remained stable. The relation between domestic and world prices was not a simple one, however, since large spreads between the two provided opportunities for some refineries to export lower-valued heavy oil products.

they were correct. The projects appear to have had at least a marginal impact on reducing the volume of oil spills. However, no effort was made to get the OPEs to undertake a more systematic analysis of this problem. The second Oil Rehab Project included a significant oil spill emergency response and rehabilitation component. However, this component was neglected during the early years of project implementation, and was, in two of the three OPEs dropped after funding for the procurement for the environmental equipment was disrupted by the Government's request to suspend disbursement and the subsequent early closure of the loans.²⁹

30. In FY95 a major Siberian oil transmission pipeline ruptured. In response to the international outcry the Russians requested, and the Bank provided US\$99 million for an Emergency Oil Spill Recovery and Mitigation Project, to provide the western technology needed to help minimize the ecological impact of the spill. The primary objective of this project was to stabilize the spilled oil before the spring thaw, so as to minimize ecological damage, and to begin the clean-up program for the area. The project was highly successful in meeting its immediate objective. It is discussed in more detail in the Environment section of this report.

The SAL program

31. The SAL program has not had much impact on the Oil and Gas Sector to date. SAL II (January 1998) included a condition for the enactment of a production sharing agreement decree and a requirement for an action plan for restructuring the natural gas sector. SAL III (early August 1998) was more ambitious. It included the following agreements:

- All oil and gas producing companies would have non-discriminatory access to the oil and gas pipelines and gas producers would enjoy the same privileges already enjoyed by oil producers to sell their product at prices that were not regulated by the government;
- Gazprom would separate transmission from production and supply of gas;
- National companies would be established for each existing gas corridor;
- Provincial distribution companies would be independent entities;
- Excise taxes for gas production would be revised;
- A new methodology would be established for gas pricing, gas transmission, and gas distribution;
- Tariffs would be revised;
- Model contracts would be developed for transactions between gas producers and gas transmission companies;
- Crude oil transportation tariffs would be revised; and
- Amend the Production Sharing Agreements law to eliminated discrimination.

32. SAL III was overtaken by the national crisis and subsequent massive devaluation of late August 1998. A gas pipeline bill was passed by the Duma, but it was one that was essentially written by Gazprom to maintain its monopoly power. The Bank's efforts to de-monopolize this sector were unsuccessful. The Government has been incapable of getting the Duma to pass legislation that Gazprom opposed.³⁰

²⁹ Procurement was suspended after the OPES failed to meet their loan repayment commitments to the Russian Treasury under the projects, as per their onlending agreements.

³⁰ The Region has pointed out, however, that some benefits of the Bank-Government engagement in the sector take the form of actions that do not occur, rather than actions that do occur. One such example, from late 1999, was a pipeline law that Gazprom had succeeded in pushing through a first reading in the Duma. The Bank was able to demonstrate to Gazprom that the law ran counter to Gazprom's own interests, and this version of the law was not re-introduced in the Duma after the election of 1999.

Development Effectiveness

33. The Bank's primary policy objective was to strengthen the performance of the oil sector, and particularly its export potential, by helping the Government establish the legislative, institutional and tax structures needed to attract large-scale investment from international oil companies was not achieved. The Bank's intervention, while highly relevant for Russia's long-term development, failed to generate any useful results on the ground. The Bank provided substantial assistance in formulating a legislative agenda that would have enabled international oil companies to invest in expanding Russia's oil output within a well-defined and regulated environment. Laws were drafted, and some were passed. Unfortunately, the Government found it impossible to get the full legislative package through the Duma. The legislation that was passed was inadequate to attract foreign investment into the sector. As a result there has been no significant direct foreign investment in the sector.

34. Nor were the Bank's objectives of improving efficiency and de-monopolizing the gas and oil pipeline systems. However, in hindsight, it is clear that efforts to get the Government to implement new legislation that would have substantially reduced the monopoly power of Gazprom were unlikely to be successful, given the political power of that company. Even the IMF was unwilling to press for a higher resource recovery (taxation) of the gas sector, although higher taxes would have had less impact on the sector's physical performance than it had on the oil sector.

Attribution of Bank Program Results

35. To assess the causes for the lack of success in opening to sector to large-scale foreign investment, one must consider the counterfactual proposition of what other courses of action might have been taken. For the Bank, there does not appear to be any alternative sector approach that could have made a more significant impact on the final outcome. The forces allied against open and transparent sale of the sector's assets, which were tied, in the political arena, to the support that Yeltsin needed to defeat the Communists in the election of 1996, were far greater than the Bank could have hoped to influence, let alone overcome. Aid partners, while effective in providing tactical advice on how to design appropriate legal standards for enhancing competition and foreign participation in the sector's development, supported, for the most part the broader strategic goals of the Yeltsin Government, which were enhanced by the loans for shares privatization program.

36. The Bank undertook a sector policy advisory role that had a high risk of failure. But it would have had an extremely high return to the Russian economy if it had been successfully implemented and the cost, in terms of resources expended, was relatively low. The Bank probably did the best that could be done under the difficult circumstances. It provided the correct advice (including advice on expanding the capacity of the export pipeline and opening the oil pipeline system to competitive forces), and supported this advice with appropriate technical assistance on legislation to implement this advice. One must conclude, therefore, that the Bank's sector reform efforts were worthwhile, and the Bank would have been faulted if it had not worked to get them implemented. The fact that these sector reform efforts failed is a reflection on Russia's inability to implement the reforms necessary to successfully achieve its transition to a

modern market economy, rather than a reflection on the Bank's inability to advise on the best way to reach this goal.³¹

37. The recipients of this advice also had their problems, going through several Governments during the course of sector dialogue, many with strongly differing views on the role of private foreign investment in this sector that many considered the country's "crown jewels," and none strong enough to implement the programs that they had agreed to. They had to work with a fractured Duma, which could be, and was, strongly influenced by the sector's major players. In the "new Russia," the Bank has learned that to accomplish reforms, it must obtain the consent of those to be reformed.

Agenda for Future Action

38. There is still a great need for restructuring and rationalization in the oil transport sector, where Transneft is the monopoly pipeline operator, and in the gas sector, where Gazprom is the monopoly pipeline operator and the largest and most powerful entity in Russia. The gas pipeline sector remains a Government monopoly because it provides the Government with a convenient lever of power over the independent and powerful petroleum sector. Gazprom maintains its political strength by continuing to subsidize gas sales to local municipalities for district heating, and to a somewhat lesser extent, to large industrial complexes for process heat. No reforms can be implemented without its approval, and it is not clear that Gazprom would want to reduce its monopoly power by unbundling its pipeline and production activities or allowing any meaningful competition on the production end. Continuing to make Transneft the sole operator of oil pipelines will also limit the Russia's ability to de-bottleneck this critical sector, and will greatly reduce the incentives of foreign companies to invest in the sector.

39. Bank work in the sector should be continued in the context of possible future SAL adjustment operations, with the focus on eliminating the monopoly position of Transneft and bringing the sector's legal and institutional framework to a level where foreign private investors will feel comfortable in undertaking joint ventures with domestic companies, or even undertaking new exploration activities on their own. This program should include improvements in legislation related to access to both oil and gas pipelines. Access to oil pipelines is particularly important for new oil ventures, since they would need to export their oil to service their loans and repatriate their income. However, it is difficult to see what constituency the Bank can tap into to bring about progress in these areas. If appropriate legislation were to be passed, the Bank might consider lending to this critical transport infrastructure sector.

³¹ The Russian government's view is that "it should be also stated that the programmes were not well-conceived, being adapted badly to the local realities. Therefore, a set of actions adequate to the project environment should have been incorporated in the programmes."

The Coal Sector

Sector Performance and Challenges

1. Russia is the world's third largest coal producer behind China and the United States. In 1994, it accounted for 6 percent of world coal production, produced from 199 underground mines and 68 surface mines, all affiliated with RosUgol, the state-owned coal combine³². As with all primary energy sources, government-controlled coal prices were substantially below their economically appropriate levels. The industry was subsidized primarily through Government grants (non-repayable) for new investments and major maintenance. Coal consumption began to decline in the late 1980s, as more convenient natural gas began to replace it. This decline accelerated as the reforms of the early 1990s, including the elimination of the very large implicit subsidies on rail freight (i.e., artificially low rail tariffs), substantially increased the price consumers had to pay for coal. However, in 1994, coal still accounted for some 18 percent of total energy supply in Russia. In some regions it was much more important; in the Far East it supplied more than half the region's primary energy needs.

2. The problems of the sector, as outlined in the Bank's first Russia Country Economic Memorandum (September 1992), were similar to those previously faced by Britain, Poland and Germany. Each had been operated by a single monopoly with massive cross-subsidization between low- and high-cost mines. Labor shedding had been politically difficult and employment had stayed at unrealistically high levels when the industry should have been contracting in the face of increasing costs due to depletion of the most economically recoverable coal and of increasing competition from oil and gas. The full scale of subsidies to the industry had been concealed by mandatory purchases of coal by electricity generators and artificially low transport costs. Finally, attempts to prevent explicit budget subsidies (i.e., payments from the central budget to the sector enterprises) from reaching unsustainable levels had simply shifted the balance from subsidizing investment activities towards subsidizing recurring operating expenses (including wages), leaving the industry starved of investment funds.

