Program to Support the Restructuring of the Russian Coal Industry

Report of PIER Mission to Moscow - Kuznetsk Region

September - October 1993

- Labor Demand
- Social Safety Net
- Job Creation/Regional Development
- Mine Planning and Organization
- Coal Marketing

PIER

Partners In Economic Reform, Inc.

Partners In Economic Reform, Inc.

PIER

Partners In Economic Reform, Inc.
1730 Rhode Island Avenue, N.W.
Suite 301
Washington, D.C. 20036
Phone: (202) 466-3840

B

Partners In Economic Reform (PIER)

Network of Offices in Russia, Ukraine and Kazakhstan

PIER Russia

15 Novy Arbat, Suite 2235, 2101
Moscow, Russia 121910
Tel.: (7)(095) 203-0598/202-8234
Fax: (7)(095) 203-0593
Mary Louise Vitelli,
Project Director

14 Shakhterov St, Room 204-8
Kemerovo, Russia 650002
Chester Huff, Director
Yuri Fedchenko, Co-Director

Vorkuta, Russia
Yuri Dashko, Co-Director

PIER Ukraine

2 Nezalezhnosti Square
Suite 541
Kiev, Ukraine 252012
Tel.: (7)(044) 228-8359
Fax: (7)(044) 229-1284
Laryssa Krywusha,
Project Director

60 Artema St., Room 35
Donetsk, Ukraine 340000
Tel/Fax: (7)(0622) 92-8249
Fredric Kerulis, Director
Valentin Tchoukhalyov,
Co-Director

PIER Kazakhstan

1 Samal St, apt. 85
Almaty, Kazakhstan 480051
Tel/Fax: (7)(3272) 53-2824
Alan Irving, Project Director

12 "40 Let Kazakhstana" St.
Karaganda, Kazakhstan 470051
Tel/Fax: (7)(3212) 56-2172
John Marunich, Director

C

Table of Contents

Partners In Economic Reform Study of Labor, Social Safety Net and Job Creation Issues in the Kuzbass Region of Russia September-October 1993

I. Introduction

At the request of the Russian Government, the Russian Coal Company "Rosugol", and the Independent Miners Union (NPG), Partners In Economic Reform (PIER) mounted a study mission to Moscow and the Kuzbass coal basin of Russia in order to assist with the restructuring of the coal industry, and support the work of the World Bank in preparation for a coal restructuring agreement between the Bank and the Russian Government.

The current mission was a continuation of the close cooperation between PIER and the World Bank in furthering reform and restructuring of the Russian coal industry. These efforts have included:

- PIER participation on the first World Bank coal mission to Russia in September 1992
- a PIER-sponsored high level Russian visit to Washington in November 1992, which provided opportunities for continuing the "coal dialogue" between senior Bank and Russian officials
- a PIER-sponsored seminar in Moscow in March-April 1993, which afforded an opportunity for in-depth discussion of the coal industry restructuring agenda, and
- a PIER-sponsored high level Russian visit to Washington in August 1993, which produced agreement on an agenda for the current mission.

Overall Objectives of the PIER Mission

The PIER Mission, which visited Moscow and the Kemerovo Oblast during the period September 8-October 16, had several inter-related objectives:

1. Through the "Safety Net/Transition Assistance" component, to facilitate a Russian decision to close one or more non-viable mines by assessing the existing safety net/transition assistance program in the Region, and recommending needed modifications and supplementary assistance.
2. Through the Regional Development/Job Creation component of the program, assess the potential in the Region for creating alternative employment for miners who are displaced in the restructuring process, and begin developing an indigenous capacity for exploiting opportunities for job creating regional development.

3. Develop estimates of the number of miners likely to lose their jobs in the restructuring process, and the time frame in which such job losses are likely to occur.

4. Begin developing a cadre of U.S. experts in social safety net and job creation issues with experience in the Kuzbass coal region, who would be available to undertake follow-on work in the region.

Organization of the PIER Mission

The PIER Mission consisted of four teams:

1. **Regional Development/Job Creation Team** led by Mr. Brian Dabson, and including: Mr. Robert Baugh, Mr. William Finley and Mr. Drew Buckley.
2. **Safety Net/Transition Assistance Team**, led by Ms. Jane Daly, and including: Dr. Michael Bernstam, Mr. Roger Patton, and Mr. Cary Clark.
3. **Joint Russian-American Team** led by Dr. Bernstam, and including: Professor Thomas Macurdy; and Russian experts: Professor Vladimir Leksin; Dr. Andrei Sitnikov; Dr. Aleksandr Shvetsov; Dr. Mark Voronovitsky; and Mr. Andrei Gorbachev.
4. **Coal Industry Management/Export Marketing Team**, consisting of Mr. Robert Wallace and Ms. Gayle Jackson.

Results of the PIER Mission

The PIER Mission produced a series of reports, with findings and recommendations dealing with various aspects of the current situation in the Kuzbass with respect to coal industry organization and competitiveness; export marketing of coal; employment; social safety net; and, opportunities for job-creating regional development. (See Table of Contents for titles and descriptions.) For the most part these are "stand alone" reports, designed to meet the particular needs of the subject matter. PIER also continued the process of developing a cadre of U.S. and Russian experts capable of contributing to PIER's future work in the Russian coal industry.

In addition to its substantive reports, and contributions to the World Bank report, PIER staff in Moscow and Kemerovo provided full logistical support, at those locations, for the PIER team, the World Bank team, and the British "Know-How Fund"- supported IEEC team. In addition, PIER's Directors in Moscow, Ms. Mary Louise Vitelli, and Kemerovo, Mr. Chester Huff, provided invaluable substantive insights and guidance to all three teams. This report was compiled and edited by PIER Coal Industry Liaison Director Samuel Simon, Jr., and Daniel Marschall of the Human Resources Development Institute, AFL-CIO.

Next steps

Perhaps the most significant finding of the PIER/IEEC/World Bank missions was a better appreciation for the magnitude and severity of the difficulties confronting the Russian coal industry, and the clear evidence that these problems are becoming more intractable with every passing day. The missions were an essential first step in the process of restructuring the coal industry in Russia. While they did not take any concrete step toward solving a specific problem, they did provide a framework within which the problems of the coal industry can be resolved.

The missions also created hope that the coal industry and the regions where coal is mined can deal with the current crisis, and that the United States and the rest of the international community are willing to assist in that process. Unfortunately, the Missions could not help but add to the frustration of the people in the region and the industry who complain about many foreign visitors, but few results.

PIER believes that, in order to overcome this skepticism, and continue the momentum for reform initiated by PIER's continuing work on-the-ground in Moscow, Kemerovo and Vorkuta, and accelerated by the PIER/IEEC/World Bank Missions, we must immediately begin implementation of follow-on programs to act on the Missions' findings and recommendations. This report contains detailed proposals for programs to begin dealing with some of the most pressing needs:

- **promoting improved labor-management relations, and facilitating labor-management cooperation, in the restructuring process;**
- **enhancing the ability of the social safety net to deal with the anticipated increase in unemployment resulting from coal industry restructuring;**
- **beginning the process of planning and implementing a comprehensive regional development/job creation program, and attracting other organizations to participate in that process;**
- **providing concrete examples ("models") of how an efficient, competitive coal mining enterprise is managed.**

II. Overview: Problems & Prospects of the Kuzbass Coal Industry

Years of inefficient operation under the command system had left the Russian coal industry far behind coal industries in the major coal producing countries of the world. Productivity is low, safety records poor, and staffing six to twelve times that in western Europe, Australia and the United States. The coal industry, as other heavy industries in the former USSR, was not well positioned to deal with the traumatic economic events which began taking place in the mid-1980s.

As a result of the general decline in the Russian economy over the last several years, stiff competition from other fuels, rising costs and other factors, coal demand and production in Russia have been dropping significantly: Annual production has dropped by as much as 20 million tons a year since 1990. A recent increase in the cost of transporting coal by rail has dramatically increased the price, lowered the competitiveness, and practically eliminated the possibility of exporting coal from the centrally located coal basins, such as Kuzbass.

Already significant subsidies from the federal government have increased dramatically in the past year, placing an increasingly heavy burden on the federal budget, and contributing substantially to the destabilizing effect of spiraling inflation. In addition, similar problems plaguing the industries which buy the coal have limited their ability to pay for it. The result has been a chain of arrearages: the customer can't pay for the coal, so the mines can't pay their workers on time, replace outdated equipment, or pay for supplies, maintenance of equipment and other services.

In order to deal with this mounting crisis, the Russian government has initiated a program to restructure the industry in order to make it safer, more efficient and more responsive to market forces. The restructuring program includes a plan to close the more inefficient mines and restructure the remainder. Estimates of the impact on employment range as high as a loss of 300,000 jobs in the Russian coal industry over the next ten years.

The prospect of personnel reductions in the mines, already a traumatic event for workers who have always been guaranteed a job, is further complicated by the fact that mine employees, like most industrial workers in Russia, are almost entirely dependent on the enterprise for housing and other services normally provided by municipal governments or private suppliers in the market economies. Although their elite status has waned somewhat in recent years, the miners are still a well-paid, proud, well-organized, and politically potent group.

In addition to the deteriorating situation in the industry, the immediate stimulus for considering closure of the mines and reduction of staff is a proposed coal restructuring program being negotiated between the Russian Government and the World Bank, which is expected to open the way for outside loans and

investment, and provide the resources needed to upgrade equipment and take other urgently needed steps to revive the industry. In addition to supporting its existing program in the Russian coal industry, the PIER study also contributed to the Bank's work on the restructuring agreement.

The Kuzbass Legacy

The Kuzbass Region, where the PIER study was concentrated, has 101 mines (76 underground and 25 surface); and 17 coal processing plants. The region consists of two large cities (Kemerovo and Novokuznetsk); several mid-sized towns; and numerous small communities, including a number of mining settlements. (See Attachment A for a map of the Kuzbass and a summary of the region's economic statistics.)

The latter are small towns located near the mine, owned by the mine enterprise, and providing labor to the mine. They are isolated and self-contained, providing all the needs and services, including housing and medical care, to the miners and their families. Miners living in settlements are generally provided more services from the mine enterprise than are available to those living in towns or cities, making the former less mobile and less adaptable to the restructuring of the industry. Most miners are several-generation-miners who have developed their own "clans" within the settlements. Parents, grandparents, other blood relatives, and spouses frequently come from the same settlement.

In the Kuzbass, at least the initial impact of job loss is likely to be focused in several specific communities where the most inefficient mines, scheduled to be closed, are located. The first group of four mines identified for closure employ a total of 7,265 workers. A second group of 12 mines employ an additional 22,145 workers. Since closing a mine takes from two to three years, and requires a substantial work force, staff reductions would be progressive over the period of time following a final decision to close.

Despite the sharp drop in coal output, open unemployment in Kuzbass is still quite low (less than 2%) and concentrated among women and youth, not miners. Hidden unemployment, on the other hand is extensive and growing rapidly. In order to preserve work places and avoid mass layoffs, many enterprises have introduced shortened work weeks and extended long-term, unpaid vacations.

During the first half of 1993, seventy-one (one in nine) enterprises in Kuzbass resorted to these measures. About 36,000 workers were sent on long-term vacations for an average of 23 days each. Almost 20,000 worked short work days. While these measures have helped the enterprises avoid mass layoffs, it reportedly has had a negative impact on productivity, and masks the real unemployment situation in the region.

Another technique for dealing with hidden unemployment is the use of surplus Employment Service funds to shore up the pressed financial status of the enterprises. These supplementary subsidies can be used to pay salaries delayed because of non-payment of debts owed to the mines for coal shipments. Such officially sanctioned measures allow the enterprises to support the minimum level of production and preserve the work force; less expensive to the government, in the short run, than the benefits it would have to pay in the event of an enterprise closure.

Role of Free Trade Unions and Labor-Management Relations

The successful restructuring of the Russian coal industry will depend, in large measure, on the ability of the three partners in the process -- labor, management and government -- to recognize and accommodate each others' needs and vital interests. One indispensable aspect of this process is the development, described in detail later in this report, of a viable social safety net and job creation program to address and ease the transition of workers from coal mining into other pursuits. Another, is the development of an **industrial relations system** that can provide a forum for deliberating and reconciling the different perspectives and goals of the three partners in the process of reform and restructuring.

Since the 1989 strikes, the course of labor development and labor-management relations in the coal industry has been at the core of broader democratic changes taking place in Russian society. The last round of nationwide strikes, in 1991, preceded the collapse of the Soviet Union and the Communist Party. Out of the local Strike Committees that led those strikes emerged a new independent union, the Independent Miners' Union (NPG). Unlike the traditional worker organizations under the communist system -- which included all employees and were primarily responsible for administrative rather than representation functions -- NPG membership is voluntary. The overarching goal of the NPG is to represent the interests of the miners.

In pursuing the miners' interests, NPG recognized that only a safe, economically viable and productive coal industry could meet the aspirations of the miners for better pay and working conditions. While the NPG supports economic reform, continuation of that support will inevitably depend on a number of factors, most prominently the extent to which the interests of the miners are protected in the process of restructuring.

The NPG and other independent unions that have appeared in post-soviet Russian society constitute important building blocks in the development of democratic institutions. Their future role as representatives of working people and contributors to the reform and reconstruction of Russia's economic and industrial base will depend largely on the creation of a modern industrial relations system which can serve as a vehicle for full worker participation in the process of

restructuring, and provide a framework for identifying common goals, resolving disputes and striving for consensus.

Within the coal industry, the development of a system of labor relations can help stabilize the industry's critical labor-management dimension, while providing an important part of the institutional framework for a democratic society. But time is short.

The economic and social pressures on all three partners is escalating, as the old monolithic structure is increasingly incapable of dealing with the deteriorating social and economic situation and the dynamic process of change. The task of creating a viable labor relations structure is difficult, involving understanding by labor, management and government of their respective goals, and assimilation of the processes for achieving them. It will require education and training in techniques, and establishment of facilitating institutions.

Labor-management relations of the type practiced in Western Europe and the United States are new to the Russian coal industry. While a few enterprises have good relations, many are characterized by distrust and even hostility. Management blames the NPG for sharp declines in productivity and the breakdown of discipline in the mines. NPG cites examples of intimidation, threats and manipulation of the books, and accuses management of not following its own rules. Both sides express a desire for "order" in the mines.

Thus far the strike, actual or threatened, has been the primary tool for resolving disputes, with the courts playing a lesser role, especially in cases of discharge. There is a need for systematic procedures for generating and evaluating information, discussing alternative approaches to solving problems, and resolving disputes.

Recently, tentative steps toward a more rational approach to industrial relations have been taken. A tripartite committee of representatives from the regional administration, labor and management has been formed at the regional level. The committee's jurisdiction includes social and economic development of the region, resolution of grievances, mediation of disputes, enforcing compliance with signed agreements, gathering information on social and economic conditions in the region as the basis for rational bargaining, and educating the parties and enterprises about working and living conditions in the region.

Formation of this tripartite committee is a positive sign of the desire of the parties for positive change from what all sides describe as an industry that is "devouring itself." But drawing back from the current atmosphere of confrontation will not be easy. Restructuring and reform is not a shared value among enterprises. More than one mine director has expressed a longing for the past. Their sentiments are frequently shared by representatives of the Soviet-era unions. The NPG, however, remains a proponent of restructuring and reform as the only way for the coal industry to emerge from the crisis that presently threatens to engulf it. It is worth noting that this divergence of views has not

prevented the NPG and Soviet-era unions from coordinating on collective bargaining disputes and demands for a social safety net and job creation.

Despite its present crisis, the Russian coal industry remains a tremendous resource. The Kuzbass is generally recognized as one of the premier coal deposits in the world. The industry enjoys a cadre of highly qualified technical personnel and a skilled workforce. But before it can realize its potential it must weather the current crisis and establish the basis for future operation in a competitive market environment. This will be a long-term process involving not only the coal industry but also the industries that the coal industry supplies, all of which face similar restructuring processes.

III. Mine Planning, Competitiveness and Organization in the Russian Coal Industry

Introduction

Partners in Economic Reform (PIER) is a non profit organization formed in 1991 for the purpose of providing advice and assistance to the coal industries in a number of the Newly Independent States (NIS) that emerged from the dissolution of the Soviet Union. Its Board of Directors is made up of coal industry executives and union-affiliated officials who have had extensive labor-management experience in the United States, with particular emphasis on the U.S. coal industry. PIER, which is headed by an Executive Director located in Washington, D.C., also has country directors in the capital cities of Russia, the Ukraine and Kazakhstan, and technical directors with coal mining experience in the major cities of the three principal coal producing regions for each country, ie. Kemerovo, Karaganda and Donetsk, respectively. PIER receives financial support for its activities from the U.S. Agency for International Development (AID).

On 21 June 1993, President Boris Yeltsin signed a decree freeing the price of coal in the Russian Federation. On 25 June, the President of Rosugol, a national organization created to help with the transition of the Russian coal industry to a market-based economy, sent a letter to the PIER Chairman W.J. Usery, Jr., requesting assistance in developing a plan to help implement the decree. The Deputy Minister of Fuels and Energy and the head of the Independent Miners Union (NPG) concurred in this request. On 30 June, the World Bank and the Deputy Minister of Fuels and Energy signed an agreement to jointly develop "a program for the restructuring and reformation of the Russian Coal Industry."

In subsequent discussions among representatives of the World Bank, a U.K. consulting team (International Economic and Energy Consultants, IEEC, which previously had made a significant commitment to support the project with financing from the British "Know-how Fund"), U.S. AID and PIER, a collaborative effort was agreed upon. Under this plan, PIER would concentrate its efforts in two major programmatic areas: (1) unemployment and social safety net assistance, and (2) job creation and the development of alternative economic opportunities. It was further agreed that PIER's principal concerns would be directed toward the Kuzbass, not only because it is the largest coal producing region in Russia, but also because PIER has had a permanent presence there for quite some time.

In addition to these two principal areas of investigation, it was also agreed that PIER would establish a third team which not only would provide support to the first two, but also would be charged with looking at a number of broader issues, namely: (1) inter and intra-regional economic trends and demographics, (2) domestic and international demand for Kuzbass coal, and (3) long range planning

for existing and new coal mines, costs and competitive pricing, and organizational structuring (including joint stock companies) for maximum effectiveness over the long term (Robert T. Wallace, leader).

This report, which was prepared by Mr. Wallace, deals with the topics identified under item (3). Mr. Wallace is a former Senior Vice President of Corporate Development and Planning for Peabody Holding Company, the largest producer of coal in the United States (approximately 92 million tons a year). Additional information regarding Mr. Wallace is available from PIER. The report is based upon discussions with:

- Rosugol representatives in Moscow and Kemerovo
- Officials from the Kuzbass Regional Government
- Representatives of the two largest coal associations in Kemerovo (Kuzbassrazresugol, which represents 14 surface mines and Servokuzbassugol, which encompasses 13 underground mines, primarily in the northern part of the region)
- The Mine Director from the Chernigovsky surface mine which was "privatized" before the current reform effort began (90.2% is currently owned by the workers and 9.8% is owned by American investors), and
- Mine Directors from three underground mines (Butovskaya, Servernaya, and Volkov).

During most of these meetings, which took place in Moscow and the Kuzbass from 10 to 22 September, Mr. William Meagher, the Executive Director of PIER, and Mr. Chester Huff, Director of Pier's Kemerovo office, also were present. In some cases, members of the two programmatic teams were present as well. In addition, Mr. Wallace also drew upon earlier discussions he had with Russian coal industry officials during a 10 day trip to Moscow in March and April of 1993.

Current Situation

It would be somewhat misleading to begin a report on the outlook for the Kuzbass region (or probably any other coal region in Russia for that matter) without commenting first on the current situation. In a word, it might best be described as **approaching a complete "gridlock".** For some time now, the workers have not been paid the total amount of wages they have been promised, including recently ordered tariff subsidies, due to severe government budget constraints. This has led to work slow-downs and, in some cases, the unpaid furlough of some miners. These same budget constraints have also resulted in shortages of vital materials and supplies, such as timbering for underground works and tires for haul trucks at surface mines. Nonetheless, most mines were finding ways to muddle through these problems, although not without incurring lower production rates and increased costs.

However, the problem now has taken on an added dimension, particularly for deliveries outside the Kuzbass oblast where rail haulage distances of more than 1,000 km. are involved. The liberalization of rail rates and coal prices have created a situation where **customers are being squeezed between sharply higher delivered costs and their own ability to pay.** The end result in many cases is non-payment or limited payment. For example, during the time since prices were liberalized on 1 July 1993, the amount of non-payment for coal produced at the surface mines affiliated with the Kuzbassrazresugol Coal Association has reached 10 billion rubles. Apparently, there are no procedures in place to enforce the payment of these past due amounts. To make matters worse, there have been recent instances where the railroads will not haul the coal unless the rail tariffs are paid in advance.

And so the situation seems to be taking on the characteristics of a never-ending cycle where lower output at the mines due to labor, capital and material disruptions is leading to higher mine costs per ton. These costs, when added to sharply higher rail rates, lead to non-payments by users which cannot readily afford the higher delivered prices. Such non-payments result in even less revenues for mines, which then must further cut their outlays for capital, materials and wages, thereby starting the cycle all over again.

The total of all non-payments for coal was not provided, but it is undoubtedly quite a bit lower than the amount currently owed to the workers for back wages (estimated at 250 billion rubles as of early September 1993). Nevertheless, it adds another level of complexity to the overall problem, and makes it extremely difficult to get people in the field to concentrate on other important issues -- such as how productivity might be increased, where displaced miners might work, or how coal will be sold in the future. One is left with the feeling that the answers to such questions are irrelevant.

Mine Planning

1. Base Case. The very nature of coal mining -- i.e. high capital costs, changing geological and quality conditions as extraction progresses, a difficult and dangerous working environment, and finally, a unique combination of technology and skilled manpower -- makes careful planning an imperative. Most underground mines in the United States have extremely detailed plans showing panel development and longwall moves for a **two to four year period**, while surface mine planning often extends well beyond that time frame depending upon pit configuration, the number of seams being mined and excavator capacity and reliability.

As noted in the Introduction to this report, other members of the PIER support team and the World Bank were assigned to the task of developing projections for thermal and metallurgical coal demand by both domestic and export users. One of the subjects assigned to Mr. Wallace's group was to obtain annual production projections for each mine. These would then be aggregated to

determine whether supply and demand were in reasonable balance through the year 1997 -- ie. a "bottom-up", mine-by-mine approach to help project the outlook for the Russian coal industry in general, and the Kuzbass region in particular.

To this end, a data request was developed and provided to Rosugol in Moscow. It basically asks that projections for certain key data elements (capacity, annual production, employment, costs, subsidies and productivity), which already had been provided to PIER for 42 mines previously identified as possible closure candidates, also be prepared for all mines, both existing and new. It further requested that the data be provided not only for the years 1992 (actual) and 1993 (estimated), but also for the years 1994 through 1997 (projected). Finally, it asked that the mines be grouped by coal producing region (eg. Kuzbass, Tula, Rostov) and by coal association according to the **four categories** that had been identified by Russian coal industry officials at an earlier PIER seminar held in late March 1993 outside of Moscow, namely:

Category 1. Potential closure candidates (42 mines)

Category 2. Unprofitable mines with limited future prospects due to imminent depletion, antiquated workings with no recent upgrades, very poor productivity, difficult geology or unattractive coal characteristics for current markets

Category 3. Mines that are currently unprofitable but have good potential for success in the future if new capital expenditures are made

Category 4. Mines that are expected to be profitable and self-sustaining over the long term.

Discussions with coal industry officials in the field made it clear that this type of information is not currently being prepared in a consistent manner at the mine level (regional Rosugol representatives provided 10 year production projections for mines in the Kuzbass, but the data had been prepared in 1989.) However, Rosugol in Moscow indicated that it expected to provide historical data through 1992 by the end of September (per a World Bank request), and hoped to develop the projections through 1997 by mid October. If these estimates are provided, an addendum to this report will be prepared.

2. Variations from the Base Case. Variations from the Base Case production projections were suggested based upon **two alternative demand assumptions:**

2.1. High Demand Variation -- Assume that production will have to be increased to accommodate a 10% higher demand for thermal and metallurgical coal beginning in 1995

2.2. Low Demand Variation -- Assume that demand will be lower than the Base Case by 10% beginning in 1995.

The objective of this effort is to develop at least a rough idea of the changes in capital, manpower and subsidies that would occur if production were to be higher or lower than currently expected.

3. Closing Unproductive Mines/Opening New Mines. Although a list has been compiled of 42 mines that may be facing closure, there is little evidence that individuals in the region (or even in Moscow for that matter) really believe that this will occur any time soon. Further, even if a closure should take place in the future, many assume that a new mine or an addition to an existing mine will phase in, thereby eliminating any serious employment dislocations.

The Anzherskaya underground mine is a case in point. One of 13 mines in the Servokuzbassugol Coal Association, Anzherskaya is on the list of 42 closure candidates cited earlier. Despite a design capacity of 430,000 tons per year, it produced 340,000 tons in 1992 and is scheduled for 280,000 tons in 1993 as depletion continues. With over 3,500 workers, the productivity is only 14 tons per man month. Total "subsidies" are estimated at 5.1 billion rubles a year, the sixth highest on the list of 42 mines. Supervisory employees and workers at the mine realize that it will close, but the reason has more to do with depletion of reserves than low productivity or difficult geological conditions. In fact, effort is well along to open a new mine -- South Anzhurskaya -- as production phases down.

Admittedly, this situation may be somewhat unique (approval for the replacement mine was given some 5 years ago and Rosugol indicates that no other new mines have been authorized since), but it is clear that **the most important criteria for opening new mines in the region turns more upon providing employment for workers than providing coal at the lowest cost to the user.** If this philosophy is not changed, the end result will be a perpetuation of the current, inefficient and costly system of subsidizing low productivity coal mines.

Management at the coal association level acknowledged that construction of the new mine is continuing, but justify this in part by noting that productivity will be 150 tons per man month. Given the geological conditions this mine will face in the northern Kuzbass, such an accomplishment seems highly improbable. (At the present time, of the 76 deep mines in all of the Kuzbass, only one -- Raspadskaya, with seam thicknesses ranging up to 5 meters -- is operating at more than 100 tons per man month.) However, even if it were assumed the 150 ton per man month estimate were valid, the mine should still not be constructed. Because of the existence of more favorable geological conditions, there appear to be opportunities in both the southern and east-central areas of the Kuzbass to install underground mines capable of achieving productivity rates that are three to six times greater than even the 150 ton per man month projection. In fact, the conditions in these areas compare very favorably with areas of the United States where productivity rates of between 20 and 45 tons per man day are routinely achieved.

Costs, Subsidies and Competitiveness

1. Current Delivered Prices. Although Mr. Wallace's team was not provided with a formal report regarding current delivered prices, the anecdotal information made available in the Kuzbass was sufficient to reach some basic conclusions, particularly with regard to exports from the region.

1.1. Mine Costs. In discussions with regional Rosugol officials and coal mine management, it became clear that the current F.O.B. price for underground coal averages about 20,000 rubles a ton. (The comparable price for surface mines appears to be considerably less -- for example, the Mine Director for the Chernigovsky mine quoted a price of 9,000 rubles a ton.) As will be discussed below, this amount does not include any provision for recovering the costs associated with equipment, coal depletion, social requirements such as housing, supplemental wage tariffs/subsidies and operating mine subsidies.

1.2. Rail Rates. The recent liberalization of rail rates has resulted in significant cost increases. For Kuzbass exports, it averages about 24,000 rubles a ton. .

1.3 Coal Handling, Storage and Port Charges. Although these charges vary greatly depending upon destination, import tariffs, transfer facilities, etc. (one Rosugol official indicated that an assumed cost of 10,000 rubles a ton would be appropriate), a 6,000 ruble average might be reasonable.

Using the above estimates, the C.I.F cost for underground coal from the Kuzbass would be approximately 50,000 rubles or $50.00 (US) aboard the vessel. This is 10 to 25 percent above the current world market price, depending upon the type and quality of the coal. In addition, as discussed below, significant cost elements are not reflected in the total.

2. Mine Costs and Subsidies. There are four categories of costs that are not included in the F.O.B. mine price indicated above:

2.1. Equipment, Facilities and Coal Resources. Under the old system, decisions to build new coal mines were made at the national level. If the central government concluded that social and national interests warranted the expenditure of the required funds, the development was authorized as part of the government's approved budget. The criteria used to justify such a decision in a free market economy -- ie. is the price users might be willing to pay over time sufficient to recover (1) the required capital outlays, and (2) a profit component that is adequate enough to provide the investors with a monetary reward that is sufficient to compensate them for the risks they will incur in making the funds available -- did not apply.

As a result, the concepts of (1)"amortization" to recover the costs for life-of-mine facilities, (2) "depletion" to recover the value of the minerals extracted, and (3) "depreciation" to recover the outlays for equipment are not reflected in mine costs. In the United States, such cost elements often account for as much as 10% of the cost of producing a ton of coal (the profit component might equal

another 10%). It also appears that equipment maintenance may also come out of this account as opposed to being included in mine operating costs.

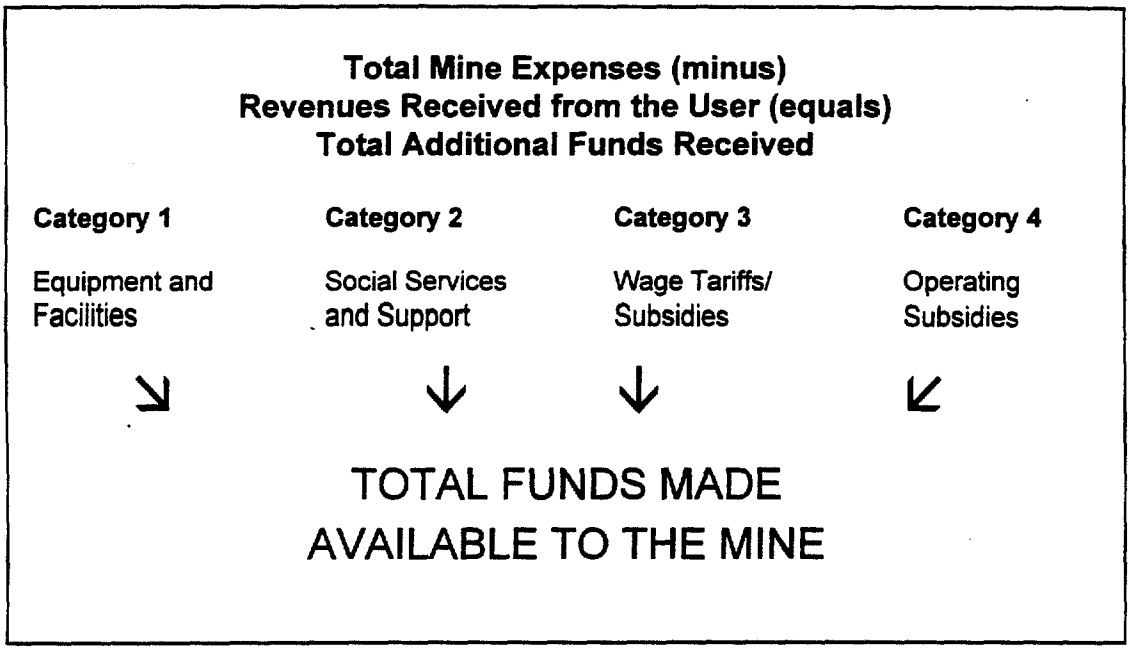
2.2. Social Costs. Coal mines are generally required to provide "social services" to the community. Such services may include housing, space heating, pre-school training and care, medical support and some agricultural products. For example, the Chernigovsky surface mine has both farming and livestock activities. The Mine Director for the Volkov mine, which has an employment complement of 1,885 (800 of whom live in Kemerovo), is required to provide social services to a settlement of 8,000. Many of these are pensioners from other areas, including forestry and a nearby surface mine. The only cost to the individuals living there is for utilities.

Clearly, these obligations detract from the already difficult task of managing and operating a coal mine. Further, the skills needed for such work are far different. In recognition of this, a decree issued about 8 years ago required the separation of these functions from the operation of the coal mines, but it has never been implemented or enforced.

2.3. Supplemental Wage Tariffs. Recent increases in the wages of workers to offset the rising cost of living are paid to the mine through a special tariff. In the case of the Chernigovsky surface mine, the total monthly pay for a miner is 160,000 rubles per month. Of this, only 37,000 rubles is recovered in the "mine cost" of 9,000 rubles per ton. Another 70,000 increment comes from the supplemental wage tariff. The remaining 53,000 rubles comes from either the difference between the mine cost and the delivered price received from the user (in the case of Chernigovsky there is no positive differential -- in fact, the mine will require 600 million rubles in subsidies for the 3rd quarter alone), or the one of the other three subsidy accounts (equipment, social services or general operating subsidies). As noted earlier, the shortfall between wages promised and wages received for the 14 surface mines in the Kuzbassrazresugol Coal Association alone is estimated at 10 billion rubles.

2.4. Operating Subsidies. Most mines in the Kuzbass still have insufficient funds to cover their expenses even after adding the funds received from the state for the three categories of costs and subsidies listed above to the price received from the consumer. This necessitates the use of a fourth source of funds, namely, operating subsidies. In the case of the 13 mines which are part of the Servokuzbassugol Coal Association, a "board" decides the amount of subsidy that is required for each.Generally, the objective is to provide whatever additional funds may be required to cover expenses. This leads to the "cross subsidies" mentioned by the World Bank in its survey of the Russian coal industry in late 1992. Specifically, most of the operating subsidies go to the least productive mines because they have the largest differential between the amount received from the users and their own operating costs.

Although the four categories of costs/subsidies outlined above are budgeted for separately, they are co-mingled when they are received at the mine level. The process can be illustrated graphically as follows:



Under this arrangement, the Mine Director who is faced with inadequate subsidies in any or all of the four categories must juggle his available funds as best he can to keep the operation going. Often, the deepest cutbacks are made in the area that affects productivity the greatest -- namely, equipment and supplies.

3. Efficiency and Competition. As can be seen from the process just described, there is no particular motivation to strive for increased efficiency. In fact, the adoption of such a goal would run directly counter to the main objective of providing a job for everyone. This is why the issue of developing alternative employment opportunities is the number one priority facing policy makers in the Russian coal industry. The current system also provides neither rewards to mines that operate more productively, nor penalties for those that do not.

One of the regional officials mentioned that there currently is "no mechanism for setting coal prices." Under the old system, prices were set by the state. Now prices have been liberalized, which presumably means that the market will decide what the ultimate price will be. However, "market pricing" implies that competition will exist -- ie. buyers will be able to choose among the coal being offered by a number of different suppliers, and will make their selections based upon the best quality that can be obtained at the lowest price. But prices are generally a function of cost recovery plus profit. With the heavy subsidization of costs, achieving the lowest price has no meaning.

Because of the geographical size of the country, the overwhelming importance of the domestic market, and the general lack of high quality reserves which otherwise might pose an import threat from adjacent countries (Ekibastuz/Kazakhstan is an obvious exception), the term "competitive world prices" will have little meaning within Russia for either coal producers or

consumers. The only real threat to the coal industry will be from alternative energy sources, principally natural gas and nuclear power.

Russia's recoverable reserves of natural gas are enormous -- they equal about 36 % of the world total. Gas accounted for 60% of the fossil fuel used for electric power generation in 1991. Policy decisions regarding the true cost and market price for this fuel, and the acceptability of nuclear power will have a dramatic impact on the future use of coal in Russia.

Nevertheless, the earlier discussion regarding exports is still a useful indicator of the seriousness of the problem facing the industry as it strives to become more efficient. Despite the existence of low wages, excellent engineering skills, enormous subsidies, and no obligation to pay back the funds used for mine construction and facilitation or earn a profit for the investors of those funds, coal that could be shipped to export (at least from the Kuzbass) is now not competitive in European or Asian markets. Admittedly, the recent increase in rail rates has contributed to the problem. However, the principal reasons for the non-competitive character of Russian coal mines are that:

1. **there are too many people working in the mines**
2. **too many uneconomic seams are being exploited**
3. **the procedures being used have not been optimized to result in recovery at the lowest possible cost consistent with safety, and**
4. **antiquated or unreliable facilities and equipment are being used.**

Finally, as will be discussed in the final section of this report, the organizational structure of the industry is still not conducive to competitive interactions despite some encouraging progress.

4. Alternative Use of Mining Subsidies. As can be seen from the comments made above, the linkage between coal mining and the need to provide employment to workers is deeply rooted in the Russian economy. Although it is not the purpose of this paper to look at options for job creation, a few observations regarding the current use of subsidies are in order.

4.1. Continuation of Subsidies. If one accepts the fact that it is impossible to continue on with the current scheme of subsidies for any length of time, there are only two alternatives:

- Should subsidies be phased out immediately, or
- Should subsidies be restructured and phased out gradually?

Based upon the comments made so far, its seems fairly obvious that a complete and abrupt cessation of subsidies to the coal industry will create chaos and unacceptable hardship. Restructuring and a gradual phase out appears to be a more realistic alternative.

4.2 Uniform Operating Subsidies. The current system of cross subsidization at existing mines should be changed to avoid having the most funding going to the least productive mines. One strategy would be to set a fixed rate per ton (or perhaps per unit of calorific value) that would phase out over a five year period. Any surpluses would be retained by the mine, but could only be used for investments that would improve safety or increase productivity.

4.3. Elimination of All Subsidies for New Mines. No subsidies should be made for new mines, nor for major expansions or capacity replacements at existing mines. Further, capital expenditures for such developments would have to be invested and paid back from the sales revenue stream, rather than being funded from a government budget. The government would own all undeveloped reserves, and would auction off the right to exploit them, subject to the approval of a mine plan that would meet minimum productivity, environmental and safety standards.

4.4. Alternative Uses of Non-operating Subsidies. Careful consideration should be given to closing low productivity mines on an accelerated schedule and **using the subsidies saved to create new jobs in higher value, public-sector endeavors**. For example, there is a significant amount of infrastructure work that must be attended to in Russia -- ie. roads, bridges, public utilities, etc. They require skills similar to those used in coal mining, and tend to be as labor intensive, but less capital intensive. Although such public works projects seem to be substituting one form of state expenditure for another, the end product will have a higher value to the country than the production of heavily-subsidized coal that can better be produced by more efficient operations.

If such a program is undertaken, the government should use care to ensure that competition will be the key mechanism for pricing and awarding work, even though the funding will come from the state. For example, seed money could be made available to displaced workers to start up multiple, private-sector companies in the various construction trades. These companies would then compete for awards for the work to be done. Hopefully, as the economy expanded, the bulk of their business would shift from public works to contracts for the private sector.

Organizational Structure

Over the past year and a half, a number of decrees have been issued regarding the creation of business entities that would take the place of government-owned and operated monopolies. The ultimate objective of these actions is to "privatize" functions that had been the exclusive domain of the state, and thereby make them more productive and efficient. The most recent of these decrees abolished the state ownership of coal mines effective on 2 August 1993, and established a target date of 2 October 1993 for their replacement with Joint Stock Companies.

As of late September, the ownership structure for these companies was fairly clear, at least for the early stages of their existence. In its initial form, the distribution of ownership was conceived as follows:

Percent	Status	Ownership
25	Non-voting	Employees
15	Voting	Reserved for employees
60	Voting	Committee on Property Control (Govt)

Depending upon the nature of the Joint Stock Company (e.g. an individual mine, several mines together or a coal association), the ownership can take on a more specific form. For example, the ownership distribution for the surface mines in the Kuzbass is expected to be as follows:

Percent	Status	Ownership
25	Non-voting	Employees
10	Voting	Reserved employee purchase at a 30% discount
5	Voting	Enterprise management
38	Voting	Rosugol
22	Voting	Kuzbass Rosugol/Regional Govt./ Coal Association Mines

In the case of the Kuzbassrazresugol and its 14 surface mines, it is anticipated that the last increment of 22% will be subdivided into 17% for the mine (15% for "affiliated" mines) and 5% that will be made available for outside investor purchase. Unfortunately, little thought seems to have been given as to how these Joint Stock Companies will work. For example, will they compete with one another? If so, who will be responsible for marketing?

Experience in the United States (where approximately 3,000 companies compete in an open market for business) suggests that the best results are obtained when an entity is responsible for its own production and sales. Mines such as Chernigovsky which were privatized earlier tend to do their own marketing. The Kuzbassrazresugol had already set up a Marketing Center which they now intend to make into a separate joint stock company and include it in the overall company. Rosugol indicates that it may take on a number of services for the industry, including marketing. This last concept would appear to be the least desirable, because one entity could ultimately end up allocating most of the market to individual producers, thereby losing the benefit of open and free competition. The favorable resolution of these organizational questions will ultimately play a much more important role in the success or failure of the reform movement that the actual ownership of the companies.

Conclusions and Recommendations

The Kuzbass region of Russia has some of the finest coal reserves in the world in terms of quality, quantity and mineability, particularly in the southern and east central portions of the basin. Unfortunately, it also faces extremely difficult geological conditions in the northern and west central portions of the basin. Because of the past emphasis on employment rather than efficiency, the lack of funds for technology enhancements, and the absence of competitive pressures that can come only from a free market economy, **virtually all of the active mines have unacceptable productivity levels.**

It seems likely that any attempt to close high-cost mines and reduce excess employment at others will be strenuously opposed unless there is a guarantee that work will be made available elsewhere for displaced workers. This makes **job creation and alternative employment opportunities the number one priority.**

The following recommendations are offered to help address these problems:

1. Alternative Employment and Development Opportunities. Consideration should be given to the creation of a **massive public works program** aimed at enhancing the deteriorating infrastructure of the country, with funding coming from the subsidies that would otherwise be wasted at the mine level. Although this action might have the appearance of simply exchanging one form of government spending for another, the end use will have a much higher Socio-economic value than the current mining option. If such a program is adopted, care must be taken to ensure that a sufficient number of new companies are created to support competitive bidding at all levels.

2. Mine Closure and Productivity Enhancements. In cases where there is clearly no other alternative (at least the 42 mines on the current list, and probably quite a few more), the **pace of mine closures should be accelerated.** Further, attention must be paid to reducing excess manpower and lowering costs at all other mines, with the displaced workers being given job opportunities elsewhere.

3. Operating Subsidies. Operating subsidies for existing mines should be continued for a finite period (eg. five years), during which time they will be phased down. The current system of providing the highest subsidies to the highest cost mines should be discontinued in favor of a **uniform subsidy per ton** or per calorific content. Mines with excess subsidies should be permitted to retain them, as long as they are spent on safety or productivity enhancements.