3. With declining demand and increasing costs, federal budget coal subsidies began to increase rapidly in the early 1990s. In 1993, coal prices were liberalized and allowed to respond to market forces. At the same time, rail transport subsidies were eliminated and rail tariffs were increased to cover costs, putting more pressure on uneconomic mines. Subsidies to coal mines continued to increase, reaching just over one percent of Russia's GDP in 1993 and 1994 and between 4 and 5 percent of the total Federal budget. Thereafter, the Government began to reduce subsidy payments, effectively starving the sector for funds. Driven by the loss of markets, the loss of government funding, and the failure of many users to pay their bills, the retrenchment process was both ad-hoc and chaotic. Reinvestment in repair and renewal became sporadic. Many were unable to pay wages for months at a time. Others stopped production, causing immense social distress and political tension. Coal miners were taking industrial action, including street protests in provincial capitals and in Moscow. Other workers, no longer able to afford to work without wages, simply quit. Employment in RosUgol's coal workforce fell from 914,000 in 1992 to 819,000 in 1994.

³² Through its control of the State owned controlling shareholding and its control of the allocation of Government budgetary funds for coal sector support, RosUgol was able to act, effectively, a centralized coal mining monopoly.

4. The sector restructuring process began in 1994, with the establishment of mining enterprises as joint stock companies. In 1995 the Government issued its new sector policy paper “Basic Trends for Coal Restructuring,” which outlined a new strategy for downsizing the industry and transferring its social assets (housing, heating and water supplies, electricity, health services, schools, etc.) to municipal governments.³³ These services were often provided as an integral part of the mining company’s operation, although much of it had been neglected during the recent period of scarcity of funds. In communities where mines were closing, this transfer was placing an additional severe burden on municipal budgets at a time when their tax base was shrinking.

5. Thirty-seven mines ceased production in 1994-95, and closure activities were underway at 64 others. By the end of 1996, coal subsidies had been reduced to below 0.50 percent of GDP. But even this still massive support expenditure (of about US\$2.0 billion), which was larger than the industry’s total wage bill, was insufficient for many mining companies to keep their wage payments current. Nor were these subsidies being used to effectively restructure and downsize the sector. Instead, nearly half of the funds were being allocated for “price supports,” essentially payments to mining companies to cover operating losses and new investment, often in mines that had no prospect of ever becoming financially viable. By supporting uneconomic mines, the subsidy program was, in effect, blocking, rather than assisting, the restructuring process. But it was doing little to help the mineworkers; wages in some provinces were still 3 to 6 months in arrears and miners were initiating serious labor stoppages.

6. At the time of the first Coal SECAL (June 1996), it was estimated that if competitive market forces were allowed to function, a restructured, competitive, profitable industry would produce about one-third less than current production with about half the labor force. This was far less of a retrenchment than had been experienced in Western Europe in their restructuring program, where upwards of 73 percent of the mines had to be closed as uneconomic in Germany and over 90 percent in the UK. But the problems associated with mine closing were far more severe in Russia, where the restructuring was to be implemented during a period when the entire economy was contracting, and many other industries were also closing down.

7. The challenge facing the Government was to institute a program to close down a large number of mines and downsize others over a reasonable period of time and in a systematic and orderly manner, but in a way that would minimize the hardship on displaced miners and their communities. To do so, they needed to shift the use of Federal subsidies from underwriting operating and investment costs of uneconomic mines to underwriting activities needed to facilitate the closure of these uneconomic mines. The challenge facing the Bank was to help the Government to establish a system that would meet these goals, particularly the goals of protecting the displaced miners and their communities.

Evolution of the Bank’s Sector Assistance Strategy

8. The Government had pressed the Bank to support the coal sector from almost the beginning of the country dialogue, and about US\$50 million from the Bank’s first loan to Russia was allocated to the coal sector.³⁴ The Bank undertook a detailed social and economic assessment of the Coal sector in 1993 to determine what assistance should be given to the sector. Its draft report was issued in November 1993 and discussed with the Government the following

³³ The policy of transfer of social resources was being implemented for all industrial enterprises.

³⁴ This was the first Rehabilitation loan (L3513 approved August 6, 1992). The Bank’s Implementation Completion Report (Report No. 16300) provides no information as to how much of the loan was actually used for spare parts and equipment for the coal sector.

month. In early 1994, this work was augmented with a detailed analysis of the likely impact if restructuring of all of Russia's main coal basins was undertaken. The report's findings were widely distributed and discussed within the Russian Government, and published as a Bank Sector Report entitled *Restructuring the Coal Industry: Putting People First*, (Report 13187-RU, December 1994). This report took the position that employment reduction, with or without mine closures, needed to be managed in a socially responsible manner, within the context of an adequate social safety net. It argued that the process by which employment reduction was handled would be crucial to the acceptance of the overall restructuring program by mining communities.

9. The report was used as the basis for a series of discussions with, and among, all the impacted groups, about how the restructuring process was to proceed. The Government formed an Inter-Agency Coal Commission 1994 to establish a consistent policy towards the sector. It reviewed with the Bank the report's analysis and conclusions in May 1994, and after inviting 25 Russian agencies to review it and submit written commentaries, discussed it again with the Bank in September 1994. In mid-1995, it issued a consensus document on *Basic Trends for Coal Restructuring*, outlining the basic elements of the Government's long-term strategy to transform the coal industry into a sustainable and competitive sector. This long process of stakeholder involvement established a revised Russian Coal Sector restructuring policy on which two Coal Sector Adjustment Loans (SECAL) were implemented, for a total of US\$1.3 billion.³⁵ The detailed social and economic assessment of the coal sector that the Bank had undertaken in 1993 to determine what assistance should be given to the sector provided a critical opportunity for stakeholder consultation. This work, which was based on quantified, systematic social assessment techniques, was one of the key building blocks for establishing widespread support for the coal sector reform program. It is an example of "best practices" for initiating similar sector reform programs.

10. The core concept of this agreed restructuring policy was to shift the focus of the coal subsidy program away from financing wage payments and investments in uneconomic mines, and towards the closing of uneconomic mines in a clear, transparent and monitorable manner. This meant that subsidies would be focused on supporting a priority program to cover the costs of closing uneconomic mines and the costs of a social safety net program. This safety net would include payment of back wages, severance and disability claims, and social counseling and retraining needs of displaced and retiring miners. It was also intended to include investments in environmental remediation and cleanup, repair of social infrastructure, and replacement of housing undermined by previous mining activities.

11. All affected groups felt they had something to gain from cooperating with the Bank in an industry that was clearly going to have to retrench, one way or the other. For the Government, the agreed program would provide a socially acceptable path for a rapid decrease in subsidies. For the miners, the agreed restructuring program would eliminate the uncertainty of working for a mine that was unable to pay its wage bill, but continued to operate. It provided workers with a guarantee that, if and when their mines were to close, they would receive the benefits of a redundancy payment plus full back pay (which could often be six or more months salary), plus some support for finding alternative employment. For municipal governments, the program provided assurances that the Government would actually make the agreed infrastructure support

³⁵ These were SECAL I (LRU-PE-38550) in June 1996 for US\$500 million and SECAL II (RU-PE-45622) in December 1997 for US\$800 million. The Bank has also provided a technical assistance loan (US\$25 million in June 1996) to support the Coal SECAL, and, more recently, a Coal (and Forestry) sector investment guarantee (in FY00) to encourage private sector lending to financially viable companies.

payments. Municipal governments were being laden with the responsibility for maintaining the social assets of all production enterprises, including those of the mining companies (housing, schools, hospitals, as well as water, electricity and telephone supply). Mining company assets were particularly burdensome because the mines closings had eliminated both the tax base and the industrial base that had supported them.

12. For the uneconomic coal companies that knew they would have to close because they were clearly too high in cost to compete, the program provided assurances that the Government would provide the funds needed for physically closing the mines pits and discharging their responsibilities to their employees, in a timely and efficient manner. For the more efficient mines, it provided a structure within which they could privatize their productive assets. (Further, by establishing an avenue for reducing the Government's total subsidy burden, it even allowed the more politically powerful mining areas [e.g., Rostov] to hope that their subsidies could continue because the total subsidy burden would decline. The losers were RosUgol which would no longer have authority over individual mining companies, and the provincial (oblast) governments, which had also benefited in the past from the control of the flow of subsidy funds. Both were bypassed under the restructuring program and had little role in the implementation of the project.

13. The principal objectives of SECAL I were defined in the Government's letter of development policy attached to the MOP. They were to:

- Reduce the impact of the coal sector on the federal budget by supporting the decrease, and eventual elimination, of subsidies;
- Promote the long-term sustainability of the coal sector through establishment of a competitive, commercial industry;
- Support a restructuring program to reduce the size of the industry to increase efficiency; and
- Cushion the impact of the restructuring on coal miners, their families, and affected communities.

14. The 1996 strategy supported by the Bank made the following provisions:

- Subsidy funds would be redirected from the support of operating losses and investments, towards restructuring (employment reduction, including mine closing) and related social programs;
- A transparent mechanism would be established for the allocation and monitoring of all subsidies;
- New investments would rely more on internal financing and direct private investment.
- At least 90 loss-making mines, with a total direct workforce of 83,000 people would be closed (increased to 150 mines in SECAL II).
- Non-core activities would be divested, resulting in a reduction in mining workforce of an additional 175,000 people.
- Community Support and Employment Programs in areas where coal-related unemployment was expected to be high would be established to help provide transitional assistance to create new, unsubsidized jobs.
- The coal industry would be restructured to eventually consist of independent, competing coal companies that would be self-financing on a long-term basis. (A privatization program was specifically introduced in SECAL II.)

- The Government transferred the responsibility for allocating coal subsidies from RosUgol to an Inter-Agency Commission and announced a monitoring and auditing system to ensure that subsidies were used for the designated purposes.
- Each coal province was to submit a Provincial Coal Restructuring Program to the Inter-Agency Coal Commission.

15. The focus of the first coal adjustment loan (SECAL I) was limited to the establishment of a socially sustainable policy and institutional framework for restructuring the industry. It has a strong poverty reduction element. Priority was given to the design of a social safety net program for miners who would be losing their jobs. These individuals were guaranteed to receive all the benefits to which they were legally entitled, including back pay, redundancy allowances, disability payments, counseling and other services to help in finding new employment. This was a major improvement over previous conditions, where many of the most inefficient mines had reacted to cash shortages by simply not paying their workers for many months, and then simply closing down, leaving their miners and their communities stranded. The safety net program also emphasized the need to provide funding for the maintenance of social infrastructure (housing, health services, and education) that the municipal governments were receiving from the closing mines.

16. SECAL I also fostered the development and initial implementation of measures to commercialize and de-monopolize the coal sector. The government was not ready to undertake a commitment to a privatization program, although this was the long-term goal. Instead, SECAL I envisioned the de-monopolization of the sector through a process of transferring state-owned shares of individual coal enterprises to private sector “trust managers”. This transfer was viewed as the initial phase in the preparation for sector privatisation. The experiment proved to be a failure; trust managers lacked adequate incentives to work in the long run interests of the enterprises that they were managing, and instead focused on ways to maximize their own personal short run gains. Trust management was eliminated under SECAL II when the Government decided to undertake direct privatisation.

17. SECAL II extended the objectives of SECAL I by strengthening the implementation of the safety net program and adding a substantial mining company privatization element. The sector holding company RosUgol, which had had substantial authority to allocate sector subsidies, was to be disbanded, and the individual mining companies were to become totally independent. The mine closure program was strengthened by an agreement covering (i) the minimum number of mines that would be closed; (ii) the percentage of the aggregate budgetary allocations that could be used for “non-essential” expenditures (direct mine subsidies and sector investment funds); a schedule for increasing the percentage of the subsidy funds that would be used for “priority” activities, including payment of wage arrears and redundancy and retirement benefits, costs associated with closing mines, and necessary rehabilitation of social infrastructure of closed mines; and, (iii) the percentage of the industry that would be privatized over the following two years.³⁶ The ultimate sector goal was the elimination all subsidies and the privatization of all mines that had not been closed. The Government also strengthened the social safety net program giving the Federal Treasury, rather than the mining companies the responsibility for distributing social payments directly to the approved recipients. In all these areas, agreed outcomes were designed to be clearly measurable. By focusing conditionality agreements on aggregate outcomes, the micro level decisions (e.g., which mines to close, details

³⁶ Forty-five percent of the industry’s output was to come from privatized mines, as measured by 1996 production levels, compared to less than 8 percent in 1994.

of mine closure programs, what investments to support, which mines to privatize) were left totally to the Government.

Assessment of the Bank's Products and Services

18. Both SECALs were designed with an understanding that many modifications would have to be made to the processes by which the social components of the mine closure programs were implemented. An independent Panel of Experts was established to monitor the social impact of the restructuring program and identify the needed adjustments. In addition, a parallel US\$25 million Coal Sector Restructuring Implementation Assistance Loan (L4059) provided financing for teams of local and foreign consultants to undertake in-depth meetings and focus group discussions with stakeholders, business people and NGOs in the three major coal basins of Kuzbass, Rostov, and Tula during the course of implementing the second project. The feedback from both of these sources has been critical in providing assurances that the program was meeting its declared objectives of supporting the affected populations and in establishing a framework for deciding what refinements in implementation procedures were needed during the course of project implementation.

19. The Government's performance under SECAL I substantially met the program's major objectives. By 1998, coal subsidies were nearly cut in half in real terms. One third of these subsidies were earmarked for mitigating the social impact of mine closing and downsizing. Social assets and non-core activities were divested from productive coal companies and transferred to municipal governments. Over 90 mines were closed during 1994-1997, and employment declined by over 40 percent. Social subsidies (emergency housing and heating repairs and job creation activities) were distributed directly to the local communities, rather than through the mining companies.

20. The social impact and monitoring reports identified some major holes in the reform system. The Government had been using RosUgolas the agency for distributing Federal subsidy funds to the sector. It was found that a substantial portion of the funds allocated for mine closure activities (closing the mines, filling in mine-shaft entrances, tearing down associated buildings, maintaining social infrastructure that mining companies had transferred to the municipal governments) could not be traced to their intended beneficiaries. It was assumed that most of these missing funds had been diverted to uneconomic investments in loss-making coalmines, thereby subverting the entire objective of the program. During preparation for SECAL II, substantial changes were made in the program's institutional support arrangements, including an agreement that responsibilities of RosUgol would be shifted to other organizations and that RosUgol would be closed.

21. In the process of working on SECAL II, the Bank helped the Government formulate a new Russian Federation Government (RFG) Resolution on State Financing Measures for Coal Sector Restructuring (Russian Federation Government (RFG) Resolution 1523 of December 3, 1997). This law (along with the revisions under RFG Resolution 1026) established the categories of eligible financing activities and eligible categories of recipients for each category. It includes clearly defined categories of "priority" and "non-priority" subsidy supports. The Bank-supported program undertook both the widening and deepening of the restructuring process: widening it to include a large increase in the number of mines to be closed under the program; and deepening it by adding an agreement to privatize companies that became profitable after they had been restructured. Implementation of SECAL II was derailed by the financial crisis of August 1998. When it was renegotiated and put back on track in early 1999, all the original conditions were maintained, but disbursement was spread out over six additional tranches and a longer period of

time. The program has required a significant increase in supervision, with missions scheduled on a quarterly basis.

22. The basic agreements under SECAL II focused on Government commitments to limit and to continue to decrease the percentage of their subsidy payments that were to go to “non-priority” activities (financing of operating subsidies and mining investments). The Bank then concentrated its efforts on assuring that the “priority investments” [those used to support the mine closure program] were used for the agreed purposes. The agreement included a minimum number of mines that would be closed, and a minimum percentage of the enterprises that would be privatized. These numbers were chosen on the basis of information derived from detailed mine-by-mine studies that the Coal Committee had implemented. These agreements allowed the Bank to supervise the progress of the reform program, while the government took all responsibility for the day-to-day decisions about what was to be done with each mine.

23. The Bank paid little attention to how the non-priority subsidy funds were used, including the allocation of subsidy investment funds, as long as the aggregate stayed below the agreed level. It was agreed, however, that investments were to be for improving the operation of existing mines, not for the sinking of new mines, and that they should have a reasonably short implementation period. The RF Government planned to complete the shift to allocating subsidy investment funds on a competitive and repayable basis during 1997. They were unable to do so until in FY00. Slow progress in this area was due both to the Bank’s lack of attention to the problem in the early days of project implementation, and to Federal Government’s and sector management’s lack of willingness to promote the process. The result was that the allocation process for investment funds was less transparent, their use less effective than originally envisaged, which had a general negative impact on the country’s institutional development. However, as a result of other institutional and organizational constraints, most of the available funds were never used, so misallocations of funds to non-economic investments were kept to a minimum.³⁷

24. In addition to the quarterly supervision, SECAL II included a series of special audits of the new subsidy management system and subsidy flows, which were carried out in the summer of 1998 and the fall of 1999, and three social impact monitoring studies, which were carried out in the summer and fall of 1998 and the spring of 2000. In addition, during a six-week period in the summer of 2000, Bank staff undertook an intense review of the impact of the social investment program. This intensive supervision cycle has been effective in maintaining pressure on the Government to meet all of its coal sector commitments. All of these activities provided a solid foundation for fine-tuning the program during the course of the implementation of SECAL II and a foundation for negotiating an improved and better focus SECAL III, if the program continues.

25. Unfortunately, the change in government in May 2000, and the lack of a Deputy Minister for Coal since August 2000, has greatly delayed the implementation of actions the Government needs to take to meet the goals of SECAL II and disburse its last two tranches.³⁸ As of March

³⁷ In 1998, they used Rb469 million out of Rb900 million; in 1999, they used about Rb800 million out of out of Rb1000 million allocated; and in the year 2000, they used only Rb132 million out of Rb911 million. Allocated. The primary reason for the inability to use more than 15 percent of their allocation in 2000 was the difficulty in meeting the requirements of the new Budget Code, passed by the Duma in January 2000.

³⁸ A US\$50 million tranche associated with the loan’s social conditions, and a US\$100 million tranche associated with the loan’s privatization conditions. Both tranches also require further progress in deciding how to handle the remaining twenty to thirty heavily loss-making mines that do not yet have restructuring programs.

30, 2001, the Government had begun to bring the program back on track, and has made sufficiently encouraging progress to warrant a one-year extension of the loan closing date (to March 30, 2002).

Assessment of Development Effectiveness Impact

26. The Bank's assistance to the coal sector has met its primary goals. An efficient system of safety net payments has been established at the local level, where payments go directly from the Treasury to the accounts of the miners and municipalities. More than 60 percent of the industry has been privatized. And subsidies in 2000 were reduced to from US\$2.5 billion in 1996 (0.72 percent of GDP) to US\$280 million in 2000 (0.12 percent of GDP). In the same period the work force declined from 274,000 to 182,000, while productivity per worker increased by over 50 percent, from 895 tons per worker to 1,355 tons per worker. Although some 170 mines were closed (ceased to produce and started closure procedures) and 153 of them had substantially completed closure engineering works by the end of 2000, output from the remaining mines (primarily the privatized ones) has increased by almost 70 percent, and total coal production in 2000 was 247 million tons, 27 million tons greater than in 1998.

27. The Government has been appreciative of the Bank's efforts to improve the structure and operation of the safety net system in ways that have improved the benefits to and reduced the tension within the affected populations. The most important indicator of these lowered tensions has been the absence, since mid-1998, of any in major political demonstrations, which miners had previously felt were needed to make their views heard and to get what they consider to be fair treatment. This is a major achievement, considering the militant history of the workers in this sector. Without the Bank's active participation and intervention the program would have been much more likely to have collapsed. The Government has also requested a third Coal SECAL, even though, in the current macroeconomic climate, they are not in urgent need of substantial balance of payments support. Their reason for wanting the loan is the support that the Bank gives to implementing the reform program, over the resistance of many local interests. It is this support that has brought the reform to the point it is today.