4. Access to Coal Reserves. A system should be devised whereby the government can auction off the rights to mine uncommitted reserves to the highest bidder. Such sales must be conditioned upon the **approval of a mining plan** that will meet minimum standards established by the government for safety, productivity and environmental protection.

5. Alternative Energy Supplies. Policy decisions should be made regarding the **pricing and availability of natural gas** as a boiler fuel for power generation. Similar decisions should be made with regard to safety measures that may impact the future use of nuclear power.

6. New Mines, Major Expansions and Capacity Replacements. All construction activities involving **new mines**, as well as major expansions or the replacement of capacity in existing mines, should be **stopped pending the preparation and approval of a mining plan** as described in recommendation number 4 above. No subsidies or the use of funding from government budgets should be provided for such developments.

7. Social Benefits. All activities involving the provision of **social services** and support should be **removed from the control of mining enterprises** and placed, at least on an interim basis, under a separate government institution pending final disposition.

8. Organization. **Multiple enterprises** that maximize competition for individual coal orders should be created, regardless of the ownership structure. Generally, enterprises should be responsible for their own marketing and production.

9. Existing "Gridlock." Steps should be taken to **break the current gridlock** that exists due to non-payment by users and refusal to ship by railroads.

10. Work with Russian experts to **develop a Model Mine** that would utilize advanced technology and management methods to demonstrate:

- the U.S. system of mining, processing, marketing and using coal
- state-of-the art environmental protection and reclamation techniques
- safety procedures
- constructive labor-management relations, and
- other aspects of a highly-productive coal mining system operating under free market principles.

The Model Mine Project could include experimental areas such as the coal slurry pipe line and methane retrieval systems, as well as demonstrate advanced environmental reclamation, disposal of slag, and clean coal technology. In addition to a clear commitment by Russians and Americans to plan and implement this project, appropriate measures would have to be taken to ensure that the model mine contributes to the reform and recovery of the industry as a whole, helping to build productive coal mining communities and provide workers with meaningful long-term employment.

IV. The Demand for Labor in the Kuzbass Coal Industry and Social Policy

The lack of apparent unemployment in response to declining production is typical for Russian industry in the 1990s. Despite the decline of total output by about 40 percent in 1990-93, explicit employment has hardly declined at all. Hidden unemployment, in the form of unpaid multi-month leaves, is closer to the cut in hours and in the take-home wage than to joblessness per se. The particular case of the coal industry in the Kuzbass corresponds to the general picture.

This section of the PIER Mission Report will do the following: (1) delineate the trends in employment in relation to production in the Kuzbass coal industry; (2) estimate the labor demand function; (3) evaluate the relationship between wages and employment; (4) discuss labor supply as well as try to impute the changes in employment by attrition; (5) examine the trends in wages; (6) discuss five major causes of labor rigidity; (7) analyze the effects on the real wage, including social infrastructure; and (8) derive policy implications and recommendations.

This report is based on the unpublished data derived from the books of various Kuzbass coal mines and associations (concerns) as well as the data from the Russian Coal Company and the Ministry of Fuels and Energy. This section has been prepared by Dr. Michael S. Bernstam, working with a number of Russian experts. For copies of the charts cited in this section, refer to the Attachment B.

Employment Trends in Relation to Production

The mines of the concern "SeveroKuzbassUgol" in 1980 and 1985-92 present a representative case of employment trends in relation to production. Figure B-1 shows aggregated data on this situation. The figure shows that in most of the years (except for 1990) the small annual fluctuations in production and employment did correspond to each other. The general increase in both production and employment in correspondence to one another is evident until 1989. Since 1989, the trends in output and employment have generally diverged. Although minor annual fluctuations are positively related, the relationship between output and employment has become inverse. **Simply put, employment increases despite declining production.**

The Volkov mine in 1991-93, depicted in Figure B-2, illustrates a particular case. Employment and coal output statistics here are quite recent. The Volkov mine is typical in the Kuzbass; both its production costs and general performance are close to the average. Once again, the mine shows constantly increasing employment despite the fall in production in 1993, generally irrespective to the trend in output.

Figures 3, 4, and 7 in Attachment B, which will be discussed in detail later, show the lack of relationship between (second-order) ***changes*** in employment and output among all the mines of the Kuzbass in 1992. Significantly, the cross-sectional data supports the representative time series. This match between the times series and the cross-section lends sufficient confidence to our findings.

In addition, anecdotal evidence suggests that such is the case in many other mines throughout Russia and the Kuzbass. There are few layoffs -- if any at all. Hiring does stop when sales halt and inventories mount due to payment delays by customers. Hiring resumes when payments flow, increasing production in the short run, even though general output is declining on the annual basis. Numerous discussions with coal mine chief executives, concern managers, and coal officials confirm these observations.

This is a clear case of ***employment rigidity***. In addition, as this will be shown below, ***wages are rigid with respect to productivity but seem to be flexible with respect to production.*** The case is opposite the wage rigidity and employment responsiveness known in the Western market contractions.

The Labor Demand Function in the Kuzbass

In his paper prepared for the PIER Mission, Professor Thomas E. MaCurdy has shown that the labor demand function can be approximated by examining how a 5 percent (10 percent, 20 percent, etc.) change in production affects the change in employment. (See Attachment C: *A Framework for Inferring Labor Displacement in the Russian Coal Industry.*) Due to the natural lack of appropriate time series data for exerting a sufficient degree of freedom for a statistical analysis (given the short period of the reform time in 1992-93 and a lack of weekly and even monthly data), a cross-sectional examination has been selected as the second-best substitute.

Fortunately, data are available for all 73 mine units of the Kuzbass (the number of mine legal entities is slightly smaller). The data are consistent, comparable, and good quality (in general.) The data are for the entire year 1992 (the most recent available.) All further statistical evidence thus refers to 1992. The previous discussion suggests that the conclusions are fully relevant for 1993.

Figure B-3 shows an almost linear relationship between the size of the mines in terms of employment and output. The plot of production as a function of employment signifies by itself only the relationship between the sizes of both variables. For the regression analysis, we are therefore mostly interested in the curvature and the second-order derivative. The latter is not significantly different from zero (the output elasticity is 0.0002 evaluated at the means).

These figures demonstrate that labor productivity is extremely low. With each 10 percent increase in employment, there is only a 5 percent increase in production (the linear elasticity is 0.547). In other words, ***any increase in output***

requires twice as high an increase in employment. This finding certainly makes a major cause for labor hoarding.

The second-order derivative, however, shows the positive sign of the quadratic expression. The curvature is slightly convex. This means that there is no relationship between the *change in employment* and the *change in output* that would induce a contraction of output in response to declining employment. The visa versa is also true.

This analysis leads to an inescapable conclusion: *a shrinking demand for coal would not lead to involuntary unemployment within the confines of the current system.* (At the moment, such cases of involuntary unemployment are not discussed as mine closures represent a different arrangement.)

Figure B-4 is supplementary. It conducts the same test with 70 mine observations. This is done in order to eliminate a possible bias and a spurious relationship due to three very large mines representing outlying observations (mines Raspadskaia, Kirova, and Kapitalnaia). After these three outlying mines are dropped, the analysis remains virtually the same. This test allows us in the further analysis to use the 73 observations sample with more confidence.

Figure B-5 shows the relationship between labor productivity (output per worker) and the cost per ton. The curve is non-monothonically convex. Costs decline rapidly as output per worker increases. However, after the level reaches about 750 tons per miner, costs begin to increase. This must be due to the rising costs of capital needed to raise productivity above this level. This means that a reduction of costs and an increase in productivity *above current levels (*in order to save employment) will be difficult to achieve.

Although Figure B-5 shows that the per ton costs up to a certain level of output per worker are highly responsive to changes in productivity, this is by itself a trivial finding. The non-trivial and a truly important finding is different. The very low elasticity of the quadratic term of the equation means that additional changes in productivity do not affect costs. Costs turn out to be more rigid than they would initially appear. This rigidity adds to employment rigidity.

Figure B-6 demonstrates an excellent fit of the relationship between total costs and employment. The quadratic term shows again that ***changes in productivity do not affect employment.*** Thus chart adds evidence to the ***intransigence and rigidity of employment.***

To sum up the relationship between output, costs, and employment, these factors have been plotted together in a three-dimensional perspective Figure B-7. The plot clearly demonstrates the spread of employment with respect to costs and its concentration in relationship to output. Such is the general picture of ***unimportance of productivity and a strong labor rigidity.***

Wages and Employment

The relationships between money wages, labor productivity, output, and employment are shown in the next three charts. Figure B-8 demonstrates a remarkably insignificant relationship between output per worker (labor productivity) and money wage. The high constant at 15.5 thousand rubles per month whereas the mean monthly wage in 1992 was 18.5 thousand rubles per month may imply the presence of a sort of a social contract. *Wages are clearly rigid with respect to productivity.* The productivity elasticity of wages (the elasticity of wages with respect to output per miner) is very low (0.139). The curvature is virtually absent, and so is the second-order responsiveness to changes.

Figure B-9 shows a perfect regression line of employment against the total wage bill. The elasticity is close to unity. *Changes* in the wage bill beyond the size of the wage bill and the size of employment do not affect employment. The conclusion: ***demand for labor is not responsive to the wage bill.***

This is a crucial finding. It means that ***cuts in mine revenues due either to declining production, or to cuts in subsidies, or to whatever reason, would not induce a reduction in employment.*** Labor hoarding would remain.

Figure B-10 helps to sum up our conclusions. It shows a slight concavity and a strong linear relationship between output and the wage bill. The elasticity of the wage bill with respect to output is 0.731. Since employment does not change in response to the wage bill (Figure B-9) whereas the wage bill depends directly on the output (Figure B-10), one can conclude that ***employment is indeed rigid with respect to any changes in production and revenues.***

Labor Supply and Employment Attrition

However inelastic is the labor demand, the labor supply does not necessarily behave in the same fashion. In fact, evidence (though sketchy) points out that labor supply is highly elastic. In this respect, Russia in general and the Kuzbass coal industry in particular are not different from Western market economies. *Miners leave the mines when real wages drop and/or there emerge alternative employment opportunities with higher wages.*

One must recall that most underground miners have *versatile skills*. They can work as turners, truck drivers, etc. -- not to mention the standard fare of construction work. Numerous reports from the Kuzbass indicate that miners take jobs as truck drivers to make shipments of goods to and from China. They engage in various other activities. Subject to distance and housing rigidity, they take jobs in other mines and enterprises, whichever pays better. We lack sufficient statistical data to test this observation but the general evidence is overwhelming. *This situation shows promise in **labor relocation and retraining** given an innovative program in housing construction.*

This highly elastic labor supply in conjunction with the rigid labor demand explains the paradox of some turnover at the coal mines. This is the change of employment by *attrition.* The reduction of employment by attrition is also due to retiring of older workers whereas younger workers do not enter the coal industry occupations because of their *declining relative wages.*

One has to emphasize that this *unemployment by attrition is primarily and chiefly a labor supply phenomenon.*

Wage Trends

Wage rigidities with respect to productivity were evaluated earlier in this paper. However, wages seem to be flexible and not rigid at all with respect to changes in revenues of various mines. The data are sketchy and indirect but still suggestive. The data come from the books of the mines. Figures B-11 through B-14 show that, as costs of non-labor inputs increased in 1992-93, the shares of money wages and social in-kind wages (social infrastructure) in total expenditures of the mines began to decrease. Since total revenues and expenditures have declined in real terms, one can conclude that real wages have indeed declined.

The data from several mines (Volkov,Iagunovskaia, Anzherskaia, and Iuzhnaia) on Figures B-11 through B-14 illustrate the ***non-rigidity of both money wages and social in-kind wages in 1992-93.***

Extensive discussions with mine chief executives in the Kuzbass confirmed the following pattern: when revenues decrease, the managers

1. reduce the social expenditures
2. then reduce money wages
3. do not lay off workers and do not reduce employment.

Unders these circumstances, mine executives stop hiring new workers while maintaining the present ones. Such is the case, directly opposite to Western experience, of employment rigidity, wages unrelated to productivity, and non-rigidity (flexibility) of real wages.

There are five principal causes of labor rigidity in Russia in 1992-93:

1. social contract
2. non-complementarity between labor and capital in inefficient production
3. substitutability of labor for capital, a part of inefficient production and declining investment.
4. wide monthly fluctuations (up to 40 percent) in production stimulate retaining high employment to meet peak demand.

5. real wages (especially social infrastructure expenditures) are extremely flexible; this allows the maintenance of full employment.

Real Wage and the Social Infrastructure

Social infrastructure can be properly thought of as an in-kind component of the real wage. Many Western firms pay in-kind wages in terms of providing and/or underwriting services. At Stanford University, for example, the in-kind component constitutes 29 percent of the money wage and 22 percent of the total real wage.

The problem in Russia is thus *not the presence of the in-kind component* of the total wage, the so-called **social infrastructure**, but rather the *absence of alternative providers* and alternative financing in mining and other settlements.

In other words, the solution cannot be a divestiture as such. This is because workers may demand that the in-kind component be replaced by the money compensation. The arithmetic of enterprise expenditures would not change except in the part where enterprises support the social infrastructure used by "outsiders," that is, those who do not currently work for a given mine or enterprise. *The solution must be optimization of the non-money components of the real wage in terms of their replacements and the replacements of their financing.* This issue will be discussed later. Meanwhile, a quick look at the social infrastructure component of the real wage enables an evaluation of the dimensions of the problem.

Figures B-11 through B-17 serve this purpose. This is unique data -- taken from the books of individual representative mines and from the reports of the Kuzbass coal associations. The data more or less uniformly demonstrate these facts:

- social infrastructure constitutes between 12 and 20 percent of the total costs of coal production and of the per ton price of coal
- there are considerable differences (up to 40 percent of the total) between mines and coal associations in terms of the costs of social infrastructure and their shares in total production costs; this depends, of course, on specific costs of production and of social services
- social infrastructure constitutes about 30 percent of the real wage across most mines and associations
- this percentage is more or less uniform across mines, which testifies to the rigid structure of the real wage
- the share of social infrastructure in the total production costs have declined in 1993 with the decline of production and revenues
- the decline of this share was more or less proportional to the decline of the money wage and the total real wage.

The latter signifies that:

- real wages are not rigid (as was established earlier), and
- the structure of the total real wage is rigid in terms of money wage and social expenditures of enterprises.

The flexibility of the real wage and its in-kind component will allow the mines and other providers to adjust social expenditures in correspondence with the (declining) real incomes of the coal industry. This important finding permits policy flexibility.

At the same time, there are expected basic services as a part of the social contract. They create the rigidity of the relative share of the in-kind wage and the relative expenditures on social infrastructure. One can easily surmise that this intransigence derives exactly from the same factor mentioned above, namely the absence of alternative providers and/or alternative financing.

Therefore, a successful policy does not lie in cutting services -- for they are going to be cut by the revenues and wage dynamics anyway--but rather in optimizing. This means finding efficient substitutes for existing social infrastructure provisions commensurate to the money wage dynamics. This insight leads directly to policy recommendations. (For additional background on current institutional arrangements, refer to Attachment B.)

Policy Implications and Recommendations

The remainder of this report will delineate the most conspicuous problems concerning possible strategies. The general policy implications are simple:

- **mines and other enterprises will not voluntarily reduce employment nor divest social infrastructure; they will merely reduce expenditures on both, that is, decrease the real wage in both money and in-kind components; the latter should lead to a rapid, long-term deterioration of buildings and other assets, and**
- **the government must take a lead in creative and credible strategies.**

Policy Area 1: Employment

An obvious alternative to the management's unwillingness to layoff workers is the wholesale mine closure by government fiat. Candidates for closure among the most costly and the least efficient mines are readily available. One can simply take a look at Figure B-5, identify the mines with the highest per ton costs, and either shut down some of their operations or close them altogether. In the real life, however, the usual political considerations are reckoned with when candidates for closure are being selected.

One must emphasize that in the presence of employment rigidity, when the subsidies run out, induced bankruptcies or closures would be chosen by the government and its international advisors by default. This does not mean that the default solution is the best one, for the ramifications are formidable:

- severance pay costs will be very high
- the three-month severance pay (see Box 1) will have to be extended given the lack of alternative employment
- expensive retraining and job creation programs will have to be introduced
- financing should be found for extensive unemployment compensation programs
- the social infrastructure will have to be financed; most probably, it will have to be financed by the federal government as done in 1993 (see Figure B-17), for regional governments would not have sufficient revenues; the latter point will be addressed in more detail later
- extensive labor negotiations will have to precede closures
- many mine settlements that are company towns will have to be relocated altogether.

Even this simple list, which is far from exhaustive, shows that the policy of closures is formidably expensive in the short term and not immediately implementable (because it requires extensive preparations). For these two reasons the closure option on any major scale may be not be (a) economically practical and (b) politically feasible. Therefore, the most likely scenario is a **continuation of the current policy of large subsidies and employment reduction by attrition.** At the same time, efforts will be made by the government to divest the social infrastructure and to move it to regional budgets. This policy will take a long time and is bound to fail in the end. The same problems will remain and exacerbate.

The preceding statement is not intended to discourage closures and divestiture. This is a mere evaluation of their possible fate. An ***alternative to current and future stagnation*** may be a ***creative policy package*** which has been viewed with some preliminary sympathy by the Governor of the Kuzbass, high-level local officials, senior advisors, and junior members of the Russian Government, as well as by some elements of the Russian Coal Company and the Ministry of Fuels and Energy.

Recommendations

This package consists of several propositions and proposals, as follows:

1.1 Domestic coal markets must be established and developed. This will greatly reduce transportation and transaction costs, thus increasing efficiency and domestic demand.

The main salient fact is that domestic coal markets do not exist. The old distribution system had been destroyed and has not been replaced by a system of wholesale trade and distribution. At the moment, coal is being shipped in an ad hoc manner by individual mines to occasional, sporadic customers thousands of miles away.

Improving available information on potential suppliers and purchasers at limited distances should be a low-cost proposition. Such measures should expand trade and reduce costs substantially. Marketing techniques should be explained to mine management. Marketing departments should be established, with personnel trained in crash courses. Establishment of distributors and wholesale trading companies at national, regional, and sub-regional levels should be invited. Once invited and encouraged, such companies will spread. In addition, this approach provides good potential for alternative employment among white-collar workers currently employed by mines (engineers, accountants, economists, clerical workers, etc.).

1.2 Fuel combustion plants and electric power stations should be encouraged to substitute coal for fuel oil and natural gas (whenever this can be achieved at low cost and done in a generally cost effective manner.)

Implementing this recommendation would require, of course, decontrol of oil and natural gas prices so that they become relatively expensive and coal becomes relatively cheap. The quantities of oil and natural gas thus released from domestic consumption could be readily exported. The additional tax revenues would pay for government expenditures, including those on employment and social programs.

1.3 Mines should be allowed and encouraged to develop more efficient seams and to abandon less efficient operations.

1.4 Adopt a general policy of writing-off all mutual inter-enterprise arrears and preventing their recurrence.

One has to keep in mind that the ever-mounting inter-enterprise debts (and thus the shortage of working capital for purchasing inputs) is currently the major cause of declining production, as well as of its wild monthly fluctuations.

1.5. In general, private credit markets should be created.

This practice would help provide enterprise working capital to both mines and their industrial customers. Also, the establishment of regional development banks could help. More generally, a banking reform, specifically privatization of current pseudo-commercial banks owned by state enterprises, is in order.

1.6 Develop and implement a phased program of *regimented* subsidies and government loan guarantees to existing enterprises for the wage fund. This approach can become a *credible alternative* to both arbitrary closures and arbitrary subsidy flows.

It is the job of the market, not of the government, to select viable and non-viable mines and other enterprises. This new program of regimented, set-in-advance, non-negotiable subsidies/government loan guarantees for the wage fund is the program of employment support for the time of enterprise restructuring. The program is built upon incentives to restructure, to reduce costs, and to increase efficiency. It allows enterprises to have a grace period to find new markets, new production strategies, new cost strategies, new management, etc.

This program is much cheaper to the government than unemployment compensation. Under this program, enterprises have hard budget constraints which consist of own revenues and the set-in-advance, non-negotiable government loan guarantees of the wage fund ("regimented subsidies.") Thus enterprises become interested in laying off redundant workers but they do this at their own expense, that is, they themselves pay unemployment compensation from the government loan guarantees (subsidies). Enterprises themselves decide on the structure of the real wage in terms of money wage and social infrastructure. This program can be thought of as the *aggregate severance pay* to labor and enterprises for becoming financially self-sufficient and self-responsible. The technical details of the programs are available from the paper by Thomas E. MaCurdy and Michael S. Bernstam of April 1993 submitted to the Russian and Kuzbass governments.

Policy Area 2: Social Infrastructure

Fiscal reshuffling of social infrastructure is a blind alley. Money by its very nature is fungible. Whether it comes from one or another fiscal pocket -- be this the enterprise or federal, regional, or local government pocket -- does not change the size of the expenditures. Taxes have to be collected, which is a dubious proposition in the case of the currently non-profitable, subsidized industry such as coal.

As Figures B-16 and B-17 show, at the moment the federal government has supplemented and partially replaced enterprises in financing social infrastructure. Substituting regional governments for some of the expenditures, while providing them with a larger share of tax revenues, may be an efficient solution in some areas (such as education and health care.) The arithmetic, however, of the (consolidated) government budget constraint does not alter.

Henceforth, three principal propositions should be introduced:

2.1 The placement of one or another social program under one or another financing auspices should be decided exclusively on efficiency grounds for each specific program.

The placement of such programs under one or another organizational entity (enterprise, federal government, regional government, local government) should **not** be decided on the basis of some general principle. It may be more efficient to finance education from regional budgets ... to finance health care from

a combination of regional budgets, federal budget, and market insurance partly paid for by employers ... to finance pensions from a combination of federal and enterprise budgets ... to finance housing maintenance from market sources, etc.

*In other words, to **each program there should be its own most efficient and optimal source of financing.** There must be no such thing as generic social infrastructure moved from one provider to another. All components of social infrastructure should be disentangled and dealt with separately.*

2.2 All programs that could be moved from any government budget to market financing should be moved in this manner.

First and foremost are the most expensive programs such as housing construction and housing maintenance. Housing maintenance should be moved to public utilities. Separate public utilities should be established for (a) housing repair maintenance, (b) heating, and (c) water and plumbing by *local governments* on a competitive, tender-type basis with temporary contracts. Any company that offers better costs and better services should be given a contract replacing the incumbent provider. Apartments should be turned into condominiums. Their representatives together with the local governments would chose the public utility company and issue the license agreement and a contract.

Housing construction should be fully moved to the market. Housing queues on the lists of both enterprises and regional and local governments should be recognized as the consolidated government debt. Every person on the queue should be entitled to the average amount (about 17 square meters) of the average quality housing space.

Local governments should make zoning arrangements and issue construction licenses to developers and/or construction companies on the condition that one-third or so of apartments in the new buildings should be provided to the queue participants. This should be provided at no charge in the amount of 17 square meters per person (adjusted for quality) times the number of family members and at full charge for the additional square footage. This means that developers will charge the remaining two-thirds of apartment buyers a 33 percent tax rate on the price of their apartments. This will be the tax on the new rich in favor of the queue members efficiently collected by builders.

Mortgage loans will be provided by local banks to apartment purchasers including those queue participants that will have to pay for additional square footage. *This is a pure market program that takes care of the bulk of social expenditures of the current enterprise financial burden.* This program seems to be superior as a pure market arrangement to the currently proposed Russian government program of issuing housing bonds to those who save 60 percent of the apartment costs as a downpayment.

2.3 Enterprises must themselves decide which social programs to support -- given the efficient environment of the hard budget constraints (that is, regimented subsidies).

It is possible that they would opt to support child care facilities and the like, partial health insurance payments, etc. This is not necessarily inefficient. The government must not intervene into these decisions. Enterprise social programs (pensions, health insurance plans, education co-payments, housing loan guarantees, etc.) *can be supplementary to any government programs at any government level.*

Box 1

Severance Pay in Russia

Article 403 of the Russian Labor Code of September 25, 1992, stipulates the conditions and parameters of severance pay. There are two causes of the breach of contract and the ensuing layoffs to which severance pay applies, namely (a) layoffs from the existing enterprise due to its contraction; and (b) liquidation and/or reorganization of the enterprise.

1. Compensations for the layoff from the existing enterprise:

a. Severance pay = one average monthly wage/salary

b. Additional severance pay = average monthly wage for the period no longer than two months since the layoff (including the first month)

c. Additional severance pay for the third month. For this, the authorization of the employment bureau is necessary on the condition that the worker had applied for job search within the first two weeks after the layoff and had not been found a job by the employment bureau

d. An uninterrupted employment record (for social security calculations) remains for the period of three months.

2. Compensation for the loss of jobs due to a liquidation and/or reorganization of the enteprise

a. Severance pay = one average monthly wage or salary

b. Three-month compensation in the amount of the average wage/salary for the period of job search (including the first month)

c. An uninterrupted employment record (for social security calculations) remains for the period of three months

d. Other compensation is provided according to specific laws/regulations.

Box 2

Response to the Kuzbass' Social/Economic Condition

The response by the world community to the problems in the Kuzbass has been to closely examine the regional situation and to consider its implications. The following groups are currently undertaking this work in the region:

- PIER and US AID, analyzing the impact of restructuring upon the mine workers and environment
- World Bank and Russian Government preparing an analysis on the coal industry as a whole
- Pittsburgh Group working with Novokuznetsk on regional small business development
- US AID working in Novokuznetsk to study environmental problems
- EC's SEMA Group in Kemerovo working to support regional development.

All of these groups use as their starting point the assumption that the necessary restructuring of the coal industry will include mine closures and an overall reduction in the number of mine workers. The restructuring effort, if unassisted, will inevitably lead to massive unemployment and the danger of social and political disruption.

The consensus is that mine closures in the absence of a transition plan are unacceptable and will not succeed. An acceptable transition plan must consist of a social safety net implemented in concert with a regional economic development plan which focuses on upgrading the industry, worker training and retraining, and job creation.

V. Social Safety Net and Transition Assistance

The PIER Mission included a "Social Safety Net/Transition Assistance Team" to assess existing systems of social support that could be utilized to provide services to the coal miners who will be displaced as the restructuring process moves forward. This report was prepared primarily by Ms. Jane Daly.

Objectives of the Study

1. Describe the existing system for providing financial and other assistance to workers who lose their employment during the transition period; identify programs providing assistance in finding new employment and retraining.
2. Identify gaps and shortcomings of the existing programs and propose plans and specific programs for dealing with each.
3. Where necessary and appropriate, recommend local organizational structures and additional institutions needed to coordinate and administer the programs contemplated.

Methodology of the study

For each of the areas examined:

- a review was made of existing laws and regulations governing the program as well as the sources of financing for the program;
- on-site investigations were conducted of the facilities for implementing the program, including conversations with administrators, and actual/potential users of the services. The on-site investigations focused on the areas of anticipated acute need, i.e. locations at or near the site of the mines most likely to be closed first in a serious restructuring program.
- for each program examined primary findings and recommendations are presented.

Issues and Programs Examined

A. Policies and plans for organizing and coordinating social assistance during the restructuring process;

B. Programs to provide transitional financial and other assistance to displaced workers and their families;

C. Programs providing assistance in finding new employment;

D. Programs providing training/re-training for new jobs;

E. Community support groups

F. Programs dealing with the issue of housing and other social infrastructure currently provided by the enterprise;

G. Institutional Structure and labor-management relations;

H. The special question of unemployment among women and youth.

A. Plans for Organizing Social Assistance

Existing laws and regulations

Most of the plans for closing unviable mines and providing social assistance for the affected miners and families, are based on Council of Ministers Resolutions #318, dated May 16, 1992; and #950, dated June 6, 1993. These resolutions implement the requirements of Presidential Decrees on "...measures for the support and rehabilitation of unsustainable state enterprises and application to them of special procedures." **A program for implementing those decrees with regard to the coal industry appears in Attachment D.**

In addition to classifying over 100 mines as to their viability under market conditions, this program outlines a detailed plan for the "Social Protection of the Work Force." It calls for the Ministry of Labor and Employment, the Ministry of Fuel and Energy, the Fund for Social Guarantees, and local organs of administration to prepare proposals, with justification for the form and volume of financing, for the objectives of social infrastructure, contemplating:

- the number of employees affected; the number of employees to be pensioned on the basis of age and disability; the number relocating to another city; and the number for whom work must be arranged in a local mining enterprise;
- provisions for one-time and continuing financial assistance;
- organizing a work process with a shortened work week;
- creation of work opportunities in other regions and cities, and provision of necessary assistance;
- support for utilities, and medical, legal, and commercial services for employees, as well as support for the social order in cities and districts;
- training and retraining of laid off workers.

The Ministry of Labor and Employment is charged with preparing, and presenting to the Supreme Soviet of the Russian Republic and the Government, proposed resolutions for preserving the full privileges of laid off miners, conversion of liquidated enterprises, and creation of jobs in the zones where restructuring is taking place. Among specific measures contemplated in the directive are:

- full exemption of enterprises from taxes on profits from newly created jobs for the employment of miners;
- distribution of credits, at 50 percent of normal rates, to entrepreneurs organizing small enterprises where miners would be employed;
- distribution of land parcels for small enterprises at half the normal cost;
- full exemption from taxes on profits for 5 years for enterprises organizing new jobs for miners at the surface buildings and facilities at the mines;
- exemption from taxes for displaced workers during the period of transition to new employment; and
- other similar measures.

Notification procedures and other matters affecting displaced workers were established in the Council of Ministers Act No. 97, dated February 5, 1993. According to this document, employers must notify the Unemployment Committee and the unions regarding an impending mass layoff at least 3 months in advance. Negotiations over employment for the released workers are held between management, the union and other representatives authorized by the workers, within the framework of the Employment Commissions established at each mine. The Commissions then provide alternative plans for further enterprise activities or a program for further enterprise reductions.

Council of Ministers Resolution dated June 20, 1993, established an **Inter-Departmental Commission on Non-Profitable Mine Closings of the Russian Coal Industry**. The same legislation provides for the establishment of "Commissions," composed of representatives of the "Administration, trade unions and other authorized structures" to assist in the employment of laid off workers and negotiate terms of the mine closure; and a "structure" composed of the departments responsible for housing and other social infrastructure will form a separate structure in order to provide information to the local executive organizations.

A recent analysis produced by the Ministry of Coal states that neither the law covering "Employment in the Russian Federation", nor the Council of Ministers resolutions on "Measures for the Employment of Employees Released in Mass Layoffs," stipulates the parties responsible for working out programs for closing enterprises. According to this analysis, the Council of Ministers Resolutions refer this question to collective bargaining agreements or local Joint Commissions' resolutions. However, given the large expenditures required to close a major enterprise, the analysis questions whether Commissions would be able to resolve the problem completely. The analysis also notes that neither the laws nor resolutions stipulate what organization is responsible for developing the mechanisms for liquidating an enterprise, or who is responsible for creating new work places.

Financing

According to Directive 318, funding for Realization of the Program for Social Protection of the Work Force, would come from resources of the State budget, allotted for these purposes to the Ministry of Fuels and Energy and the Ministry of Labor. According to Act 97, funding to support the unemployed is provided from the local budget. The "Analysis" mentioned in "A" above, implies that **funding sources for major aspects of the anticipated restructuring are unclear.**

On site observations

The most prevalent reaction among the general population in the Kuzbass to the possibility of mine closures is **denial**: "These mines have always been here, and always will be." This reaction is hardly surprising given the central role that coal mining has played in the development of the region, as well as the global significance of the mine enterprise in the daily lives of the employees of the mines and their families. It also seems to reflect the fact that such questions under the command system were handled by the State, with little or no input from those affected and the population in general. Although there is a marked deterioration of the infrastructure and the services provided by the mines, this is a long-term process to which Russian citizens apparently adjust over time. But there is no widespread unemployment, and short work weeks are seen as a new and temporary phenomenon.

This denial is shared by the top management of the mines, among whom it **verges on conviction**: Not only is it unthinkable that the mine should close, it would be impossible to reduce staff and maintain production. In fact, many of the managers are frustrated over their inability to attract sufficient employees to fill their staffing patterns. Most blame the current crisis on recent increases in rail rates which raised the cost of transporting the coal, and the unions who they claim have contributed to a break down in "labor discipline." They are troubled by the mounting piles of unsold/undelivered coal on hand, but confident that demand in the winter months will work off the surplus. Other managers, caught in the squeeze between declining productivity, mounting debts, and fewer resources for equipment and machinery, are looking for answers but increasingly skeptical about the likelihood of finding them.

Even the managers and personnel of mines scheduled to be closed respond with one or another form of denial. At one such mine, the management is planning to employ the present staff through construction of a new mine in the neighborhood -- **with no apparent consideration being given to the potential market for the coal which would be produced there.** At another, management and workers have calculated closedown costs which are admittedly intended to act as a deterrent to closure rather than a realistic plan for liquidation.

Findings and Recommendations

Finding A.1. The laws and resolutions cited above, and others, provide a number of useful ideas and approaches, but leave a number of issues unresolved. Similarly, we anticipate that the restructuring agreement to be negotiated between the Russian Government and the World Bank will also establish guidelines and approaches for the restructuring process. However, **neither of these represents a clear and coherent Russian plan for restructuring the industry,** informing workers and their families about the inevitability of restructuring and closing of inefficient mines; what can be done to lessen the negative fall-out from this process, including provisions for transitional assistance, re-employment and training; and, how labor, management and government will be involved in the planning and implementation of this process. Absence of clearly articulated plans and responsibilities, and the legal authority to act on them will only add to uncertainty and anxiety in an already difficult situation.

Recommendation A.1. A task force should be formed composed of representatives from all the organizations involved in the restructuring process (Ministry of Energy, Ministry of Labor and Employment, Minister of Finance, Rosugol, the NPG, and the Fund for Social Guarantees). This task force should review existing laws, resolutions, directives, etc., affecting all aspects of the restructuring of the coal industry (closure of non-productive mines, reclamation of the land, social assistance for displaced workers, job creation, regional development), and propose specific legal measures that will clearly identify the actions to be taken, the organization/individual responsible for them; and, how those actions and programs will be financed.

****

Finding A.2. The general tendency to deal with the crisis of the coal industry by "denying" that it exists is not a viable or desirable approach. In effect, everyone in the Kuzbass knows that there are serious problems in the industry and that major changes are on the way. Denying that they exist does not make them disappear, it only avoids dealing with them in a rational manner. In fact, delay does not seem like a good strategy. The escalating problem with non-payment of debts could lead to total financial gridlock. The problems of poor productivity can only get worse with time, requiring even greater subsidies, and thus progressively limiting the central government's ability to provide the resources needed to facilitate and ease the impact of restructuring when it finally comes.

Recommendation A.2. The leadership of the coal industry should give all those affected a realistic assessment of the situation, and what needs to be done. The people need assurances that their basic needs will be taken care of during the restructuring process. They need to know that a serious effort to reform the industry, supported by a restructuring agreement with the World Bank, is also certain to attract support from foreign donors, interested in participating in this important first attempt to restructure a major labor-intensive industry in Russia;

and, private investors encouraged to participate by the availability of guaranteed loans.

****

Finding A.3. "Denial" that a problem exists also inhibits the possibility of developing a comprehensive plan for dealing with it.

Recommendation A.3. A comprehensive plan for dealing with the social impact of restructuring should be developed with the participation of the Ministries of Coal, Labor and Finance, Rosugol, the NPG, and the Fund for Social Guarantees. (The Kemerovo Administration should participate in the adaptation of the overall plan to the Kemerovo Region.) The plan should be approved at a high level within the Government. An easy-to-read version of the plan should be published as a brochure for distribution in the coal regions. Meetings should be held with labor and management in the main coal regions to explain how the plan will work at the local level.

B. Transitional Financial Assistance Programs

Existing laws and regulations

Unemployment Compensation: Current labor legislation provides workers laid off due to closure of the enterprise with:

- severance pay equal to one month's salary;
- continuation of average monthly salary for two months following layoff in the event the Employment Service cannot find an appropriate job for the laid-off worker;
- unemployment benefits for the following twelve months, or until the worker finds appropriate employment, in accordance with the following schedule:
  - first three months: 75% of average salary at the last place of work;
  - next four months: 60%;
  - thereafter: 45% (but not less than minimum wage).

In all cases, the payment of unemployment compensation will commence the first day following three months from the date of job loss, on condition that the worker contacts the Employment Office during the first two weeks.

Eligibility for unemployment compensation is extended two weeks for each year the worker has worked beyond the time required to receive a normal pension (twenty-five years for men and twenty years for women); or for each year the worker has worked beyond normal retirement age. (For Category 1 jobs, including underground miners: 50 years for men, 45 years for women. For Category 2 jobs: 55 years for men, 50 years for women.)

The local Council of Peoples' Deputies can extend the maximum period for payment of unemployment compensation with funds from its own budget. Employers may also provide financial assistance in addition to that provided by legislation.

During the period of training/retraining, laid-off workers will be paid stipends based on the following:

- workers who have worked more than one year will be paid will receive 75% of the average monthly salary at their last job;
- workers who have worked less than one year will be paid the normal allowances applicable to the particular institution they are attending.

Workers with dependents will receive an additional 10% for each dependent, not to exceed the average salary for the last job they held.

Pensions: The current pension law became effective in March 1991. It covers old age disability and survivor benefits.

There are two parts to the Russian pension program. The first is related to contributions paid from wages, the **"labor pension."** The second is a **"social pension"** for individuals who have not worked for at least five years, usually because of permanent disability.

The minimum level of pensions was linked to the minimum wage by legislation passed in 1992. However, this linkage was ignored in 1993, when the pension benefit was increased, but the minimum wage remained the same.

Social Programs in the Kemerovo Region: In addition to national programs, the Kemerovo Region has developed its own social support programs financed from the regional budget. The program has four main components:

1. Social Safety Net, including:

The "CARE" program designed to provide basic needs to the poor: food, clothing, heating fuel; repair of living quarters; medication; housing support payments; financial support for the children in families with one parent, or many children; etc. (600 million rubles).

A Housing Fund, to provide loans for housing construction to regional government employees (1 billion rubles).

Pension administration program designed to decentralize the system of pension payments and improve services to pensioners (40 million rubles).

Mother and child care program, to provide special services, social support and health care to mothers of small children and pregnant women (495 million rubles).

2. Supplemental support for improving education in the Region (201 million rubles).

3. A program to support cultural programs and sports (127.2 million rubles).

4. A program to support scientific research in the social sphere (136.8 million rubles).

Financing

The Social Safety Net in Russia is financed by **four funds** supported primarily by allocations from the wage fund of each enterprise. The names of these funds, the percent of the wage fund allocated to each, and the programs provided by each are listed below:

1. Social Insurance Fund: Supported by 5.4% allocation from the Wage Fund; it provides benefits to women with children; single mothers; child support; temporary unemployment; burial benefits; recreation facilities, dormitories for retired and sick people, and other benefits to help people who cannot help themselves.

2. Medical Insurance Fund: Supported by 3.6% allocation from the Wage Fund; it provides support for the medical insurance program.

3. Employment Fund: Supported by 2% allocation from the Wage Fund; it provides unemployment benefits; supports Employment Offices which assist the unemployed with training and re-employment; supports job creation programs.

4. Pension Fund: Supported by allocations from the Wage Fund (29% in the industrial sector; 20.6% in agriculture; 5% for private employers; and 26% for enterprises paying royalties.) Provides old age, disability and survivor pensions.

In addition to these Funds, there are social support systems at the national and regional level that are financed directly from the respective budgets.

On site observations

Based on all the statistical information available, socio-economic conditions in the Kuzbass Region are deteriorating rapidly. This affects all aspects of the society and the social infrastructure: education, health care, consumer goods, services. However, this deterioration is not readily apparent on the surface. Despite the sharp drop in living standards, there are no visible signs of unrest in Kemerovo or elsewhere in the region. A rally in the main square of Kemerovo by old-line conservatives supporting the Parliament in its dispute with the President (before the cataclysmic events a week later), drew only a small crowd of older people. The Center of the city has been renovated and looks much better than it did two years ago.

Real income decreased 38% in 1992, and an additional 21% in the first seven months of 1993. The average monthly salary for industrial workers reached

83, 700 rubles in July 1993, one-and-one-half times the average salary for workers in other sectors. Maximum salaries for workers in power generation reached 152,000 rubles, and in metallurgy 142,000 rubles. (Industrial wages in Kuzbass were 1.8 times greater than in Altay, Novosibirsk and Omsk, and 43% less than Tumen.) The wage portion of workers' total income rose from 66% in 1991, to 84% in 1992, increasing the impact of possible job loss.

The minimum unemployment benefit in the Oblast at the time of the PIER visit (September 1993) was 10,062 rubles, including the 30% add-on for the Kuzbass region. The maximum benefit was 83,070 rubles. (Benefits are paid in accordance with the same schedule as the national program.)

At the beginning of 1993, there were 784,000 pensioners living in the Kemerovo Region, about one quarter of the total population. The majority of these received the minimum pension benefit. The number of pensioners is increasing rapidly, and can be expected to increase faster as miners retire early to escape the increasingly harsh working conditions, and the mines start using retirement as a means to reduce employment. The current ratio of pensioners living in the mine settlement dwellings is fast approaching 50%. Social costs in the region will rise tremendously as the ratio of pensioners to active workers increases during restructuring.

As part of a national program, the Administration in the Kemerovo Region has undertaken a program designed to shift administration of pension payments from the national to the local level in order to speed up payments and improve service. (A more radical program of decentralization in Moscow was ended by Presidential decree during 1993.)

Findings and recommendations

Finding B.1. The Russian Federation is undergoing one of the most massive social and economic transformations that has ever occurred. The Kemerovo Regional Administration is on the front line of this process, trying to keep the social fabric intact, while balancing the conflicting interests of real people. So far, they seem to have done a decent job of holding things together. But, up to now they have not had to deal with the question of open unemployment among the largest, most influential and well-off group in their community: the miners. **The Region is not prepared to deal with the displacement of miners and other workers who will be affected by a serious restructuring program.**

Recommendation B.1. Representatives of the Ministry of Coal, Rosugol, the Regional Administration, the Employment Service, the Ministry of Finance and the Fund for Social Guarantees should start now to **develop specific contingency plans** for dealing with the immediate financial and other needs of miners and their families in those areas likely to be affected by mine closures. A team composed of representatives from these organizations should be assigned to each of the communities likely to be affected by the first round of mine closures. The teams should develop plans for meeting the needs of each family in the

community. These plans should include provisions for continued access to housing and other essential services currently provided by the enterprise; calculation of minimum budget for each family based on the number of children and their ages; calculation of income based on current eligibility under existing programs; identification of shortfalls and ways of bringing income up to the minimum level.