28. In sum, the program was highly relevant to the needs of the sector, in terms of the Government's financial objective of reducing and eventually eliminating coal subsidies, its economic objective of redirecting the existing subsidy program to make it support the restructuring effort, its social justice objective of providing provide a safety net for the displaced mine workers. The program achieved most of its primary objectives—at least three-quarters of the industry has been restructured, and 170 highly inefficient mines have been closed.

29. Notwithstanding the success of the reform and restructuring program to date, several sector problems remain unresolved. First and foremost, the Government has yet to agree on a program for restructuring the last group of sixty or seventy mines yet to be evaluated. Up to half of these mines are heavily loss-making and will need to be closed. Thus, hard decisions still need to be made, decisions that had been promised under SECAL II, and which must be made before a Coal SECAL III can be contemplated. Without these decisions, these coal mines will continue to be a drain on Government resources, and the costs will continue to rise as their losses increase. If the government carries through its pledge to eliminate all subsidies by the end of 2002, these mines will close without the benefit of a government safety net for the workers or the mining communities. Given the militancy and the close-knit nature of these mining communities, the social repercussion could be severe.

30. Even for the communities where the mines have been closed under the agreed program, the program's social objectives have only been partially met. The social infrastructure that was passed to the municipal governments was in an extremely poor state of repair, leaving many serious social problems unresolved. The funding needed to correct these infrastructure problems, and the parallel problems of meeting the basic housing needs of displaced miners and their communities, was supposed to be part of the funding for the Mine Closure Plans that were approved and agreed to by the Government. However, funding for these categories of expenditures has been grossly inadequately, and the problems remain.

31. Furthermore, the sustainability of the mining industry with independent, commercial viable enterprises capable of meeting the country's coal needs is still uncertain. The investment program required to maintain this industry requires a substantial and continuing source of long-term commercial finance, which is not currently available. But even if it were available, most mining enterprises are unable to qualify for such loans. Almost all have been saddled with a heavy carry-over debt burden, to the extent that they could be put into bankruptcy at any time. These debts, owed to various state and federal funds, were left unpaid during periods of cash flow squeezes that their predecessors went through during the past two decades.

32. Some investment funds are still being provided by the Government's Coal Subsidy program (as loans), but this program will be phased out, as by the end of 2002. In addition, the Bank has established a guarantee facility against non-commercial risks (Partial Risk Guarantee B116), but most enterprises are already carrying too much debt to qualify. The IFC is looking at what it might be able to do to ameliorate the situation. Alternative means of obtaining long-term financing required for new investments have yet to be identified. Thus, the coal sector faces much the same problem as do other capital-intensive industries in Russia: the problem of an inadequately developed capital market.

Attribution of the Bank Program Results

33. As is generally the case in successful projects, the excellent results of this project can be attributed to the shared interest of all the affected groups. Of particular importance were: (i) the interest of the Government in reducing subsidies and maintaining the peace in a highly contentious industry; (ii) the interest of the municipalities in being assured that the Government would maintain its commitment to its approved allocation program; and (iii) the interest of the mining population to get paid their back wages and move forward with their lives in as orderly and controlled a manner as was possible during this period of retrenchment.³⁹

34. The Bank staff contributed to an effective supervision environment by designing and agreeing with the Government on clearly monitorable, quantitative objectives that formed the basis for discussions about project progress. It was able to focus attention on the program's critical elements, which included the number of mines that were to be closed, the results of the mine closure program (number of mines substantially closed), and the percentage of the industry that had been privatized.⁴⁰ By focusing on the aggregates, it left the Government to work out the details of how it would achieve its objectives. The Government chose the mines to be closed, the

³⁹ The FCPF has pointed out that the Government's strong commitment to the coal projects was conditioned both by internal motives of its liberal wing and the need to "earn" funds to cover the high federal budget deficit.

⁴⁰ The RFCP has pointed out that the strict and consistent position of the Bank coal project task managers was an important element in the success of the reform process.

investments to support for the mines that remained open,⁴¹ and the mines that were to be privatized.

35. The choice of lending instrument (a sector adjustment loan) helped to focus the attention of Bank staff on critical policy issues. The project provided general budgetary support, so there was no direct link between the disbursement of Bank funds to the Government and the disbursement of the Government's budgetary funds that were used to subsidize activities in the coal sector. The Bank loan and the Government subsidy program were closely linked in the minds of the Duma, which approved the restructuring program at least partially because it was tied to the Bank loan. The close supervision of the restructuring program by the PIU, which was closely associated with the Bank, and by numerous Bank missions also led the public (especially the subsidy recipients) to consider the Government funds to originate from, and be controlled by the Bank.

36. This association was effectively and appropriately used by the Government when it had to make politically unpopular decisions needed to keep the restructuring program on course.⁴² However, the Bank never tried to control the specific allocation of the Government's subsidies. Instead, it reached an agreement on the broad parameters of the restructuring program, included conditions on the minimum support (in percentage terms) for "priority investments" (those which moved the restructuring program forward), and the maximum support (percentage) that could go to "non-priority" activities (primarily operating subsidies and investment funds). The Bank never got involved in design of the individual mine closing programs, the decisions about which mines needed to be closed, and the allocations of funds among the mine closing categories. These decisions were left to the Government, with the proviso that the social safety-net payments that were to go directly to the miners would take priority, and that these payments had to be completed before the mines could be counted as substantially closed.⁴³

37. While the Bank did not control the actual allocation of Government subsidies, it did follow up to determine how well the subsidy program was meeting its agreed objectives. To do so, the Bank included a series of interim program audits and evaluations in the project design. The results and recommendations of these audits provided the factual basis for subsequent discussions with the government on adjustments to the institutional arrangements as the program

⁴¹ Subject only to the stipulation that the investments were for improvements in operating mines, not for investments needed to open new mines.

⁴² As noted by the FCPF: "Without the Bank's support it would have been practically impossible (at least within the time) to de-monopolise the sector, create an enabling competitive environment, introduce a more transparent subsidy allocation mechanism and bring budgetary funds to end-users, prioritise the social aspects in the course of liquidating loss-making mines, initiate local development and employment programmes in the mining communities."

⁴³ There was also a negative side to this close association between SECAL funds and going to the government's general budget and government funds going to the coal sector. As pointed out in the FCPF "many of the Russian public have rather strong prejudice against this kind of financial support as they hold the wide-spread view that the loan proceeds were used either for ineligible purposes (which is an impaired judgement) or stolen. The absence of active opposition to spreading this myth, no matter whether it was engendered by poor knowledge, the attempts by some journalists to find spicy material, or by a "political" order, is a significant weakness of the RF MinEnergy and ReformUgol departments, which should have been in charge of adequate PR support for the coal projects. Also rather wide spread is the view that the coal projects made a negative impact on the sector, and our civil society paid too much as a result. To provide sound reasoning against this attitude, a special analysis is required. From my point of view, such an analysis should have been conducted by the implementing agencies."

progressed. This dynamic process, and the continuous dialogue with the government on all substantive issues, facilitated by almost quarterly supervision missions, kept the project on track.

38. The Bank staff did go into great detail in the advice given on the formulation of Government Resolution 1523 on Public Finance for Coal Sector Restructuring. This critical implementing legislation defined how the subsidy disbursement system was to be handled by the Treasury. This legislation detailed all the categories of disbursement and the specific activities that would be included in each category, as well as the disbursement mechanism, and the accounting and control process to be used. There was no ambiguity allowed in this legislation, and it was subsequently successfully used as the “bible” for the Treasury when it disbursed the subsidy funds.

39. From the Russian side, an efficient Project Implementation Unit, ReformUgol, supported the project. ReformUgol had four operational units, a social program unit, an economic program unit, a unit for interaction with NGOs and the media, and a unit that provided technical support for the Government’s Interagency Coal Commission (IAC). It was responsible for reviewing the coal subsidy management system, conducting the Special Audits that verified the expenditure eligibility under each category, and conduct social studies to monitor the social aspects of the restructuring program. It was also active in reviewing the proposed improvements to the legal and regulatory acts governing the institutional structure and operation of the sector.

40. It would be difficult to overemphasize the importance of these Special Audits. The first special audit, which was a condition of the second tranche of SECAL I, focused on the eligibility of actual payments of the coal sector subsidies. It was based on detailed information on the use of budget resources at the coal company level. The weaknesses in the system identified in this audit lead to the drafting and passage of Government Resolution No. 1523, mentioned above. The second special audit was designed to verify the legality, accountability and transparency of the subsidy process, and to establish whether the weaknesses identified during the first audit had been rectified. This audit showed that the new regulations had greatly improved the performance of the subsidy program. A third audit is planned as part of the condition for disbursement of the last social tranche of SECAL II. ReformUgol also monitored the social implications of the labor shedding process under the restructuring program. One result of this study was to refocus Government efforts on employment assistance programs in mining communities. The result of all of these audits and studies was that federal and provincial authorities were provided with solid, real-time information on which to base their sector policy decisions, thus greatly enhancing effectiveness of the Bank-Government dialogue.

41. ReformUgol as also been active in providing assessments of the value and appropriate initial price for federally owned shares of several of the mines that were subsequently fully privatized. It has also implemented management and financial training programs for coal enterprises. It has also reviewed the substantial closure process of a large number of mines, providing recommendations on ways to reduce delays in this process, and has undertaken environmental audits of closing mines in all three coal regions, which have lead to a action plan to eliminate the negative environmental impact of mine closing and improve the regulatory framework for the environmental protection process. All of these activities have greatly enhanced the effectiveness of the project.