****

Finding B.2. Absence of definite social criteria ("poverty line", "minimum living standard", etc.) make the whole system for social protection of the population vague and oriented to subjective evaluations rather than a real understanding of the living standard.

Recommendation B.2. In establishing the minimum living standard it is necessary to go beyond the physiological level to a socially acceptable minimum which provides the basic needs for food, clothing, sanitation, hygiene, medicine, housing and utilities, transportation and services. The minimum standard should be calculated and officially published each month.

****

Finding B.3. There is no accurate, up-to-date source of data on the labor force, unemployment, inflation, prevailing wage rates, etc. The area of "labor statistics" is seriously underdeveloped.

Recommendation B.3. The Government needs to establish an independent, credible source of this kind of information (perhaps modeled on the U.S. Bureau of Labor Statistics) that can provide a means of tracking trends in the economy on a real-time basis, and serve as a reliable basis for establishing economic and social policy. A model regional branch of such an organization should be established in the Kuzbass.

****

Finding B.4. The existing practical measures for resolving social issues at bankrupt enterprises are not adequate.

Recommendation B.5. In cases where a bankrupt enterprise is unable to meet its obligations to its workers, a special state fund for meeting these obligations should be established in consultation with the NPG.

****

Finding B.6. Measures developed to prevent mass unemployment do not give adequate consideration to the peculiarities of the labor market in the particular city or region.

Recommendation B.6. Concrete employment programs should be developed for each region and area in consultation with employers, unions, regional and federal authorities.

****

Finding B.7. Not enough consideration has been given to temporary measures for alleviating the immediate, short term impact of unemployment.

Recommendation B.7. Consideration should be given to providing a legislative framework which would allow for temporary reduction in the work week, additional paid vacations, and other interim measures for dealing with unemployment. Such explicit, limited arrangements would be preferable to the current ad hoc, informal, open-ended work-sharing measures.

****

Finding B.8. Measures providing for children in low-income families are not adequate.

Recommendation B.8. Child allowances should be adjusted for inflation. Municipalities should have the responsibility for administering such programs.

C. Employment, Re-employment Programs

Laws, Regulations and Background

The primary program for providing assistance to the unemployed is that of the Employment Service of the Department of Labor and Employment. In accordance with applicable federal law, in 1991, a Regional Department of Labor was established in the Kuzbass Region. The Department has 15 City Centers, and 17 somewhat smaller District Centers in the Kuzbass. The Employment Centers provide a variety of services, including: counseling, consulting, retraining, scholarships and other payments, unemployment benefits to the unemployed and their families; financial assistance to the unemployed to assist them to start their own business; financial assistance to employers for the creation of new work places, or to help preserve existing work places.

One of the Kemerovo Center's programs for dealing with the unemployment problem is the promotion of "pendulum migration", through agreements with employers in other regions to contract for workers from the Kuzbass. In 1992, 15 such agreements, involving 85 workers, were concluded; in the first half of 1993, 15 agreements, involving 200 workers. The plan for 1994 is 15-20 agreements for 200 workers.

An important responsibility of the Centers is creating new employment. Article 13, of the State Employment Fund Law provides funding for this activity. In the first half of 1993, the Fund provided 124.4 million rubles for this purpose, which resulted in the 56 new workplaces.

During the first half of 1993, 316 people were employed in public works financed in the amount of 2,066 million rubles (1, 690 million from the enterprises; 180 million from the local budget, and 190 million from the Employment Fund.)

Financing

The Centers and their activities are financed through the State Employment Fund, which receives its resources from: obligatory insurance premiums from enterprises; income taxes on enterprises; allocations from city and district budgets; fees earned from the activities of the Centers; grants, subsidies and subventions from employment funds; and voluntary donations from enterprises, public organizations and individuals.

On site observations

According to the information we received, unemployment in the Kuzbass region is currently just under 2%. The unemployed are mostly women. Some reported that women make up 70% of the total, while others cite 80-85%. Reasons for the high percent of unemployment among woman include: "They are the only ones registered;" women are the first to be laid off, and there is "less stigma" attached to women receiving unemployment pay than men. The figures cited do not include the "under-employed", or "partially employed" and those working part-time or short shifts.

The team visited four offices and found the facilities to be adequate to serve the current number of unemployed clients; however, most of the directors expressed the need for more office space. They anticipate much larger numbers of unemployed who will need the services provided, and **the current facilities will not be able to accommodate large numbers of clients**. Two of the larger offices visited are already under reconstruction. With one exception, the offices are located on the first two floors of the city administration building. (During an earlier meeting with officials of the National Federation of Employment Services, the team was told that the facilities were very poor. Those observed may have seen some of the better ones.)

The staff ratio is allocated by decree, with one staff member for each 10,000 population, or one staff member for each 200 unemployed. There is an index to allow increase in staff if there are mass layoffs or sudden increases in the number of unemployed. **All offices are staffed below the established ratio.** Some offices have a ratio of 16 clients per placement staff per day.

All the directors interviewed expressed concern about the increased numbers of unemployed and the inability to meet their needs because of the inability to hire qualified staff. A major contributor to this problem is the extremely low salaries. The office staff is predominantly composed of women.

Presently, the staff is mostly occupied with the registration and benefits payment process. When a person seeks work at the Employment Office, he/she completes a registration form. The staff has up to ten days to review the case. If the worker is determined to be eligible for benefits they go to the bank after the fifteenth day (from the date of original application) to receive their benefits. This period is too long, and may be a disincentive to register; it also fosters

disillusionment with the process. If the staff, especially an inexperienced staff, become overwhelmed with large numbers of unemployed they will find it very difficult to devote the necessary time to counseling the applicant and seeking employment for her/him.

Findings and Recommendations

Finding C.1. The Employment Offices have been given an unusually wide range of diverse responsibilities and functions, including providing subsidies designed to retain current employment levels.

Recommendation C.1. The Government should conduct a careful review of the current functions to determine whether they are compatible with the basic mandate of the Offices to find jobs for displaced workers and new entries into the labor market. Providing another source of subsidies further complicates the subsidy issue. Placing so many demands on the Employment Service is sure to distract it from its primary function when unemployment, as expected, increases.

****

Finding C.2. The role of the placement Offices in the Kuzbass will change from the relatively simple one of advertising a large range of jobs to a small number of job seekers, to a much more difficult one of locating jobs, from a limited range of choices, for a large number of job-seekers. **The current system lacks the knowledge, experience and skill to make this kind of transition.**

Recommendation C.2. There is an urgent need for crash and continuing staff training for Employment Center staff in order to properly service unemployed job-seekers, while helping them deal with the new and frustrating experience of looking for a job, and maintaining their self-respect in the process. Changing jobs, and frequently professions, is a common occurrence in the United States, but it is a new experience for most Russians. The effectiveness of the services provided by the Employment Offices will have an important influence on the extent to which this phenomena of the market system is accepted, at least in the short run. Training is needed in all aspects of the process: Relations with potential employers and educational institutions; training in how to deal with all the multi-faceted problems which confront individuals and their families when they are required to move from one job to another. This will be a very difficult task, even more so than in the United States, because the sensitivity and interest needed are not part of the way things have been done here.

****

Finding C.3. Our observations indicate that outreach to potential employers is passive. The staff spent their time going through the newspaper calling businesses for potential openings.

Recommendation C.3. At a minimum, major employers should be interviewed in person and provided verbal and written information on the services available from the Employment Service.

****

Finding C.4. Most of the current Offices are small and inadequate for the anticipated expanded need. The prestige of the Employment Service, the value placed on its services, and its ability to contribute to resolving the difficult problems facing the coal industry and regions will depend to a considerable extent on the suitability of the facilities where those services are offered.

Recommendation C.4. The massive unemployment/re-employment problems associated with the restructuring of the coal industry will be the **first major test** for how the Employment Service deals with the problem of mass unemployment. It will be a testing and learning experience that could affect the way these services are provided in the future in other similar situations. The Employment Service should argue this point with the federal and regional governments as a reason to **make the Kuzbass a model program** that can be emulated elsewhere, and make available the resources that such an effort deserves. Some of the additional costs could be offset by co-locating the Employment Service in the same building with community and other services offered to displaced workers and their families during the transition period.

****

Finding C.5. Our observations indicate that more equipment, especially more sophisticated equipment, is needed. There are computers in all the offices, but far too few, in some cases one or two for the entire office. The software is of poor quality and inadequate. Network capabilities are needed, as well as the ability to code and match programs.

Recommendation C.5. The same argument is applicable here as in the previous point. Adequate equipment and the skill to use it can make a substantial contribution to the success of the re-employment program. Consideration should be given to suggesting that a foreign donor equip one or two model offices with state-of-the art equipment, and training to go with it.

****

Finding C.6. A true "model program" would be of great value not only to the coal industry and regions, but also to other industries and regions. However, in order to be truly effective it needs all the elements, including: modern information systems; modern skill testing tools and techniques; assessment, matching, job search and placement techniques. Using these techniques in the market context is a new area for Russia, that could make an important contribution not only to the employment area and the transition to a market economy, but to the reform and reorientation of the education and training system. It is an area where Russia could leap-frog a lot of existing, outmoded technologies.

Recommendation C.6. The Russian Government should take advantage of the situation in the restructuring in the Kuzbass to develop a model for a modern, effective Employment Service with the up-to-date techniques, equipment and trained staff that such an effort requires.

****

Finding C.7. There are several offices in the large cities and no offices in the settlements, despite the fact that the latter will be the focus of mine closures and need for the services.

Recommendation C.7. Locating an Offices in the mining settlements, especially the settlements that will be the sites of mine closures, not only facilitates the work of the Service, it shows concern for the welfare of the clients, and provides opportunities for in-depth counseling. In the latter case the Office of the Employment Service should be one of several services offered at a Community Transition Center at the affected mine sites.

****

Finding C.8. There are two categories of job-seekers: those that have previously worked, and are seeking employment, and perhaps retraining; and those that are unemployed and seeking work for the first time. The first time unemployed seeking their first job constitute a growing problem for the Kuzbass and the rest of Russia. They are well-trained and educated, but with training that does not meet world standards, and in specialties that are not in demand. In addition, many employers are seeking workers with education and experience in the new skills associated with the market economy, such as marketing, sales, business, economics, management. These factors make the first time job seeker particularly hard to place. The fact that they qualify for unemployment benefits, though small, contributes to their passive acceptance of not being able to get a suitable job.

Recommendation C.8. The Employment Service should develop special programs for these hard to place but important members of the work force and the society. It is this generation that will create a true Russian version of the market economy. It is important that they learn how that economy works and how it can work for them. A special program could include career counseling, perhaps with group sessions where individuals can share experiences and problems, and how to deal with them. Such a program would also fit well with the proposed model program suggested above.

****

Finding C.9. The Employment Services leveraging of it funds to stimulate new job creation in public works projects corresponds with the recommendations of the PIER "Regional Development/Job Creation" to promote improvement in the badly neglected public infrastructure as a prime source of new jobs, and a prerequisite for attracting new industries.

Recommendation C.9. The availability of funds to stimulate new job creation projects is essential and should be expanded. In doing so the Government should decide whether the Employment Service is the appropriate vehicle for administering these funds.

D. Training, Retraining Programs

Laws, Regulations and Background:

The 1991 federal law establishing the system of Employment Centers also gave those Centers primary responsibility for providing retraining to displaced workers. The Center in Kemerovo has done little, if any, actual training. In 1992, only seven percent of the already small number of registered unemployed were retrained. However, the Center has contracted with local institutions to provide retraining. Consequently, in the event of mass layoffs, the Center can provide 4,335 training slots at institutions of higher learning; 3,415 slots for training and retraining workers; 920 slots for improving the qualifications of specialists; and 2,100 short-term training opportunities.

In 1992, 150,000 workers received training in the Kuzbass Region; of these 23 thousand received training in technical colleges (down 23.8% from 1991); 126 thousand received training at the enterprises themselves (down 31% from 1991); and, the remainder received training at collective farms. During the same period, 33,000 managers were trained: 97% upgraded their qualifications (refresher courses); 7,000 managers took courses in the market economy (22%), and more than 400 studied abroad.

Financing

Training provided by the Employment Centers is financed from the State Employment Fund. (See previous section for details of the Fund's sources of financing.) Training provided by the enterprises (by far the bulk of the training in the region) comes from the enterprises' budget. There are some programs funded jointly by the Fund, the enterprises and/or the City Administration.

On site observations:

Training Centers are largely reactive, responding to the specific requirements of the local enterprises. They tend to be over-specialized with many courses, most of which are in the vocational training area. The existing system has a number of other weakness.

Findings and recommendations:

Finding D.1. Worker training dropped nearly one-third in 1992 -- this needs some explanation, especially with the increase in hidden unemployment which could have been expected to allow more workers available for training, a convenient vehicle for filling time. It may confirm anecdotal evidence that younger workers are, in fact, turning away from mining in the expectation that it does not offer long-term employment opportunities.

Recommendation D.1. The reason for the drop in worker training (presumably, largely in the mines and other large enterprises with traditionally hefty training budgets) should be explored to determine whether it is due to young people turning away from mining as a profession, or just a general lack of interest and incentive for doing a better job. If the former, it could be an indication that the labor market is working. In any event, **one of the more desirable ways of reducing the workforce is restricting accessions of new workers into the enterprises in order to facilitate retention of more senior workers.** If this is already happening it should be encouraged and facilitated by offering incentives and encouragement for entering training in non-mining pursuits, and promoting job opportunities in those areas.

****

Finding D.2. The Training Centers are badly underfunded.

Recommendation D.2. Funding for the Centers must be substantially increased. Possible sources for such funding include: redirect the funds presently diverted to maintaining hidden unemployment in the mine enterprises, to training for real new jobs in other sectors with promise for growth; .

****

Finding D.3. Training Centers are largely reactive.

Recommendation D.3. The Training Centers (and, for that matter, the whole education system) must be reoriented to the market for existing new jobs, and anticipated job opportunities in other industries.

****

Finding D.4. The courses presently offered seem too narrowly focused, especially for the training of large numbers of displaced workers in anticipated areas of employment, rather than specific jobs.

Recommendation D.4. Training for employment where specific job characteristics are not known, should concentrate on generally applicable job skills, work habits, and other entry-level skills. Training should also be aimed at increasing mobility across industries.

****

Finding D.5. Present job training does not make any provision for personal and work related counseling.

Recommendation D.5. Personal counseling is an essential function of an effective job training system, especially where displaced workers not only lose their jobs but also a variety of other in-kind benefits, and are likely to have social and personal adjustment problems in addition to job problems.

****

Finding D.6. Career choices for young people are limited. There is gap between the training and education offered and the requirements of the employers.

Recommendation D.6. The Employment and Training Centers should develop an inventory of occupational titles and the specific content and skill requirements for each. Such a system should eventually be developed at the national level, as well, since it is an important part of developing a broad job market. Corresponding systems in the U.S. and Western Europe could be used as a model for such an effort.

****

Finding D.7. Only 7% of those currently unemployed are electing to be trained, the remainder elect to receive benefits and remain unemployed.

Recommendation D.7. The reasons for this phenomenon should be carefully researched and appropriate remedies formulated and implemented. Depending on the results, corrective measures might include a requirement for accepting a new job that is offered, or entering training for a new occupation, as a condition for continuation of benefits.

E. Community Support Groups

Existing laws and regulations

Under the command system the enterprise was the center of the community, supplying most of the necessities of life. As a result of the remote locations of many of the coal mining communities, the influence of the mine enterprise was even more significant for miners and their families. Consequently, restructuring of the coal industry, and the prospect of job loss will be an especially traumatic experience for miners and their families. Community Support Groups, coordinated by skilled counselors, that can provide information, counseling and a sense of shared experiences will have a particularly important role to play in the restructuring program in the coal industry.

Financing

No explicit financing exists for this purpose

Findings and Recommendations

Finding E.1. Community support groups, supervised by skilled counselors, which can provide professional support services do not appear to have played any significant role in the USSR. Several members of the PIER team had extensive experience with such programs in the United States, and explained how they operate. The concept was extremely well received by our Russian partners who thought such programs could play an important role in facilitating the transition in the Russian coal industry.

Recommendation E.2. Transition support and coordination teams in the mining communities affected by mass layoffs could play an important role in the difficult restructuring process. One option is for the non-profit, non-partisan, Fund for Social Guarantees to be assigned a coordinating role in identifying individuals to serve on tripartite (union, management/business, local government) local committees in the communities affected by mine closing. These committees could tailor the social safety net to the needs of the people in the community. These committees could also coordinate social programs.

Such committees could be effective overseers of the transfer of the social infrastructure from the enterprise to the municipality, assuring that continuity of service is provided, and other needs of the community are met. The committees should be provided necessary training to fulfill these responsibilities and continuing access to expert advice.

F. Housing and Other Social Infrastructure

Overview : Legislation and Regulations

Under the command system, all workers with families were entitled to state-provided, though unfurnished, housing. Single workers were entitled to lodging in a dormitory, with a bed and simple furniture. In both cases the space was based on an established square footage per person. However, people waited (and still wait) an average of ten years on the list waiting for housing (or new housing in accord with their entitlement.)

Financing

Practically all housing, utilities, medical care, day care and other services in the mining communities are provided and financed by the enterprise. **The costs are budgeted as part of the production costs, and are so intertwined that it is difficult to assess the true costs of social services versus the true costs of coal production.** The best estimates range between 15 to 18% of the total costs of production spent for social care programs for the workers, and 33% of total labor costs for social programs. The mining associations in Kuzbass estimate that over the past two years, 70% of the total social costs have gone to housing.

On site observations

Industry has provided for almost all the physical needs of the workers. The costs are budgeted as part of the production costs. In the Kuzbass most miners live in mining settlements. These mining settlements were created when the mines were first developed over 50 years ago. Housing in the settlements is typically single family dwellings with outhouses. Many do not have running water. There has been little maintenance or up-grading of these facilities and little

development of other elements of the infrastructure. Roads are rutted and muddy, heat is provided from wood stoves, and electric wires hang from tree limbs.

New housing units have been built in some of the settlements. These are the traditional high rise apartment buildings, much in demand because they have in-door plumbing. There is a chronic housing shortage, with thousands of workers waiting years to get, what the law terms adequate housing (18 square meters per person).

Located in the settlements are all the medical facilities, schools, sports clubs, food stores, farms growing food for the miners, and usually some special facility, like wine making, machine building, etc. Generations of miners have grown up in these settlements, with extended families and in-laws nearby.

The Coal Company, Rosugol, estimates its national housing costs and number of flats by a formula: They own 35 million square meters of housing, or about 55 square meters per family (at a rate of 18 meters per person). That makes 800,000 flats, in which 2 million people live, at an annual cost of 248.8 billion rubles (September 1993 rubles.)

In some of the settlements 50% of the flats are occupied by pensioners, whose housing and other living costs are factored into the costs of producing a ton of coal. One of the mining associations reported that 43% of the occupants of the housing supported by the enterprises did not work in the mines. In some cases dwellings had been sold by the mines to individuals; some of whom turned around and sold the flats for 2 or 3 times what they had paid.

The importance of the services provided by the enterprises, especially during the current period of high inflation, means that many workers (especially those at the lower pay scales) are in fact working more for services than money.

Findings and Recommendations

Finding F.1. In addition to being unsatisfactory, some of the housing is, for one reason or another, extremely dangerous. In Belovo and Novokuznetsk, for example, there are settlements, each with about 1000 families, situated over large underground methane gas reserves, so close to the surface that the occupants of the dwellings are in constant fear that an explosion will destroy the settlement. Other settlements are located over underground longwall faces (where the roof is intentionally allowed to collapse once the coal is mined.)

Recommendation F.1. Immediate steps should be taken for expert evaluation of the dangers posed by these situations; and, measures taken to assure the safety of the families, including relocation, if necessary.

****

Finding F.2. The main goal during the transition period is to insure the stable functioning of the institutions in the social sphere in order to preserve the legally guaranteed minimum level of medical care, educational opportunities,

housing and similar community services to the general population, while facilitating the adaptation of these social services to the conditions prevailing under the market system.

Recommendation F.2. Expenditures on the social infrastructure must be adequate to provide an established minimum level of services. Measures should be introduced to privatize, where practical, the facilities providing social services; along with a voucher system, financed by the state, that would assure the needy free access to a clearly defined quantity of privatized goods and services.

****

Finding F.3. There is abundant evidence that the current system of distributing housing severely limits the mobility of labor, places irrational financial burdens on the enterprises, and results in scarce and poor quality housing. To a limited extent, these negative aspects of the current housing allocation system are already resulting in privatization of housing.

Recommendation F.3. Steps should be taken to convert housing and many other services to commodities, and establish a housing market. In doing so it is essential that legal provisions be enacted to assure continuity of necessary services such as utilities, health care, education, etc., during the transition period.

G. Institutional Structure and Labor-Management Relations

Overview

Under the centrally planned economic and political system of the former USSR, all industrial activity was controlled from a central body located in Moscow. Industrial planning activities included:

(1) **Allocation of subsidies** used to support: equipment purchases; production costs; wages/compensation/benefits; housing construction and maintenance; and social infrastructure of mine enterprises/communities (groceries, farms, kindergartens, sewing factories, equipment repair shops;) and

(2) **Design and oversight of the "Industry Plan."** An annual plan was created and distributed delineating: mandated monthly and annual production levels; quotas for export and domestic "sales" (transfers); production rules (e.g. "93% rule" whereby once a mine was opened, no more than 7% of reserves therein could be left unmined); and new mine construction sites.

Until January 1992, the coal industry was overseen by the Ministry of Coal. However, as the former USSR reallocated powers and boundaries, so did its industrial complexes. In January 1992, both the Ministry of Coal and the Russian Coal Corporation (an oversight body) were disbanded. The national government's responsibility for the coal sector was placed in the hands of the Ministry of Fuel and Energy, which began planning for the creation of The Russian Coal Company (RosUgol) to manage the anticipated privatization of the coal sector.

While several variants for privatization of mine enterprises were proffered between January 1992 and August 1993, an uncertain federal political and financial agenda, and a lack of financial foundation and implementation "know how" prevented any realistic movement towards coal sector privatization. Unlike its oil and gas counterparts, the individuals and institutions guiding the Russian coal industry were not availed special tax and payment privileges, nor did they have equivalent access to foreign sources of financing, technology transfer and management "know how". Complicating this condition was the disbanding of a "Coal Committee" initiated in January 1993 within the Ministry of Fuel and Energy to address issues of privatization.

Finally, in March 1993, Rosugol was officially created, and significantly, came under new leadership. As of October 1993, the functions of the institutions guiding the restructuring of the Russian coal industry include:

1. MINISTRY OF FUEL AND ENERGY

- oversight of the Russian Coal Industry
- conduit between RosUgol, Coal Associations, and Ministry of Finance and other Ministries of the Russian Federation
- coordination with other energy sector development

2. ROSUGOL

- allocation of subsidies
- export and marketing
- equipment purchases
- coordination of coal association directorship
- new function - addressing social guarantees
- mine closure program implementation
- accounting systems

3. TRADE UNIONS

As of October 1993, there were four trade unions functioning within the coal sector of Russia. The traditional Russian trade union structure mandated membership by virtue of employment in various industry, agricultural and institute work. In 1989, a relatively small but powerful group of independent, reform-oriented coal miners united to form the first independent trade union of Russia (NPG). Since that time, an independent union of mine engineers has also emerged within the industry.

The other two unions, a general industrial union and a coal mining industry union, continue to fall under the guise of "official unions" -- terminology that recalls the old Russian industry structure. However, in a September 1993 Presidential Decree, President Yeltsin ordered that particular financing privileges formerly granted to the official unions be disbanded as of January 1994. It

appears that this decree will effectively remove the institution of traditional Russian trade unions.

Findings and Recommendations:

Finding G.1. While labor and management may disagree on the details of the reform process and its implementation, the NPG's espousal of the "principle" of reform is a crucial positive element in the program's chances for success.

Recommendation G.1. It is essential that this joint commitment be preserved and promoted by making labor and management full partners in the planning and implementation of the restructuring program.

****

Finding G.2. The work of Partners in Economic Reform to promote labor-management cooperation in dealing with health and safety issues at the mine level provides a useful and successful model that has mobilized labor and management efforts to deal with an issue of vital concern to both.

Recommendation G.2. This work should be continued and expanded to other issues of mutual concern to miners and management. Such a step-by-step approach to identification of mutual objectives and development of joint programs for accomplishing them is an important confidence-building measure that illustrates the interdependence of labor and management in a market economy, as well as the practical value of labor-management cooperation.

****

Finding G.3. Many of the coal industry's problems emanate from central control and administration which neglect the contributions of individual operating units and the workers and managers that work in them.

Recommendation G.3. It is essential that structures and mechanisms be developed which expand the authority and responsibilities of these operating organizations and individuals, and provide material and psychological rewards and recognition for superior performance. A corollary to increased responsibility and authority is training and retraining in the skills necessary to successfully carry them out.

****

Finding G.4. Russia needs to develop its own system of labor and industrial relations, which meets the requirements of a modern market economy in a democratic society, while reflecting the traditions and preferences of the Russian people.

Recommendation G.5. The West can help by exposing Russian labor and management to western industrial relations principles and practices, and providing training in basic techniques. Such a system would include negotiating practices

and procedures, dispute resolution, mediation and arbitration, and programs for promoting labor-management cooperation.

H. Unemployment Among Women and Youth

Overview

The problem of unemployment among women is becoming increasingly acute. Until recently more than 90% of women able to work were in the workforce. However, at the beginning of the 1990s the level of female unemployment began to increase. Under the influence of structural changes in the economy, the transformation of property, and the difficult financial situation in the industries which traditionally employed women, women workers increasingly lost employment opportunities and many left the labor market. Women now make up 67% of the unemployed, and this trend is likely to accelerate.

A high percentage of unemployed women are highly educated and experienced. Women, especially those with children are among the poorest people in the society. At the beginning of 1993, 52% of single women were classified as living in poverty; for single women with more than one child the rate was 72%. Women have not been able to participate fully in the newly developing forms of employment. For example, at the beginning of 1993, only 19% of entrepreneurs were women. In coal mining areas, the lack of opportunities in work traditionally performed by women creates an even worse situation.

Existing laws and regulations

There are at present no efforts, at the federal level, to develop government policies to correct the employment problems of women. Government programs for stabilizing the economy do not consider the problems of women in the labor market. There is no recognition for the vulnerable position of women, especially those with many children. Family benefit payments are rendered ineffective by soaring inflation and lack of indexation. In this respect the Kuzbass is ahead of the federal government, having created regionally financed programs for pregnant women, mothers and small children.

On site observations

Even the casual observer notes that the menial tasks, and lower paid jobs are almost always occupied by women. Not so apparent is the fact that the professions where women tend to predominate are among the poorest paid, despite the extensive preparation they require and the important responsibilities they entail.

Findings and recommendations:

Finding H.1. There is a great lack of employment opportunities for women and youth, and no effective programs for correcting the situation.

Recommendation H.1. Concentration of employment creation efforts on women and youth could be a key part of the strategy for dealing with the overall employment problem during the transition period to a market economy. For one thing, it is easier to create jobs for women and youth and find people to fill those jobs. Mature men and miners tend to be set in their ways, less capable of adapting to new jobs, learning new job skills and accepting new job training. They are less likely to accept jobs in the service sector, where many of the new jobs will become available. They also have higher earnings expectations than women and youth.

While many of these observations, particularly as they apply to women, reflect a systematic discrimination against women in the job market, they could favor women's employment opportunities under the present conditions where it is unlikely that women will be able to break down the barriers to employment in the mines. If the principle of equal treatment and opportunities could be established for training, employment, promotion, etc., in the new industries that are opening up, women would be able to compete on an equal footing with men in those industries by virtue of getting in on the ground floor. Creating opportunities for women and youth would also enable them to contribute to the family income at a time when more men are unemployed, pensioned, or working for lower wages than they now receive.

VI. Regional Development Job Creation

Background: The Kuzbass Region

The Kemerovo region (oblast) as part of the Russian Federation was established in January 1943 by decree of the Supreme Soviet. It is located in the southeastern portion of Western Siberia, about 3,400 km from Moscow and 4,500 km from the eastern borders of Russia. Its territory is 95.5 sq. km. It consists of 20 cities, 19 rural areas, 47 urban settlements and 1,109 villages. The major cities are Novokuznetsk (pop. 600,000) and Kemerovo (pop. 520,000.)

The region has vast mineral resources, the most important of which is coal. The Kuznetsk coal basin (The Kuzbass) is one of the largest in the world. Seventeen out of 25 geological areas are currently being used. Half of the known coal reserves in the region consist of coking coal.

The Kuzbass is a large, powerful industrial manufacturing and extraction complex within the Russian Federation. Heavy industry employs 40 percent of the region's working population. The most important industries are ferrous and non-ferrous steel-making, machine building, chemical processing, and energy. The core of the region's industrial power is the coal industry. Currently in operation are 72 mines, 25 open pits and 17 processing plants. In 1991, 124 million tons of coal were extracted. About 70 percent of that coal is being exported to all regions of Russia as well as to other republics within the NIS.

In the region's ferrous metallurgy industry, 70,000 persons are employed in nine enterprises. The largest are Kuznetsky and the Western Siberian Iron and Steel Works (their capacity is 82 percent of the total industrial capacity.) Metallurgy products are half of all exports from the region.

The industrial structure of the Kuzbass, in terms of the per cent of total output related to major industries, is as follows:

Coal Industry	**26%**
Metallurgy	**19%**
Chemical Processing	**9%**
Machine Building, Metal Treating	**14%**

Role of Coal in the Kuzbass Economy

The complex of issues which are currently impacting on the coal industry in the Kuzbass are echoed in the regional economy. A number of relevant observations which can be summarized as follows:

- Over the years, regional investment has been concentrated on high cost capital projects in the coal and metallurgical industries, yielding little in the way of additional output. This has been accompanied by a dearth of investment in 'the non-productive sphere', i.e., physical infrastructure, housing and community facilities.
- Labor productivity in the region is two-thirds the national average.
- Connections to the Trans-Siberian railway are overloaded, leading to delays and unreliable schedules. In addition, recent increases in rail transportation rates have essentially brought industrial exports to a halt.
- The region's thermal energy supply is dependent upon obsolete and worn-out equipment, with very little reserve capacity, resulting in decreased reliability and maintenance and reconstruction difficulties.
- Systems of fuel manufacturing and processing are outmoded, leading to major environmental problems -- particularly in Kemerovo and Novokuznetsk. The ecological threat is 'immeasurable' as reflected by the Kuzbass region having: the lowest life expectancy in West Siberia; significant growth in the number of cases of lung cancer and other respiratory diseases; and high rates of infant mortality.
- Despite the fact that the overall level of education in the Kuzbass is higher than the national average, there is little impact on the regional economy. Limited opportunities for employment outside the extractive and primary manufacturing industries, and the generally substandard social infrastructure do not provide opportunities for further development and utilization of this educational resource.

It is clear that the region's role as an extraction and primary production adjunct to the national economy has been developed with little attention having been paid to the creation of an effective regional economy. One labor representative we spoke with captured the essence of the region's economic dilemma when he stated that the Kuzbass has served as a "raw materials appendix" to the USSR, incapable of functioning without the rest of the nation.

The region's overemphasis on low productivity, low value-added production lessens economic stability and increases its vulnerability to external factors such as national energy policy, transportation costs, and general dependency on state subsidies. In addition, the undiversified nature of the region's economic base provides it with limited capacity to cope with major changes, i.e., the restructuring of the coal industry and consequent job losses, or the impact of down-sizing of national defense spending on the steel industry in Novokuznetsk.

There can be little doubt that the Kuzbass coal industry, given the global significance of its reserves, will continue to be of major national strategic significance. But there remains to be a major policy shift recognizing the inherent advantages of the regions resources, and utilizing these advantages as a catalyst

for diversified regional development, helping the economy to move away from its singular reliance upon primary production and external support.

The Consequences of Restructuring

Inherent to the inevitable restructuring of the Kuzbass coal industry are mine closures and an overall reduction in the number of mineworkers. Although the industry has been able to absorb excess personnel and underemployment for several years, the new reality of a market economy will lead to unemployment at unprecedented levels. Given the country's history of total employment, even low levels of unemployment can be disturbing. The projected high levels of unemployment resulting from potential mine closures -- coupled with the layoffs and closures in the steel, chemical and textile industries -- pose the potential for severe social and political unrest.

Currently the official unemployment rate is under 2%; however, a large segment of the work force are on unpaid vacation leave. When this hidden unemployment is taken into account, the real unemployment rate jumps ten times to approximately 10%. The federal unemployment system can currently meet the demand for unemployment payments and enterprise job creation subsidies; however, if unemployment increases sharply, due to mine and other enterprise closures, then the system will fail.

To help alleviate the strain on the system, new employment can be created in the Kuzbass through targeted investments in the coal industry but these jobs will not be enough to compensate for the total displacement arising from the industry's restructuring. Even under the most optimistic conditions, substantial net job losses from the coal and other primary industries are inevitable. Therefore, a viable job creation strategy for the Kuzbass must broaden its scope beyond the coal industry. But this strategy must also take into account the **regional comparative advantage provided by the abundance and quality of the Kuzbass coal resources** as a crucial factor in the future of the region.

The restructuring of the Kuzbass' economy must not be left to chance. A **transition plan** must be developed, laying the groundwork for shifting the focus of the region's economy, promoting increased economic diversity and regional self sufficiency. This plan must encompass:

- the upgrading of potentially productive mine operations;
- the training and retraining for displaced mine and other industry workers;
- the creation and fostering of alternative employment opportunities both within and outside of the coal industry; and
- the creation of a safety net to maintain the basics of the social infrastructure that the miners and their families have come to depend.

Kuzbass Problem Statements

The analysis of the Kuzbass region's social, economic and political condition undertaken by the Regional Development Team, has identified a group of key problems which must be addressed prior to development of a viable market economy.

- **Lack of Investment** - the region's mines have had little or no capital investment over the past decade, producing a non-competitive industry with outdated technologies.
- **Falling Productivity** - a combination of economic, geological and political factors has lead to a decrease in overall productivity.
- **Excess Personnel** - redundancy of personnel appears to be a standard in the region's industries, reflected in-part by the coal industry's low productivity figures.
- **Dependence on Subsidies** - despite the fact that coal prices have been liberalized, only 60% of the cost of coal is paid by the consumer, the remaining 40% is paid directly to the industry as government subsidies.
- **Dependence on Transportation to Overcome Distance from Market** - the isolation of the Siberian region has created a critical dependency on rail transport. Recent increases in rail tariffs have essentially severed the industry's access to external markets.
- **Dominant Employer and Provider of Social Services** - in many instances the coal industry is the sole employer and provider of services, causing local economies and social structures to be completely dependent on the future of one industry.
- **Falling Demand** - the industry has experienced a decreased demand for coal from both the local and external markets.
- **Inflation, an Inoperable Financial System and Severe Cash Flow Problems** - rampant inflation has decreased the stability of the financial system, retarding capital investment projects and productive business creation. These conditions combined with government budget deficits have created severe cash flow problems for the coal and regional industries, with greatly extended accounts payable/receivable becoming the standard.
- **Transitional Problems Associated with Rapid Privatization** - inherent to the massive change in the nation's fundamental economic structure is a high level of uncertainty and lack of accountability at all levels of government and industry.
- **Underdeveloped Labor/Management Communication Systems** - the rapid transition to a market economy has resulted in dynamic labor/management relationships to which the previous communication systems have not adapted.

- **Narrow Focus** - the old command economy production center strategy has left the region with little appreciation of the marketing/operational interconnections between industries.

Goal of the Restructuring Effort

In order to accomplish the shift in the focus of the regional economy, it is imperative that the Kuzbass exploit its inherent advantages. Since the availability of high quality, low cost coal forms the core of the region's economic advantage, the goal of the policy shift can be expressed as follows:

To create a revitalized coal industry as the engine of a diversified regional economy.

This goal implies four inter-related objectives.

1. To target investment in the coal industry, raising it to world standards of productivity, market orientation, environmental protection and health and safety.
2. To stimulate increased investment in alternative uses for coal and coal by-products, enabling other regional industries to exploit the competitive advantages provided by the region's coal supply.
3. To encourage diversification of the regional economy to:

   a. create new employment opportunities for displaced mineworkers; and

   b. develop new regional markets for coal and coal based products.

6. Develop flexible government/management/labor communication structures which will serve to strengthen the evolving regional economy.

Guiding Principles and Actions

The objectives can be translated into concrete action through the application of the following set of nine guiding policy principles.

1. Develop a broad consensus for regional development strategy within government, industry, unions, workers and the community.
2. Integrate the development strategy with the social safety net.
3. Use improvements to the infrastructure to both create employment opportunities and to stimulate the development of the regional economy.
4. Optimize the local use of coal to create a regional competitive advantage.
5. Encourage cooperation and collaboration between regional industries so that the Kuzbass is well positioned.
6. Establish a culture of entrepreneurship.

7. Target investments to create and support value added production.
8. Build a framework for labor management cooperation.
9. Promote incentives as a tool for change.

The remainder of this paper focuses on each of these principles, citing concrete examples of how they can be supported. See Attachment E for a chart with these guiding principles and actions.

1. Increase communications and develop a broad consensus for regional development strategy between government, industry, unions, workers and the community.

As exhibited by the recent dramatic changes in the structure of the national government, the democratic structures in Russia are still evolving. In order to insure that these structures survive, it is imperative that communication be fostered. Accurate and open communication of political and economic realities, strengthens political will and drives the public support that is critical for building and maintaining democratic institutions and economies.

In the Kuzbass, the process of establishing open regional communication channels between the governments, industries and workers is still in its infancy but it is evident that progress is being made. Recently, a meeting was held in Novokuznetsk between each of that area's leading industries (steel, chemicals, & coal). This meeting, the first of its kind, marked an important step; however there is still a very long way to go in developing open communications -- as one of the participants stated, "the meeting was like the deaf talking to the dumb". In another example of increasing regional communication, the NPG (the reform-oriented coal miners' union) is initiating tripartite discussions between unions, government and industry. Efforts like these, aimed at creating a participative atmosphere in the development of the region, are key to the future success of the Kuzbass and must be encouraged.

Communication is also the key to the successful formulation and implementation of any effective regional development program. The following two **recommendations** for action could have substantial impact on the Kuzbass' regional development effort.

1) Create a **Clearing House** for regional information to increase the communication between the various groups studying the region.
2) Promote the concept of a series of **regional conferences** to initiate the Kuzbass strategic planning process.

Steps to implement these actions should be immediately taken. A proposed outline of each action follows:

Information Clearing House

There are, and have been, numerous groups, both foreign and domestic, studying the Kuzbass' social and economic conditions; however, in most cases their research is conducted in a virtual vacuum to one another. Duplication of effort is common, wasting valuable time and resources. An additional problem associated with these activities is that the persistent demand for meetings and requests of redundant information from local officials and business leaders have reached the nuisance level. In order to improve the quality and quantity of information and to reduce the strain on the local leaders, it is imperative that a Clearing House for Kuzbass research be created within the region.

There are currently several groups maintaining a full time presence in the Kuzbass (PIER, EC, Pittsburgh Group to name a few) that could facilitate the creation of this center for local research. Initial efforts to institute such a center have already begun at the PIER office in Kemerovo which has been collecting (and translating) research findings specific to the Kuzbass' development. The research effort, associated with this report, has already reaped benefits form the PIER office's accumulation of regional information; however, a much more concerted and cooperative effort to develop a Clearing House must take place. This facility would enhance the efficiency of information collection, eliminating the need to 'reinvent the wheel' each time a new study takes place. In addition, the Clearing House would enable interested parties to more easily identify those areas where further research must be undertaken.

Kuzbass Regional Development Conferences

A program of conferences and study groups should be instituted as part of an ongoing process of cooperation in the development of a **strategic plan for the social, political and economic development of the Kuzbass region.** The initial conference in this program, to be held by the winter of '94, should consist of formal presentations and discussions of the numerous regional research studies and development plans already created by the various groups that have studied the region. The goals of this conference would be to raise the level of awareness of the problems associated with restructuring and to provide a common basis for addressing the realities of the Kuzbass' economic and social condition.

Restructuring an economy is an enormous task and in order for it to have any chance to succeed the people responsible for undertaking the effort must take ownership of the process. For this to occur, it is essential that the strategic planning process be undertaken with the participation of all groups having a stake in its outcome. Parties to be invited to participate should come from throughout the Kuzbass, included should be representatives from:

- federal government,
- oblast level government,
- municipal government,
- industry,
- labor,

- service organizations,
- financial institutions, and
- small businesses.

This conference would also provide a platform from which smaller work groups could be created to focus on the development of a regional strategic development plan, dealing with the ramifications of restructuring the Kuzbass' industrial base. These planning groups would target their efforts on the region's social, legislative, business, environmental, and financial condition. At regular intervals, all of the groups would be called together to provide updates on their findings and to propose and discuss practical solutions to specific problems. These follow-up conferences would ensure that the planning process remains both an open and integrated effort. Plans for action developed from this process would then be used in the drafting of the legislation, the development of services, and in the formation of short-term and long-term plans to facilitate the successful transition into a viable regional economy.

The concept of hosting a regional development conference was discussed in the Kuzbass with representatives of the oblast government, and business and labor groups. The Deputy Administrator of the oblast (Laparov) was very favorable to the idea and indicated that he would begin to work on structuring the conference. Representatives from the PIER offices in Kemerovo and Moscow will be meeting with local officials to provide assistance. Cooperation from each of the groups studying the region (i.e., World Bank, EC, etc.) will be key to the success of this effort. The Kuzbass information Clearing House, if further developed, would be extremely beneficial in both facilitating the successful planning of the conference, and in providing information for the regional strategic planning effort.