Agenda for Future Action

42. The Government’s coal reform program has been effectively paralyzed since August 2000, when the inter-ministerial Coal Committee was disbanded and the Deputy Minister for

Coal was dismissed. The Government has yet to establish an alternative to the Coal Committee, nor (as of March 15, 2001) has it appointed a new Deputy Minister.

43. Subsidy Phase-Out: The Government has taken the position that all coal sector subsidies should cease by the end of 2002. Yet many issues are still unresolved. First, and foremost, the restructuring program is far from completed. There are still approximately 40 heavily loss-making mines still in operation, without restructuring plans. If the Government were to just stop the subsidies. It is possible that an explosive political situation could develop in provinces such as Rostov, where many heavily loss-making mines are still operating as they did in other provinces before the Bank-supported formal restructuring process was established. The Government could attempt to avoid such disruptions by continuing to subsidize these highly inefficient mines. This would be unfortunate. These subsidies will only continue to grow. Mines that have been restructured will have little incentive to continue to become more efficient if they know that they are likely to receive subsidies if they again become loss-making, and even the efficient mines would suffer, as coal prices continued to be depressed by the output of uneconomic mines.

44. Other pressing problems that remain unresolved, include (i) the rehabilitation of social infrastructure; (ii) the funding of disability payments for disabled miners from closed mines; (iii) the funding for free coal that the Government has guaranteed to families of miners from closed mines; (iv) the resolution of debt overhang issues; and (v) the funding for new investment for mines that are continuing to operate (government-owned and private).

45. Social Infrastructure: The most pressing of these problems are the rehabilitation of social infrastructure that was transferred to municipal governments, and the shifting of mine families from dilapidated housing that has been made unsafe by land subsidence around the mining area. These two elements were included by the mine closure committees in the cost estimates of all mine closure programs and approved by the Government agency GURESH. However, large parts of these closure programs have remained unfunded. Priority has been given, first, to the investments needed to complete the physical closing of the mines, and second to the environmental rehabilitation work needed to complete the mine closures. As of early 2001, the Government has provided less than 15 percent of the funds needed to rehabilitate the social infrastructure. If the rapid decline in the availability of subsidy support of the mine closure program (which has been declining by some 20 percent per year over the past several years), continues, these critical mandates will remain unfulfilled when the formal government subsidy program ceases, as it is scheduled to, at the end of 2002.

46. Municipal governments are now responsible for many communities with substandard housing and dilapidated infrastructure. Repairs, maintenance and renewal are needed for drinking water facilities, central heating facilities, the electric power distribution facilities, roads, and telephone exchanges. Many of these facilities and the housing they support were built in the 1940s and 1950s with planned lifetimes of 15 to 20 years. They should have been torn down years ago. The municipal governments most heavily impacted by the transfer of social assets from loss-making mines have also seen their tax base devastated by the closure of these mines and their supporting industries, which had previously been the center of their economic life.

47. Disability Payments: It was believed that the disability payments issue was resolved by the Government's payments of disability claims through 2000, and the law passed in 2000 that assigned future responsibility for all disability payments to the Social Insurance Fund (SIF). This law instructs the SIF to establish a pay-as-you-go payroll tax for each major industrial sector, reflecting the actuarial risk of that sector. This system should work perfectly well under normal

circumstances, since it internalizes the costs and liabilities of hazardous industries. However, its present design will not work for the coal-mining sector, with its historically high accident rate (especially in the older, less efficient mines that have recently been closed), and with its sharp contraction in employment. As the system is currently designed, the liabilities for the disabled miners who worked in the closed mines (who currently make up more than half of all disabled miners) have to be paid for by taxes on the remaining operating mines. The burden is more than the mining sector can bear. The Social Insurance Fund estimates that given the much lower number of miners actually working in the restructured mines, the payroll tax will have to be increased some five-fold, to about 40 percent of the wage bill to cover the liabilities of the bankrupt enterprises. Such a high tax is likely to have a devastating impact on an industry that is already straining to maintain financial viability. An alternative needs to be found, one that spreads these costs over all industries and enterprises.

48. Free Coal: The Government's commitment to supply free coal to the families of miners from closed mines has also created a long-term unfunded liability. This coal is an essential element in the minimal consumption of families in the cold Russian winters. However, this commitment has proven to be a much heavier burden than originally anticipated, particularly in regions where coal is becoming scarce because most of the local mines have been closed. There are some serious questions to be resolved about the most efficient mechanism to ensure the availability of and access to this coal (or an alternative fuel). In addition, this free coal is currently being financed through the Government's coal subsidy fund, which is scheduled to end after 2002. But no alternative source of funding has been identified after this date. If funding is not found, coal supplies will not continue, and without this coal most of these families would find life literally untenable. The social safety net will have been broken.

49. Debt Overhang: Almost all mining companies, private and public are faced with a serious debt overhang problem stemming primarily from the non-payment of various off-budget taxes (payroll taxes, road taxes, etc). When these taxes were not paid, heavy penalties were applied, so that now the total amount due may be more than 60 percent penalties. With further non-payment penalties, this figure is bound to rise. For closed mines, the penalties keep the closure process from reaching completion. As long as debts are outstanding, the liquidation committees cannot sign over the land to the municipal governments. The process is left in limbo, because the closed mines have no source of revenue to pay the taxes due. For mines that continue to operate (both private and publicly owned), the problem is far more critical. First, the mines are, at least in principle, in constant danger of being renationalized, at any time. The Government can press its "legitimate" claims at any time and force the enterprise into bankruptcy, where they can be renationalized, or sold to other, better connected parties. Even more concerning for the long term viability of the industry, no commercial bank would be willing to lend money to a company with such a weak balance sheet. It was a mistake to privatize these companies without a clean balance sheet (or at least a restructured long term debt that they can live with). This debt overhang situation will have to be resolved before the sector can be expected to become healthy and self-sustaining. All the productive enterprises are loaded with a myriad of sales and payroll taxes, regardless of their profitability. The problem has been caused by the growth over recent decades of an incoherent and inconsistent set of national tax initiatives. The solution will not be easy to find, as it is not unique to the coal sector.

50. Funding for new Investment: Even without this debt overhang, the mines have no source of long-term financing to support their investment needs. It is difficult to see how they will be able to survive very long if they do not have the funds to renew their capital equipment, let alone expand their operations. While some of them are willing to take foreign funding, for lack of other sources, others have been found that such borrowing leaves them with a serious exchange risk.

Most of their coal is sold locally and is only marginally related to prices of traded coal, at least in the medium term. At least one mining company was badly burned by the 1998 financial crisis, when their foreign denominated debts quadrupled (in ruble terms), while the ruble prices of their output increased by less than 50 percent. It is an economy-wide problem, which can hardly be solved at the sector level.

Agenda for Bank Assistance

51. These problems will require careful consideration and strong political will to resolve. They provide a strong basis for arguing that, if the Government fulfills its commitments to continue the process of sector restructuring, the Bank should support a third Coal SECAL loan to complete the job started in SECAL I and II. A SECAL III would provide the Bank with an opportunity to negotiate an agreed framework for working out the solutions for these problems, and it would provide the basis for the Government to extend its Coal Subsidy program for the several years that will be needed to implement the program. The structuring of the SECAL in a series of well-defined tranches, similar to the format that evolved and was adopted during the restructuring of SECAL II, would be well suited to meet these objectives. However, closer attention will have to be paid to issues related to Government funding allocations needed to meet the obligations that it agrees to under the individual mine closure programs.

52. If these problems are not resolved, the sustainability of the coal industry's economic sustainability will be in jeopardy. And if the Government stops its subsidy program before it fulfills its obligations to the affected municipal governments, then large numbers of miner families will be left in non-viable living conditions. If these problems are not resolved, the Bank's coal sector restructuring program "with a human face" will have failed in its efforts for establishing the sector's long-term sustainability.

The Power Sector

Sector Performance and Challenges

1. In the early 1990s, RAO UES ran the Russian electric power sector as a state monopoly. It was the largest power company in the world. It suffered from all of the excesses of the soviet economic system. For decades its investment program had been based on non-economic considerations, favoring mine-mouth, coal-powered generation plants located at great distances from consumption centers, over gas-fired plants located near consuming centers. It designed its plants without regard to environmental concerns. Its repair and maintenance activities had been under-financed for many years with resulting losses in plant reliability and efficiency. It was struggling under a heavy burden of non-payment and non-cash settlements of bills, which it could not control by cutting off the worst offenders, and it was rife with corruption.⁴⁴ While there has been a significant decline in power generation capacity over the 1990s, demand declined faster than supply,⁴⁵ and there have yet to be any widespread power shortages.

2. The major sector problems were:

- *Non-payment and non-cash payments:* In 1995, 30 percent of electricity bills were unpaid, and another 59 percent were paid through non-cash settlements (barter, bilateral debt settlements, and promissory notes). RAO UES avoided paying cash to many of its creditors, particularly for its primary energy inputs and its tax obligations. The lack of transparency of most of these transactions also facilitated tax avoidance and personal rent seeking.
- *Operating inefficiencies:* In the first half of the 1990s employment increased by 40 percent while output declined by about 40 percent. Lack of funds led to under-investment in maintenance and refurbishment, which further reduced technical operating efficiency.
- *Uneconomic dispatch:* Although Russia had millions of miles of transmission lines to distribute power over its wide network of power plants, it did not have an effective national dispatch system. Inefficient dispatch (that is, the operation of generation plants with high variable costs instead of those with low variable costs) is estimated by the Russian Institute of Energy Research to have cost over US\$1 billion per year by the mid-1990s.
- *Price distortions:* Industry tariffs were four times those of households, with those who paid subsidizing those who avoided payment.

3. Throughout the early years of Russia's transition, the old guard remained in control of RAO UES and the Energos (province[i.e., oblast]-run distribution companies, many of which also controlled local power plants and municipal combined heat and power plants). They had little interest in introducing significant reforms to improve sector efficiency. And as long as the country's electric power needs were being met, there was little pressure for change. This situation is expected to change over the coming decade, as the economy begins to grow again. The Government is aware of its inability to meet a growing demand using only public sector resources.