2. Integrate the social safety net with a proactive development strategy.

An integral partner to the job creation effort is the development of a social safety net for the displaced workers from the coal, steel and chemical industries. A viable social safety net program is a prerequisite for the restructuring of the coal industry and the regional economy as a whole. Even if full and immediate consideration is given to revitalizing the coal industry and developing the diversified regional economy, the need for supporting the Kuzbass social infrastructure will remain a predominant concern well into the next century. However, in order for this safety net program to be successful it must be intertwined with a regional development strategy that gives displaced workers both the incentive and opportunity to move back into productive society.

The safety net program should not be designed as an alternative source of income for the displaced worker; rather, it must be viewed as a means of refocusing this resource towards the development of a viable regional economy. If this goal is to be achieved, then the safety net program must include counseling and retraining programs targeted at the specific needs of the region's economic transition.

UNEMPLOYMENT + COUNSELING + TARGETED TRAINING = REEMPLOYMENT + SOCIAL STABILITY

Examples of the interconnections between the safety net and the regional development program, along with specific suggestions for the training and development programs which will facilitate the regional transition, can be found in the remainder of this paper.

3. Use improvements to the infrastructure to both create employment opportunities and to stimulate the development of the regional economy.

To facilitate job creation and regional economic development, an infrastructure which can adequately support its social and economic needs must be present. Historically, infrastructure development in the Kuzbass has been driven by the needs of the communities' primary employers. Given that the coal industry employs over one third of the labor force, its needs have predominated in a large number of Kuzbass communities. If regional economic diversity is to be fostered, then the focus of community infrastructure development must be readdressed (e.g., a poorly repaired dirt road may be adequate for mining vehicles but may not facilitate the light vehicle traffic associated with small manufacturing and processing enterprises).

Infrastructure projects targeted to areas with the highest need will produce a number of positive effects. Rather than subsidize underemployment and a lack of productivity, employment subsidies should be reallocated to fund local level infrastructure projects. These programs, to be conducted as a partnership between coal associations, unions, municipalities and the oblast government, would be implemented as a means of redirecting the underused labor resources to productive activities. An 'unbiased' watchdog agency, such as the Fund for Social Guarantees, could also be used as a mediator and watchdog to ensure that funds are properly utilized. These projects would have positive ripple effects in the local economies, with the increased demand for materials and support services facilitating the development and expansion of regional industries and enterprises.

The infrastructure programs would be coupled with the social safety net's retraining and counseling programs; thereby, helping the miners and other unemployed to attain marketable construction skills, enabling them to transition to alternate employment opportunities. For the program to be effective, the coal associations and the independent unions must cooperate by helping to identify workers having the highest potential for successfully transitioning to a new career (i.e., a miner with one year left to retirement, might not be a likely candidate).

By instituting the infrastructure projects on a local, highly targeted basis, administrators will be able to test a variety of methods of conducting these projects. It is important that a system for evaluating the success or failure of these efforts be built in, enabling rapid identification of the optimal program structures.

The benefits to be gained from this reallocation of labor and subsidies into infrastructure are large. These programs will:

- help alleviate the excess labor problems in the mining operations and non-productive facilities;
- create a 'functional' infrastructure and marketable skilled labor force; and
- reduce social tensions while laying the groundwork for an improved regional economy.

Following are examples of projects which could be undertaken in this effort and the related benefits associated with each.

Roads. The road system in the Kuzbass is a prime target for infrastructure upgrade but given the current economic conditions, a massive program of reconstruction is not feasible. However, a highly targeted program of upgrading local roads can be instituted at much lower cost, producing beneficial social and economic effects. Labor and construction materials for the road projects can be obtained locally. A large portion of the funding could come from monies currently allocated to wage subsides and unemployment benefits. The remainder of the funding will have to come from the national, oblast, municipal governments and coal associations.

Spin-off benefits to the steel, concrete and timber industries, whose products would be required for road and bridge construction, could be substantial. An added benefit would be the positive environmental effect created by utilization of road building materials derived from coal slag dumps, reducing coal waste and supporting secondary coal processing enterprises. Better roads will facilitate local transportation, providing a higher standard of living to the local residents. The improved infrastructure will also make municipalities more attractive to business development, increasing their local tax base which would strengthen municipal structures and fund improved services.

Housing. The shortage of housing, construction materials and skilled construction labor has been significant problem throughout Russia. Recent privatization of existing housing stock has aggravated this problem by further increasing the demand for construction and maintenance services. The housing problem can be partially alleviated by implementing a hands-on construction skills training and work program for under-employed and unemployed industrial workers.

Historically mines and mine associations and other major industrial enterprises have been responsible for a substantial percentage of the Kuzbass' housing construction and maintenance operations, with 77% of the housing stock directly under their control. Over the last decade, construction starts have decreased and those that have occurred were primarily large scale and multi-family concrete slab apartments. Individual and duplex housing construction, although increasing in frequency, was not the primary focus of the associations' construction activities. These conditions have resulted in acute shortages of both

housing and skilled housing laborers. To help alleviate these deficits, construction skills training (carpentry, masonry, electrician and plumbing) should be included as an integral part of the safety net program. Workers selected to participate in this program would receive both in-class and hands-on training providing them with valuable practical experience in construction skills, improving the housing conditions in their communities as they learn.

As with the roads projects, funding for the housing program would be derived from government, mine association and municipal sources. Additional funds to support the program could come from the owners of the private homes that are upgraded as a apart of the worker retraining. A special effort should be made to institute these programs in the communities facing imminent closures - where no other employment opportunity exists.

This type of targeted, practical retraining program will provide the displaced workers with highly marketable skills. These skills combined with the improved transportation systems (resulting from the road and rail development programs) will enable workers to market their services outside of their immediate community, eliminating the necessity to relocate.

In addition to producing a skilled labor force, the housing program would also foster the numerous support industries required to build an effective housing construction market. Currently brick and/or concrete are the primary materials used by the Kuzbass home building industry; however, the availability of wood in the Kuzbass and Western Siberian region lends itself to the development of a more western style 'stick' housing industry. If support is given to the development of the Kuzbass housing industry, then it may be likely that the wood products industry will also benefit and new opportunities for business start-up and expansion will arise.

Due to the highly undeveloped nature of the Kuzbass housing industry, assistance from external organizations is warranted. However, additional study as to how aid could best be targeted must be undertaken prior to implementing any aid program. An overview of the possible components of a study to further explore the needs of the housing industry is being prepared by parties interested in this issue.

Rail. Another program of infrastructure development entails upgrading portions of the local rail systems. The initial focus of this effort would be primarily upon commuter transportation service and on those sections of the freight lines in need of immediate repair. The rail projects' demand for steel, concrete, timber and solid fill will help support and bolster the supply industries.

Improving commuter rail transportation within and between adjacent settlements and municipalities will enable workers in settlements facing mine closures to more easily commute to areas with higher employment opportunities, reducing the need for relocation. Rail upgrades will also reduce the stress that would be caused on the larger municipalities that would result from the possible mass migrations from the outlying settlements.

Further study of the transportation systems is required to determine which locations require immediate upgrade. Rail reconstruction efforts would be conduced as joint efforts of oblast and municipal governments, coal associations, unions and rail enterprises. Funding for these projects would come from employment subsidies, and municipal, oblast and national governments. Since funds are at a premium, initial efforts should give priority to those systems connecting municipalities facing imminent mine closure with municipalities having greater employment opportunities.

Environmental Projects. The rapid and concentrated industrialization of the central Kuzbass has resulted in the region being one of the most polluted areas on earth. Over the last forty years virtually no significant constraints have been put on waste discharges from the coal, steel and chemical industries. This is complicated by the fact that the most polluted regions also contain the highest population concentrations. There is significant work which needs to be done to correct these dangerous conditions. The two main categories of projects to address the needs of the environmental 'infrastructure' are in the areas of:

- environmental reclamation; and
- sewer/water treatment.

Environmental Reclamation - with coal and ore extraction being one of the predominate industries in the Kuzbass, there are a large number of mine sites in need of reclamation. Due to the extent of this problem, reclamation work could provide a source employment for displaced workers throughout the region. And since the reclamation sites are located in or near the mining communities, work on these projects would not require relocation of the workers. However, these projects will require a major, long-term commitment on the part of the coal associations, and the federal and oblast governments.

Sewer & Water Treatment - sewer and water systems throughout the Kuzbass are inadequate and ineffective. In a large number of communities, water supplies contain toxins and heavy metals at levels far above healthful standards. The productivity of the region's population must surely be affected by pollution related illness, while the standard of living under these conditions is unarguably diminished. Construction of water purification and sewage systems which can provide potable drinking water and reduce the level of organic and inorganic discharges into the regions water supplies should be a priority. In addition to creating employment during the construction stages, system operation and maintenance needs would also create long-term employment opportunities.

Prior to implementing environmental projects, information on the existing conditions must be collected and analyzed, and targeted projects to implement the environmental treatment projects developed. Funding for these programs will have to come from all levels of government and it is likely that additional international support will be required.

It must be stressed that infrastructure improvement will prove useless unless it is coupled with a targeted program of training and business development

which will provide skills and supply long term employment to the displaced workers. In most instances these infrastructure projects will provide only short-term employment, that is why it is critical that these projects be viewed as part of a larger transitional economic development/safety net program.

4. Optimize the local use of coal to create a regional competitive advantage.

The availability of vast reserves of high quality coal provides a the major competitive advantage that the Kuzbass should maximize. Despite the fact that high transportation costs have essentially killed coal exports, coal and coal byproducts can still form the basis of a strong regional economy. Following are some possible mechanisms for further exploiting the coal resources.

Coal Power Generation. Transportation costs for coal have made it unprofitable to export; however, there are methods by which the region can still export the fundamental benefits of coal -- energy. Development of the electrical generation potential in the region would allow the Kuzbass to export 'coal over the wires'. Preliminary analysis by PIER energy industry experts has indicated that construction of **coal powered electrical generating station(s)** may be a viable, and profitable, option.

Since an electrical plant could be built on or very near a mine, transportation costs could essentially be eliminated. It is believed that this advantage would more than compensate for the loss of energy associated with transmitting the power over long distances. The infrastructure, currently in place, would allow Kuzbass power to be marketed throughout Russia and eastern Europe.

Although much more research needs to be conducted, this option for increasing the use of coal appears viable. Some long-term employment would be created in the plant and in mines supplying the coal but the major benefit would be the influx of tax revenues to the oblast and municipalities. The new taxes will enable the governments to provide the Kuzbass with improved social services, aiding workers affected by the industry restructuring..

Development of local coal powered electrical stations would also help alleviate the region's dependence upon the seasonality of hydroelectric power (now the primary source of electricity); thereby, enabling Kuzbass enterprises to take advantages of low cost consistent energy supplies. The increased supply of low cost electricity will also support the modernization of the Kuzbass metallurgical industry which in many cases still relies upon outdated open hearth furnaces.

A project of this scale will require a large initial investment; however, its payback potential appears to be high. In addition, the revenues and taxes generated from marketing electricity outside of the region will bolster the local economy, funding social services and fueling regional development.

Coal Based Business. Investments into new coal based businesses should be encouraged. Currently there are a number of enterprises working with coal and coal waste to produce marketable products. Research into alternative uses of coal and coal byproducts should also be promoted by the national and oblast government. Following are examples of some of enterprises and projects working to maximize the utilization of the Kuzbass coal resources

Construction Materials - several enterprises and research groups are working on the production of construction materials from coal slag and coal ash. A Canadian/Russian joint venture CANTEK is currently producing construction materials from surface mine slag dumps. The process separates the mine waste into marketable coal and paving and fill materials which can be used in the infrastructure construction projects. CANTEK currently operates two facilities to convert the coal waste; however, the lack of road projects in the region has provided no market for their road building materials. If demand for these road materials can be increased through infrastructure projects, it is likely that more of the conversion facilities will be created - providing sources of employment while helping to eliminate environmental problems.

Rare Earths & Precious Metal Extraction - research by the Russian government and other groups has discovered that high concentrations of rare earths are present in some of the Kuzbass coal beds. Discussions with the head of the Siberian Geology/Geophysical Laboratory, indicated that viable methods of extracting Scandium (a rare earth) from coal and coal ash have already been developed but additional funding is necessary to bring the technology to full scale production capabilities. The process could be tied to an electrical generation facility, extracting rare earths and producing the residual ash that could be used in building and construction materials. We were also informed by the President of the Fund for Social Guarantees that additional research into rare earth and precious metal extraction is being conducted by several other groups in the region. This research is focusing both on the utilization of coal and ore mine tailings as sources for the rare element extraction.

If cost effective methods can be found to extract these elements, then it is possible that some of the mines slated for closure could remain open. Employment opportunities at mines and processing facilities, coupled with increasing community tax bases would help to reduce some of the social and economic stresses caused by the region's economic restructuring. In addition, the environmental waste from coal and ore mining could be lessened by reprocessing these materials. The Siberian Geology/Geophysical Laboratory has prepared an estimate of the revenues/expenses associated with developing an extraction facility for rare earth from coal.

Upgrading Existing Coal Fueled Systems - information on the Kuzbass' stock of industrial and domestic coal fueled equipment and heating systems should be collected along with information on more efficient and environmentally sound coal based systems that have been developed in other parts of the world. The information on these alternate systems should then be made available to

appropriate municipalities and businesses. If it is determined that the potential demand for any of these products is high, it may be productive to solicit joint ventures with the product's manufacturers. For example, if the region is able to develop a viable housing industry, modern coal fired heating/hot water systems may be in demand. A joint venture with foreign furnace manufactures and a regional steel company could possibly fill this need. Funding for this type of project could be in the form of external capital, guaranteed loans or loans from a regional development bank (the last two are proposed within the discussion of Principle 7). Similar projects could be undertaken to support the region's other coal powered industries.

5. Encourage cooperation and collaboration between regional industries so the Kuzbass is well positioned.

The fact that rail has essentially curtailed industrial exports must force the Kuzbass to reassess the boundaries of its fundamental market. No longer can the region rely upon the revenues generated from exporting primary products over long distances. Despite this loss of a sizable share of its market, the Kuzbass can compensate by developing the potential of the Western Siberia market. Western Siberia presents a large, economically accessible market for the Kuzbass goods and services.

As an integral part of the Kuzbass' effort to diversify its industrial base and create new jobs, efforts should be made to develop a regional economic alliance within West Siberia, exploiting to the fullest the various strengths of its sub-regions. To facilitate this market creation, a joint effort must be undertaken to compile information on the relative strengths and opportunities presented by each sector. This process could be initiated by a **Western Siberian Regional Economic Conference** to be attended by government and business leaders. An offshoot of the conference would be the development of a Western Siberia government and business alliance to maximize the utilization of each regions' comparative advantages. In order for the Kuzbass to become less reliant upon transportation it must view itself as a part of the West Siberian economy, and work to strengthen that economy by creating 'regional' self sufficiency in terms of goods and services.

6. Establish a culture of entrepreneurship

Integral to the Kuzbass' regional development and social safety net efforts must be the increased promotion and support for the entreprenurial small business sector. The displaced workers and unemployed specialists must be given the opportunity, and tools necessary to risk participation in the new market economy. Promotion of entrepreneurs must be a priority for the Kuzbass. Due to its isolation and the imminent increases in unemployment, the region is highly reliant upon the rapid diversification and expansion of its consumer oriented enterprises to create

much needed jobs, products and services. Only by actively promoting the development of a healthy small business sector will this goal be achieved.

Although the number of small businesses continues to grow, the predominant players in the market remain the trading companies (primarily importers). These companies have provided the region with a valuable service, supplying consumers with goods not available through local manufacture, but their activities also serve to drain the economy of much needed capital. Therefore, it is imperative that efforts be made to promote the institution and development of manufacturing and processing oriented small businesses, targeted at the demands of the local economy.

It is fortunate for the Kuzbass that globally there has been extensive work in the area of small business development and structures for successfully promoting entrepreneurial activities have been identified. We propose the institution and development of several projects which, at a relatively local cost, could have substantial impact upon developing the regional economy and in assisting in the stabilization of the Kuzbass social and political infrastructure. These projects include:

- Institution of a network of "Small Business Development Centers" to provide small businesses with counseling and training;
- Development of a U.S. Business Center to promote investment by U.S. firms in small and medium sized businesses;
- Institution of a program of practical business education --equivalent to a U.S. Associate Business level program -- developed jointly between a U.S. and Kuzbass university system;
- Establish a micro-enterprise loan to assist small enterprise formation; and
- Establish an outreach business training program for mines, mine settlements and other industries facing closure.

Each of these projects must be directly tied to the Kuzbass' social safety net programs. Assistance from coal associations, unions and unemployment centers in implementing training programs and in identifying qualified candidates for the business training will be extremely important. In addition, with women comprising over two thirds of the unemployed, special emphasis must be placed upon helping them to enter the small business market.

Following are overviews of each of the proposed entrepreneurial development projects.

Institution of a network of "Small Business Development Centers" to provide small businesses with counseling and training.

A program of business counseling and training program modeled after the U.S. Small Business Development Center program should be instituted in the Kuzbass. In the U.S., Small Business Development Centers have proven to be a

highly effective, relatively low cost mechanism for promoting economic growth through the promotion of entrepreneurship and small business. In the last decade, funding has been obtained for similar programs, which have been successfully implemented throughout the world.

The Kuzbass Small Business Development Centers would provide in-depth business counseling and training to new and existing small businesses at little or no cost. Working with the client (businessperson), the center's goal is to provide the necessary skills and understanding required to make effective business decisions. In addition, the centers would work with the clients of regional loan and development programs, assisting them to develop their businesses.

Prior to starting the program, experts from the U.S. would work in the Kuzbass with local educators, government officials and businessmen to determine what institutions would best serve as hosts for the center (in Kemerovo, the NPG, local University, oblast government and local business groups have already expressed interest in hosting the centers). U.S. business counselors would work with Russian staff (usually business school faculty), assisting them in developing the skills necessary to be an effective small business counselor. Training programs, specifically tailored to the needs of Kuzbass entrepreneurs would be developed and offered. Initially the program should be instituted and tested in the two major population centers (Kemerovo and Novokuznetsk) with outreach programs extending to those settlements and towns with the most dire need of business development.

It is programs like these which promote individual achievement as a means to social and economic security, that have proven most effective in developing a viable economy.

Development of a Russian/American Business Center to promote investment by U.S. firms in small and medium sized businesses.

To increase the inflow of much needed investment capital and business expertise, required to initiate and sustain a viable economy, a Russian/American Business Center should be instituted in the Kuzbass. The center would provide U.S. businesses with a direct link to the business opportunities within the Kuzbass, providing logistical support for U.S./Russian joint ventures and trade. A proposal for the development of a business center was favorably received by the oblast government and has been submitted to the U.S. government for funding.

Institution of a curriculum of practical business education -- equivalent to a U.S. Associate Business level program -- developed jointly between a U.S. and Kuzbass university system.

For all intents and purpose, the educational system in the Kuzbass has virtually no effective application oriented business training curriculum. Although

the university in Kemerovo offers a full load of business and marketing courses, they are primarily theoretical or statistical in nature. A curriculum, modeled after a U.S. style Associates of Business level degree program, providing application based, practical training in business operation and management, needs to be developed in the region. This type of program will be key to the success of the regional development effort, since as the number of business enterprises increases, the demand for skilled practical businesspeople will increase at a disproportionately higher rate.

Some efforts are currently being made in the Kuzbass at the university level to upgrade the quality of their business program by participating in instructor exchange programs, with some of the Russian professors traveling to U.S. universities for additional training. However, budgets for the region's educational institutions cannot support the changes required to refocus and redesign their training efforts.

Educational joint ventures have been successful in the past and funding can be obtained (e.g., a U.S./Bulgarian cooperative program operated by the University of Maine has successfully operated for several years). Conversations with the Dean of the Business School in Kemerovo, indicated a high level of interest in working with U.S. schools to help upgrade their course offerings. Follow up work to identify funding sources and potential U.S. participants should be undertaken.

Establish an outreach business training program for mines, mine settlements and other industries facing closure.

Since the mines and other major industrial enterprises will be producing the largest supply of displaced workers, small business training programs, targeted specifically to these groups, should be instituted at or near the industrial sites. As with other programs, this training should be tied to the social safety net counseling and support programs. In addition, mines, mine associations and unions can play an important role in facilitating training, selecting potential students and in promoting the program to their workers. These programs will provide outreach capabilities for the training offered by the Small Business Development Centers and universities.

Targeting and delivering training directly to the workers, at the workers facilities, will greatly facilitate participation in the programs, increasing the chances that they may actually follow-up and utilize the skills they have learned. However, it must be stressed that training is worthless unless it is coupled with specific regional enterprise and job creation efforts.

Establish a micro enterprise loan to assist small enterprise formation.

One of the major problems faced by all entrepreneurs is the problem of gaining seed capital. With rampant inflation and weak financial institutions, this

problem is tenfold in Russia. One of the reasons trading has predominated among small business startups is that its low capital requirements and quick return on investment, serve to negate and exploit the adverse economic conditions, making it the only viable and profitable investment mechanism. But with inflation and fixed earnings producing less and less disposable income, even trading has decreased in profitability.

Business leaders in Kuzbass stressed the fact that they were keen to open and operate productive businesses, understanding that it was the only real future for their regional economy, and thus their livelihood. However, they stated that the economic risk of investing in manufacturing or processing under the current market conditions was unacceptable. It is clear that if the wealthiest of the population are unable (or unwilling) to invest, then it is next to impossible for the people on the lower end of the economic ladder to venture into productive business operations.

A low interest micro-enterprise loan program, targeted to small and mid-sized productive industries would be a large step in helping to promote regional diversification and job creation. In Novokuznetsk, the Pittsburgh Sister Cities program is in the process of developing an incubator program which could help to foster new business in the area. In addition, a proposal from the Kemerovo Small Businessmen's Union to develop a small business loan program has been submitted to the oblast governor for approval, but its outlook does not appear bright. Fears that monies from the fund would be used to further trading activities or line the pockets of the region's rich are key impediments to the development of a small business loan fund. If a program is developed, stringent safeguards on how the monies can be spent must be put into place.

A carryover form the old centralized economic system is the dearth of small, localized processing industries (i.e., bakeries, dairy plants, meat processors, etc.). A micro loan fund would enable these types of business to develop, increasing the local standard of living while creating new avenues for employment. In addition, much of the support products for the region's heavy industry must be imported (at high cost) from throughout the former Soviet Union, small targeted manufacturing loans would go a long way towards improving the competitive nature of the region's industry, while creating new job opportunities for displaced workers.

Efforts to develop a targeted micro loan fund within the oblast should be continued. If initiated, loan disbursements should be coupled with requirements for applicants participating in small business counseling and training programs, ensuring that recipients of loans have a clear understanding of the potential risks involved in starting a business. This program would provide an effective low cost, method of job creation and increasing regional self sufficiency (e.g., a small food processing business, employing an entire family, may require initial investments well below $10,000)

7. Target investments to create and support value added production.

Current financial systems in Russia are, for the most part, unworkable and cannot support the types and scope of business creation and expansion necessary to develop a viable regional economy. High inflation and an inadequate banking system deter investments in productive assets, promoting trading transactions which bleed the Kuzbass of much needed capital. In order to reverse this trend, a national effort to overhaul the banking and financial systems must take place. However, the Kuzbass cannot wait for this national adjustment, it must take immediate steps to address this problem on the local level. Following are two suggestion for programs which would greatly benefit the Kuzbass job creation and regional development effort.

Regional Development Bank. With the national banking system in disarray, the Kuzbass should take action to support its economic revitalization by creating a Regional Development Bank. The services of the bank would be targeted specifically to supporting businesses and projects which will increase economic diversity and create new employment opportunities. Loans from the bank will be used to promote investment in the value added manufacturing and processing ventures which expand upon the existing primary industrial base. In order to be viable, and counter the negative effects of inflation, the bank must institute a program of interest rate control, and put into place a tight system of controls on expenditures of loan funds.

Guarantee Loan Fund. To attract external capital investment and support the development of productive industry, a guaranteed loan fund should be created as a self standing entity or as part of the Regional Development Bank. The fund, targeted to medium to large size manufacturing and processing facilities, would provide a sense of financial security and stability to outside investors. By targeting the loans to the productive sector, the Kuzbass will further diversify its economy and increase its level of self sufficiency. In addition to guaranteeing loans, the fund's repayment structure must in some way compensate for the depreciating effects of rampant inflation, thereby making new capital expenditures profitable to investors.

Funding for these programs should be sought from the national and oblast governments as well as international assistance agencies. It is very important that the use of the loan funds are carefully monitored to insure that they are targeted to productive industries. This program would create a diversified base of jobs, not necessarily reliant upon the primary industries, providing new career opportunities for the region and lessening the stress caused by the restructuring.

8. Build a framework for labor management cooperation.

The successful restructuring of the coal industry and other primary industries is dependent upon the ability of labor, management and the government to come to an agreement. An integral part of the regional development/job creation plan must be the institution of an **effective industrial relations system.**

Since the 1989 strike the course of labor-management relations in the Coal Industry have been at the core of broader democratic changes taking place in Russian society. The last round of nationwide strikes in 1991 preceded the collapse of the Soviet Union and the Communist Party. Out of these strike committees arose a new independent union the NPG. Unlike the traditional union which includes management as well as all workers connected with a coal enterprise NPG membership is voluntary and limited to mine workers (coal extraction) only. The rise of an independent trade union in coal brought a new voice to the political and industrial process in support of reform.

The NPG and other newly formed independent unions (i.e., Metallurgical, Weavers, Air Traffic Controllers etc.) represent important building blocks in the development of democratic institutions. The support and development of a system of labor relations within the coal industry will help stabilize the industry, supporting the institutional framework for a democratic society. The task is difficult and the time short.

Labor relations of the type practiced in most western countries is new to the coal industry. While a few enterprises have good management/worker relations, most are characterized by hostility and distrust. Management feels the union (NPG particularly) "is responsible for the drastic declines in productivity, the breakdown in discipline in the mines, and for their inability to fire anyone for anything". On the other hand, the NPG cites examples of "intimidation, physical threats, manipulation of the books, and the existence of a management that does not manage and does not follow its own rules". However, both sides express a desire for order in the mines. In the past, the strike has been the primary tool used to resolve management/labor issues, with the courts playing a lesser role on some cases. There clearly is a need for the development of alternative methods of generating information, facilitating discussion and conducting dispute resolution.

Tentative steps have been taken in the Kuzbass region in the last two months to develop alternatives. A tripartite committee consisting of administration, management and labor has been formed at the regional level. The committee's jurisdiction includes: regional social and economic development; grievance mediation; enforcement of the observance of signed agreements and statements; disseminating information on regional working and living conditions; gathering socio-economic information related to tariff agreements; and mediating conflicts and signing agreements.

The development of this tripartite communications structure exhibits tacit recognition by labor and management that the industry is at a crossroads. Both parties have expressed their concern that the coal industry "is an industry devouring itself". Reversing this trend will be difficult since restructuring and reform is not a shared value among all of the mine enterprises. More than one director has said the "days of Breshnev were better than now", while others insist the "resurrection of the Coal Ministry, with its central planning, is needed to give the industry leadership". Representatives of the traditional union (formerly

Communist Party) have suggested the answer is a "return to the past, a new Coal Ministry and bringing down the government". On the other hand the NPG remains a proponent of restructuring and reform. Despite these ideological differences, both the NPG and the traditional union are coordinating on collective bargaining disputes and demands related to a social safety net and job creation.

There are several steps that can be taken to assist in the development and maturation of an industrial relations system for the Kuzbass industries, facilitating the implementation of the regional social safety net/job creation program. Financial and technical expertise in the development of these efforts may be available from sources such as US AID, ILAB (USDOL), business and labor organizations from the U.S. and their international counterparts in the EC and ILO. Following is an overview of **six actions which will help build a framework for labor/management cooperation.**

1. PIER labor-management work in mine safety and health provides a practical and successful model collaboration. This is valuable work that builds new relationships on an subject that will continue to emerge as a major bargaining/strike issue in this industry. These efforts should be continued and used as an entree to additional collaborative opportunities.

2. Industry wide discipline and procedure processes need to be clarified and consistent. Training for management in this area may help alleviate the current situation of standoffs and lawsuits.

3. Tied to the training for management is the development of a grievance procedure mechanism that works for both labor and management. Joint training for management and labor will help clarify issues and open new avenues of dialogue.

4. Development of mediation and arbitration mechanisms as tools for alternative dispute resolution is imperative. Both the aspects of collective bargaining and legislative reform need to be addressed.

5. Development of research and training capacity within the NPG (and other independent unions) to provide for good data and independent analysis of issues concerning the union in the bargaining process, workplace and industry must be facilitated. Accurate and complete information are prerequisites for equitable representation within an industrial relations system.

6. Building a partnership with labor in the restructuring process. In the coal industry the NPG has a critical role to play in the development of the social safety net and job creation programs. The union can assist in moving miners into retraining programs in small business and other occupations related to

job creation programs recommended in this document. Worker-to-worker (Miner-to-miner) peer counseling is an important element of a successful displacement program. The union's role in helping shape transitional programs, will result in more effective program development, building constructive partnerships within the developing regional economy. The AFL-CIO (HRDI) has a great deal of expertise in working with unions and government service providers in developing these programs and should be targeted as a source of assistance.

9. Promote incentives as a tool for change.

It is clear that the Kuzbass faces a difficult and traumatic period of transition. In order to effectively evolve into a viable regional economy, the population must be given incentives to change. Programs structured as a part of the overall development, job creation and social safety net program must be transitional in nature. Real long-term growth of economic and social structures will only arise if the population perceives that the long-term benefits outweigh the short-term sacrifices. All of the development programs created in this effort must be driven by the will of the people to succeed. Therefore, programs must be developed in such a way that their participants are continually driven to achieve above and beyond the scope of the program, i.e., safety net support programs, while providing adequate living support should have as their goal the ultimate transition of workers to more productive and profitable real employment. Subsidies for unproductive industries must be eliminated and replaced by programs that will reward those that are driven to achieve.

VII. International Coal Markets and Prospects for Russian Participation in World Coal Trade

Introduction

The original purpose of this study was to review the current position of the Russian coal industry in the world coal market and assess the industry's prospects for future participation in international coal trade based on a two-week period of field research in Moscow in September 1993 gathering data and interviewing officials at Rosugol (Russian Coal Association) and in the Kuzbass coal basin, one of the country's major coal producing regions. Those aims were adjusted somewhat as a result of the circumstances encountered during the field research. A description of the research conditions follows along with comments on the revised aims of the study.

This paper was prepared by Gayle Jackson, President of Gayle P.W. Jackson, Inc. In her capacity as Chief of Staff of the International Energy Agency's Coal Industry Advisory Board since 1983, Ms. Jackson has made monitoring of coal industry developments in the NIS and East/Central Europe one of the staff's top priorities. Further information on Ms. Jackson's extensive experience on international coal matters is available upon request from PIER.

The situation in the Russian Federation, as of September 1993, can be described as one of uncertainty and change with respect to the factors that influence Russian coal's ability to compete in the world market. Cost components and other factors that affect the competitiveness of Russian coal -- namely coal quality, fob mine price, inland transportation cost to loading port (or to point of destination, if shipment is overland only), storage and loading charges at loading port, and customs duties -- have been obtained anecdotally from a variety of sources. While a composite picture of the export process has been constructed from these verbal accounts, occasional inconsistencies in the accounts and the difficulty of confirming the validity of data temper somewhat the confidence with which the information is transmitted. Whether the inconsistencies can be attributed to errors related to the translating process, lack of information on the part of the Russian respondents themselves and confusion at a time of rapid change or other factors is hard to judge. No doubt all these elements played a role.

An effort was made to obtain comprehensive historical and current data year-to-date on export tonnages by producing region, importing country, end use and coal quality. Such information was requested of Rosugol on September 20, 1993, and was to have been provided on September 24, 1993, but had not been produced as of the preparation of this Second Draft of this paper in late October 1993. The request was met at first with assurances that the requested information would be forthcoming. Political developments, namely the confrontation between

the Russian Federation's President and the legislature which was escalated on September 22nd by President Yeltsin's actions dissolving the parliament and calling for elections of new legislators in December, were offered initially as the reason for the delay in responding to the data request. However, subsequent inquiries by P.I.E.R. following up on the request yielded the response that the information requested was considered "a commercial secret."

The findings that can be reported thus far, therefore, are based on anecdotal accounts by officials at Rosugol, regional coal producing associations, specific mines in the Kuzbass coal basin and by several European coal traders and electric utility buyers of Russian coal. The single issue that preoccupied all these parties was the **steep increase in rail rates** announced by the Russian rail authority effective August 1, 1993. The increases were on the order of 2 - 2.5 times the level of the last major increase, which was announced in April 1993. (Accounts of what the rail rates amount to at these new levels are covered in greater detail in the body of the report.) There was widespread agreement among those interviewed that the increases had brought exports to a virtual standstill until buyers and sellers could determine whether the rail rates would actually be held at the new levels. These rapidly shifting conditions complicate the task of assessing the prospects for Russian coal in the world market. The unavailability of reliable production cost estimates using accepted Western accounting principles adds to the challenge. FOB mine prices for export coal have been, and continue now to be, based on cost accounting methods that do not permit comparability with coal operations in market-based economies.

The international coal market, in contrast, has become increasingly developed and transparent in the 15-20 years since the first and second oil price "shocks" of 1973 and 1977-78. Detailed historical and current data is available on virtually every aspect of the coal chain, from coal supply to demand, trade, inland transportation and port infrastructure for loading and unloading ports, prices, coal quality and environmental requirements. Much data is also available on the outlook for future supply, demand, trade and prices.

Given the limited availability of Russian data at the time of this writing, the aim of this exercise has been revised to focus on two objectives:

1. Provide a synopsis of the international coal market which will help to inform interested parties in the Russian coal industry from mine level to Rosugol level what is required to compete successfully in that market; and
2. Report the anecdotal findings from field interviews with Russian coal industry participants to provide a picture of the present situation and practices for exporting steam and coking coal from Russia so that other interested parties, including government agencies and international lending institutions, outside Russia might enhance their understanding of the role of exports in the Russian coal industry.

Regarding the first objective, the approach is to present salient data on supply, demand, competition, prices and other dimensions of the international

coal market, including the future outlook for world coal trade. Observations on how Russian mines might fit into the emerging world coal trade network are offered. As the components that go into determining the cost of Russian coal delivered to an export loading port become more stable and are calculated according to accounting standards widely used in market economies, producers and export marketing companies in Russia will be able to assess more soundly the feasibility of their participation in the world market that is synopsized here.

Much of the international coal market data that is presented is available from the International Energy Agency (IEA). Since 1983, the IEA has published annually a report entitled *Coal Information* on all sectors of the coal industry focusing principally and initially on the member countries of the Organization for Economic Cooperation and Development (OECD), and then expanding coverage increasingly in recent years to non-OECD exporting countries and to non-OECD countries where growing demand for coal will affect significantly total demand for coal in the international market.

Part One, the synopsis of the international market, consists of nine sections:

I. Major coal exporting countries
II. Major coal importing countries and regions
III. Recent trade trends
IV. Recent price trends
V. Productivity in the world coal industry
VI. Interfuel competition
VII. Future outlook for coal in the world energy mix
VIII. Outlook for international coal trade (1994 - 2000)
IX. Observations on the prospects for Russian exports

Part Two reports on the information obtained from interviews with Russian coal industry officials and mine management on Russian exports. It also incorporates comments from selected West European coal buyers on their experiences importing Russian coal, especially where their experiences are at variance with the accounts obtained from Russian personnel. See the Attachments for the Tables and Figures cited in this report.

PART ONE: A Synopsis of the International Coal Market

I. Major Coal Exporting Countries

Total world hard coal trade in 1992 was 403.5 Million tonnes (Mt). Of that total, 235.6 Mt was for use in the steam coal market, and 167.9 Mt went into the production of coke for steel mills. The major suppliers of steam coal and coking coal in the world market are listed below along with the amounts they exported in 1992. According to export data recorded by the IEA in its *Coal Information,* the former USSR, with 19 Mt of steam coal exports, accounted for 8% of world steam coal trade in 1992. With 7 Mt of coking coal exports, the former USSR had 4% of world coking coal trade. In each market, the former USSR ranked fourth behind Australia, the Republic of South Africa and the United States.

Major Steam Coal Exporters - 1992

	Million Tonnes
Australia	58
Republic of South Arica	46
United States	39
Former USSR*	19
China	16
Colombia	15
Poland	14
Indonesia	13
Canada	5

Major Coking Coal Exporters - 1992

	Million Tonnes
Australia	68
United States	54
Canada	22
Former USSR*	7
Poland	6
Republic of South Africa	4
China	4

Source: IEA Coal Information - 1992

* Note: Rosugol (Russian Coal Association) provided Partners in Economic Reform with data on exports for Russia only, i.e. excluding other coal-producing republics of the former USSR. Rosugol's data include exports to CIS (Commonwealth of Independent States) countries and countries outside the CIS. Rosugol reported 24 MT of steam coal exports and 11 Mt of coking coal exports in 1992. These data would put Russia's market shares for steam and coking coal at 10% and 7% respectively.

II. Major Coal Importing Countries and Regions

Steam Coal

In 1992, the West European countries that make up OECD Europe were the single largest coal importing region with 111 Mt of imports, but they were followed closely by the countries in the Pacific region, which imported 92 Mt. Japan was by far the single largest importing country, either in Europe or the rest of the world.

Major Steam Coal Importing Countries and Regions - 1992

	Million Tonnes
OECD Europe	111
Japan	45
Asia*	47
Former C.P.E.'s	11

Source: IEA *Coal Information - 1992*, p. 54.

* Excludes Asian Centrally Planned Economies (C.P.E.'s) and Japan.

A more detailed look at specific importing countries within the regions cited above is provided in the paragraphs that follow.

OECD Europe

Of the OECD Europe countries, the major importers of steam coal are listed below with estimated 1992 imports stated in Million tonnes of coal equivalent (Mtce). (An Mtce has a calorific value of 7,000 kilocalories per kilogram, or 13,095 BTUs per pound.) These estimates are based on preliminary data and should be used as indicative figures only.

Major Steam Coal Importers in OECD Europe - 1992

	Mtce
France	12.6
Germany	12.6
United Kingdom	10.8
Denmark	10.7
Italy	9.7
Netherlands	9.2
Spain	8.4
Belgium	7.0

Source: IEA *Coal Information - 1992*, p. 61.

Asia - Excluding Centrally Planned Economies

In Asia, Japan leads the steam coal importing countries with 45 Mt (IEA Data) in 1992. After Japan, the largest importers are Korea, Taiwan and Hong Kong. Korea imported an estimated 13 Mt of steam coal, according to Customs Statistics compiled by industry sources. For Taiwan, total bituminous coal imports (no distinction between steam and coking coal) were 23 Mt in 1992, according to Customs Statistics compiled by industry sources. Total hard coal imports by Hong Kong in 1992 were 10 Mt, according to data compiled by industry sources from the Hong Kong Census of Statistics Department.

East/Central Europe

According to IEA/OECD Coal Statistics and Secretariat sources, the four leading steam coal importing countries in the former Centrally Planned Economies of East and Central Europe in 1992 were the former Czechoslovakia, Romania, Bulgaria and Hungary (see table immediately following). They imported a total of 7.3 Mt.

	Metric Tonnes
Former Czechoslovakia	3.2 Mt
Romania	1.8
Bulgaria	1.6
Hungary	0.7

Data provided by Rosugol to the U.S. AID-funded Partners in Economic Reform ("The Coal Project") in September 1993, show Russian steam coal exports to the East/Central Europe to be 2.7 MT, equivalent to a 37% market share in 1992.

East/Central Europe	Million Tonnes
Bulgaria	.117
Hungary	.250
Romania	1.335
Slovakia	.957
Poland	.028
Yugoslavia	.106

Russia's exports to CIS and Baltic States, according to Rosugol, totaled 13.06 Mt in 1992, and went to the countries listed in the table below:

CIS and Baltic States	Million Tonnes
Belarus	.7
Estonia	.2
Latvia	.1
Lithuania	.6
Moldova	.9
Ukraine	6.0
Kazhakstan	2.8
Other	1.76

Metallurgical Coal

The countries and regions that accounted for most of the 1992 demand for imported coking coal are identified in the following table:

Major Coking Coal Importing Countries and Regions - 1992

	Million Tonnes
OECD Europe	48
Japan	66
Latin America	13
Asia*	28
Former C.P.E.'s	8

Source: IEA *Coal Information - 1992*, p. 55.

*Excludes Asian CPE's and Japan

OECD Europe

Of OECD Europe, the major importing countries, according to preliminary IEA estimates for 1992 stated in Mtce, are:

	Mtce
Belgium	5.8
France	7.8
Germany	1.1
Italy	8.3
Netherlands	4.4
Spain	3.3
Turkey	1.6
United Kingdom	9.1

Asia

In Asia, besides Japan, the largest importers of coking coal are Korea and Taiwan.

East/Central Europe and CIS

According to IEA/OECD Coal Statistics and Secretariat sources, coking coal imports in the major importing countries in East/Central Europe in 1992 were 9.5 Mt, distributed among Bulgaria, CSFR, Hungary and Romania.

	Million Tonnes
Bulgaria	2.9
CSFR	2.6
Hungary	0.8
Romania	4.2

According to data provided to the U.S. AID-funded Partners in Economic Reform by Rosugol in September 1993, 1992 imports of Russian coking coal into East/Central Europe amounted to 2.2 Mt, or about a 23% share of that market.

East Central Europe

	Million Tonnes
Bulgaria	.425
Romania	1.765
Slovakia	.018
Yugoslavia	.013

Russian exports to the CIS and Baltic States were 3.5 Mt in 1992.

CIS and Baltic States

	Million Tonnes
Ukraine	2.5
Kazhakstan	1.0

III. Recent Trade Trends

The discussion thus far has focused on 1992 trade data in order to identify the current major exporting and importing countries involved in world coal trade using the most recent year for which comprehensive data are available. A review of the major trends that have affected the world coal market over the past 15 years is offered here to provide historical perspective to the foregoing summary.

Steam Coal Trade Trends

Notable trends in the export market since 1978 include a much faster rate of growth in the demand for imported steam coal (7.8% per year average annual growth rate since 1978) than for imported coking coal (3% per year over the same period). Whereas steam coal represented 43% of total hard coal trade in 1978, by 1992, it accounted for 58%. In absolute terms, steam coal trade volumes grew from 83 Mt to 235 Mt. Factors contributing to steam coal import demand growth include increased demand for electricity both in advanced industrial economies and in the developing economies in Asia, in particular and slower than anticipated growth in nuclear power generation. In addition, energy policies that have encouraged substitution of alternative fuels such as coal for oil have contributed to increased coal use in a number of countries that were highly dependent on imported oil in the early 1970s. Thus coal-fired power generating capacity worldwide has increased substantially and as of 1990, accounted for over 40% of electricity generated in the world. The outlook through 2000 is for steam coal import demand to grow by some 100 Mt.

Coking Coal Trade Trends

Meanwhile, worldwide demand for coking coal has been affected by slower growth in the steel industry than in power generation, by improved efficiencies in the use of coke and in steel-making in general and by changes in steel-making techniques, including the use of non-coking coals in pulverized coal injection into coke ovens. Coking coal dominated world hard coal trade prior to 1980, but by 1992, its share had faded to 42%. In absolute terms, coking coal trade rose from 112 Mt in 1978 to 168 Mt in 1992. World coking coal import demand is expected to remain about flat between 1992 and 2000.

Coking coal trade flows have shifted in recent years as the ranks of steel-producing countries have shifted. During the 15-year period under review, the steel industries of Western Europe and the United States went through a fairly

sustained period of contraction while those of Japan, Korea, Taiwan and Brazil grew substantially. More recently, countries such as Egypt, Turkey, India and China, among others, have experienced growth. Japan, Korea, Taiwan, Brazil, Egypt and Turkey lack appreciable indigenous sources of coking coal, while China, and to a lesser extent, India, are able to draw on their own resources to meet their coking coal requirements. Contraction of the steel industries in Western Europe has been offset to some extent by rationalization and closure of indigenous high cost mines in those countries, thus increasing the demand for imported coking coal as locally-produced coal was less available.

Developments in the Supply of Coal to the World Coal Market

Turning to developments in the supply of coal to the export market, there have been changes in the number and rank of major exporting countries. The United States, Australia, Poland, South Africa and the former USSR have long been major exporting countries, although through most of the decade of the 1970s, their coking coal exports accounted for the bulk of their export sales. In the 1980s and early 1990s, Colombia, China, Venezuela, and Indonesia entered the export market with sales predominantly in the steam coal sector.

Trading Practices

The trading practices of buyers and sellers of coking coal were established over the years since World War II. For coal sold into Western Europe and Japan, those practices have not changed markedly since that time. Multi-year (3 - 5 years typically) contracts with annual price re-negotiations based on market conditions are common. Sellers with long-term relationships with their buyers sell on an "open account" basis, as contrasted with letter of credit, in part because competitors are willing to do so and extension of such terms is deemed necessary to retain customers. Such liberal credit terms have not been extended as readily to buyers in Brazil, India, Egypt and Argentina, among others. Buyers for the Japanese steel industry, the world's largest importer of coking coal (66 Mt in 1992), have pursued joint venture arrangements with coking coal producers in Canada, Australia, Russia and elsewhere to ensure obtaining adequate supplies.

Trading practices and contractual arrangements for steam coal have gone through several phases and are likely to continue to evolve as the market changes. The trend is toward shorter contracts and/or more re-openers for price negotiations based on current market conditions. With the economic recession in Europe in 1992-93, the lifting of trade sanctions on South African coal and the growing supply of steam coal from newer exporters such as Indonesia, in the past two years, buyers have relied on "spot" coal purchases to fulfill a larger proportion of their coal requirements.

Spot purchases refer to purchase agreements lasting one year or less for coal delivered within one year of the execution of the sale contract. A willingness

to increase the dependence on spot purchases reflects the buyers' confidence in the adequacy of supply and the reliability of the coal chain. It is also an attempt to optimize the comparatively low prices that currently prevail in the spot steam coal market. Spot coal prices tend to be more volatile than those of longer term contracts. In a market where coal supplies are ample, spot prices are generally lower than contract prices. The reverse is true in a tight supply situation. The future outlook for world coal trade is addressed in a later section.

IV. Recent Price Trends

Some general comments about broad price movements of steam and coking coal over recent years are offered to provide an overview of the trends in the world coal market. In the past 15 years, coal prices have fluctuated up and down. Although the spread between steam coal and coking coal prices has not been fixed or constant, prices for the two types of coal classified by end use tend to follow the same upward and downward trends.

In that 15-year period, steam and coking coal prices both hit peaks in 1981-82 and 1989-90. The run-up in prices in 1981-82 was attributed principally to supply disruptions caused by labor disputes which were compounded by severe port congestion in the U.S. at that time rather than a shortage of production capacity. Seven years of lower prices prevailed between the high of 1982 and the next high in 1989-90. Steam and coking coal prices hit their lows in 1987. Contract prices fell as much as $20 - 25 per tonne, or roughly 30 -45%, depending on the country of origin and type of coal. (These declines are stated in nominal terms and do not reflect adjustments for inflation.)

In 1989-90, increased demand for both steam and coking coal, reflecting buoyant economic conditions in Europe and steadily increasing coal-fired power generation in the Pacific Basin contributed to the higher prices in those years. Since 1990, however, prices have been trending lower and data for 1993 year-to-date indicate that the drop in 1993 will exceed the declines in 1991 and 1992. Declines in contract prices of steam coal of some $3 - 6 per tonne have been reported, and metallurgical coal prices have fallen by comparable amounts. Spot coal prices have dropped by even larger amounts.

The lower CIF (cost, insurance, freight) prices of coal delivered to Europe and Japan are in part the result of developments in sea bulk trade. Ocean transportation freight rates for coal slipped to nearly record lows in 1992. The dry bulk freight market has strengthened somewhat in 1993. At this time, supply and demand in the dry bulk fleet are finely balanced and the major factor affecting that balance in the near term is the rate at which owners choose to scrap vessels. Given the condition of the global economy and the expectation that seaborne trade is unlikely to increase significantly in the short-term, it is reasonable to anticipate that freight rates will remain at or near current levels for the remainder of 1993 and into 1994.

The price declines that began in 1991, continued through 1992 and became even more pronounced in 1993 are attributed to slower growth in the demand for steam coal for electricity generation as a result of the economic recession in Europe and a general slowdown in the steel industry, which has been felt particularly in countries that are dependent on imported coking coal. The existence of ample export supply capacity has been a factor as well. Some industry estimates put export production capacity at 500 Mt in 1992, with almost 300 Mt of steam coal, and 194 Mt of coking coal, capacity. Actual export demand that year was only 236 Mt of steam coal and 168 Mt of coking coal.

The impact that the current low spot prices have on Russian coal exporters deserves comment, particularly as many Russians interviewed during the course of the field research expressed bewilderment over the extremely low prices that buyers were offering for their coal. Inquiries in Russia and in Europe among steam coal buyers revealed that much Russian coal that goes into the export market is sold on a spot basis. Sales of coking coal amounting to 4+ Mt annually from the South Yakutia Japanese mining joint venture to the Japanese partners for use in Japanese steel mills are a notable exception. Spot market sales of Russian coal were probably harder hit by the price pressures in the world market in 1991-93 than sales covered under multi-year contracts. Given the apparent high proportion that spot sales constitute of total export sales, a high percentage of their exports might have been subjected to the steepest drops in prices over that period. Other spot coal sellers worldwide would have had similar experiences as compared with those selling under longer-term contracts.

Suitability of coal characteristics for the equipment in which it is to be used, consistency of quality and reliability of shipments are three other factors that play an important role in determining the price a buyer is willing to pay. In a market where prices are trending down and spot suppliers that score reasonably high on those three factors are willing to offer coal at the lower prices, suppliers whose record of performance is less established are likely to find even more pressure put on them to adjust their prices to reflect what is perceived by buyers to be higher risk associated with such purchases.

The foregoing discussion has provided a broad view of steam and coking coal price movements over the past 15 years. More detailed data on steam and coking coal prices is available through the trade press. Much of that information as well as official data available from customs offices records has been assembled, transposed to facilitate comparison using consistent units of measurement, and presented in a very accessible format by the International Energy Agency in its annual publication *Coal Information*. Selected tables from *Coal Information - 1992* are reprinted with this report. They offer Russian government officials concerned with the coal industry, Russian coal producer associations, individual mines and mineworkers a very clear picture of FOB (freight on board) loading port and CIF unloading port price levels for various qualities of steam and coking coals that are offered on the world market by the coal exporting countries. As Russian coal producers revise their methods for calculating mining and

transportation costs so that they are more comparable to those of other major coal exporting countries, this information will provide a basis for Russian mine management to determine whether they can participate and compete in the world coal market on a profitable basis.

A note of clarification is called for concerning the coal price data that is presented. Three different sets of price data are shown:

1. Customs office data
2. Contract price data obtained from coal industry publications, also referred to generally as the "trade press"
3. Spot price data obtained from the "trade press."

Analyzing all three sets of data gives a more complete picture of world coal market prices. Each set by itself has its limitations. The customs unit values, for example, are average values derived from customs' administrations volume and value data. They only indicate broad price movements as they are averages of all qualities of coal without regard to the end-use of the coal or to the contract terms and conditions under which the trade occurs. The customs offices data is identified at the bottom of the table as follows: Source: IEA/OECD Energy Prices and Taxes; or Source: Commission of the European Communities, Community Imports of Hard Coal from Non-Member Countries for use in Power Stations.

Contract prices, in contrast, describe specific transactions between designated buyers and sellers under specific contract terms that cover tonnage, quality, exchange rates, timing and method of payment, etc. Comparisons between different contract prices should take these specific contract terms into account. In the tables that follow which are dedicated to the presentation of contract prices from trade publications, the publications are identified at the bottom of the table with additional explanatory notes on the quality of coal that has traded at the prices given. The major sources of such data are the following publications: *Coal Week International, International Coal Trade, International Coal Report,* the Tex Report *Coal Manual, Tex Report, Japan Echo* and the *Australian Coal Report* .

Finally, spot prices pertain to specific cargoes and reflect short-term market conditions. The same publications that were cited above as sources of data on contract prices also provide spot price data. As stated previously, spot prices tend to fluctuate more freely than contract prices. If the overall trend of prices is upward, spot prices tend to be higher than contract prices. On the other hand, if there is a clear over-supply of coal in relation to demand and prices are trending lower, spot prices tend to fall below those of contract prices.

As Russia has been exporting both steam and coking coal to Japan, Western Europe and East/Central Europe; and is competing with the major exporting countries of Australia, the United States, Canada, South Africa, Colombia, Indonesia, Poland, Venezuela and China, tables from *Coal Information - 1992* that provide data on coal going to all the major importing

markets from all the major exporting countries are reproduced in the Annex to this report. Tables 2.1 - 2.3 provide time series CIF Europe and CIF Japan price data for steam coal delivered from major steam coal exporting countries. Tables 2.4 - 2.6 provide time series FOBT (Freight on board trimmed) prices for steam coal at the loading ports of major coal exporting countries. Table 2.7 provides spot prices for steam coal delivered to northwest Europe, 1988 to 1992. Tables 2.8 - 2.14 provide similar price data for coking coal.

Table 5.6 shows indicative inland transportation charges for rail and barge shipments in the major coal exporting countries in 1992. This particular table should be of interest to Russian coal and rail industry officials as a basis for assessing how their past and present rail rates compare with those of other major coal exporting countries. Tables 6.5 and 6.10 present data on existing and future planned export production capacity. Section VIII in Part One discusses the implications of this export supply data for future prices of internationally traded coal. Tables 6.12 and 6.13 provide data on the cost components for steam and coking coal in the major exporting countries. The data are used in Section IX of Part One to impute FOB mine cost ranges within which Kuzbass basin coal must fall if it is to be competitive with the major exporting mines based on the latter's costs as of 1992.

V. Productivity in the World Coal Industry

The preceding section on price trends in the international coal market discussed broad price movements over the past 15 years and described periods when prices stated in US dollars dropped by as much as 45%. How producers could continue to offer coal at those levels without operating at a loss and eventually going out of business is a question that might well be asked. Indeed, some producers withdrew from the international coal market during those periods, others elected to sell at a loss for what they hoped would be a temporary period and many were able to sell with some profit for a variety of reasons. Those capable of generating a profit even during the lowest price levels might have had the benefit of more favorable mining conditions or lower costs by comparison with other exporters. Some producers were able to do so as a result of gains in productivity. Thus, as world prices declined, they were able to maintain some profit margin through improvements in production methods, work practices and management.

The international coal industry operates in a highly competitive commercial environment. A number of countries that are major suppliers to the world market have achieved productivity increases of 50 to 100+% in the past dozen years through technological innovation and changes in industrial and labor practices. Average productivity for hard coal deep and surface mining in the major producing and exporting countries continued to increase in 1992, the most recent year for which reliable data are available (see tables below).These data are offered mainly to indicate the trends within the major producing countries rather than to compare statistics across the countries, as methodologies for calculating

productivity statistics vary considerably among the countries in question. They show the extent to which coal producers in exporting countries continue to strive for improvements in productivity in order to remain competitive in the world market.

Deep-Mine Productivity (Tonne/employee hour)

Countries	1989	1991	1992	% Change '92 vs '91
Australia	1.97	2.17	2.27	+4.6
Germany	0.65	0.68	0.70	+26
UK	0.68	0.80	0.92	+15
USA	2.23	2.44	2.44	----

Surface-Mine Productivity (Tonne/ employee hour)

Countries	1989	1991	1992	% Change '92 vs '91
Australia	4.2	4.14	4.54	+11
Canada	3.8	4.1	4.5	+9.8
USA	5.1	5.79	5.99	+3.4

Source: Eurostat, Australian Coal Association, National Coal Association - U.S., Coal Association of Canada

VI. Interfuel Competition

Coal's major market worldwide is the power generation sector. The other major fuels with which coal has competed for market share in the baseload power generation sector are oil, natural gas and nuclear. On a global basis, the use of coal for power generation is expected to grow in absolute terms into the 21st century. However, some market share may be lost due primarily to increased competition from natural gas. Similarly, in Russia, coal's share of the power generation, district heating and combined heating and power (CHP) sectors in the

future will be influenced significantly by prices for natural gas delivered to power plants, CHP and district heating facilities.

In Western Europe, the U.S. and other regions where existing infrastructure and already-developed gas fields give power plants ready access to natural gas, the use of natural gas for power generation has gained momentum in relation to coal in recent years for several reasons. Concern about the environment, comparatively low prices for natural gas in the late 1980s and early 1990s and the technological development of gas-fired combined cycle plants which generally offer greater efficiency and lower capital and operating costs than coal-fired plants are favoring gas. The comparatively low gas prices are based on a surplus supply capability in relation to demand. However, once this supply capacity is absorbed the development of new supplies of gas will be necessary to cover additional requirements for new plants and these new supplies will have to be priced to reflect a reasonable return on investment.

Coal has the advantage of requiring far shorter lead times for the development of new production capacity than are required for most new gas supplies. Moreover, gas prices are being linked increasingly to oil prices, and oil prices have proved to be more volatile than coal prices. Thus selection of natural gas as a fuel option for a planned new power plant will be restrained by concern that linkage of natural gas prices to oil prices may make gas susceptible to unacceptably erratic price fluctuations. Figure 2.1 in the Annex (*Coal Information - 1992*, page 16) illustrates graphically the extent to which coal prices are de-coupled from oil prices. During the Gulf War when heavy fuel oil prices doubled, there was scarcely any impact on coal prices.

As to the prospects for oil and nuclear as alternative options for baseload power generation, three major oil crises in 17 years (1973-75, 1978-80 and 1990-91) with attendant price increases, volatility and supply uncertainties have done much to remove oil as a competitor in baseload power generation. Concerns about safety have introduced serious doubts about the role of nuclear power in many countries worldwide. The privatization of the electricity supply industry in the UK has been instructive in revealing that the actual costs and risks of nuclear power in the UK were considered to be unacceptable to private investors and institutions. France, in contrast, is continuing its own domestic program and marketing its technology abroad. A resurgence of new nuclear plants might occur if standardized, fail-safe nuclear plants can be developed on an economic basis.

In 1993, the International Energy Agency published *World Energy Outlook to the Year 2010*, which looks at the likely development of world energy markets between the present day and 2010. Assumptions about the prices of coal, oil and natural gas in the world market are key factors in the analysis. (Table A: *Primary Energy Price Assumptions* from page 53 of *World Energy Outlook* is reproduced in the Annex.) The IEA's "Reference Case", is based on an average IEA imported crude oil price rising gradually to US $ 30 per barrel (on a constant 1993 U.S. dollar basis) by 2005, and remaining constant thereafter. However, the report also cautions that the assumption of very smooth oil price increases should

not be interpreted as a prediction of smooth developments in the oil markets. "There is no reason to expect that the oil price will be any less volatile over the next 17 years than it has been since 1974."

The producer gas price in the United States is assumed to rise rapidly in the 1990s and to reach a plateau of $3.50 per thousand cubic feet, in the IEA report. The prices at which gas is imported into Europe and Japan are assumed to rise broadly in line with crude oil prices. As to coal, the IEA forecasts "little growth in the prices of internationally traded coal...despite the growth of imports into Europe and Japan." The report predicts "coal will remain the least expensive form of primary energy in the OECD."

The implications of these and other key assumptions of the IEA forecast in terms of coal's share of worldwide power generation and demand for internationally traded coal for power generation are examined in the following section. In the longer term coal's share in energy markets will depend on the economics of fuel selection for power generation, which will be governed not only by the cost of fuel but also by the capital and operating costs of new plants. Other critical factors that influence fuel selection are government policies, rate structures, the timing and risk associated with the new unit, the demand it is intended to meet and the security of fuel supply.

VII. Future Outlook for Coal in the World Energy Mix

There seems little doubt that fossil fuels, in particular coal, will play a significant and increasing role in supplying the world's energy requirements now and into the foreseeable future. The IEA's *World Energy Outlook* indicates that approximately 90% of incremental energy requirements between now and 2010 will be supplied by fossil fuel. Of that 90%, coal accounts for 30%,; and in developing countries, coal accounts for a much larger percentage of such requirements. Focusing on the electricity sector in particular in 2010, coal will maintain its share of roughly 40% of power generation on a world basis and will hold an even higher share of 44% of power generation for the Rest of World (ROW).

VIII. Outlook for International Coal Trade (1994 to 2000)

A recovery of seaborne coal trade in 1994 is dependent on developments in the global economy. For the period 1994 to the end of the century, projections show considerable increases in overall demand for internationally traded coal. The greatest growth both in absolute and percentage terms, is expected to occur in Asia where new power stations coming on stream account for the growth in steam coal imports in that region. For example, electric generating capacity in Japan, Korea and Taiwan combined is expected to grow approximately 60% by 2000. These forecasts are based on new power stations which are either under construction or for which plans have been published.

Demand in the Pacific Region

In Japan, coal's share of power generating capacity in 1991 was around 8%, with gas at 22%. Their respective shares of planned capacity in 2000 would rise to 15% and 24%; total planned capacity is expected to rise by 35%. Oil's share is expected to fall from 31% to 22%. In the region encompassing Korea, Taiwan, Hong Kong, Indonesia, Thailand, Malaysia and Philippines, coal's share of power generating capacity is forecast to rise to 37% in 2000 from 21% in 1990.

In the Pacific Basin, (Japan, NIES and ASEAN excluding Indonesia), the IEA's Coal Industry Advisory Board suggests steam coal imports could increase 2.3 times in this decade , from 71 Mt in 1990 to 163 Mt in 2000. In these countries, coal-fired power plant capacity will reach 86 GW in 2000 compared with 31 GW at present. In Japan, steam coal consumption in the power sector is projected to be more than 60 Mt in 2000. Major steam coal consumers in Japan in particular are monitoring closely developments in Indonesia and China, where domestic demand for coal for electricity production could exceed domestic production in the medium term. Some projections suggest China could move from being a net exporter of roughly 20 Mt annually to a net importer of 20 Mt by 2000 if it is unable to develop the internal rail infrastructure to deliver its own domestically produced coal to Chinese coal users.

European Demand

In Europe, rationalization and mine closures are expected to be the major contributors to higher demand for imported coal. Although electricity demand in Western Europe by 2000 could be some 25% over the 1990 level, much of the new capacity planned to meet that higher demand will be gas-fired. On the basis of current plans, gas is expected to increase its share of power generating capacity from around 7% in 1990 to 14% in 2000 mainly at the expense of fuel oil and nuclear capacity. Most new gas fired capacity will be built in the UK and southern Europe. Coal retains a share of around 28% throughout the period in Europe, with total coal fired generating capacity increasing by only 14% (compared to 140% for gas). Major new coal fired capacity is planned for Turkey, Netherlands, Italy, Germany, Denmark and Spain. Between declines in indigenous European production and new coal fired capacity, steam coal import demand in OECD Europe could be in the range of 50 - 90 Mt above the 1992 level of 111 Mt.

The Supply Outlook

The outlook for the future would not be complete without considering the projected changes to coal export mine capacity and the implications of those changes for the supply/demand balance. *IEA Coal Information - 1992* estimates that actual export supply capacity in 1992 was 490 Mt/year, of which 296 Mt/year was steam coal and 194 Mt/year, coking coal. (Table 6.5 in the Annex,

from *IEA Coal Information - 1992*, page 99). This compared with actual 1992 world hard coal imports of 404 Mt, of which 236 Mt was steam coal and 168 Mt was coking coal. These figures indicate an existing excess supply capacity of some 80+ million tons (60 Mt of steam coal and 26 Mt of coking coal).

A review of possible additional export capacity from existing and new mines in Australia, Canada, Colombia, Indonesia, India, Mozambique, New Zealand, Norway, South Africa, Venezuela, the United States and Vietnam finds a potential 177 Mt per year is under construction or could be developed as early as the mid-1990s. In line with the higher growth in steam coal import requirements, future production capacities will be largely steam coal (about 80% of the potential additional capacity). Of the 177 Mt, about 67 Mt is from mines already in production, while the remaining 110 Mt is expected from new mines, or "greenfield projects," according to *Coal Information - 1992*. Estimates for potential additions in Russia, China and Poland do not appear in these projections. Even without those three countries, total export capacity would reach some 660 Mt/year well before 2000, if all these projects went forward as planned.

A supply capacity of 660 Mt/year is to be compared with world hard coal import forecasts ranging from 470 - 530 Mt annually in 2000, resulting in an apparent supply capacity "overhang" of from 130 to 190 Mt/year. (See Table 4.12 in the Annex, reproduced from page 67 of *Coal Information - 1992*.) These estimates are offered with the cautionary comment that they are probably more useful as indicators of trends or directions in which the supply/demand balance is likely to move than as precise forecasts of supply and demand. For example, it is unlikely that all these expansion plans will go forward if the supply situation in the near to medium term depresses coal prices to levels where prospective investors conclude they will be unable to earn acceptable returns on investment in new mine capacity. Nevertheless, the information at hand suggests that supply will be more than adequate to meet demand between 1993 and 2000. The availability of adequate supplies is likely to keep prices from rising significantly.

IX. Observations on the Prospects for Russian Coal Exports

Participants in the Russian coal industry who may be assessing the prospects for Russian coal exports in the future can gain a clear picture of the competition they face in the world market by examining the cost data provided in Tables 6.11 and 6.12 in the Annex. Shown in those tables are representative mine operating costs, an allowance for a capital recovery charge (or return on investment), the inland transportation cost, port loading cost, ocean transportation cost and heat content of the coal in question for surface and underground mines (where both are applicable) in Australia, United States, Canada, South Africa, Colombia and Indonesia. Representative 1992 costs for steam coal are found in Table 6.11, and for coking coal, in Table 6.12.

Table 1 below summarizes the data presented in Tables 6.11 and 6.12. It also provides a framework for calculating imputed FOB mine costs that mining operations in the Kuzbass Region of Russia would need to approximate if their costs are to fall within the range of those incurred by export mines in other major exporting countries. Table 2 presents the results of the imputed mine cost calculations. The Russian costs are based on anecdotal data gathered in interviews in September 1993 and reported more comprehensively in Part Two of this report. This comparison provides a rough picture of what Russian FOB mine coal costs have to be, assuming that rail, port loading, transit taxes, customs duties and other costs remain at their current reported levels, in order for total FOB costs to fall within the range of other exporters in the world steam and coking coal markets.[1]

Table 1: A Summary of Representative Export Costs for Steam and Coking Coal for the Major Coal Exporting Countries (1992 US$/tonne)

Representative Export Costs (Range)	Japan	Europe
Steam Coal		
Rail/Barge Cost	3.8 - 18.3	3.8 - 18.3
Loading Cost	1.5 - 3.9	1.5 - 3.9
FOB Mine Cost	6.5 - 48.0	6.5 - 48.0
FOB Total Cost	21.0 - 55.0	21.0 - 55.0
Coking Coal		
Rail/Barge Cost	5.7 - 17.3	5.7 - 17.3
Loading Cost	1.5 - 3.9	1.5 - 3.9
FOB Mine Cost	21.7 - 49.3	21.7 - 49.3
FOB Total Cost	30.0 - 69.0	30.0 - 69.0

Source: Tables 6.11 and 6.12, IEA *Coal Information - 1992.*

Note: FOB Mine Cost includes mine operating costs (all operating costs for salable coal, taxes and royalties) and capital recovery charge (15% DCFROR - discounted cash flow rate of return) on equity investment.

[1]This comparative analysis of Kuzbass export costs and representative costs of export mines in other major exporting countries is intended to provide a broad view of the cost range within which Kuzbass mining operations will have to fall in order to be competitive in the world coal market. A thorough analysis of the sort that should be a prerequisite of any investment decision relating to the export market would require close attention to specific coal qualities in the reserves to be mined; the size and dynamics of the markets for which those qualities are suitable; existing and future prospective competition in those markets; inland transportation logistics, options and costs and numerous other factors. Such analysis is not within the scope of this paper.

Highlighting some observations that can be made based on the data presented in Table 2, it appears that for steam coal delivered to Japan, the FOB Mine Cost of Kuzbass steam coal, including a capital recovery charge in the mine cost component, must range on the low side from minus US$12.25 per metric tonne (mt) to a high of US$ 21.75/mt, assuming the other cost components (rail, loading, transit tax, customs duties, other) remain at the levels indicated. Referring to the more detailed information available in Table 6.11 reveals that the low cost competitors are Indonesia, Colombia, South Africa and Wyoming (except that the low heat content of Wyoming coal greatly reduces its production cost advantage in the export market). To compete with export mines in the first three countries, Kuzbass mines would have to sell at a loss of as much as $12.25/mt. At the upper end of the cost range, Western Canada is the high cost competitor. Kuzbass steam coal could compete with Western Canadian steam coal with a mine cost of as high as $21.75/mt provided the coal quality is comparable. As Canada only exported 4 Mt of steam coal overseas in 1992 (excluding 1 Mt to the U.S.), however, even if Russia were able to capture as much as 50% of Canada's market share, the added volumes would be relatively small.

The analysis above deals with the outer limits of the cost data, taking both the extremely low and extremely high cost suppliers as examples. For steam coal, a more reasonable FOB cost range against which to measure Kuzbass prospects is probably US $ 30 - 40/mt. For the Japanese market, this would require a Kuzbass FOB mine cost of from minus $3.25/mt to US$ 6.75/mt. For the European market, it would require minus US$5.75/mt to $18.75/mt.

Taking a similar "reasonable range" approach to coking coal, if Kuzbass total FOB costs had to fall within a band of US$ 45 - 55/mt in order to compete with other major coking coal export mines, the imputed FOB mine cost would be US$ 4.08/mt - $31.74/mt.

Table 2: Imputed Range of FOB Mine Costs Required for Steam and Coking Coal Produced in Kuzbass Region of the Russian Federation to be Competitive with Export Mines in Other Major Exporting Countries (US$/tonne)

Representative Export Costs (Range)	Japan	Europe
Rail/Barge Cost	30	18 - 30
Loading Cost	3.0	1.5 - 3.0
Transit Tax	--	1.50 - 2.50
Customs Duties, Steam Coal	0.25	0.25
Customs Duties, Coking Coal	2.26 - 5.42	2.26 - 5.42
Sub-Total, Steam Coal	33.25	21.25 - 35.75
Sub-Total, Coking Coal	35.26 - 38.42	23.26 - 40.92
Imputed FOB Mine Cost - Steam Coal	*(12.25) - 21.75*	*(14.75) -* 33.75
Imputed FOB Mine Cost - Coking Coal	*(8.42) - 33.74*	(5.75) - 47.75

Source: Rail, loading and other costs obtained from G. Jackson's 9/93 interviews with Russian coal industry officials. Imputed FOB Mine Cost calculations based on data from Tables 6.11 and 6.12 in the Annex, which are reproduced from *IEA Coal Information - 1992.*

Exchange rates used: 1 US$ (1993) = 1,000 Russian Rubles; 1 ECU = US$ 1.13

This comparative view of mining costs in the world's major exporting countries should make it very clear to Russian coal industry participants that the world coal market is highly competitive. Investments in production capacity intended for the export market should be approached extremely cautiously and investment decisions should be supported with full and comprehensive data on the competition and on the specific markets for which the coal is intended.

PART TWO:

Findings on the Current Russian Coal Export Situation

This part of the report summarizes information obtained from interviews and meetings conducted in Moscow and the Kuzbass region from September 13 - 27, 1993 as well as from documents obtained during that time. It also includes information elicited from West European and Japanese coal buyers both prior to and shortly after the field research in September. A list of the people interviewed in Russia along with their titles and organizational affiliation follows. These individuals are the sources of the information that is reported as having been obtained from their respective organizations.

-- **ATEK - Fuel and Energy Joint Stock Company**
58/1, Taganskaya St., Moscow

Dr. Mark I. Rutberg, General Director
(Tel: 278-11-81 or 278-51-05) Fax: 278-43-90)

-- **Rosugol (Russian Coal Association)**

Yuri Revnivikh (Tel: (095) 202-1141), International Department

-- **SeverokuzbassUgol**

14a, Shakhtyorov Ave.
Kemerovo, 650002, Russia

Vitali Reimarov, Head of Production Board and Deputy Director
(Tel: (384) 2 52 4-17-80)

-- **KuzbassrazrezUgol**
The Trade House of Joint-Stock Company KuzbassrazrezUgol, Foreign Trade Department

Pionersky Blvd. 4a
Kemerovo, Russia, 650054

Eugene Gorokhov, Leading Engineer (Export)
Alexander Grigoriyevich Kozyak, Deputy Director

(Tel: (384) 2 52-18-12)
(Fax: (384) 2 52-37-23)

-- **Inskaya Mine**

Belovo, Kemerovo Oblast, Russia 652614

Ivan I. Chemyakin, Chief Engineer (Tel: (384 52) 95551)
(Fax:(384 52) 22852)

Valeri M. Vedrov, Vice-Manager Commercial (Tel: (384 52) 95789

1. Export Forecasts for Russia -- from Rosugol spokesman

Export forecasts for Russia as a whole used to be based on "state orders", i.e., however much production was not required to meet the demand requirements in Russia would be made available for export. Now they're based on forecasts produced by Rosugol's International Department. The forecast is divided into two categories: "Far Foreign" (meaning outside CIS) and "Near Foreign" (meaning CIS).

Until the rail rate increases of August 1, 1993, Rosugol was forecasting 1993 and 1994 export levels would be about the same as 1992, or in the range of 30 - 32 Mt, broken out as follows:

	Steam	Coking
Outside CIS	7-8 Mt	10 Mt
CIS	9-11Mt	3-4Mt

2. Indicative Rail Rates as of August 1, 1993

a. Rosugol Data. The Rosugol spokesmen estimated total exports for 1993 would be 20 - 25% lower than 1992 as a result of the rail tariff increase. He gave examples of the rate levels as of August 1:

Kuzbass -- St. Petersburg	20,000 - 22,000 Rubles/tonne
Kansk-Achinsk -- St. Petersburg	23,000 Rubles/tonne

b. SeveroKuzbassUgol Data-

N.Kuzbass -- Hungarian border	25,000 Rubles/tonne	(4,500 km)
N.Kuzbass -- Black Sea ports	25,000 Rubles/tonne	

c. KuzbassrazrezUgol Data

Kuzbass -- Kaliningrad	30,000 Rubles/tonne
Kuzbass -- Black Sea	26,000 Rubles/tonne
Kuzbass -- Vladivostock and Nadhoka	30,000 Rubles/tonne (6,000 km)

The representatives of this Ugol also noted that rates are scheduled to be adjusted on a monthly basis for inflation. He reckoned that would mean +28% over the above levels in September and another +20% in October.

The spokesman for KuzbassrazrezUgol pointed out that the Kuzbass region in its entirety owes the Russian railroads some 1 billion Rubles, and an interest rate of 2% per month is being charged on this debt. He asked how the mines could ever be expected to pay these debts.

d. Danish electric utility. Elkraft, a Danish electric utility that has purchased Russian coal for many years, stated that rail rates for coal they had been taking from the Kuzbass region were increased to 18,000 Rubles/tonne for a 4,500 km shipment. The utility's spokesperson informed this researcher that shipments to his utility had been brought to a standstill by the rail rate increases. The utility was not willing to pay the resulting CIF unloading port price.

3. Port Loading Charges

a. Rosugol Data. A rough figure of 3,000 Rubles per tonne was given for port loading charges without distinguishing among ports. The spokesman did not appear to have port specific data.

b. SeverokuzbassUgol. A rough figure of 5% of the "cost" of the coal was given as the loading charge at Black Sea ports. Asked to state that in Rubles, the answer was about 1,500 - 2,000 Rubles per tonne.

c. KuzbassrazrezUgol. This Ugol spokesman gave Black Sea port loading charges as up to 5,000 Rubles/tonne; Baltic Sea -- 3,500 Rubles/tonne.

d. Inskaya Mine. The loading charge Inskaya has been paying at St. Petersburg is 1,500 Rubles per tonne. Inskaya has negotiated a special throughput contract with the port. It has accounted for 40% of the coal shipped through St. Petersburg, the equivalent of some 3 vessels/month. It is likely the 1,500 Ruble charge reported by Inskaya is at somewhat of a discount to the amount paid by exporters using the port intermittently for less frequent shipments and lower volumes.

(Note: See Table 7.0 in the Annex showing throughput capacities at coal loading ports in Russia, Ukraine, Georgia, Estonia and Lithuania in 1992.)

4. Other Inland Transportation Charges

a. Rosugol data. The RussUgol spokesman said inland transportation charges were increased and complicated by recent actions in Ukraine. Russian shippers are having disagreements with local rail stations in Ukraine (not the national government, but local stations). Some are charging the equivalent of 2,000 - 3,000 Rubles per tonne to cross Ukraine.

b. KuzbassrazrezUgol. Baltic Republics have been charging a transit tax of 1,500 - 2,000 Rubles per tonne.

5. Customs Duties

a. Rosugol. The customs duty amounts to 2 -4 ecus per tonne. (This spokesman made no distinction in the duties charged for steam and coking coal, although other sources quoted below did.)

b. SeverokuzbassUgol. According to this Ugol's spokesperson, exporters used to pay customs duties of 1.50 ecus/tonne, but no longer do so.

c. KuzbassrazrezUgol. This Ugol's spokespersons were not aware of having paid customs duties. Most of their exports (almost 100%) are steam coal.

d. Inskaya Mine. Customs duties on coking coal are about 4.80 ecus per tonne. Duties on steam coal are a nominal .05% of the value of the coal, just fees for processing customs papers.

6. Licenses or Authorizations Required for Export Shipments

a. Rosugol. No permits are required for steam coal. For coking coal, the Ministry of Economics issues quotas. Rosugol distributes the quotas to enterprises. The Minister of Fuel and Energy authorizes Rosugol to make these allocations. Starting 1/1/94, all quotas will be lifted. Export licenses will become a mere formality. The authorizations will simply state that the good to be exported is not prohibited for export. The Minister of External Economic Relations has/will have the authority to issue licenses. It will take about one week to issue a license if the item or commodity is not on the prohibited list.

b. SeverokuzbassUgol, KuzbassrazrezUgol and Inskaya Mine. Export licenses are easy to get - they're a mere formality.

7. ATEK - Fuel and Energy Joint Stock Company

Dr. Mark Rutberg is the new General Director of ATEK and Head (or President) of the Management Committee. He was formerly "head" of a laboratory (at the Skochinski Mining Institute, where Mr. Malyshev, General Director of RussUgol was before taking his present position. Mr. Zaidenvarg (former head of RussUgol, now Deputy Head, is the Chairman of the Board). The

Board of Directors is composed of representatives of the founding shareholders. The founding shareholders are:

Rosugol
KuznetzUgol
ProkopievUgol
ZapadnayaSiber
Siberski preparation plant
Russian United Energy Network

ATEK was described as a new joint stock company that was set up to manage the import and export transactions undertaken by Rosugol. It sounds like a successor to Soyuzpromexport. ATEK's portfolio is intended to include purchase of mining equipment, know-how, technology; export sales transactions; barter and counter trade deals; leasing and training abroad. They don't expect to handle all exports, just a percentage. They gain access to coal for exporting via Rosugol's 60% participation in coal-producing associations' joint stock companies.

Their approach will be to work with western intermediaries, i.e., trading companies such as RaabKarcher, Ruhrkohle, Stinnes, etc.

Dr. Rutberg explained that Rosugol has no source of income to buy mining equipment. Therefore, export coal becomes a source of funds for purchasing equipment. In fact, he was detained before our meeting by discussions with some Germans who were offering him equipment to be paid for with coal exports. But he rejected their terms, which would have prohibited Rosugol from marketing its coal to "third parties."

One of the areas he explained ATEK will be watching is that other Russian exporters don't "dump" their coal. He said enterprises that try to dump their coal on the world market will get lesser subsidies. Rosugol has the responsibility for estimating subsidies, so if ATEK determines that a Russian enterprise is selling coal at what they judge to be below average world market prices, they could have their subsidies adjusted and their export licenses denied. When questioned on exactly how this would work in practice, he was vague.

I mentioned that in my earlier meeting, I had been told that the issuance of an export license would become a mere formality. I commented that using the threat of withholding an export license sounded as if it would not be just a formality. Dr. Rutberg then said in effect they could control who would export by having Rosugol adjust a mine's level of subsidy.

Comments on ATEK from the Coal Associations

-- SeverokuzbassUgol said they would like to join ATEK just to be sure they don't lose any export opportunities, but they feel they can market their coal without intermediaries such as ATEK.

-- KuzbassrazrezUgol said they had a contract for cooperation with ATEK, though they were not a founding shareholder. They expect RussUgol may subsidize ATEK. It appears to them that the existence of ATEK will interfere with their independence and ability to market their coal independently, especially if ATEK uses its relationship with Rosugol to influence the amount of subsidy KuzbassrazrezUgol receives from Rosugol.

8. Description of SeverokuzbassUgol's Exporting Activities

Total production and exports, 1992 and 1993 (Estimated)

(Million Tonnes)

	Exports		Total Production
	Steam	Coking	
1992	0.100	0.300	8.0
1993	0.020	0.100	(No estimate given)

--Drop in 1993 exports due to rail rate increases: 1st of April, again the 1st of August

--SeverokuzbassUgol exports coking coal to: Romania, Hungary, Bulgaria

--Steam coal to: Greece, Turkey, Japan via Nadhodka, Morocco

--They make their export sales through intermediaries located in Moscow; sometimes on their own. They used to use Soyuzpromexport exclusively.

--Coal quality:

Sulfur	0.5 -2.0%
Kc/kg	8,000 (for coking coal and washed steam coal)
Volatility	14-17% and 25%

--Current prices:

26,000 Rubles/tonne for coking coal, fob mine --for cleaned coal
29,000 Rubles/tonne for washed steam coal (27% vol) -- must be selling for domestic/house coal at this price
14,000 Rubles/tonne for run-of-mine steam coal, 20% ash

--Asked to describe how they handle their marketing efforts to prospective new export buyers, he said they often start with a test shipment and that may lead to a one-year supply agreement. Most of their sales are on a one-year basis.

--All of their coking coal is cleaned; the steam coal generally is not cleaned. Their yield out of the cleaning plant is 70-80% coking coal; 10% middlings and 10% reject.

--Of their total production, about 60% is coking coal, 40% steam coal.

--Domestic customers include virtually all the coking plants in Russia, e.g. West Siberian coking plant, Kemorovo chemical plant, Kuznetz, Ural plant, Chelyabinsk, Magnitogorsk. Almost all the coke plants can use it.

9. Description of KuzbassrazreUgol's Exporting Activities

Participants: Mr. Alexander Grigoriyevich Kozyak, Deputy Director
Mr. Eugene P. Gorokhov, Leading Engineer
Tel: (384)2 52-18-12
Fax: (384) 2 52-37-23

--Record production was 62 Mt in 1988, mainly steam coal; 9 Mt of coking coal. Since then, some mines have broken off from the Ugol and are operating independently. They produce about 15 Mt. The remaining mines of KuzbassrazrezUgol produce about 25 Mt.Of that, about 24.5 Mt is steam coal; 0.5 Mt , coking coal.

--Up until 1990 (when the above-mentioned mines broke off), the Ugol was exporting about 1 Mt to countries outside the former USSR, and a total of 4.3 Mt including what are now called CIS countries.

--Exports shipments have come to a grinding halt since the August increase in rail rates. Rates increased 2.5 times over their previous level and furthermore, they are being adjusted on a monthly basis for inflation (+28% in September and probably +20% in October).

--Sample rail rates:

30,000 Rubles/tonne	-- Kaliningrad
26,000	-- Black Sea
30,000	-- Vladivostock and Nadhodka (6,000 km)

--Coal quality:

6,000 min kc/kg -- up to 7,000 for unwashed coal; Sulfur 0.3%

--They have sold their exports mainly through different intermediaries both in Moscow and in Kuzbass. They used Soyuzpromexport when it existed.

--1992 exports were about 4+ Mt to some 15 different countries, among which were Bulgaria, Spain, Japan, Korea, United Kingdom, Denmark.

-- Loading port charges

Black Sea --up to $5.00 (5,000 Rubles)per tonne

Baltic Sea $3.50/tonne (3,500 Rubles)

--Baltic Republics have been charging a transit tax of $1.50 - 2.00/tonne

--Practically all export shipments are stopped now with the rail rate increases

--Relationship with ATEK? They have a contract for cooperation, but they are not a founding shareholder. They expect RussUgol may subsidize ATEK. It appears to them that the existence of ATEK will interfere with their independence and

ability to market their coal independently, especially if ATEK uses its relationship with Rosugol to influence the amount of subsidy Kuzbass-razrezUgol receives from Rosugol,

--Their fob mine prices are typically 12,000 - 15,000 Rubles/tonne, or less in some places.