⁴⁴ See World Bank Technical Paper No. 423, 1999.

⁴⁵ By 24 percent between 1990 and 1999, from 1080 TWh to 830 TWh.

4. In 1996, all of the power enterprises were corporatized and about 5 percent of their shares were sold to employees (staff and management). In the following years, more of the shares have been sold off, to both local and foreign buyers. As of March 2001, the government still held 52 percent of the stock. Foreigners held about one-third of the stock, but only in the role of portfolio investors. There were no foreign strategic equity holders (i.e., equity with management control).⁴⁶

5. Late in 1999, RAO UES proposed a major restructuring that would, *inter alia*, separate its distribution and generation assets from its transmission assets. Minority investors objected to this plan, primarily because it would have allowed well connected provincial (oblast) managers and politicians to obtain these devolved assets at greatly discounted prices. The Government rejected the plan, and is now working on an alternative formulation. There is, therefore, a renewed interest in private investment in generation. IFC is looking into these possibilities, and is counting on the Bank for support in helping the Government to implement the legal reforms needed to attract private investment. EBRD is also taking an active role in supporting the reform program, and promising to provide equity investment funds for newly created generation companies if certain conditions are met. The World Bank Group and EBRD do not appear to be coordinating their support programs or policy advice.

Evolution of the Bank's Sector Assistance Strategy

6. The Bank's strategic objectives have always been to improve sector performance and provide the basis for private investment through the implementation of the objectives it has set for energy sector reform in all countries. These include:⁴⁷

- Unbundling of generation, transmission, and distribution activities;
- Privatizing individual plants or groups of plants;
- Privatizing distribution, one province at a time;

⁴⁶ In 1999, the Duma passed a law prohibiting foreigners from holding more than 20 percent of the equity in any electric power enterprise. The executive branch has been unwilling to enforce this law, but it is still on the books. It is not a significant problem as long as the Government maintains its majority ownership. But it is a strong barrier to the sale of Government equity to foreign strategic investors in the sector.

⁴⁷ The Bank's *Viewpoints* paper (April 1998) is the best summary available of the issues and the efforts to unbundle and reform the sector.

Issues are:

- Non-payment for electricity (including barter), often from government-budgeted agencies—without solving this problem nothing can be done.
- Improving dispatch—over US\$1.5 billion can be saved by economic dispatch.
- Unbundling of generation is needed for competition, with inefficient plants closing.
- Combined heat and power (CHP) plants, which are allowed to price heat at full cost—but how to regulate prices in this non-competitive market?
- Energos own 60 percent of generation and are partially privatized provincial monopolies (with about 30 percent foreign portfolio ownership)—need to convince them to reduce monopolistic power.
- Access to capital for new plants—currently, all capital spending is self-financed, but outside funds will be needed when demand begins to expand.

Since 1998, RAO UES has introduced auditing and financial controls and has seen cash payments continuously improving. The implementation of a wholesale market among large industrial customers and generators has begun. Model contracts have been established, using the network as a common carrier. Principles for access to transmission and distribution networks and for wheeling tariffs have been established. RAO UES has made a commitment to elimination of cross-subsidies.

- Establishment of an independent regulator for pricing of non-competitive elements (transmission and distribution); and
- Creation of a market-based dispatch system.

7. The Bank first met with RAO UES to talk about a program of structural reform in 1992. At that time, RAO UES showed no interest, and that was the end of the dialogue for several years. After Yeltsin's reelection in 1996, the reformers took hold of the economic reins, and brought in Mr. Besnov, a new, reform minded Chief Executive of RAO UES. In early 1997, he approached the Bank to provide technical support to help structure his reform program.⁴⁸

8. The Bank saw this as a window of opportunity to make a substantial impact on the Russian economy by helping to restructure the largest electric power monopoly in the world. The Bank was aware of the fluidity of the political situation, the possibility that political changes could close the window of opportunity at almost any time. Speed was of the essence, and the Government and Bank staff responded with a remarkable performance in preparing the project for negotiations in just one month. The Board approved the US\$40 million Electricity Sector Reform Technical Assistance Project in June 1997. The Board document explained that: "While the project offers significant benefits, it carries corresponding high risks and an equally high profile. Government commitment to reform is of recent origin, and may not be sustained long enough to allow full realization." IFC also strongly supported the project. It provided staffing support for the Project Implementation Unit (PIU). These were local experts who had assisted with IFC's privatization efforts in Nizhni Novgorod. QAG judged the project's overall quality at entry, its concept, objectives approach, and its risk assessment as highly satisfactory.

9. Unfortunately, shortly after the project was approved, Mr. Bresnov was fired, and the staff of the PIU were let go. In the power vacuum that followed, the Federal Energy Commission (FEC) and Ministry of Energy (MOE) both decided that they wanted access to the technical assistance funds. Negotiations dragged on for almost three years. The problem was finally resolved in early 2000, with the project being restructured into three separate subprojects, for the three concerned entities (RAO UES, FEC, and MOE).

The SAL Program

10. Although no progress was being made on the de-monopolization and restructuring of RAO UES, the sector was too important for the Bank to ignore. Other sector issues were taken up under the SAL program.

SAL I included:

- An action plan for phased elimination of cross-subsidies in electricity sales.
- A Decree that all national monopolies should establish plans for restructuring.

⁴⁸ The Government's ambitious reform agenda included:

- (i) Establishment of a competitive wholesale power trading market to greatly improve efficiency of Dispatch;
- (ii) Strengthening institutional regulatory capacity to support competitive structures and establish economically rational tariff setting for non-competitive retail distribution markets; and
- (iii) Restructuring of RAO UES to unbundle, commercialize, and eventually divest its shares in generation.

SAL II included:

- The establishment of an inter-ministerial working group to pursue sector reform agenda;
- The introduction of a two-block tariff for households;
- The creation of an independent Financial Operator that would establish a competitive wholesale electricity market; and
- The preparation and distribution by FEC of a study outlining the general principles for commercial licensing of participants in the wholesale power market.

The first tranche of SAL III included:

- The issuance of a Government resolution requiring RAO UES and the regional Energos to establish separate accounts for generation, transmission and distribution, as a preparatory stage for making them separate entities;
- The adoption of dispatch guidelines for minimizing the cost of electricity supply;
- The creation of an interagency commission on Competitive Restructuring of Infrastructure Monopolies to coordinate activities to create vertical and horizontal competition in energy sector; and
- The establishment of simplified procedures for termination or reduction of energy supplies to non-paying customers.

The second tranche of SAL III included:

- FEC would establish pricing guidelines for electricity pricing by Energos;
- RAO UES would elicit offers for privatization of an agreed list of Energos (equity, management contracts, concessions, and leasing), for which adequate information will be available;
- RAO UES would issue new dispatch rules to ensure more efficient generation;
- Government would issue regulations for eliminating non-payment through escrow accounts and procedures for settlement by non-budget organizations of outstanding arrears, including letters of credit.

The third tranche of SAL III included:

- Government would issue a resolution requiring non-discriminatory access to electricity transmission and distribution services;
- Government would instruct its RAO UES directors to have RAO establish a sufficient number of generating companies to ensure competition in generation, and outline a plan to establish these companies as independent legal subsidiaries;
- RAO UES would review offers from the private sector to purchase specific Energos, and would implement a program that would result in the privatization of at least 10 of these Energos;
- The Government would issue guidelines for increasing the authority of the Uniform Dispatch Unit to establish an economic dispatch and payments settlements system.

11. During this period, the Bank worked on the sector primarily through the three SAL loans. Its technical assistance efforts focused on establishing an electricity regulator and an economy dispatch system, and on getting the Government to raise electricity prices to economic levels. On both scores it was partially successful. In addition to providing advice and support for the establishment of an electricity regulator, it was instrumental both in getting the regulator funded

in the Federal budget, and, subsequently, in getting the Government to allocate the promised funds so that the regulator could hire staff and set up shop. Electricity prices were increased, and by 1996, average prices reached about 4 cents per kWh.⁴⁹ However, there were still large cross-subsidies from the industrial sector to the household sector. The Government had agreed under SAL I to eliminate the cross-subsidy in two years, but, after the financial crisis of August 1998, the Government was unwilling add to inflationary pressures by raising power prices. The ruble went from 6 to 24 to the dollar, (a 400 percent devaluation) and power prices went up by only 40 percent. The government, however, passed legislation allowing direct purchase of power, and there have been a few contracts between the largest power consumers and the low variable-cost power generators (i.e., nuclear power plants).

12. In May 2000, IFC and RAO UES held a Workshop in Moscow for RAO UES, the Federal and oblast governments, and the provincial Energos on Electricity Reform and Private Sector Investment, which presented issues and best practices and results from around the world. In July 2000, the Bank joined CIDA (Canada) in presenting to senior Russian power sector managers (RAO UES and Federal Government) a practical proposal for power sector restructuring and the adoption of power pools for the Komi Republic. This proposal was the result of a two-year technical assistance program that had been paid for by CIDA and supervised by the Bank.

13. In early 2000, RAO UES took the initiative to look at ways to reorganize the sector, including the unbundling of the generating companies from the Energos. The original proposal included the establishment of hundreds of small generating companies, with almost every plant being an independent company. This created a great deal of controversy, with opposition coming from the Energos and their stockholders (about a third of which were foreign portfolio investment groups), who stood to lose their monopoly market power. Their Draft Concept Note on Electricity Sector Reform was sent to the Bank for comment in September 2000. The Bank, in its comments to the Government in early January 2000, emphasized the distinction between the objectives and goals of RAO, which were to maximize shareholder value over time, and those of the government, which should be based more on an appreciation of the “national interest.” The Bank’s comments went on to say that the MOE and its major agency, the FEC, needed to be strengthened to be in a better position to evaluate and carry out the Government’s role of promoting national interests.

14. The Bank agreed that the restructuring of RAO should be implemented before further privatization was implemented, and that the restructuring and privatization should establish sufficiently numerous entities to ensure a genuinely competitive wholesale market for electricity. The Bank emphasized that rapid divestiture of generation facilities by RAO was needed to support the growing urgency for mobilizing the large investments needed for sector expansion. However, it also cautioned against going forward with such plans in the absence of strengthening Government policy oversight and the substantial improvements in regulatory independence at all levels. In addition, the Bank pointed out the urgent need to strengthen the Provincial Energy Commissions (PECs), as well as the FEC’s supervisory powers of these PECs. The Bank was not asked to, and did not offer to, provide more detailed suggestions about how to implement the approach that it was advocating. This was an entirely appropriate and consistent line of advice for the Bank to take.

⁴⁹ At the time, California wholesale distributors were paying 4-5 cents per KWh for power from new generating plants using gas fired turbine technology.

Assessment of the Bank's Products and Services

15. The Bank undertook three major pieces of sector work: Its first work was Electricity Options in 1993. It looked at the sector's problems in a broader Enterprise Arrears study in 1995. It covered the power sector as part of its Privatization Strategy Review in 1997. It also implemented a Power Sector Restructuring review in 1999. These initiatives, along with the information developed by USAID in its restructuring and privatization efforts and the supervision of the CIDA work on Energo reform and REC strengthening in two oblasts, have enabled the Bank to have an excellent understanding of the sector issues for the program it was supporting.

16. As explained above, the Bank responded extremely quickly to the sector reform initiative proposed by RAO UES. Even though the approved technical assistance project never actually supported any studies or reviews in its first four years, the Bank was able to use its supervision missions to continue (though at a low level of intensity) the dialogue with the Ministry of Energy (MOE) the Federal Energy Commission (FEC) and RAO UES on sector reform, throughout the period when Russia went through several changes in government policies. When the mood began to change in 2000, the Bank energized its sector dialogue and restructured the technical assistance package to provide support for all three institutions. The renegotiated project holds significant promise for assisting these institutions in their recently renewed efforts to define a new industry structure. However, no funds have yet been committed; all three institutions have now presented Conceptual Notes outlining their proposals for using the TA funds to assist in implementing the sector restructuring plan expected to be approved this year by the Government.

Assessment of Development Effectiveness Impact

17. Reform of the power sector is obviously highly relevant for Russia's long-term sustainable growth, and the steps that were taken were the ones that needed to be taken. The Bank responded to the Government's requests for assistance in its reform program and has done all that could be done within the constraints of the Russian political situation to help the Government in its reform efforts. When those who were the driving force for sector reform were replaced, the Bank continued its sector policy dialogue through the sequence of three SAL programs. The Bank could have cancelled the technical assistance loan, but RAO UES, the FEC and the MOE continued to show interest in keeping the reform effort alive, and continued to express strong interest in using the TA funds for establishing the framework for sector restructuring. Maintaining this small TA loan to maintain its voice in sector policy discussions was a reasonable strategy for the Bank. The Bank believed that the potential benefits from such activities far outweighed the costs of carrying the project on its books. The open question is whether these institutions will be able to utilize these resources effectively now that the restructuring process seems to be gathering steam.

18. There was nothing that could be done until the Government was willing to make a major effort at reform, and to eliminate the organizational corruption that existed. It is only after the Government commits itself to the reform process that one will be able to judge the Bank's real effectiveness. While the Bank appears to have had only a limited input into the debate about the new reform of RAO UES, the ideas put forward in the SAL III have, we believe, continued to have an impact on the Government's and RAO UES's thinking about the reform process.

Attribution of the Bank Program Results

19. This is a large, high profile, and important sector of the Russian economy. What happens here will affect all the people. It is therefore not surprising that the Bank results in this sector have always been at the mercy of the political whims that move government policy. Until the government is ready to de-monopolize and reform the sector, there is nothing that the Bank can do to speed up the process.⁵⁰

20. In addition, the Bank's actions and policy dialogue made the following significant contributions:

- It supported significant institutional reforms, including establishing a functioning regulating agency that appears to be taking its independent review process quite seriously.
- It worked closely with the Government and other stakeholders to deal with corruption issues during the preparation of the Power Reform Project. As a result of broad support, these issues were addressed by the Government, resulting in changes in personnel at RAO, and introduction of audits that were made available to the public.
- It encouraged all sectors to bring prices more in line with costs.
- It encouraged the establishment of legal mechanisms to discourage non-payment (including stopping the supply). There was little improvement in this area until mid-1999, but the new Government has shown its determination to eliminate this problem, and the improvement in 2000 was dramatic. Cash collections for the power sector increased from 17.6 percent in the first quarter of 1999, to over 90 percent in the first quarter of 2001.
- It provided a considerable amount of advice and direct technical assistance. The SAL program gave the Bank considerable leverage in keeping the ideas needed to reform the sector in front of the policy makers, even when they were not in a position to act on them. The Bank has waited until a government with a reform agenda was in place before allowing its TA lending program to proceed. This was a fairly efficient use of its resources.
- In 1998, it prevailed upon the government to reverse its decision to abolish the FEC as an independent entity and move it to the Anti-Monopoly Commission, where it would have been subject to excessive political pressures. It is currently still operating as an independent entity, separate from any of the ministries.
- The *Gref Report*, which was initiated by Mr. Putin, and which outlined policy actions that the Putin Government should consider taking, proposes institutional changes that fully reflect the discussions that led up to the agreement on actions for SAL III, undertakings that the Government made under SAL III, and the follow-up work that was done in preparation for a

⁵⁰The Region rightly points out that certain of the benefits of the Bank-Government engagement in the sector take the form of actions that did not occur, rather than actions that did occur. As an example, in late 1999, Gazprom had succeeded in pushing a pipeline law through a first reading in the Duma. The law was opposed by the Ministry of Energy, but the Ministry did not have the clout to stop it from proceeding. The Bank was able to demonstrate that the law, if passed, would be counter to Gazprom's own interests. As a result, following the dissolution of the Duma prior to election, this version of the law disappeared. Efforts to prevent the passage of bad legislation and regulations are almost as important as efforts to promote good legislation and/or regulations (and sometimes more important).

possible SAL IV. The Region believes that it is only a matter of time before the current government puts these recommendations into action.⁵¹

21. However, as in all policy matters, it is the Government, and RAO UES who have made the decision to implement the necessary restructuring policies. The credit for success ultimately will belong to them.⁵²

Agenda for Future Action

22. The outcome of the restructuring program is still open (as of March 2001). Even after the program is approved, much will depend on how it is implemented. Results are likely to vary widely among the provincial power companies (Energos). The general consensus at this time is that after the restructuring, the real operational reform will still have to be implemented at the Energo level. Not all Energos and their provincial governments (oblasts) will be ready for real reform. Although UES has majority voting rights in most Energos, it has little real power when provincial ownership and provincial political interests are resistant to reform. The Bank and IFC will have to work together with those oblasts that are interested in real, transparent reform, in the same way that the Bank has been working with state governments in India to implement state-by-state reform necessary to attract private sector investment.

23. In the next five years, half of Russia's non-nuclear power plants will have exceeded their rated service lives. Russia's primary problem will, therefore, be how to ensure sufficient investment in new generating capacity to meet the growth in demand as the economy begins to revive.⁵³ Achieving adequate new generation capacity will be a massive challenge for Russia, one that will necessitate assistance from both IFC and the Bank. The private sector is unlikely to be willing to take on all the risks in this sector. The Bank will need to help by establishing a loan guarantee program. It will also need to consider direct lending to the sector, both for transmission projects and to provide additional financing for some of the government's share of joint venture investments.

24. In many ways Russia's problems are like to be similar to those in California, where uncertainty led to a cessation of investment in new generation facilities during the 1990s. It will take more than an independent regulatory body to attract foreign investment. As was the case in California until the State Government stepped in, potential investors will be concerned with the heightened level of financial risk, when consumers do not pay full costs, as well as with the country risk in an uncertain rule-of-law regulatory environment. They also must deal with the additional risk that income in rubles needs to be converted into dollars at an exchange rate that will allow the producers to service their foreign capital costs. Under these circumstances, the Bank's approach to sector reform, which, in the past, has included the establishment of a competitive spot market for wholesale electricity sales need to be reconsidered. Even after the implementation of price reforms, payment discipline, technology upgrades in metering and

⁵¹ The Region believes that this work has led the Government to change its focus and perspective, to where it now is paying much more attention to measurable tangible results, rather than just the passage of legislation and regulations, which in many cases have proved to be ineffective in delivering tangible results. The successful improvement in collections, particularly in the power sector, is a reflection of this change.

⁵² Bank staff also believe that they made a strong impact on governance in RAO UES, when, in 1999, they were instrumental in mobilizing Government and stockholder support to oust a senior member of management against whom they had credible evidence showing that he was misappropriating company funds.

⁵³ The current estimate is for a 5 percent annual growth rate.

dispatch, and structural reform, there will still be a high risk that there will be a insufficiently timely investment in supply to meet growing energy demand. In Russia's situation of insufficient growth in capacity and less than transparent competitive markets, free price competition needs to be tempered with appropriate well defined controls on maximum wholesale prices, and other regulatory control and consumer protections, in light of recent experience.

Comments from Mr. U. Gorlin, a consultant engaged by Federal Centre for Project Finance (FCPF), And the Author's response

This Expert Opinion is an analysis of Richard Berney's report "Evaluating Bank Assistance to the Russian Federation For The Energy Sector in the 1990s"⁵⁴ (hereinafter referred to as the "Report").