--Three open pits in their association are continuing to ship despite losing money with the high rail rates. He doubts they can continue much longer.

--The Kuzbass region in its entirety owes the Russian railroads some 1 billion Roubles in debt, and are charged interest at the rate of 2% per month.

--A typical export contract for them consists of an order for 100,000 tonnes, which they send in 3 -4 separate rail shipments.

--They plan to transform their Ugol into a joint stock company in one week, i.e., by about the first of October. The structure will be as follows: 40% -- The Trading House of the Ugol (of which 25% is non-voting shares); 12% -- will be "sold" to the Ugol (not clear for how much or what other form of consideration, if any); 10% -- Regional administration of Kemerovo; 38% -- Anti-Monopoly Property Committee (which delegates its shares to Rosugol.)

They commented that now 60% of the profit they used to have for their own disposal is now going to Rosugol and the Regional Administration under these joint stock company arrangements. They didn't seem pleased about that development.

--KuzbassrazrezUgol accounts for about 50% of exports from Kuzbass region (Data obtained by the IEA from Rosugol show Kuzbass exported 9 Mt in 1992)

--Russia is their main market:

Large powerplants	45-50% of their domestic sales
District heating	25%
CHP	25-30%

9. Description of Inskaya Mine's Exporting Activities

Participants: Valeri M. Vedrov, Vice-Manager, Commercial
Tel: (384 52) 95789, 22852 Fax: 22852
Ivan Chemyakin, Chief Engineer
Tel: (384 52) 95551, 95706 Fax: 22852

--Total production: 1992 -- 2.4 Mt 1993 -- 2.0 Mt

-- Potential capacity of 4 - 6 Mtpa, but problems with mining equipment repairs and emergency shutdowns have limited their production. Also, coal demand has been dropping. Even though they reduced production by 0.4 Mt in 1993, they have not been able to shed any workers.

--They are trying to improve the quality of the coal they produce in order to command a higher price for it -- this is targeted at the export market primarily, as

the Russian market is less inclined to pay more for quality. The urgency to do this increased significantly when the Russian rail rates were increased in August. Their customers in West Europe indicated an unwillingness to pay the higher CIF price resulting from adding the rail rate increase into the FOB mine price.

--Coal type -- D (long flame) and G (gassy, used only at powerplant)

Sulfur	0.2%
Calorific content	5,200 Kc/kg - raw 6,000 Kc/kg washed (price on export market increases some 20-30% for washed coal)

--Export shipments 8 mos 1993 = 430,000 tonnes. Since August, shipments have slowed.

--Shipments to Danish utility have stopped with increase in rail rates. They think they have found another customer for their coal if they can send sized coal +13 mm. The English "house coal" market is where it would go.

--Port loading charge -- St. Petersburg $1.50. They have a special contract with the port. Inskaya accounts for 40% of the coal that is shipped through St. Petersburg, roughly 3 vessels/month. Coal is loaded directly from rail cars to vessel. The spokesman described a procedure of monitoring closely the location of rail shipments from their mine and timing their arrival at St. Petersburg as closely as possible to the arrival of the vessel for loading. (Note: A Danish utility customer explained separately to this researcher that ground storage limitations make these procedures necessary. The coal is stored in the rail cars if arrival of the rail cars precedes arrival of the vessel.)

--Quality control: Take sample at mine, also in St. Petersburg and finally at the consumer's unloading port. Customer pays 90% of invoice based on St. Petersburg analysis, then final adjustments are made based on unloading analysis. (Note: A Danish utility spokesman and a Finnish buyer of steam coal for power stations informed this researcher that the coal quality was extremely variable.)

--They use an independent laboratory in St. Petersburg. Inskaya is working with a group of mines to establish an independent laboratory in Kuzbass which the coal exporters would support together.

--Other charges associated with exporting? Coking coal shippers pay $4.8 ecus; other coal shippers pay a nominal .05% of value of coal for fees for processing customs papers.

--Inskaya's domestic customers are:

Metallurgical plants
Cement
Semi-coking

District heating boilers and industrial boilers
Powerplants in Kazhakstan, but they've been delaying their payments, so Inskaya has recently held up on shipments
Small boilers and household coal
Military installations for heating
Coal slurry pipeline formerly (but now it is not operating).

--Mining conditions -- 300 meters deep, multiple seams of 2 -7 meters in thickness, 200 million tons of reserves.

--They make a lease payment to the government, but they are not a joint stock company yet. They are part of BelovoUgol, but are trying to become independent of the Ugol. They are developing and already have many direct contracts with customers. The process of negotiating their independence from Rosugol is being complicated by Rosugol's efforts to require them to take the coal slurry pipeline as part of their assets. They aren't willing to consider this unless all the debts are paid or forgiven. At this time, their participation in BelovoUgol was described as minimal.

--Their key management team consists of the Mine Director, the Deputy Director of Economics, Tariffs and Subsidies; the Supplies Manager, the Chief Engineer and the Vice-Manager of Commercial activities.

--Their only funding for new and replacement equipment and parts comes from Rosgol through BelovoUgol and they believe the Ugol holds on to some of it.

--They ship coal to:

Kazhakstan
Baltic Republics
Ukraine (formerly, but not since Ukraine hasn't had money to pay)
Moldova
Azerbaijan (except they stopped because of the fighting)
Belarus

They're asking for payment in advance from most of these customers.

Japan (formerly) via Vostochni, but not shipping now Greece and Turkey (in 1992), but that's become more difficult because of loading the coal through Ukraine ports. Ukraine charges a transit tax of $7.00 per tonne.

--Estimate rail losses or "shrink" during shipment to be 3 - 5% of the tonnage shipped.

--On the subject of railcars -- They have had no problems getting enough railcars, but their condition is unsatisfactory. They had initiated discussions with the railroad about starting a repair and maintenance shop near their mine. Other mines joined with them and encouraged the railroad to do so. The mines offered to share the cost. But in the end the railroad said they had other priorities.

--Safety has deteriorated in the industry. The fatality rate used to be 1 per 1 million tons. In 1993, it has been running at a rate of 2 fatalities per 1 million tonnes. The mine managers gave the regional paper as the source of that statistic.

--They have worked 4 years with Western partners. They have a 5-year contract with (I understood it to be a West European electric utility from what the interpreter said. However, the Elkraft spokesman informed me separately that a group of Finnish cement plants had joined together on a 5-year agreement and that the Danish utility was taking a comparatively small amount of coal as part of that agreement)

--Inskaya is using some hard currency proceeds from this export sales agreement to construct housing for their mineworkers, an amenity that is in extremely short supply and a major grievance of the miners. A U.S. design and construction group was hired to design a complex of single-family cottages and multi-family units. Proceeds from the export sales are deposited in overseas bank accounts and used to purchase modular construction equipment specified by the U.S. design group and to ship it from the U.S. in Sealand containers to the construction site in Belovo. The cottages are being constructed now. The researcher visited the site briefly. The plan calls for some 30 cottages and townhouses. The U.S. firm is trying to finish 6 before winter. Cement and iron rod shortages have slowed the process of pouring foundations. The plan in the future is to produce the modular components in Belovo.

The mine engineer states the mine management believes it should be responsible for providing housing to the miners to show they care about their welfare. He claims to recognize that the skills associated with construction and management of housing and housing development are different from those required for good mine management and that they would be well advised to hire specialists to handle the housing responsibilities.

--Inskaya has a very specific contract with the railroads which the mine engineer claims makes their shipments move more reliably than they do for most other mines. They have an agreement with the local Kemerovo railroad, with the section that goes to St. Petersburg and with the port..

--Inskaya's mine director recently traveled to England looking for customers. He was assisted by representatives from IEEC (International Economic and Energy Consultants), which did an analysis of the mine. Inskaya personnel showed this researcher a draft proposal for the EBRD (European Bank for Reconstruction and Development) which IEEC prepared for them. The status of that proposal was unclear.

-- They've sent a test shipment to Ireland and are working on reconstructing their loading facilities so they can send clean sized coal to Ireland. (Note: When informed of this plan, the Danish utility spokesman who was familiar with Inskaya's coal expressed strong doubts about the suitability of the coal for that market, given the high ash content of Inskaya's coal.)

--Productivity: 70 tonnes per man-month (6-hour shift, 4 shift per day. Max 40 min. to face.)

--Maurice Cartwright, a British coal trader/entrepreneur has also talked to them about UK customers.

--They plan to continue providing housing and other social benefits for their workers to show they care about those things.

--They are gradually developing a new reserve area where 50 million tonnes will be available for extraction. They expect to have the mine running in 5-6 years. The seam is 7 meters thick, 11% ash. Their development capital is coming from subsidies and from proceeds from export sales.

In summary, this is by far the best management team I've talked to in terms of their organization and oversight of commercial export sales. They showed enterprise in serving their existing export customers reliably and taking the initiative to seek new export markets as conditions change (i.e., rail rates increase steeply) in order to optimize the value of their coal. They appear to be an excellent model for other mines in the area to imitate and emulate. Having shared these impressions with Danish and Finnish buyers who have taken coal from the Inskaya mine, it must also be said that they were somewhat more critical of the mine's performance. Their comments centered on the extreme variability in the quality of the coal, the undesirably high ash content, the unreliability of rail shipments and the problems encountered at loading ports.

10. Export Data Requested of Rosugol

The following is a list of the export/import data I requested of RussUgol on Monday, September 20, 1993.

--Total Exports by Producing Region for 1990, 1991, 1992, 1993 Estimated, 1993 Year-to-date

--Coking Coal Exports by Importing Country for 1990, 1991, 1992, 1993 Estimated and 1993 Year-to-date

--Steam Coal Exports by Importing Country for 1990, 1991, 1992, 1993 Estimated and 1993 Year-to-date

--Steam Coal Imports into Russia (Show by Russian economic regions) by Exporter for 1990, 1991, 1992, 1993 Estimated and 1993 Year-to-date

--Coking Coal Imports into Russia (Show by Russian economic regions) by Exporter for 1990, 1991, 1992, 1993 Estimated and 1993 Year-to-date

-- Steam and Coking Coal Exports by Mine (and Producing Region) for 1992, 1993 Estimated and 1993 Year-to-date

-- Steam and Coking Coal Exports by Mine and Loading Port or Overland Rail Route for 1992, 1993 Estimated and 1993 Year-to-date

--Inland Transportation Charges to Loading Ports for 1992 and 1993, showing producing region, route, distance (km), freight charge per tonne, and port loading charges

-- Port charges at loading ports (for loading on to vessel directly from railcars and/or from coal stockpile), by loading port for 1992 and 1993

--Coking Coal Exports by Loading Port for 1990, 1991, 1992, 1993 Estimated and 1993 Year-to-date

--Steam Coal Exports by Loading Port for 1990, 1991, 1992, 1993 Estimated and 1993 Year-to-date

-- Coke Exports by Importing Country (Total and by Coke Plant) for 1990, 1991, 1992, 1993 Estimated, 1993 Year-to-date

ATTACHMENTS

A. The Kuzbass: Map and Summary of Economic Statistics

B. Demand For Labor: Charts and Graphs

C. A Framework for Inferring Labor Displacement in the Russian Coal Industry

D. Russian Plan For Restructuring the Coal Industry

E. Guiding Principles and Actions for Economic Development Strategy

F. International Coal Markets: Tables and Figures

Attachment A

The Kuzbass: Map and Summary of Economic Statistics

Tomsk
Aleksandrovskoye
Bogoslovka
Timiryazevskiy
Kozhevnikovo
Kurlek
Tayga
Yaya
Izhmorskiy
Mariinsk
Koleul
Kiya
Belogorka
Tyukhtet
Nagorn
Vagino
Kritovo
Bogotol
Tyazhinskiy
Itatskiy
484
Anzhero-Sudzhensk
Yashkino
Yurga
Bolotnoye
Barzas
Berezovskiy
Krivoya
Oyash
Kemerovo
Novyy
Komsomol'sk
Tisul'
Makarakskiy
Uryup
Berezovskoy
Antropovo
Oz. Beloye
Kornilovo
Borovoy
Topki
Pioner
Toguchin
Yagunovskiy
Berikul'skiy
Sharypovo
Goryachegorsk
Tsentral'nyy
Uzhur
403
Podunskaya
Promyshlennaya
965
Kundat
Pervomayskiy
Krapivinskiy
Belogorsk
Sarala
Kop'yevo
Leninsk-Kuznetskiy
KEMEROVSKAYA
KUZNETSKIY
Polysayevo
Krasnoye
Pezas
Severnyy
Ordzhonikidzevskiy
Urskiy
Gramoteino
Chernyy Etap
Priiskovyy
Zolotogorskiy
Belyy Iyus
Gur'yevsk
Belovo
565
Tom'
Znamenityy
Shira
Salair
Starobochaty
Krasnobrodskiy
G. Bol. Kanym
Kommunar
1318
Antonovka
Tuim
Zalesovo
588
OBLAST
1870
Kiselevsk
Usa
Balakhchin
Sonskiy
Ulen'
KHAKA
Sorokino
Prokop'yevsk
Zenkovo
Sorsk
Zarinskaya
Novokuznetsk
Myski
Mezhdurechensk
G. Verkh. Zub 2178
Tamalyk
Ust'-Byur'
Novoaltaysk
Togul
Osinniki
Amzas
Charko
Kytmanovo
Kaltan
Mras-Su
AVT.
Barnaul
Yel'tsovka
Kuzedeyevo
Tel'bes
Balyksa
Zavodskoy
Troitskoye
Mundybash
Temirtau
Birikchul'
Chesnokovo
Tselinnoye
1749
Kyzlasov
Marushka
Soltono
1570
Chugunash
Synzas
KHR
Voyevodskoye
Biysk
Shalym
Tashtagol
1886
Tashtyp
Spassk
Kochura
Sorokino
Katun'
Srostki
Biya
Dmitriyevka
1103
Verkh. Matur
Abakan
Smolenskoye
Krasnogorskoye
Turochak
Mal. Anzas
Nizh. Artas
Pavlovskoye
Kyzas
Ona
Shaman
Kurikha
Altayskoye
Choya
1032
2510

KEMEROVO REGION

It was founded in 1943. The area is equal to 95.5 thousand square kilometers. The population(1991) was 3 million 180.2 thousand. The distance from Moscow 3482 kilometers. The difference is four hours (local time - Moscow time plus four hours).

POPULATION (1991)

Total - 3.2 million	
City inhabitants	87%
Russians	90%
The amount of active laborers	57%

QUANTITY OF PEOPLE IN CITIES AND REGIONS (1991)

Belovo	112,500
Kemerovo	557,200
Leninsk- Kuznetsky	140,600
Novokuznetsk	618,600
Prokopyevsk	270,400

INDUSTRIAL STRUCTURE OF KUZBASS

(In per cents to the total output)

Coal industry	26
Metallurgy (steel, iron)	19
Chemistry	9
Machine building and metal treating industry	14

Geologists evaluate the coal deposits of Kuzbass as 725 billion tons. The total amount of coal, that has ever been mined is equal 5 billion tons. Near half of the deposits are coking coals.

CHARACTERISTICS OF KUZBASS COALS

Energy extracted	7900-8560 kcal
Sulfur content	0.3 - 0.7%
Average ash content	8 - 14%

Over 200 thousand workers are occupied in coal industry. Coal mining is done by 72 mines, 25 collieries, it is treated by 17 refinery plants.

Kuznetsky Coal Basin(Kuzbass)
General Information

		Production(Mmt) '91(% export)	'92(% export)
1. Number of Underground Mines:	76	63.4(7.9%)	68.1(8.7%)
2. Number of Surface Mines:	25	60.6(5.6%)	51.5(7.1%)

3. Exported Coal(1992) 2.12 million tons met. 7.79 million tons steam

4. Major Coal Producing Towns	Number of Mines Surface	Underground	1992 Prod
Anzhero-Sudzhensk	-	4	2.6 Mmt
Kemerovo	3	9	10.7
Lenisk-Kuznetsky	1	10	15.8
Belovo	5	8	16.5
Kisilyovsk	4	11	12.4
Prokopyeusk	2	13	9.8
Novokuznetsk	4	11	20.9
Mezhdurecuensk	4	5	23.3
Osinniki	2	5	7.6

	UG	SUR
5. Number of People engaged in coal production(1992)	145,738	30,480
6. Number of people engaged in social functions(1992)	17,938	7,393

7. Number of Longwall Units: 290

8. Mineable Reserves: 4.97 billion tons met 3.32 billion tons steam

9. Average age of miner: 35-40 years old

10. Average wage of: underground miner 130,000 roubels/month(7/93)
surface miner 120,000 roubels/month(7/93)

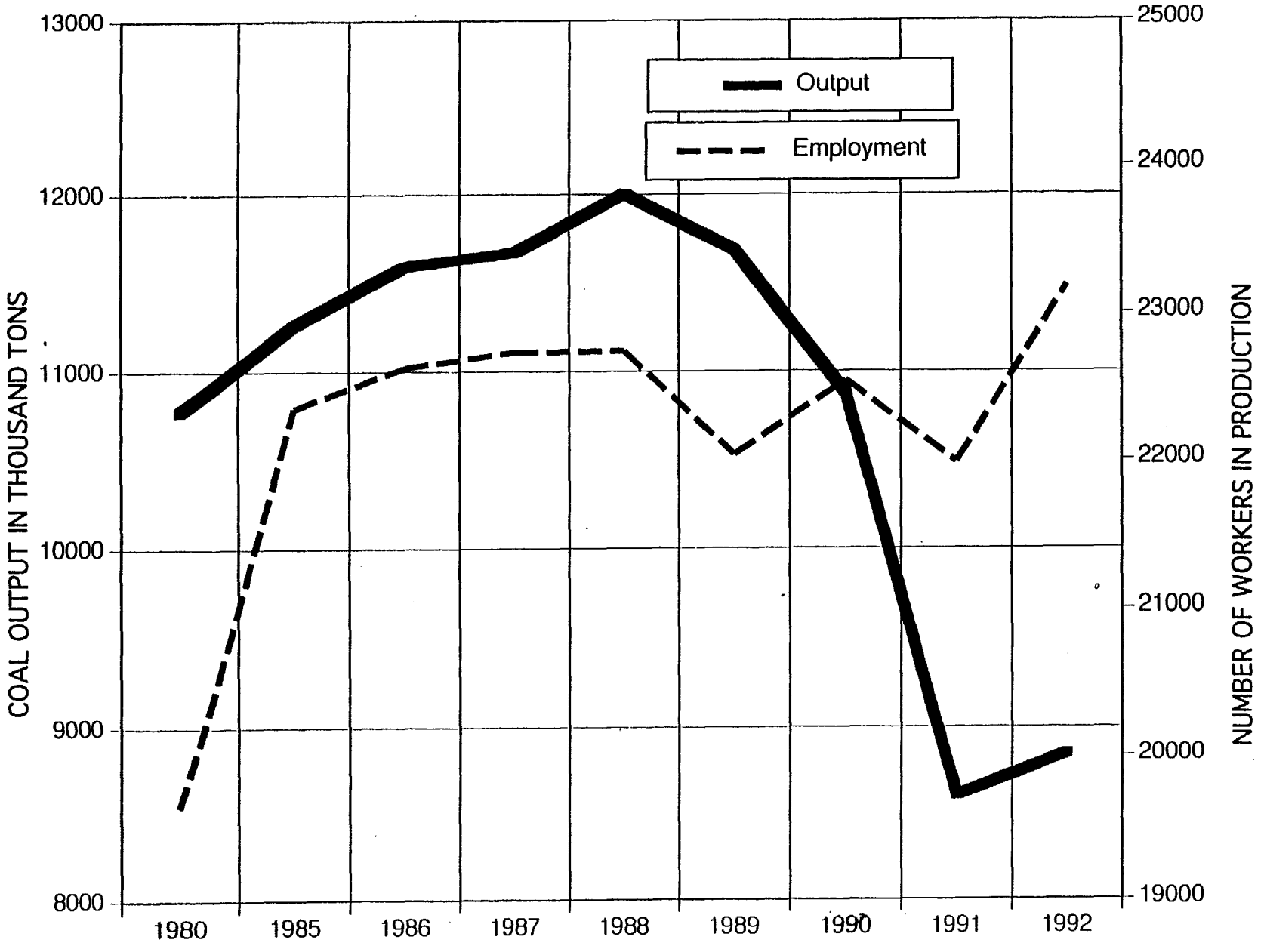
NOTE: Because of unavailability of information. items 5 thru 10 do not include Oblkemerovougol, which is comprised of 8 underground and 2 surface mines.

Attachment B

Demand For Labor: Charts and Graphs

FIGURE B-1

The Relationship Between Coal Output and Employment, Concern "SeveroKuzbassUgol," 1980-92



Source: Unpublished data from the books of the Concern "SeveroKuzbassUgol," Kemerovo

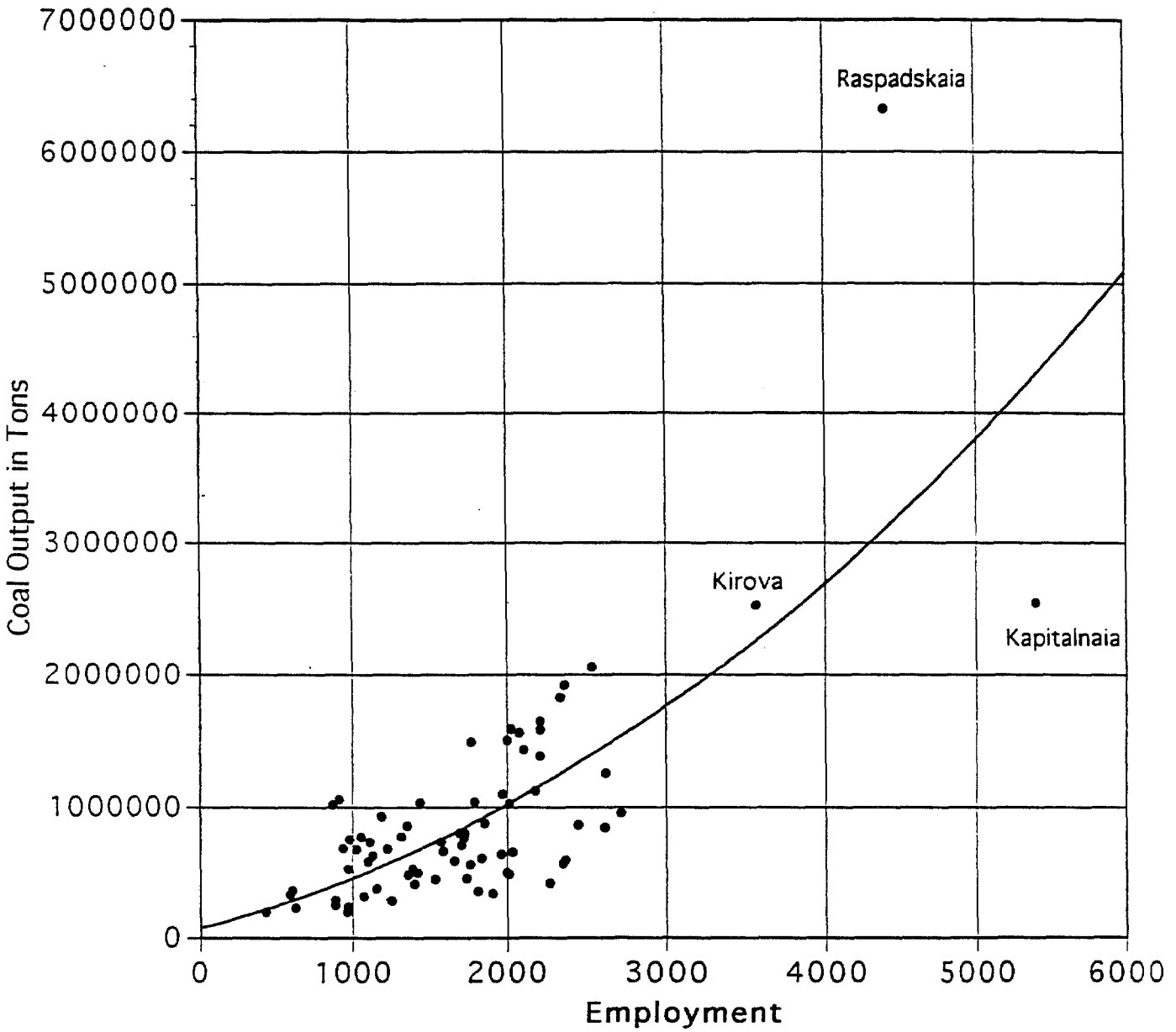
The Relationship Between Coal Output and Employment, The Volkov Mine, 1991-93

FIGURE B-2

Source: Unpublished data from the books of the Volkov Mine, Kemerovo

FIGURE B-3

The Relationship Between Coal Production and Employment, The Kuzbass, the Province of Kemerovo, 73 mines, 1992



$y = 80776 + 288.3\ x + 0.09\ x^2$ $\qquad R^2 = 0.537$

(0.547) (0.0002)

where x = employment, y = output

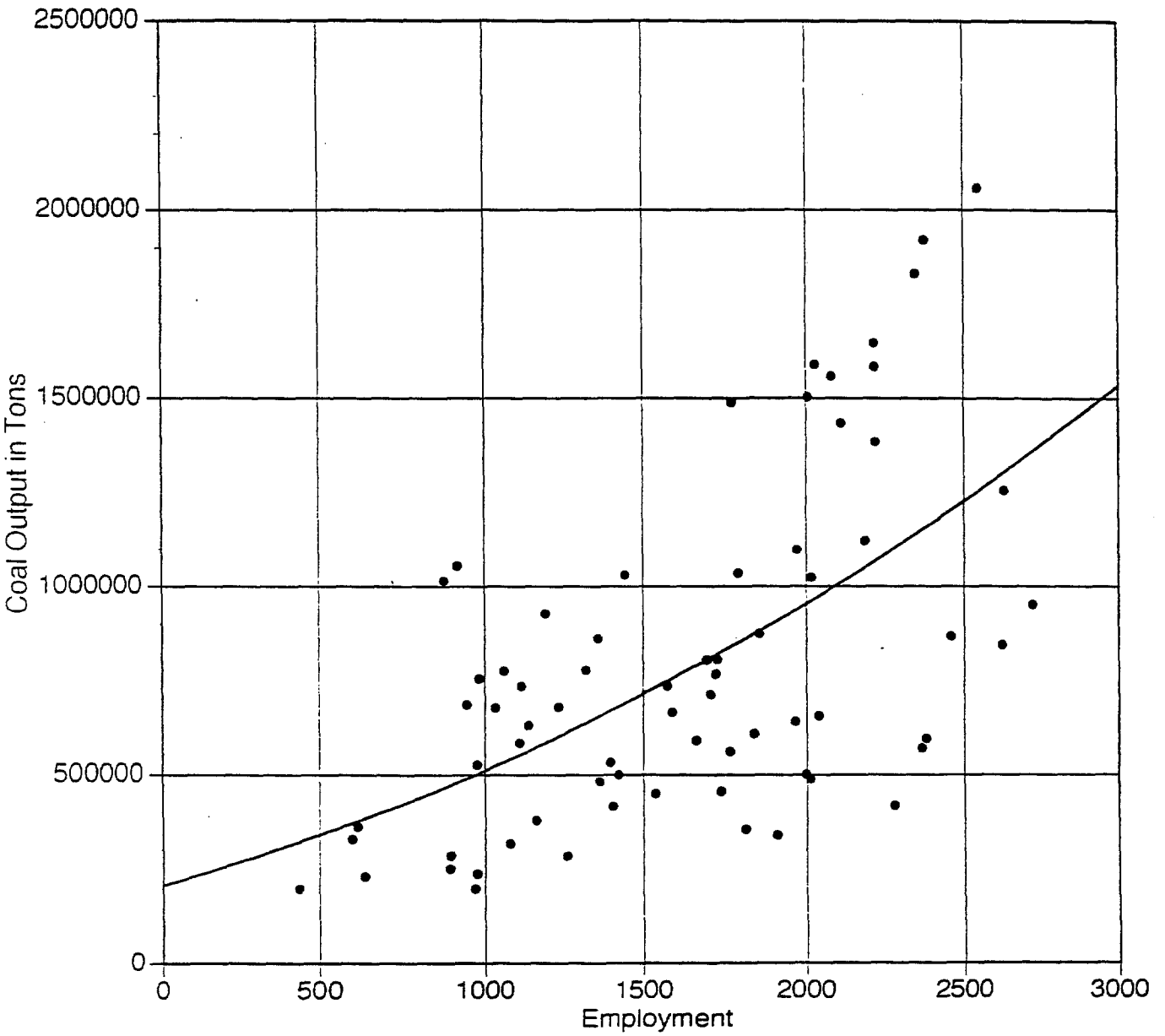
Elasticities calculated at the means are in parentheses

mean employment = 1738, mean output = 916148

Source: Data Pooled from the Books of Kuzbass Coal Concerns

FIGURE B-4

The Relationship Between Coal Production and Employment, The Kuzbass, the Province of Kemerovo, 70 mines, 1992



$y = 207488 + 225.1\ x + 0.07\ x^2$ $\quad R^2 = 0.342$

(0.461) (0.0001)

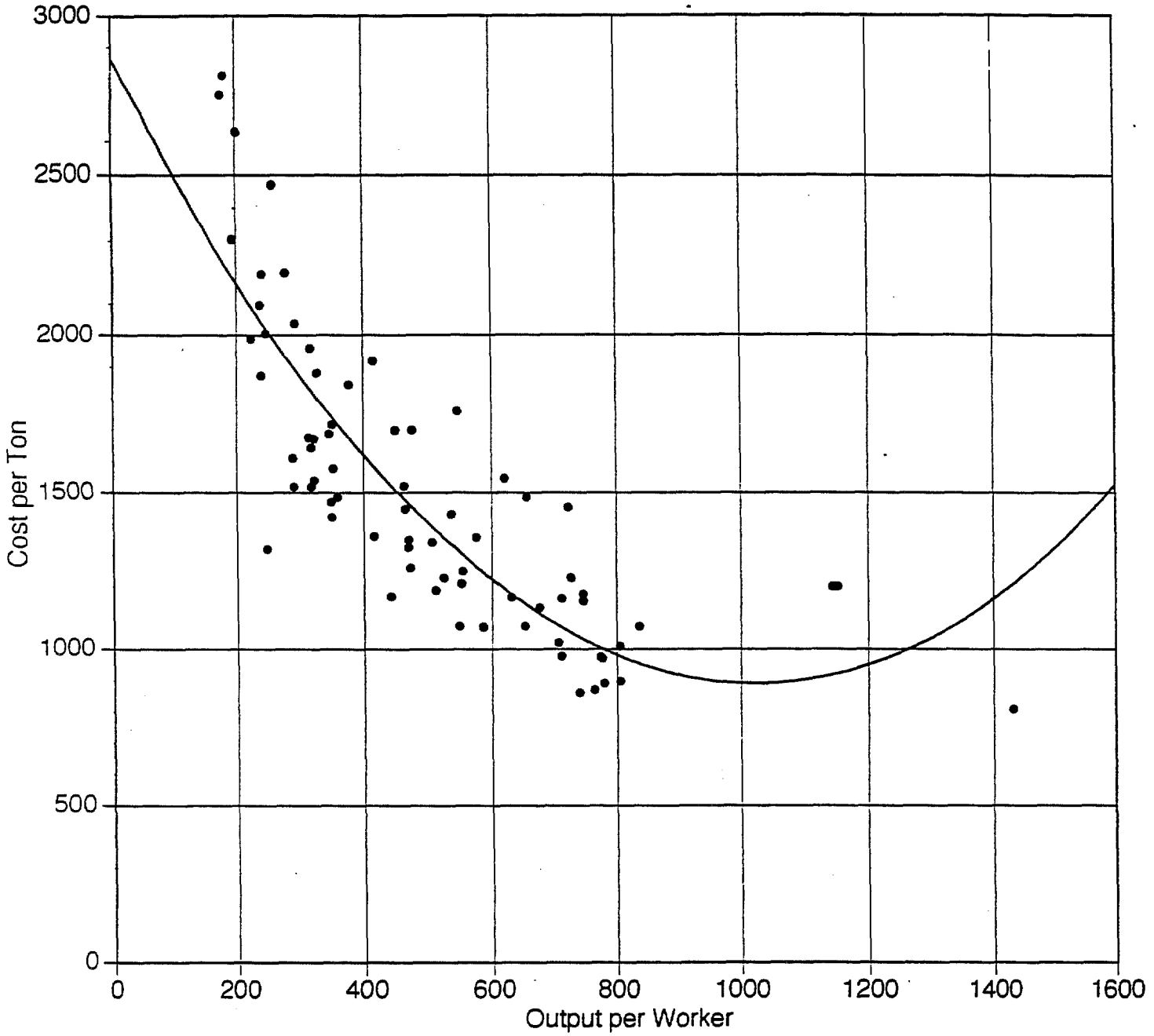
where x = employment, y = output

Elasticities calculated at the means are in parentheses

mean employment = 1622, mean output = 792635

Source: Data Pooled from the Books of Kuzbass Coal Concerns

FIGURE B-5



$y = 2862 - 3.865\ x + 0.0002\ x^2$ $\qquad R^2 = 0.718$

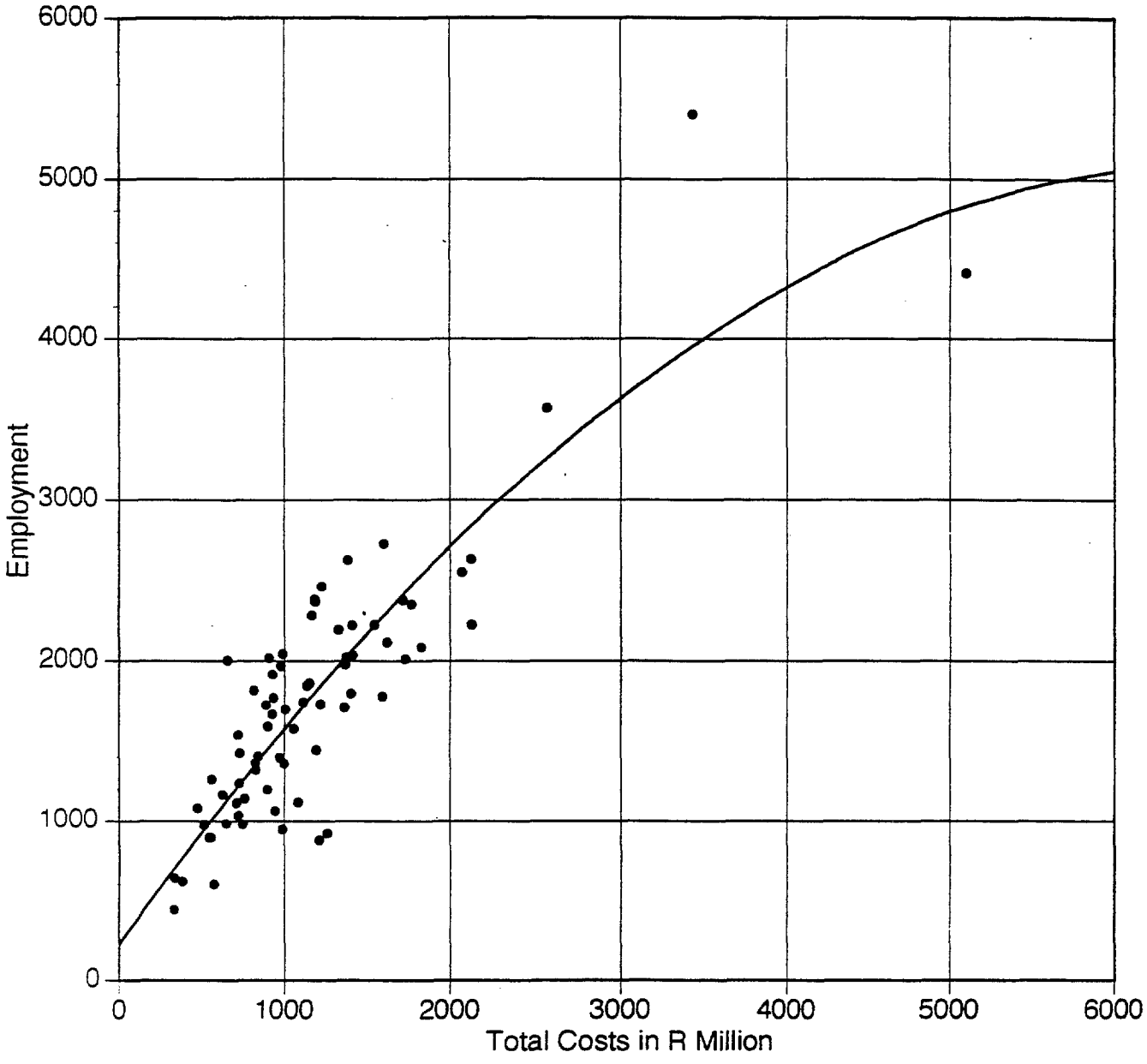
(1.325) (0.0001)

where x = output per worker, y = cost per ton

Elasticities calculated at the means are in parentheses

mean output per worker = 511.4, mean cost per ton = 1492.1

FIGURE B-6



$y = 221.64 + 1.465\ x - 0.00001\ x^2$ $\quad R^2 = 0.757$

(0.992) (0.00001)

where x = total cost, y = employment

Elasticities calculated at the means are in parentheses

mean total costs = 1176, mean employment = 1738

FIGURE B-7

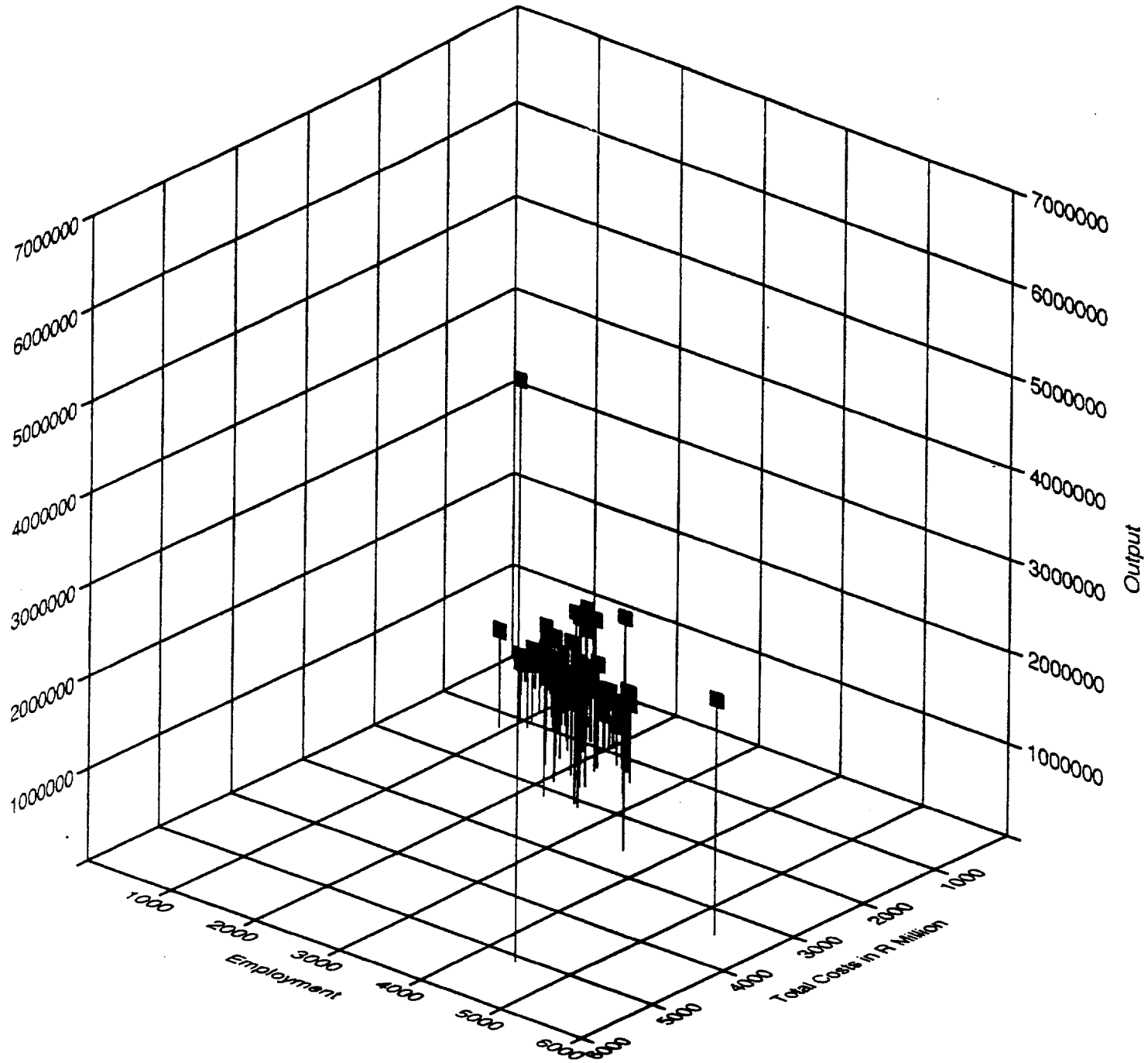
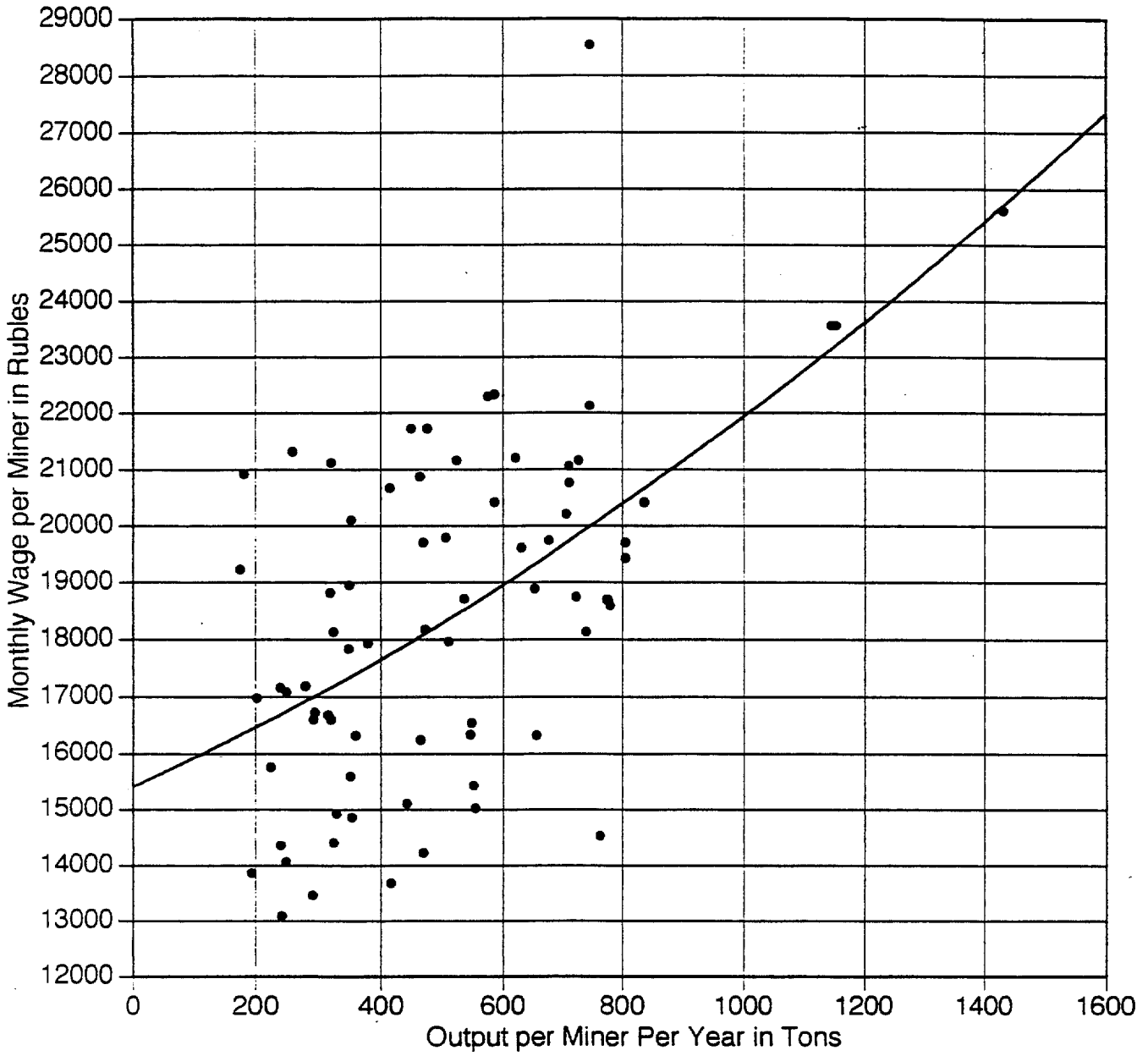

7000000
6000000
5000000
4000000
3000000
2000000
1000000
Output
1000
2000
3000
4000
5000
6000
Employment
1000
2000
3000
4000
5000
6000
Total Costs in R Million

FIGURE B-8



$y = 15408 + 5.001\ x + 0.0002\ x^2$ $\quad R^2 = 0.320$

(0.139) (0.00001)

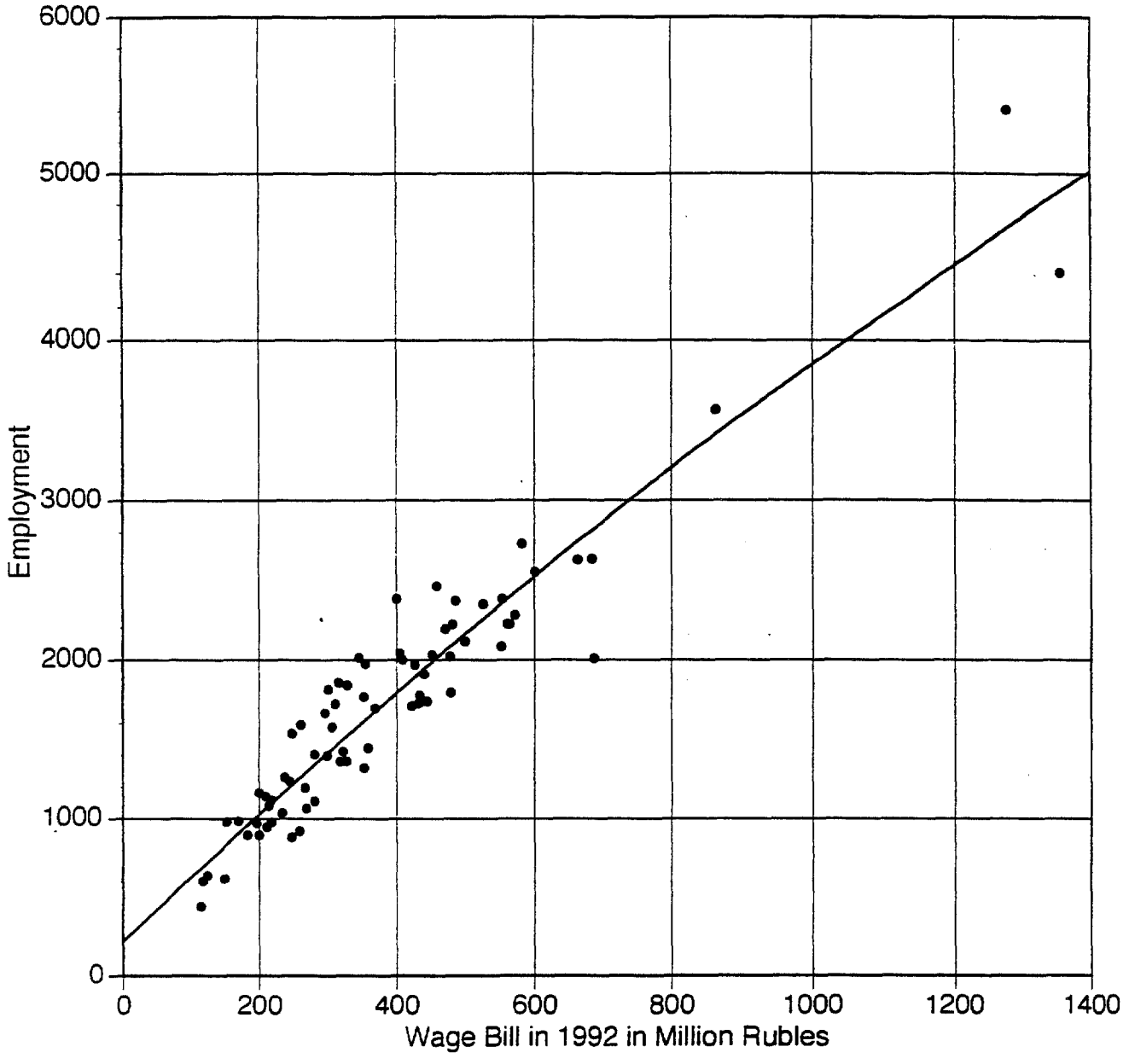
where x = output per miner, y = monthly wage

Elasticities calculated at the means are in parentheses

mean output per miner = 511.4, mean monthly wage = 18458

Note: The high constant may imply the presence of a social contract.

FIGURE B-9



$y = 221.63 + 4.144\ x - 0.00005\ x^2$ $\qquad R^2 = 0.904$

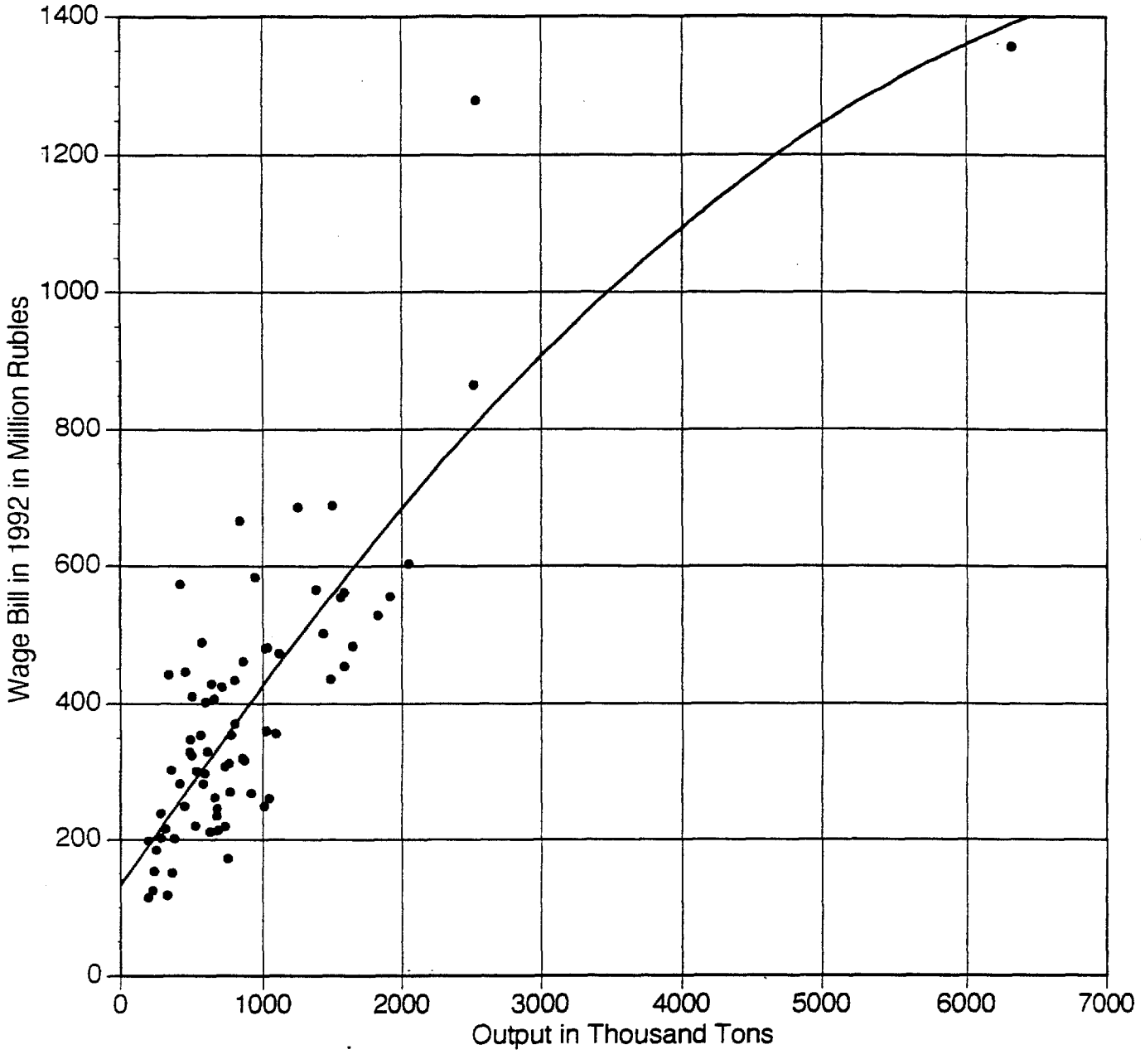
(0.932) (0.00001)

where x = the wage bill, y = employment

Elasticities calculated at the means are in parentheses

mean wage bill = 390.843 , mean employment = 1738

FIGURE B-10



$y = 132.08 + 0.312\ x - 0.000002\ x^2$ $\qquad R^2 = 0.705$

(0.731) (0.00001)

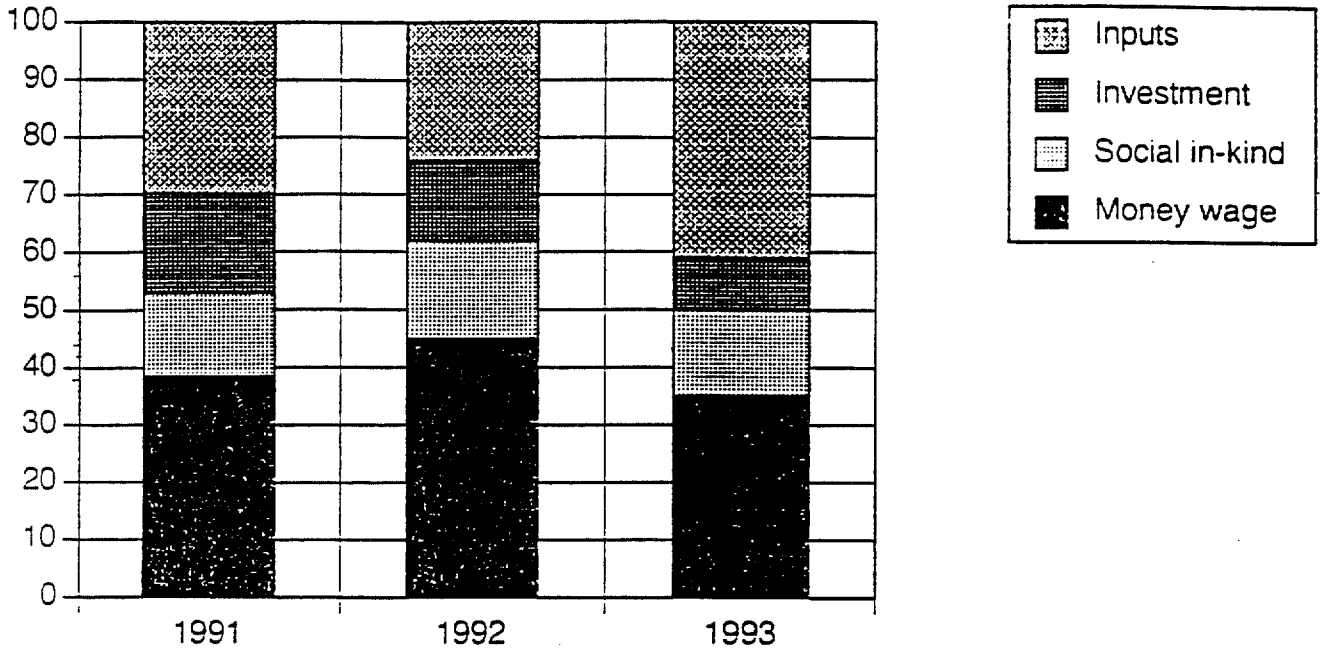
where x = output, y = the wage bill

Elasticities calculated at the means are in parentheses

mean output = 916.148, mean wage bill = 390.843

FIGURE B-11

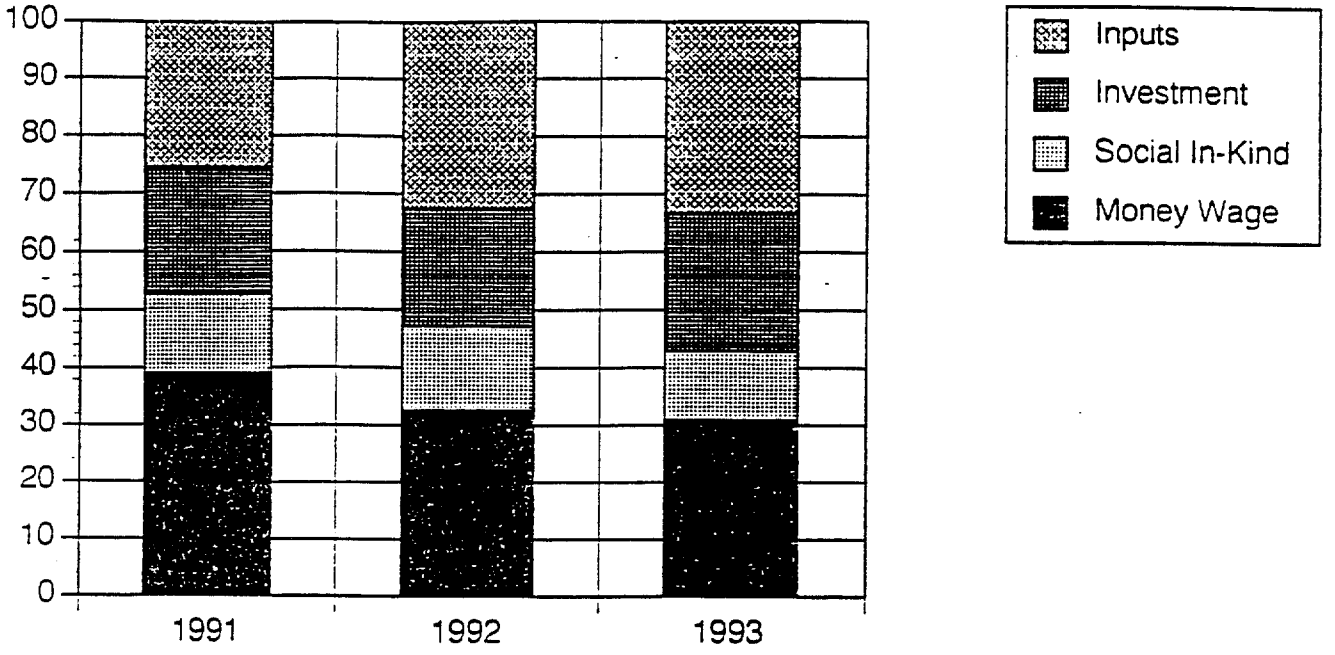
VOLKOV



Money wage	38.5	45	35
Social in-kind	14.5	17	15
Investment	17.2	13.9	9
Inputs	29.8	24.1	41

FIGURE B-12

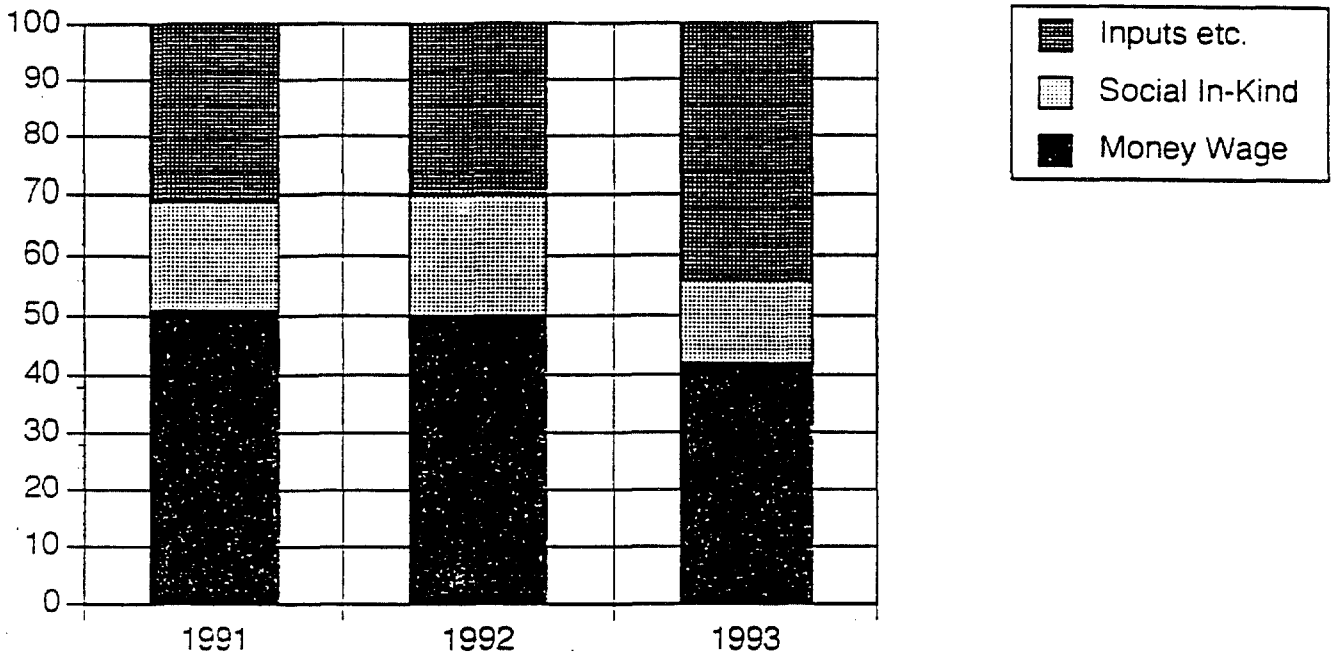
IAGUNOVSKAIA



Money Wage	39	32.6	30.9
Social In-Kind	13.8	14.5	11.9
Investment	21.7	20.4	24
Inputs	25.5	32.5	33.2

FIGURE B-13

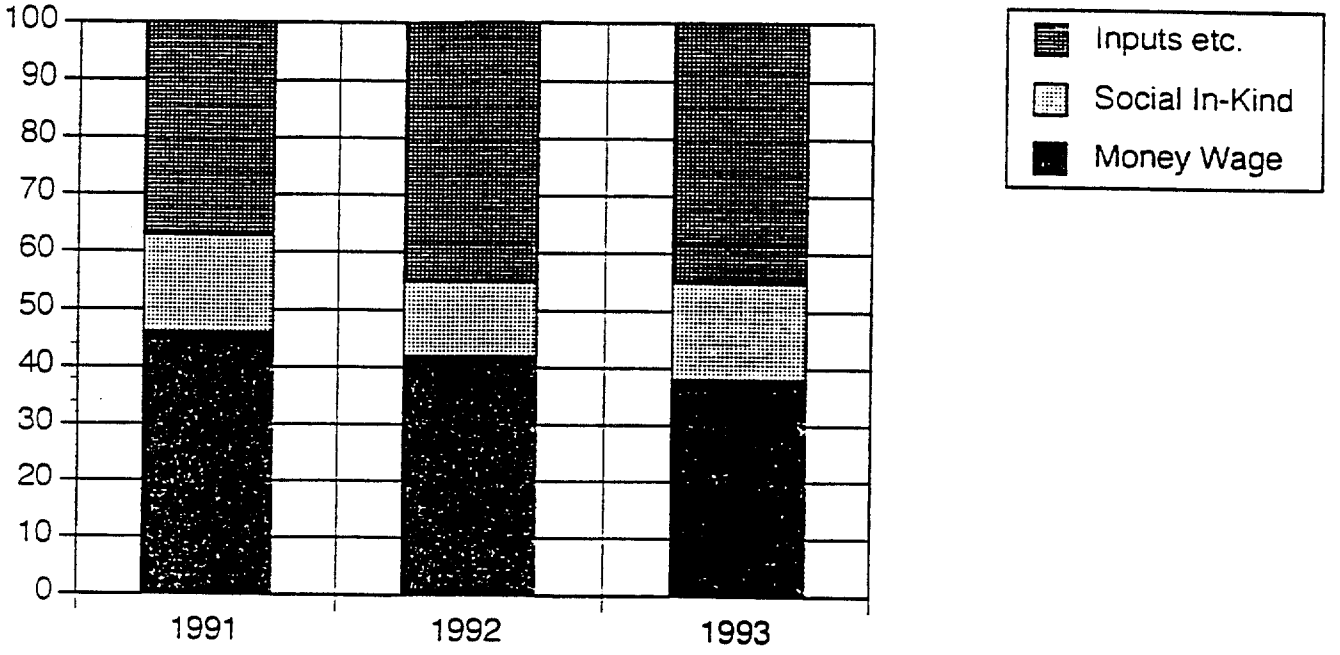
ANZHERSKAIA



Money Wage	51	50	42
Social In-Kind	18	20	14
Inputs etc.	31	30	44

FIGURE B-14

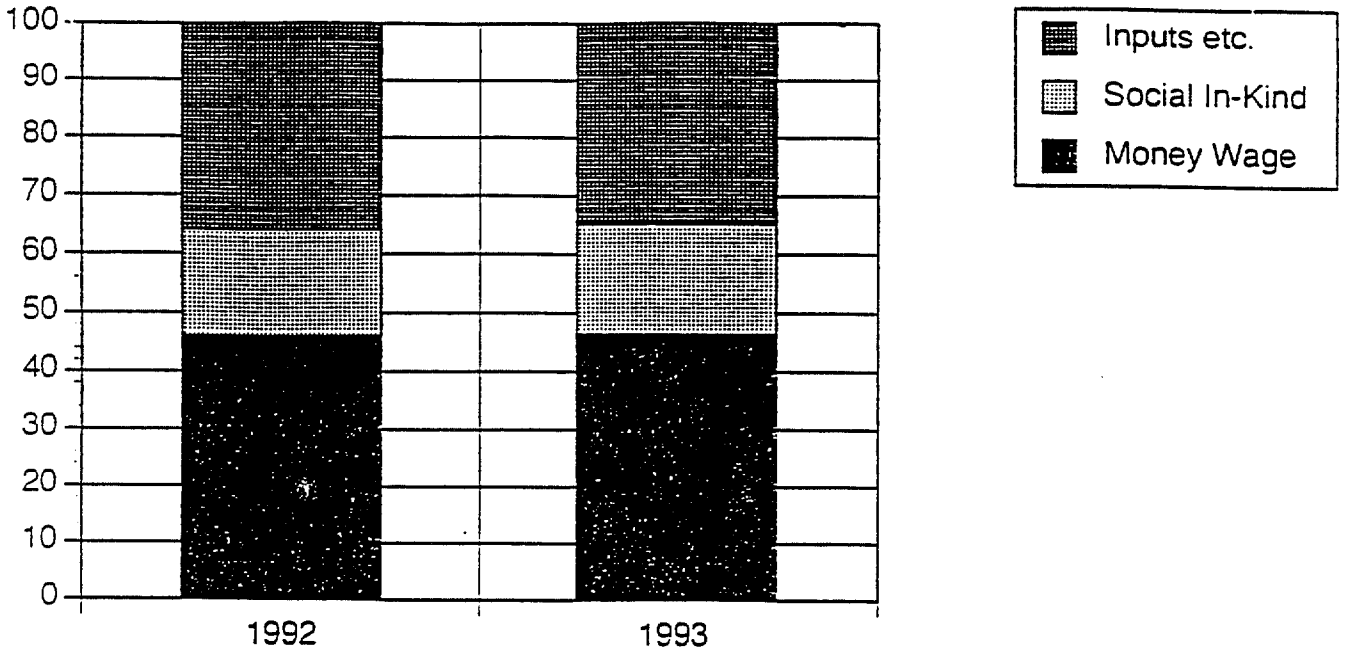
IUZHNAIA



Money Wage	46	42	38
Social In-Kind	17	13	17
Inputs etc.	37	45	45

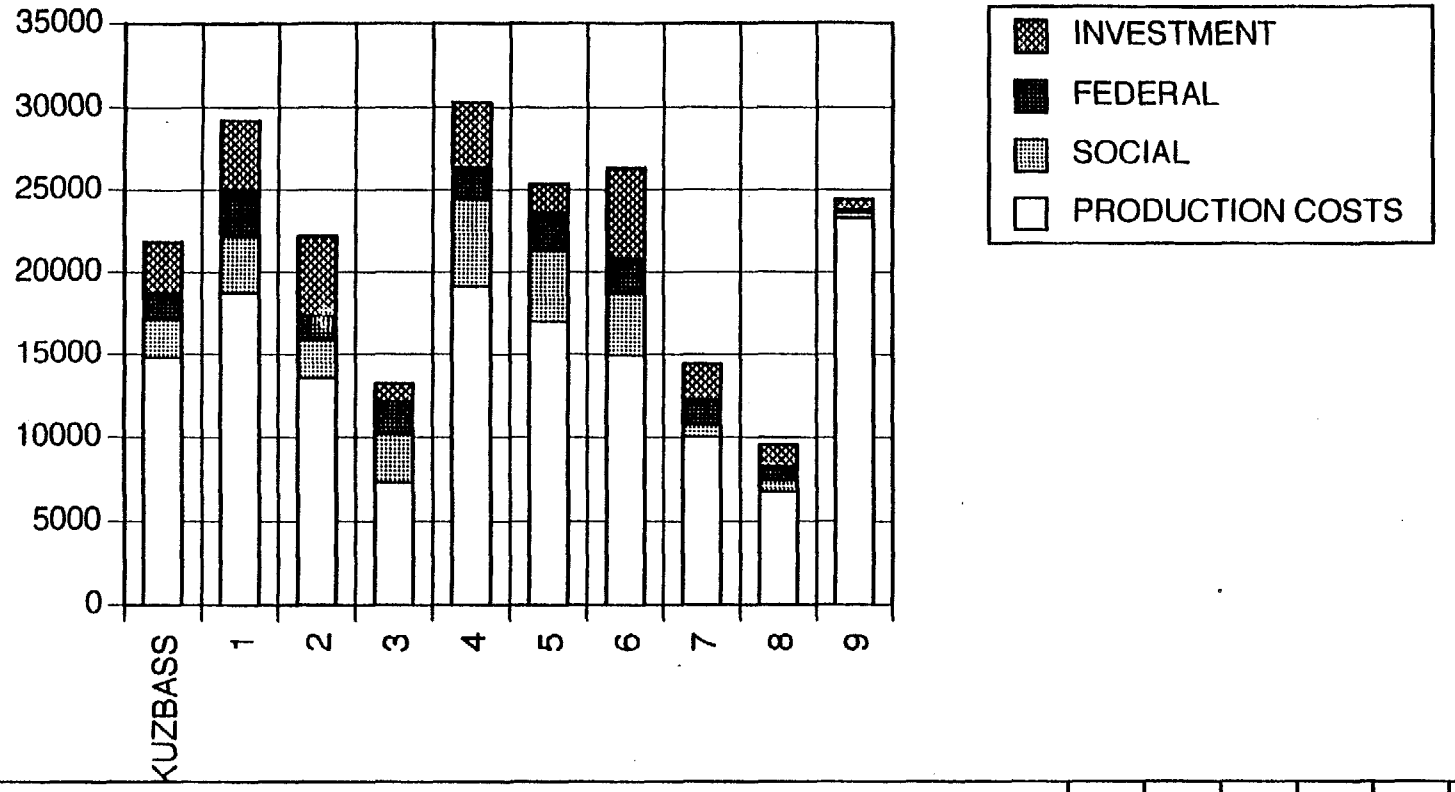
FIGURE B-15

SUDZHENSKAIA



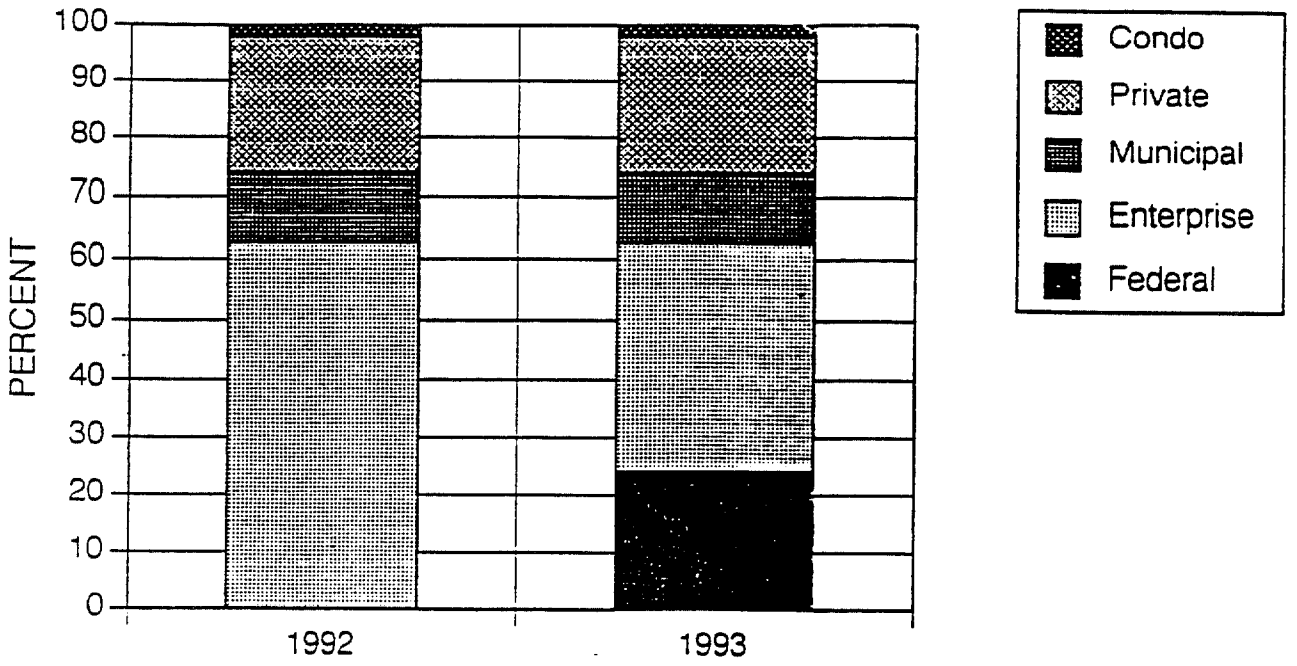
Money Wage	46	46.4
Social In-Kind	18.2	18.8
Inputs etc.	35.8	34.8

COMPONENTS OF THE PRICE PER TON OF COAL, 1993



	KUZBASS	1	2	3	4	5	6	7	8	9
PRODUCTION COSTS	4830	1859	1348	720	1962	1703	1447	1017	675	2331
SOCIAL	238	344	239	286	527	427	374	750	665	36
FEDERAL	168	285	149	190	198	227	202	148	825	18
INVESTMENT	302	412	486	101	393	171	550	214	130	61

EXPENDITURES ON HOUSING STOCK MAINTENANCE, THE KUZBASS, 1992-93



Federal	0	24.2
Enterprise	62.7	38.5
Municipal	11.1	11.1
Private	24.2	24.2
Condo	2	2

Attachment C

A Framework for Inferring Labor Displacement in the Russian Coal Industry

September 1993

Thomas MaCurdy

Stanford Institution

Objectives

1) The overall goal of this project is to forecast the extent of worker dislocation likely to occur with a restructuring of the coal industry, estimating both the amount of job loss in the aggregate and the distribution of losses and gains across mines or regions.

2) Accomplishing this task requires the development of a simple framework for inferring the employment consequences of various restructuring scenarios, a framework capable of being applied by policymakers with acquirable data.

3) Applying this framework will acquaint policymakers and the personnel responsible for implementing the reforms with the economic factors governing tradeoffs and the costs of alternative restructuring options.

Basic Elements

1) From a formal economic perspective, knowledge of two items play central roles in determining the extent to which a firm adjusts its employment in response to shifts in either the quantity produced by the enterprise or the price received by this enterprise for its output. The first item is the marginal cost of producing the output; and the second is the marginal product of labor. The following discussion focuses on assessing the degree of worker dislocation in the coal industry in the short term, but one can adapt this apparatus to admit a broad array of factors that will operate in the intermediate or the long run, such as productivity improvements in mining arising from capital acquisition and technical adoptions.

141

2) The marginal cost of production specifies the incremental cost incurred by the enterprise attributable to an incremental change in the amount produced. Mathematically this variable is defined as

$$m = \Delta C / \Delta Q ,$$

where

- m = marginal cost of the firm;
- ΔQ = change in the quantity (Q) produced by the firm; and
- ΔC = change in the total cost (C) of producing Q.

A standard representation of m, written as a function f, is

$$m = f(Q,W,R,A),$$

where

- W = wages of workers;
- R = prices of other inputs, including prices of material inputs and the user cost of capital; and
- A = institutional and technological factors influencing production.

3) The marginal product of labor specifies the incremental change in employment instituted by a firm due to an incremental change in production. Mathematically this variable is defined as

$$D = \Delta Q / \Delta L ,$$

where

- D = marginal product of labor; and
- L = number of workers (employment) used to produce Q.

A standard functional representation of D is

$$D = D(L,K,A),$$

where

K = quantities of nonlabor inputs used to produce Q, including materials and capital.

4) Aggregate supply for an industry -- an industry that produces by setting output price to marginal cost -- is determined by horizontally summing the marginal cost curves of individual firms. To specify this relation, designate the variables associated with a particular firm "i" by attaching an i subscript to these variables; thus, m_i represents the marginal cost faced by firm i. Define g_i as the inverse of the function f_i inverted with respect to the variable Q_i. Then aggregate supply for the industry is given by

$$S = \Sigma_i\, g_i(m_i,W_i,R_i,A_i)\ ,$$

where the summation adds over all the firms in the sector. In this expression, the variable m_i corresponds to the price at which the firm is free to sell its output. It is not necessary to assume in this analysis that firms face the same price, which can differ for a variety of reasons such as differential transportation costs.

5) The above items provide the information needed to infer the consequences of adjustments in aggregate production brought about by changing the structure of output prices. To achieve an adjustment in aggregate production equal ΔS, any new set of output prices m_i^* that satisfies the equations

$$\Delta S = \Sigma_i\, \Delta Q_i$$

where

$$\Delta Q_i = g_i(m_i^*,W_i,R_i,A_i) - g_i(m_i,W_i,R_i,A_i)$$

yields this adjustment, assuming that other prices and technology remain fixed. The quantity ΔQ_i shows the change in output for firm i.

6) The resulting change in employment for each firm i is determined by its marginal-product-of-labor curve. To a first-order approximation, the implied adjustment in employment is given by

$$\Delta L_i = \Delta Q_i \,/\, D(L_i^*,K_i,A_i),$$

where L_i' is a mid point between the initial value of employment L_i and the final value $L_i + \Delta L_i$. This approximation assumes that other nonlabor inputs and technology remain fixed.

7) An exact value for the change in employment is the solution to the integral equation

$$\Delta Q_i = \int_{L_i}^{L_i^*} D(\omega, K_i, A_i) d\omega \quad ,$$

where L_i^* represents the new level of employment, and $\Delta L_i = L_i - L_i^*$. Given knowledge of the function D, standard numerical software routines easily solve for L_i^*.

8) A special case of the above framework, and the conventional approach applied in the most analyses, presumes that average cost of production is constant, and thus equal to marginal cost over the relevant range. This formulation possesses many unattractive features and is of dubious value for predicting employment effects. First, unless one presumes the existence of fixed capacity constraints, all employment in the industry will shift to the single lowest cost mine. Second, even the specification of binding capacity constraints, the formulation implies that shifts in industrial production arise solely as a consequence of entry and exits of firms. In other words, mines either operate at full capacity or not at all, and the opening and closing of complete mines is the only efficient mechanism for changing aggregate output. In contrast, the framework proposed above recognizes that some enterprises may reduce their production without completely closing down.

Data Requirements

1) A straightforward approach for gathering the information needed to operationalize the above framework is to assemble the data needed to estimate each firm's marginal-cost and the marginal-product relationships directly. A realistic, and probably the most effective, means for obtaining these data is to have administrators of Russian mines answer a series of question concerning their expectations of the consequences of several scenarios on the operations of their mines. These scenarios consist of considering alternative adjustments in the level of coal produced in the mine on the use of inputs, along with the costs expended on these inputs. The quality of such data relies on the knowledge and the judgement of the managers of mines, but, at the same time, it does not require the unrealistic assumptions of profit maximization and full

productive efficiency of the sort typically presumed in a standard economic analysis.

2) A feasible device for collecting these data is to ask individual mine administrators the following series of questions:

(i) What is the amount of coal that your enterprise delivers in a typical 3 month period?

(ii) What are the total costs (expressed in end-of-year-1992 rubles) associated with producing this amount of coal? How much of these costs are in the form of wage payments, capital costs, expenditures on other nonlabor inputs, transportation expenses, etc.?

(iii) How many people work in you enterprise? How many are miners, supervisors, and support personnel? How many hours does a full time employee work during a typical 3 month period? What fraction of individuals in these groups typically work part time? On average, how many hours do part time workers spend on their jobs in a 3 month period?

(iv) Suppose you were faced with a mandatory 5% reduction in the quantity of coal produced by your mine. How much would you save in total costs in producing this lower quantity? How do these expenditure savings break down into the categories of wage payments, capital costs, expenditures on other nonlabor inputs, transportation expenses, etc.? How many fewer workers would you require to produce this level of coal?

(v) How would your answers to the above questions change if a 10% reduction were mandated? A 25% reduction? A 5% increase in production? A 10% increase?

3) The answers to the questions specified above provide the basis for constructing reliable measures of the functions f_i and D_i. Conventional estimation methods combined with extrapolation techniques offer an approach for calculating continuous approximations for these function. This provides the basis for drawing inferences about the consequences of altering aggregate coal production on the employment picture in coal regions, both on total employment and on the composition of employment across mines.

145

(4) The data acquired from the above questions also offers a basis for determining the prospects of closing particular mines. It provides sufficient information to calculate average cost curves and relations characterizing the value-added attributable to labor in each mine at levels of output in the range of current operations.

Attachment D

Russian Plan For Restructuring the Coal Industry

Note: This translation has been prepared in order to parallel the Russian language format and to convey the accurate English language meaning.

First Deputy Minister
of Fuel and Energy
of the Russian Federation

In accordance with the resolution of the Council of Ministers - the Government Russian Federation dated 16.05.92 #318 (7) and 20.06.93 # 590 (3) Russian Coal Company assisted by specialists from NPG and the Fund of Social Guarantees has elaborated the project of closure of nonprofitable mines and strip mines of the Russian coal industry.

In March, the outline of the "Program" was sent to the corresponding Ministries and Departments of the Russian Federation. The remarks and suggestions received were considered in this document.

I ask you to coordinate the "Program".

Supplement: "Program" (20 pages)

The realization of the program should be carried out in accordance with the resolution of the Council of Ministers - the Government of Russian Federation dated 5 February 1993 # 99 on " Organization of Assistance in Employment during the Period of Mass Lay-offs."

(Note: the Russian language version does not contain a number 1).

2. THE PRESENT STATE OF THE INDUSTRY AND THE EVALUATION OF THE MINES' FUND

The present state of the Russian coal industry is in deep crisis. Every year, the total amount of coal produced in Russia, decreases by 8-10 %, conditions of the mines' fund are getting worth, labor input and danger of carrying out mining operations increases and expenses on simple reproduction also increase.

Out of 238 mines in Russia, 60% have been in operation for more than 20 years and have never been reconstructed. Two thirds of the mines are considered to be dangerous in regards of gas and dust, every second mine is dangerous because of coal self-ignition. The majority of mines are relatively small enterprises and only 36 mines have the capacity comparable with modern mines abroad.

With the average labor productivity of 40.5 tons per person per month, for 49 mines this amount does not exceed 20 tons per month.

Actually, throughout the entire history of the Russian coal industry, it has been subsidized with the major part of the subsidies spent on the social sphere and investments. Following the introduction of free prices for coal, 40 % of all the mines will be non-profitable and will not be able to function without state support.

Last year, despite the decrease in production in fuel consuming branches of industry, the situation with consumers' coal supply became more difficult. Even in favorable weather conditions, the deficiency of coal resources was one of the main reasons for the imposing of limits on thermal and electric energy consumption in a number of regions of the Russian Federation. In the Far East, in January-February of this year, a three day work week was introduced for certain consumers, as well as limits on electric capacity consumed.