In analysing the Report and assessing its quality, the author of this Expert Opinion adhered to the view that the Report should comply generally with the requirements of the following OED principal documents determining approaches to evaluating Bank performance in the borrowing countries, particularly in Russia:

- *Approach Paper*⁵⁵
- *Suggested Evaluation Format For Sectoral Assistance Strategy Reviews (SASRs)*
- *OED Methodology Syndicate - Evaluation Criteria Review*⁵⁶.

Findings of this Expert Opinion are based on interviews with specialists from the MinEconomy of Russia, MinEnergy, RAO UES, ReformUgol, and a number of the research institutions which were/are involved in Bank-supported projects in the Russian Federation and Their valuable assistance and feedback is gratefully acknowledged.

The author is especially grateful to Prof. V. Livshitz for the detailed discussions of Bank performance in Russia's energy sector and suggested approaches to assessing Bank-funded projects. However, the views expressed in this paper remain entirely those of the author.

The Report under review is the documented result of the large-scope study conducted by Richard Berney, OED Consultant, to analyse Bank assistance in reforming and developing Russia's energy sector in the 1990s. The executive summary of the Expert Opinion on this report includes the following major conclusions:

The strong points of the Report are primarily as follows:

- The Consultant has collected and systemized to a certain extent the large volume of material specific to the projects implemented in the energy sector of Russia under World Bank funding.
- All figures related to Russia's energy sector and the country's economy as a whole generally cannot be argued.
- The Recommendations of the Report correctly adhere to the policy of sector market-oriented reforms, emphasis on stronger competition where applicable, introduction of the practice of making relevant decisions and setting tariffs by independent regulators, more transparency in decision-making, a focuses on social aspects in enterprise restructuring, etc.
- The Report has rather a clear structure and includes full coverage of Russia's energy sub-sectors supported by the Bank.

⁵⁴ Draft revised 28 June 2001.

⁵⁵ Draft revised 28 December 2000.

⁵⁶ Final draft, 30 June 2000.

- Given the difficult conditions and the mixed results of Russia-Bank co-operation, the Report stresses the need for further joint activity.

All this, with the rare exceptions given below, is a clear advantage. However, the Report contains the following serious weaknesses that, in my view, should be eliminated or at least mitigated in its revised version:

1. The material presented in the Report can be hardly qualified as systematic. Essentially, what we see are separate fragments of the sector-related material united in the individual sections in chronological order, with no account of sector and off-sector synergetic effects. Typically, the paper is lacking in final assessments.
2. It is not clear what evaluation methodology is applied in the Report. It seems that the author, for no visible reason, has put aside not only calculation of internationally accepted project efficiency ratios, but also the use of streamlined approaches, e.g. those described in the OED methodology, and has reduced his evaluation to non-systemized word rates.
3. Because there is no assessment of whether the benefits are worth the costs for the country as a whole and all stakeholders, the Report does not give a clear answer to the major question for the Borrower: What has Russia gained from its co-operation with the Bank? The answer must be reasonably clear both in respect of all projects taken together and for each specific operation. This clearness can be arrived at only through presenting quantitatively measured key indicators, primarily those related to integral evaluations of the projects implemented under World Bank financing.

As regards the coal projects [which the Report rates as satisfactory], it is not possible to draw a conclusion on their successfulness (efficiency) based only on the fact that the majority of their objectives were achieved. A well-founded assessment of the projects requires conducting a systems analysis that would relate project results to costs for the nation, budgets of all levels, coal mining enterprises, regions, etc. Unfortunately, all this is outside the focus of the Report.

Summing up the above, it should be said that the material presented in the Report should be looked at as a review of the Bank's activity, accompanied in a number of cases by the Consultant's judgements concerning the results attained, rather than a study of the efficiency of that activity.

Other specific comments included:

- The structure of the annexes complies mostly with SASR requirements, but the paragraphs in the main part of the Report do not contain a full discussion of the issues that should be addressed in accordance with the SASR guidelines.
- The report should include the movements in the key performance indicators of the energy sector and individual companies for 1990 through 2000 (as well as other sectors of the economy and Russian regions if considerably affected by the projects).
- The Report does not give a clear answer to the major question for the Borrower: What has Russia gained from its co-operation with the World Bank?

Author's Response:

The Author of the Energy Sector Report thanks the author of the Expert Opinion for his kind words about the Report, and for the thoughtful analysis of the reports shortcomings. He is, however, concerned that some of the criticism is due to a misunderstanding about the basic design and objectives of such a Sector Report, and the differences between it and the much more thorough and systematic Project Audit Reports that OED produces when it reviews and evaluates the success of completed Bank lending operations. We therefore offer the following additional explanations.

1. The Author is in full agreement with the Expert Opinion's description of the limitations of this Sector Review. It is not an all inclusive, exhaustive study of the subject. It was never intended to provide an Audit of each of the Bank's activities in each sector, which would be necessary for a detailed evaluation of the efficiency and efficacy of these activities. Such an undertaking would have required several times the resources that OED had available to devote to the Energy Sector Review. Rather, this Sector Review was designed as a meta-evaluation, which would take advantage of all previous evaluative work. As with all meta-evaluations, this Sector Review takes advantage of, and builds on, all of the Bank's existing self-evaluative work. For those projects that were completed and closed at the time of the study (the two Petroleum Rehabilitation loans), the review did use the economic rate of return data generated by the Implementation Completion Report (which was implemented by the same consultant who wrote this Sector Review), for other projects that had not yet been completed and for which no Implementation Completion Report was available, a more subjective judgment was used. However, we find no cause to apologize for the fact that the conclusions reached in this Sector Review are based on judgment calls. The objectives against which the results are judged are clearly defined, and the rationale for how and why the judgments were reached are laid out in full. Readers can draw their own conclusions about whether the judgments reached are appropriate. The Report must, however, by necessity, limit itself to a summary of the most important findings and judgments for each subsector. And the Main Report, which is limited to less than 20 pages, can only summarize the main findings of each sector, as reported in the individual sector annexes.
2. OED's Country Assistance Assessment process is not intended as a full review of all aspects of an economy. Nor is the Sector Report intended to provide full information on sector development, such as movements in the key sector and individual company performance indicators from 1990-2000. The purpose of the Report was to present an overall evaluation of the impact of specific Bank initiatives in the development of the sector. The scope was purposefully limited to a review of Bank activities. Given the time and resource constraints (twelve man weeks to cover six subsectors: coal, oil, gas, electric power, district heating and brown environment) the Report was not expected to provide a complete picture of the historical trends in each sector, or an analysis of sector synergetic effects on the economy as a whole. Furthermore, in most energy sectors, a large proportion of the actions taken by the government took place outside of the Bank's purview. The budget is far too limited to accomplish this objective. Instead our objective was to provide insights about Bank performance, within the context of a significant budget constraint.

3. The full OED Audit methodology pertains to the evaluation of projects for which the initial investments are completed and sufficient time has elapsed to make possible the identification of early impacts. It is not possible to use the same methodology and rating process for ongoing projects. Unfortunately, in the case of the Russia Energy Sector, only two of the many energy related Bank operations, were closed when this Review was implemented.⁵⁷ For those projects not yet closed, it was possible to provide tentative judgments only on the question of (i) whether the stated objectives of the projects were appropriate for the conditions in Russia at the time the projects were prepared (efficiency); (ii) and whether the projects appeared to be meeting their stated objectives (efficacy); and (iii) whether the benefits appeared likely to be sustainable. Because these judgment calls were based on limited and incomplete data, we felt that the use of the more scientific derived project ratios suggested by the reviewer would be inappropriate, since they would give the appearance of greater accuracy than the data could justify.
4. We believe that quantitative benefit-cost analysis can not be used to resolve the question of whether the Bank's support for the Energy Sector had, on the whole, a positive or negative impact. Its usefulness is limited to the evaluation of investments that have clearly defined, measurable inputs and outputs. For instance, our analysis shows that the money that the oil production enterprises borrowed from the Bank resulted in substantial increases in oil output, and if this oil were valued at international prices, the economic rate of return of the petroleum rehabilitation project was well over 50 percent, much higher than the return to investment in almost any other sector of the economy. In the coal sector, a benefit-cost analysis is even more difficult. The funds provided by the World Bank went to the general treasury, not to finance specific investments in the coal sector. If the return to the Russian economy is defined as the money saved by producing coal from low cost mines instead of continuing to produce it from high cost mines, then these returns were many times the cost of closing the inefficient mines and providing some compensation the workers at the closed mines. A more in-depth analysis of who gained and who lost (including governments at each level, coal mining enterprises, regions, etc.) would only be useful if one could make a judgment about the importance- or value-of benefits to each of these affected groups. This is definitely beyond the scope of the Sector Review. In the Power sector, the Bank has yet to disburse any of the technical assistance loan funds, yet some progress has been made. Clearly the benefits have been higher than the costs as measured in conventional terms. Yet in all these sectors, the judgment as to the effectiveness of Bank actions must be based on an evaluation of how successful the program was in meeting the sector reform policy objectives, the benefits of which, while extremely high for the economy as a whole, are, essentially, unmeasurable.
5. Finally, we are surprised at the criticism that the report does not give a clear answer to the question of what Russia has gained from its cooperation with the World Bank in the energy sector. In the oil sector Russia gained increased output, but it did not gain the full benefits that would have come with establishing a legal framework that could have encouraged foreign investment. In the Coal sector Russia gained support for establishing a restructured, much more efficient, privately owned, competitive industry, with a maximum attention to social aspects of closing mines. In the power sector Russia gained technical advice on establishing a rational framework for restructuring the industry, which now appears to be in the process of implementing. In the gas sector

⁵⁷ The two Oil Rehabilitation projects.

Russia was uninterested in Bank support and advice. In the district-heating sector the jury is still out.