While implementing the Program for the closing of non-profitable mines with low technical and economic parameters, decrease in production can be partially compensated by means of concentrating financial and material resources and the shifting of the work force to more powerful enterprises, which have more chances for development and which are situated in the same or nearby regions.

The problem of the mine closing can become particularly difficult when the mine and its settlement are isolated from other settlements and enterprises. All infrastructure and all labor links are connected with the mine. In this case, the closing of this mine will leave out the possibility of people finding jobs in other mines and, practically, it does not exclude the appearance of a lot of hired employees in the local market. All this can lead to a crisis situation, and taking into account the high organization and unity of the miners, it can lead to social conflicts, and by the economic consequences will result in the necessity of continued subsidies for the mines.

Judging by technical and economic calculations " Closure of Halmayu mine" of Vorkutaugol Association, completed by the "Pechorniiproect" Institute, expenses for liquidation of the mine, the capacity of which is 410,000 tons of coal per year and the number of workers 1747 people who live in the settlement by the mine, requires 13473,5 million rubles (pursuant to the prices in the fourth quarter of 1992).

This implies capital expenses such as abandoning working, equipment, buildings and other facilities. Disassembling will require 6,690 million rubles, construction of civil objects to transfer workers and members of their families from Halmayu mine settlement to Vorkuta and other regions will result in 6161 million rubles.

To pay compensation to the workers due to the liquidation of the enterprise, transportation expenses for people and their property when relocating, 646 million rubles are allocated.

3. THE MAIN CRITERIA OF NON-PROFITABLE COAL ENTERPRISE EVALUATION. THE ORDER OF DECISION MAKING

The estimated list of non-profitable mines (Attachment 1) was prepared and worked out by the Ministry of Fuel and Energy of the Russian Federation on the basis of the existing mines' fund, proceeding from the needs in coal production and demands in new energy policy. The following factors were taken into consideration:

- availability of industrial coal resources and terms of their extraction
- possibility to substitute coal production of a mine or a stripping by other enterprises or other kinds of fuel
- mining and geological conditions of existing coal reserves, level and degree of miners' safety (category as to gas, seam shifts and accidents)
- efficiency of the enterprise' work, subsidies per ton of coal
- possibility of transfer of an enterprise to a joint stock company or selling of same
- existence of social sphere structures cost of same
- balance and remaining cost of the main funds

In the list of non-profitable mines and strippings, the mines are divided in the following groups:

1. Enterprises which do not have industrial coal reserves, work on "above balance" reserve production with low productivity.

Measures of capital, technical, organizational character can not significantly raise economic indicators.

2. Mines which have a limited time to function (3-4 years) because of limited reserves have low technical and economic characteristics: subsidies per ton of coal exceed the average amount of subsidies in the coal industry by 3-5 times.

3. Mines which have sufficient coal reserves, but do not have progressive extraction technology: high labor input and low labor productivity are characteristic. This group includes enterprises with steep slopes where labor input is twice as high as in mines with flat slopes. These are also enterprises with high accidents level (in the steeply sloped steams, there are 3 times more deaths per 1 million tons of coal than in flat seams).

4. Mines which enhance their finances adequately in relation to money invested, and specific expenses per one ton exceed the average level for the entire industry. The supposed economic effect following the introduction of modern mining techniques and equipment cannot be attained.

In accordance with this classification of mines,it is suggested that the first category of mines at the discretion of Rosugol, should no longer receive state subsidies.

Having acquired certain experience in handling the first group, in 2-3 years the second stage of economic improvement within groups 2,3 and 4 will be much easier.

It does not exclude the possibility of simultaneously reducing the amount of state subsidies which is provided for the mines of these groups during the first stage.

The Ministry of Fuel and Energy of Russian Federation will prepare, for the Council of Ministers-Government of the Russian Federation, a list of non-profitable mines with the reasons why state subsidizing is impossible. This list will consider standard fuel and energy balances, limits for coal price regulations and the rate of state subsidies. A list prepared by the Interdepartment commission on the Closing of Non-Profitable Mines and Strippings will also be compiled.

4. REDUCING THE AMOUNT OF NON-PROFITABLE MINES AND STRIPPINGS

After the Council of Ministers and Government of the Russian Federation determine to close the mines and the strippings, the Minister of Fuel and Energy, within one month will inform the work collectives of the mines and strippings which are included in the list of non-profitable enterprises about the impossibility of further state subsidizing.

Leaders of these enterprises, together with the representatives of the labor unions, local administration, and the Foundation of Social Guarantees, will elaborate the concrete measures for the economic improvement of the enterprise within a two month period (Attachment 2) and consider the possibility of its further functioning.

These measures will be discussed in the labor collective, and within a two month period, they will be considered by the Interdepartment Commission on the Closing of Non-Profitable Mines and Strippings (Attachment 3).

Suggestions of the Interdepartment Commission will be submitted to the Ministry of Fuel and Energy of the Russian Federation and within ten days, a final determination will be rendered.

Based upon the decision to liquidate an enterprise, liquidation will begin. The project should foresee the following:

- safe extraction of the remaining coal reserves within a certain time period or the order of their abundance and conservation

- the disassembling of mining equipment and parts for further usage

- isolation of underground works and their reaching the surface

- conservation of underground works

- buildings, facilities and underground works, reconstruction for the usage for other purposes

- social protection for workers and their families of enterprises which are being liquidated, including expenses for new housing construction, compensation, etc.

- coordination with all interested entities re: technical questions

- preparation of a legal act detailing the work of the Program; distributing same in assigned order to state structures

The Program should also determine an approximate cost of all the work and expenses for social protection of the workers.

The implementation of the Program to liquidate enterprises will be done in accordance with existing acts and will be financed in an assigned order from the budget which is being allocated to the coal industry.

In the region of the mine closings, the executive organizations, the trade unions and other authorized structures will organize consultations on the problems of employment of workers following lay-offs.

Employers within a three month period following the final determination of the Ministry of Fuel and Energy regarding the mines closings, will present to the state structures responsible for the employment of the population and to corresponding trade unions, information concerning possible mass lay-offs, in accordance with Attachment #1 to the Resolution of the Ministry of Fuel and Energy, dated 5 February 1993 #97.

Employers, no later than five months following the final determination, should inform the structures responsible for the employment of the population about the future lay-offs and each particular case in accordance with Attachment # 2 to the Resolution.

To assist the employment of laid off workers and to hold all the negotiations, the commissions consisting of the representatives of the Administration, trade unions and other authorized structures will be organized.

These commissions, in the course of negotiations, will design alternative versions of further functioning of the enterprises, or a program to be implemented by the employers before the start of the lay-offs in order to reduce the negative impact of the closings. The departments responsible for housing and other social infrastructure issues will form a separate

structure in order to prepare and provide the necessary information to the local executive organizations. The commission will evaluate the remaining cost of the capital funds of the enterprises and makes decisions:

- regarding the transfer of the enterprises to the responsibility of other branches of industry or their being sold to joint stock companies, cooperatives, private companies and other legal and physical persons;

- regarding the redirection of the enterprises aimed at the profitable production for the other branches of industry or local needs;

- regarding the complete liquidation of the enterprises.

5. EMPLOYMENT OF LAID OFF WORKERS

Responses to the new questions of the employment which arise as a result of mass lay-offs connected with the liquidation, partial or total stop of production on the initiative of government structures, are financed from the corresponding budgets. Measures can be included in the agreements concluded between corresponding trade union and other authorized workers, representative structures and employers, the Ministry of Labor of Russian Federation, or can be included in the territory agreement concluded between corresponding trade unions, other authorized workers, representative structures and employers, executive organizations.

These measures include:

- professional retraining, improving the qualification of workers who may have difficulties with finding new employment;

- providing financial assistance to those workers and their families who relocate;

- redirection of enterprises and creating new working places;

- privatization of enterprises;

- other measures directed at the assistance in employment of the laid off workers. The measures that are taken in Erunakosky coal basin can serve as a good example. They build and put into operation new mines for the workers from non-profitable mines in Prokofievsk and Kiselevsk which will be closed after the workers move from there.

Financing of these measures will be included in the regional and branch of industry agreements and further defined in negotiations.

6. RELATIONS BETWEEN THE WORKERS, EMPLOYERS AND EXECUTIVE STRUCTURES

Relations between the workers, employers and executive structures are regulated by the existing legislation and collective bargaining agreements.

Trade unions and authorized workers from representative organizations will prepare suggestions to be sent to government structures and executive organizations and will be considered and implemented according to practice.

Per the direction of the Department of Employment of the Population and the Trade Union, the Local Councils of Peoples' Deputies can suspend the resolution of the employers with respect to mass lay-offs up to six months, or make a final determination within a one year period. This process will be financed by the local Council of Peoples Deputies.

7.SOCIAL PROTECTION OF THE MINERS DURING MINES CLOSURES

Provision of social protection of workers laid off due to mines closings includes certain guarantees and compensation which are provided for in labor legislation :

- paying severance equal to a monthly salary;
- the average monthly salary will be provided during the first two months following lay-off in the instance that the Department of Employment for the Population can not find an appropriate job;
- paying unemployment benefits during twelve months at a following rate:

  first three months - 75% of an average salary at the last place of work,

  next four months - 60%

  further - 45% (but not less then minimal salary).

In all cases, the payment of employment compensation will commence the first day following three months from the date of the job loss on the condition that the worker contacts the Labor Exchange during the first two weeks.

The term of unemployment compensation will be increased two weeks for every extra year people have worked to receive a pension (twenty five years for men and twenty years for women), or who are allowed a beneficial length of service :

- List # 1 - retirement age for men 50 years, for women- 45 years;

- List # 2 - retirement age for men 55 years, for women- 50 years.

Local Council of Peoples' Deputies can prolong the length of the payment of unemployment compensation from its own budget. The Employers can also provide financial assistance in addition to the means provided according to legislation.

During the period of professional training, laid- off workers will be paid scholarships:

- workers having worked over one year will be paid 75% of the average monthly salary which they received at their last job

- workers having worked less than one year are paid allowances customary for a definite type of educational establishment.

The amount of allowances paid to workers with dependents will be increased by 10 per cent per dependent, but should not exceed the average salary at the last job.

By resolving the social issues of working people, it must be noted that the law "On Providing Employment for the People of the Russian Federation" and the Resolution of the Council of Ministers of the Russian Federation, "Organization of Assistance in Employment during the Period of Mass Lay-offs" is unclear as to which organizations are to elaborate a system of measures on liquidation of enterprises. The Resolution notes only that these questions should be reflected in collective bargaining agreements and should be solved by joint Commissions.

Neither law, nor the resolution, define who is responsible for providing the working places for the laid off workers after the closing of an enterprise or considers the workers desire to change their profession.

The decision to close a mine requires consideration of a range of specific features of the mining enterprises and their collectives:

1. The location of the mine is defined not by an historically convenient place for the workers' residence, but by the geological location of coal.

2. The majority of the working places (60%) can not be used for other industry purposes (as they are located underground and are specifically aimed at coal extraction or its processing and surface transportation).

3. Practically all underground workers (80-85% of total workers excluding fitter and distributer of VM /abbreviation unclear/) cannot find jobs according to their specialization in other branches of industry. In this case, professional retraining is required.

4. Mine workers receive high wages ranging from 20 000 to

in excess of 100,000 rubles. The decision to organize other enterprises must consider this fact and requires highly qualified workers.

5. Decreasing family incomes will dictate that additional working places for wives not working be found and that pensioners who would like resume working.

6. Special attention should be paid to engineers as they can not use their skills in other branches of industry and they require more time for retraining than other workers.

7. The difficult mine working conditions result in earlier retirement compared to workers in other industries (conveyer belt workers especially suffer early health problems).

Considering these facts, in accordance with Article 37, Item 9 of the Law of the Russian Federation "On Enterprises and Entrepreneurship", the closing of an enterprise should be financed, according with to the closing plan, mainly from the State budget, in accordance with a special resolution of the Government, which should consider State privileges for the regions undergoing restructuring.

1. For entrepreneurs:

1.1. Enterprises will not pay taxes on profits received at working places created for the miners.

1.2. Entrepreneurs who organize small enterprises in the coal regions to be restructured could receive loans at an interest rate 50% less than the market rate.

1.3. New enterprises will receive land at a two times' discounted rate.

1.4. New enterprises organized in the buildings that formerly belonged to the mine will not be taxed on the profits for five years.

2. For mine workers:

2.1. Laid off miners who will change their jobs for those in other branches of industry will not be taxed individually.

2.2. Lump sum payment will be given to cover the supposed period of unemployment of a laid off worker.

2.3. It must be determined which organization will be responsible for the creation of new working places for laid off workers.

2.4. Certain privileges should be provided for small enterprises which will process reclaimed resources and provide services to the region.

2.5. Availability of half price purchase/ leasing of

sites, equipment, and other capital funds, will be transferred at an interest rate up to 50% less than the market rate.

2.6. Leasing or selling a mine to a stock company or private persons will have beneficial conditions.

2.7. People who live in the region of restructuring will have tax free real estate.

2.8. Selling municipal land for citizens and entrepreneurs at a low rate.

2.9. Compensation of 30% of all expenses of enterprises locating production in the restructured region.

2.10. Retraining will be free for laid off workers hired to work in new enterprises.

2.11. The establishment of special companies which will provide assistance to enterprises in the modernization of existing structures, the creation of new kinds of activities and the support of employment in small and average enterprises.

2.12. A determination should be made regarding extanding the period of unemployment compensation payment to the specialists of coal industry who will enter higher schools for training which will allow them to work in other positions.

Until the Program of Non-Profitable Mine Closings commences, the Government should provide necessary subsidies for their operation.

ATTACHMENT 1
(the list of mines)

ATTACHMENT 2

LIST OF THE PRIMARY MEASURES ON ORGANIZATIONAL AND TECHNICAL IMPROVEMENT OF NON-PROFITABLE MINES AND STRIPPINGS

1. Mining enterprises should be evaluated according to the geological conditions of an enterprise, resources, the difficulty of exploitation, capital, the condition of longwalls, and the state of capital funds,the preparation and stripping facilities, transportation, ventilation systems, surface technological complexes, etc.

2. Attention should focused on the effectiveness of cleaning fronts in the mines.

3. The organization of production processes and labor conditions will be analyzed: technological discipline, safety, and the characteristics of all working places; the sufficiency and creative activity of the personnel and social conditions in the collective and in the settlement of an enterprise should also be considered.

4. Analysis of the factors of labor motivation which include: labor conditions, participation in the ownership and management of an enterprise and the possibility to realize creative, professional, organizational, and business skills.

5. The analysis will result in suggestions for modernization and improvement of main and support operations and means of mechanization of processing and preparation plants and working to improve repair work in the mines, stripping the sites with new resources, joining other enterprises, increasing the level of mechanization and automatization of transportation, processing and loading of coal extracted, the organization of production and labor conditions (utilizing more effective equipment for exploitation and improving the quality of the equipment repair, reducing the time to get to the face). The expenses and the time necessary to implement these measures will be calculated.

6. On the basis of the analysis of actual and planned economic and financial indexes: volumes of sales, cost, pricing, non-production expenses and profits, subsidies, sources of creating and utilizing investments and reverse means, and suggestions on improvement of the financial state of the enterprise are elaborated.

The following things should be considered:

- decrease in production expenses per unit of production;

- decrease in overhead costs;
- increase in the cost of the product by increasing its quality (lowering ash content, moisture content, etc.);
- increase in sales and utilization of the extracted components of the rock;
- organization of additional production and services;
- lowering of nonproduction expenses and losses (fines, etc.).

ATTACHMENT 3

LIST OF INTERDEPARTMENT COMMISSION ON NON-PROFITABLE MINE CLOSINGS OF COAL INDUSTRY OF THE RUSSIAN FEDERATION

Yevtushenko Alexander Borisovich (Head of the Commission)	- First Deputy Minister of Fuel and Energy of the Russian Federation
Commission:	
Moskvina Marina Valerievna	- Deputy Head of the Federal Department of Employment of the Russian Federation
Mohnachuk Ivan Ivanovich	- Deputy Head of Russian Committee of Independent Trade Union of the Workers of Coal Industry
Sergeyev Alexander Ivanovich	- President of NPG, Russia (Independent Miners Union)
Subotin Alexander Ivanovich	- Head of the Department for Mines' Inspection of Russian Coal Industry
Dorofeev Vladimir Valerianovich	- Head of the Department for Economic Regulation in Coal Industry and the Ministry of Fuel and Energy
Kromov Alexander Petrovich	- Head of the Department of Social Protection and Regulation of Labor Relations of the Ministry of Fuel and Energy of the Russian Federation
Kaimov Boris Vladimirovich	- Russian Coal Company (RussUgol)
Popov Vladimir Nikolaevich	- Russian Coal Company (RussUgol)
Kozhuhovsky	- President of the Russian Foundation of Social Guarantees

Representatives of Local Executive Structures of the Republics included within the Russian Federation and autonomous regions

PROGRAM
ON CLOSING OF UNPROFITABLE UNDERGROUND AND SURFACE MINES IN THE COAL INDUSTRY OF THE RUSSIAN FEDERATION

I. INTRODUCTION

The program on closing of unprofitable underground and surface mines has been worked out in accordance with Russian Federation Resolution No.318, section 7, dated March 16, 1992. The program takes into account the Russian Federation President's decrees: 1. On measures and programs on how to normalize and support those enterprises that have become bankrupt, 2. On measures to transform government businesses into private stock companies, 3. Russian Federation bill on government and municipal privatization. This program defines goals and the order of closing of unprofitable underground and surface mines while providing for the social guarantees of the workers employed at these enterprises.

The principal goals of the program are:

- to increase the efficiency of the mine operations by making them less labor intensive and safer for the workers;
- to create the conditions for intensive developing of profitable coal deposits and more reasonable usage of financial, material resources and raw materials while producing coal;
- to create the conditions for the coal enterprises privatization in 1993-1994;
- to provide the workers of unprofitable underground and surface mines with the social guarantees and improved social conditions in mine towns.

The program tends to activize the transformation of the coal enterprises into private stock companies and stimulate the administration and workers of unprofitable underground and surface mines to increase the efficiency of the mine operations due to their internal resources,production conversion, reconstruction and technical re-equipment.

This program should be realized in accordance with the Council of Ministers Bill No.99 dated February 5, 1993 on providing employment under the mass miners release conditions.

Appendix 2

THE COMMITTEE ON UNPROFITABLE UNDERGROUND AND SURFACE MINES CLOSING •

Alexander Yevtushenko (chairman)	- The Minister for Fuel and Energy First Deputy
Valery Galants	- Russian Federation Unemployment Committee Chairman Deputy
Ivan Mokhnachook	- Russian Federation NPG Chairman Deputy
Alexander Sergeyev	- Russian Federation NPG Chairman
Alexander Subbotin	- The Head of Russian Federation Mine Health and Safety Department
Nickolai Boiko	- The Head of the Coordination Department within the Ministry For Fuel and Energy
Vladimir Belov	- The Head of the Labor Relations and Social Guarantees Department within the Ministry for Fuel and Energy
Yevgeny Dicolenko	- Russian Coal Concern
Vladimir Asimov	- Russian Coal Concern
Vladimir Popov	- Russian Coal Concern
Igor Kozhukhovsky	- Russian Fund for Social Guarantees President

Representatives of local Executive bodies from Russian Federation regions.

Attachment E

Guiding Principles and Actions For Economic Development Strategy

1. **Develop a broad consensus for regional development strategy within government, industry, unions, workers and the community.**
2. **Integrate the development strategy with the social safety net.**
3. **Use improvements to the infrastructure to both create employment opportunities and to stimulate the development of the regional economy.**
4. **Optimize the local use of coal to create a regional competitive advantage.**
5. **Encourage cooperation and collaboration between regional industries so that the Kuzbass is well positioned.**
6. **Establish a culture of entrepreneurship.**
7. **Target investments to create and support value added production.**
8. **Build a framework for labor management cooperation.**
9. **Promote incentives as a tool for change.**

Attachment F

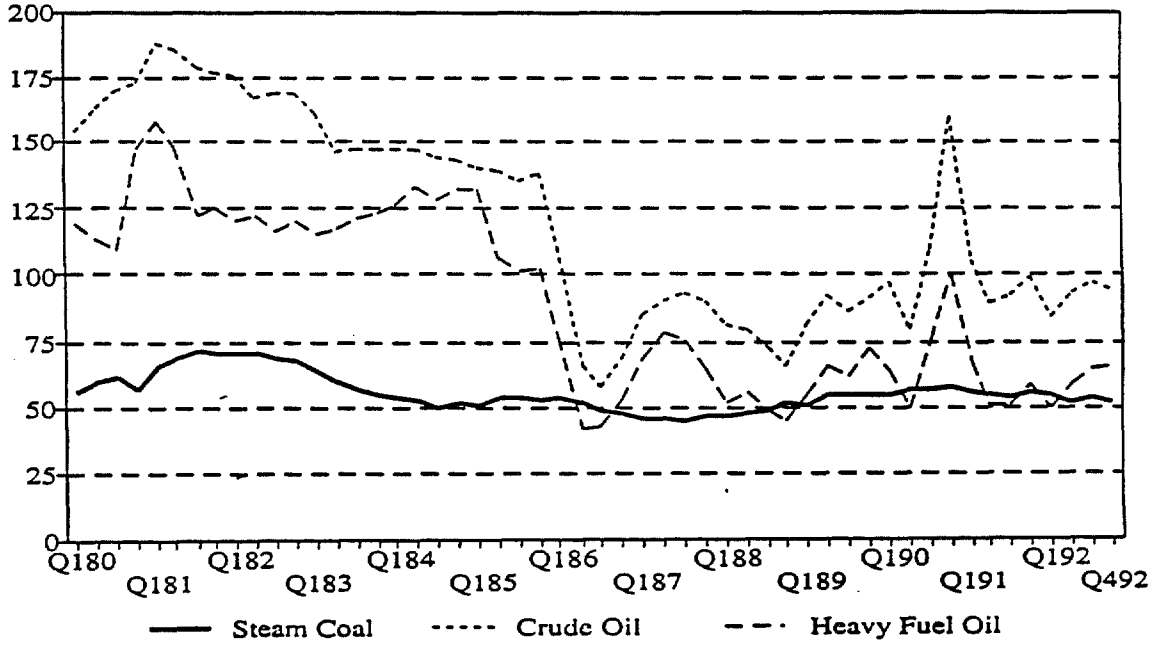
International Coal Markets: Tables and Figures

Table 2.1 **Japan - Steam Coal Import Values**
(Average Unit Value, CIF, $/t)

	Total	Australia	Canada	U.S.	South Africa	Former U.S.S.R.	China
1980	54.60	55.41	56.08	70.43	41.45	45.59	50.02
1985	45.32	44.40	43.66	56.74	45.81	41.08	49.16
1986	44.86	44.43	44.02	55.11	44.96	44.27	45.97
1987	41.48	42.26	40.61	46.86	40.90	39.43	37.79
1988	42.63	43.34	42.95	48.01	41.16	40.23	38.51
1989	48.76	49.78	45.38	52.78	44.68	45.43	45.74
1990	50.97	52.23	48.26	53.17	47.95	46.54	47.59
1991	50.43	51.68	46.76	52.36	48.36	44.93	47.69
1992	48.47	49.29	46.30	51.22	46.92	43.73	46.04

Source: IEA/OECD *Energy Prices and Taxes.*

Figure 2.1 **International Trade Values for Steam Coal and Oil**
($/tce)

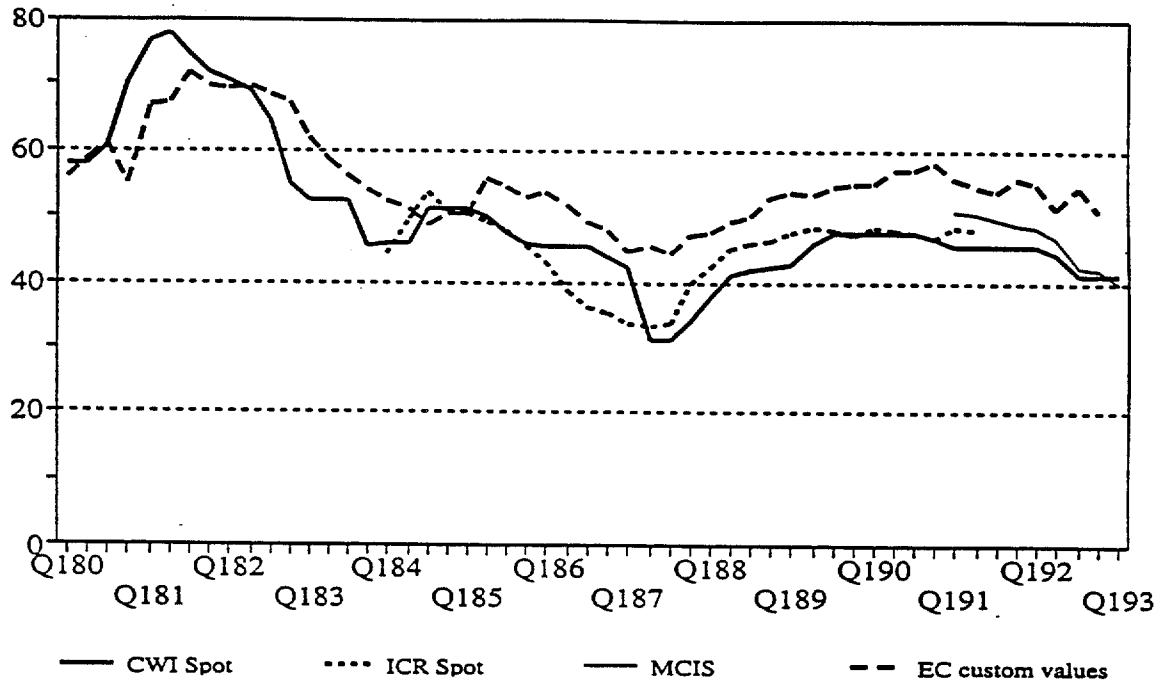


Source: IEA/OECD *Energy Prices and Taxes.*

Notes: Spot prices for heavy fuel oil are not directly comparable to customs units values for steam coal. They are, however, closely correlated with average CIF crude oil prices, which are, by definition comparable to customs unit values for steam coal. As a consequence, it is not unreasonable to compare custom[illegible] values for steam coal with spot prices of heavy fuel oil.

Steam coal and crude oil are IEA average and CIF import values.
Steam coal excludes intra-EEC trade.
Heavy fuel oil is Rotterdam spot market value, 3.5 per cent sulphur.

Figure 2.2 Steam Coal Spot Prices at Rotterdam and EC Customs Values
($/tce)



Source: CWI Spot: *Coal Week International*, various issues, 1980 through 1991. Prices are for 11500 Btu/lb or 6383 kcal/kg coal on a gross as received basis. ICR Spot: *International Coal Report*, various issues, 1984 through 1991. Prices are for 10620 Btu/lb or 5900 kcal/kg coal on a net as received basis. EC Custom Values: IEA/OECD *Energy Prices and Taxes*. Average values of imports declared to Customs administrations of EC member countries. MCIS Steam Coal Marker: *International Coal Report*, various issues from January 1991.

Table 2.2 EC - Steam Coal Import Values from Non-EC Countries
(Average Unit Value, CIF, $/t)

	Total	Australia	U.S.	South Africa	Poland	China	Colombia	Former U.S.S.R.
1980	51.51	55.61	57.76	43.57	54.26	59.54	n.a.	55.74
1985	48.33	49.76	55.51	41.91	51.99	57.06	44.71	42.52
1986	45.52	45.41	52.19	38.03	56.86	49.23	42.26	39.75
1987	41.01	40.42	51.79	32.76	48.80	38.09	37.15	41.57
1988	44.94	44.33	53.92	37.47	51.51	39.49	39.44	38.61
1989	48.72	48.24	53.46	42.68	56.65	47.18	47.39	44.13
1990	51.25	51.18	54.73	45.21	60.86	49.28	52.59	44.66
1991	49.44	47.99	51.52	45.36	58.10	47.13	49.78	42.64
1992	47.73	49.12	50.69	42.56	53.31	45.52	49.77	39.95

Source: IEA/OECD *Energy Prices and Taxes.*

Table 2.3 Average CIF Prices for Power Station Steam Coal imported into the European Community from Non-EC Countries
($/tce)

	Contract Duration		
	<1 year	>1 year	Average all contracts
1977	n.a.	n.a.	35.86
1978	n.a.	n.a.	38.90
1979	n.a.	n.a.	43.85
1980	n.a.	n.a.	57.99
1981	n.a.	n.a.	71.10
1982	n.a.	n.a.	69.30
1983	n.a.	n.a.	57.60
1984	n.a.	n.a.	51.00
1985	51.72	51.61	51.62
1986	47.72	48.37	48.18
1987	40.29	44.64	43.05
1988	44.29	47.87	46.45
1989	49.52	50.31	50.12
1990	53.60	54.58	54.16
1991	49.70	53.61	52.00
1992	49.79	53.59	52.01
Q188	41.89	45.10	43.83
Q288	43.65	49.10	47.18
Q388	43.94	49.39	47.09
Q488	47.00	47.53	47.31
Q189	47.58	47.89	47.80
Q289	48.28	50.41	49.84
Q389	49.84	51.21	50.87
Q489	52.36	51.84	52.04
Q190	53.17	52.98	53.05
Q290	52.68	53.78	53.45
Q390	54.14	55.76	55.21
Q490	54.40	55.81	55.34
Q191	49.64	53.65	52.18
Q291	48.69	52.53	51.08
Q391	49.41	52.19	50.96
Q491	51.04	56.06	53.78
Q192	51.78	54.28	53.12
Q292	49.20	53.31	51.53
Q392	49.96	54.54	52.35
Q492	47.99	51.24	50.01

Source: Commission of the European Communities, *Community Imports of Hard Coal from Non-Member Countries for use in Power Stations* (various years).

Table 2.4 Steam Coal Export Values
(Average Unit Value, FOB, $/t)

Exported from:	Australia			United States		
To:	Total	Japan	EC	Total	Japan	EC
1980	33.34	36.18	31.83	44.50	52.76	44.14
1985	32.55	33.09	32.25	48.10	42.20	46.12
1986	31.85	33.25	30.56	46.83	44.26	43.80
1987	28.97	32.34	26.30	43.17	41.31	43.29
1988	30.52	32.90	27.46	42.06	39.94	41.31
1989	36.12	37.98	32.64	40.99	43.04	40.37
1990	38.27	40.03	35.34	40.76	41.76	42.53
1991	37.97	40.32	34.44	40.48	39.73	41.48
1992	36.58	38.87	33.02	39.49	39.66	40.90

Source: IEA/OECD *Energy Prices and Taxes.*

Table 2.5 Export Contract Base Prices of Steam Coal to Japan
($/t FOBT)

	Australia			Canada	China	South Africa	Russia
Japan Fiscal Year	Hunter Valley	Lithgow	Blair Athol	Coal Val./ Obed M.	Datong	Witbank	J-6/G-6
1978	28.18	n.a.	n.a.	n.a.	28.20	n.a.	30.40
1979	26.88	n.a.	n.a.	n.a.	28.20	n.a.	34.80
1980	A$39.00	n.a.	n.a.	C$39.00	37.00	n.a.	47.00
1981	A$45.00	A$36-42	n.a.	C$53.00	54.54	n.a.	68.57
1982	53.75	A$44.34	n.a.	C$61.50	55.44	44.65	62.00
1983	A$44.70	A$42.00	n.a.	n.a.	40.44	36.20	50.90
1984	A$44.00	A$41.78	A$52.70	n.a.	40.44	32.45	31.95
1985	49.44	A$40.90	A$48.80	36.00	40.44	32.45	45.25
1986	32.45	A$46.90	A$52.23	33.90	36.51	30.73	38.00
1987	29.84	28.30	A$54.88	32.50	29.51	25.05	26.00
1988	36.18	34.32	A$49.02	38.42	35.10	26.27	26.90
1989	39.73	37.69	A$46.22	34.70	38.90	31.33	42.50
1990	41.46	39.33	A$47.85	36.10	40.45	32.85	43.00
1991	40.44	39.85	A$49.24	35.30	39.45	31.94	41.60
1992	39.48	38.90	A$49.61	34.46	38.59	31.69	41.50
1993	36.89	36.35	US$33.88	32.20	35.87	29.19	39.00

Source: Data compiled from the Tex Report *Coal Manual*, Tex Report and Japan Echo.

Notes: Prices are in US$/t FOBT unless specified below. Years are Japanese Fiscal Years (1 April to 31 March). **Australia:** For Hunter Valley, calorific value of the coal is 6800 kcal/kg gross air dried (GAD) through 1991 and 6400 kcal/kg gross as received (GAR) starting in 1992. Prices for 1980, 1981, 1983 and 1984 are in Australian dollars. For Lithgow, calorific value is 6900 kcal/kg GAD in 1981, 6400 kcal/kg in 1982 and 1983, 6450 kcal/kg in 1984 to 1990, 6700 kcal/kg in 1991 and 6300 kcal/kg GAR starting in 1992. Prices are in Australian dollars for 1981-1986. For Blair Athol, calorific value is 6520 kcal/kg GAD from 1993: 5650 kcal/kg NAR in US$/metric ton. Prices are in Australian dollars for all years. **Canada:** Coal Valley is shown through 1988 with a calorific value of 6350 kcal/kg GAD; prices are in Canadian dollars for 1980-1982. Obed Marsh with a calorific value of 6050 kcal/kg GAD between 1989 and 1991 and 5858 kcal/kg GAR starting in 1992. **China:** Datong. Calorific value is 6800 kcal/kg GAD for all years except 1985. For 1985, calorific value is 6900 kcal/kg. **South Africa:** Witbank. Calorific value is 6400 kcal/kg GAD; from 1993: 5739 kcal/kg GAD. **Russia:** Partisansky J-6. Calorific value is 6000 kcal/kg GAD for 1978-1984 and 6600 kcal/kg for 1985-1988. Prices are CIF except for 1984, 1987 and 1988. Kuznetsky G-6 from 1989 with a calorific value of 6950 kcal/kg (7200 kcal/kg in 1989-1990 and 7100 kcal/kg in 1991, 7000 kcal/kg in 1992, 1993) kcal/kg GAD. Prices are FOB from 1989.

Table 2.6 Export Contract Base Prices of Steam Coal to Europe
(S/t FOBT)

	United States		South Africa	Colombia			Poland	
	Gulf Coast	East Coast						
Calendar Year	ENEL	ENEL	ENEL	ENEL	ATIC/EDF	CEGB*	ENEL	EFO
1985	42.00	43.00	31.45	35.00	n.a.	n.a.	45.25	n.a.
1986	40.00	41.00	27.50	n.a.	31.5-32	n.a.	n.a.	39.00
1987	37.00	38.75	23.00	31.50	28.50	31.50	36.60	32.00
1988	43.00	45.00	25.90	31.00	35.00	34.00	41.90	n.a.
1989	41.10	44.30	29.75	36.90	37.75	38.00	47.60	42.00
1990	42.90	46.10	31.00	39.50	n.a.	40.70	50.50	n.a.
1991	43.80	47.00	32.15	34.50	39.90	40.00	50.50	43.50
1992	42.50	45.50	31.80	38.25	38.50	36.60	50.90	n.a.
1993	39.60	42.00	27.80	34.00	n.a.	n.a.	n.a.	n.a.

Source: Data compiled from *Coal Week International, International Coal Trade, International Coal Report* and Secretariat Sources.

Notes: Prices are in US$/t FOBT unless specified below. **United States:** For Gulf suppliers, calorific value is 12000 Btu/lb gross as received (GAR) for 1986 and 1987 and 12500 Btu/lb thereafter. For East Coast (Norfolk) suppliers, calorific value is 12000 Btu/lb GAR for 1985 and 1986 and 12500 Btu/lb thereafter. **South Africa:** Calorific value is 6600 kcal/kg gross air dried (GAD) for 1985, 1986 and 1987, and 6200 kcal/kg GAR thereafter. **Colombia:** Calorific value is 11800 Btu/lb GAR in 1988 and 1989, 11700 Btu/lb GAR in 1990, 1991 and 1992 for ENEL purchases, 11660 Btu/lb NAR for ATIC/EDF purchases (11800 Btu/lb in 1989), 6200 kcal/kg NAR for CEGB purchases. Prices to CEGB are CIF for 1987 and 1988 and FOB for 1989. **Poland:** To ENEL, calorific value is 6750 kcal/kg net dry basis (NDB) in 1985, 6960 kcal/kg NDB in 1987 and 6650 kcal/kg GAR in 1988, 1989, 1990, 1991 and 1992. Prices are CIF. To Swedish company EFO, calorific value is 6100 kcal/kg NAR in 1986 and 6300 kcal/kg NAR in 1987 and 1989. The 1989 price is CIF.

* National Power and Powergen from 1990 onwards. Price for 1992 on a CIF basis.

Table 2.7. **Spot Prices for Steam Coal, Northwest Europe, 1988 to 1992**

	Reported Prices ($/t)			Standardised Prices [4] ($/tce)		
	AR [1]	ARA [2]	MCIS [3]	AR	ARA	MCIS
Q188	34.33	35.73	-	39.49	42.38	-
Q288	37.33	38.13	-	42.94	45.23	-
Q388	38.00	38.67	-	43.71	45.87	-
Q488	38.67	39.00	-	44.48	46.26	-
Q189	39.00	40.17	-	44.86	47.64	-
Q289	42.00	40.92	-	48.31	48.53	-
Q389	43.50	40.50	-	50.03	48.04	-
Q489	43.50	39.75	-	50.03	47.15	-
Q190	43.50	40.75	-	50.03	48.33	-
Q290	43.50	40.37	-	50.03	47.89	-
Q390	43.50	40.05	-	50.03	47.50	-
Q490	42.67	39.60	-	49.07	46.97	-
Q191	41.50	40.83	43.54	47.73	48.43	50.78
Q291	41.50	40.65	43.37	47.73	48.42	50.59
Q391	41.50	40.33	42.50	47.73	47.84	49.57
Q491	41.50	-	41.82	47.73	-	48.77
Q192	41.50	-	41.48	47.73	-	48.37
Q292	40.43	-	40.18	46.50	-	46.86
Q392	37.50	-	36.40	43.13	-	42.45
Q492	37.50	-	36.05	43.13	-	42.04

Source: *International Coal Report*, various issues, 1988 to 1992; *Coal Week International*, various issues, 1988 to 1992.

(1) Quarterly average of range of prices published in *Coal Week International* for Amsterdam/Rotterdam FOB Barge 6400 kcal/kg, 1 per cent sulphur, 16 per cent ash.

(2) Quarterly average of range of prices published in *International Coal Report* for Amsterdam/Rotterdam/Antwerp CIF 5900 kcal/kg. NAR

(3) Quarterly average of MCIS Steam Coal Marker 6000 kcal/kg NAR, <1 per cent sulphur, CIF Northwest Europe, published in *International Coal Report*.

(4) Series recalculated to 7000 kcal/kg or 29.3GJ/t.

Table 2.8 **Japan - Coking Coal Import Values**
(Average Unit Value, CIF, $/t)

	Total	Australia	Canada	U.S.	South Africa	Former U.S.S.R.	China
1980	66.40	59.59	62.16	81.26	53.14	58.10	55.81
1985	59.77	54.36	67.51	68.66	49.62	54.69	51.17
1986	57.42	52.82	66.65	64.70	46.99	52.73	47.22
1987	53.96	48.26	65.42	64.03	43.34	48.62	43.29
1988	55.05	48.30	67.36	60.34	42.55	50.13	46.05
1989	58.39	52.58	69.73	63.34	47.68	54.65	52.08
1990	60.72	55.27	71.27	66.90	50.11	57.45	54.38
1991	61.10	56.64	71.85	66.16	51.94	56.86	53.22
1992	57.86	53.55	70.98	63.68	52.36	55.80	51.66

Source: IEA/OECD *Energy Prices and Taxes.*

Note: It should be noted that as a result of the import coal classification system used by Japanese customs authorities, most imports of Indonesian coal are recorded by customs as coking coal even though most of the coal is not used in the metallurgical industry. As this coal has a lower unit value than coking coal reported in other categories, the data presented in the "Total" column in this table, from 1991 onwards, tend to understate the total average unit value of coals imported into Japan for metallurgical use. Prior to 1991, the volume of imports reported by customs in this way was not so large as to significantly affect the total averages.

Table 2.9 EC - Coking Coal Import Values from Non-EC Countries
(Average Unit Value, CIF, $/t)

	Total	Australia	Canada	U.S.	South Africa	Poland	Former U.S.S.R.
1980	66.82	62.01	75.57	68.80	67.53	63.90	59.03
1985	60.64	58.84	62.43	62.64	43.08	60.81	42.28
1986	57.99	56.24	56.44	59.46	38.51	60.53	50.33
1987	55.24	52.90	54.24	56.85	35.54	54.73	54.34
1988	55.64	53.14	52.86	57.28	44.17	54.78	50.68
1989	57.26	54.32	57.29	58.54	36.49	56.78	53.53
1990	64.07	67.25	64.72	63.07	58.89	64.29	57.48
1991	61.07	60.70	60.44	61.57	51.61	59.18	51.32
1992	61.06	61.26	61.71	61.36	50.54	59.80	50.04

Source: IEA/OECD *Energy Prices and Taxes.*

Table 2.10 Coking Coal Export Values
(Average Unit Value, FOB, $/t)

Exported from:	Australia			United States		
To:	Total	Japan	EC	Total	Japan	EC
1980	48.40	48.82	45.18	60.12	63.32	56.61
1985	44.81	45.99	41.31	55.63	56.52	55.33
1986	44.35	44.78	40.86	52.70	54.59	51.78
1987	39.97	40.15	37.49	48.98	51.31	48.24
1988	40.26	39.98	37.61	48.69	47.76	48.24
1989	44.99	44.27	43.80	49.87	48.31	49.81
1990	48.29	48.22	47.88	51.27	50.34	52.60
1991	47.85	47.24	48.49	50.63	50.18	51.58
1992	46.83	46.46	46.66	50.04	49.58	51.77

Source: IEA/OECD *Energy Prices and Taxes.*

Table 2.11 Export Contract Base Prices of Coking Coal to Japan
($/t FOBT)

	United States		Australia		Canada		Russia	South Africa	China
	Pittston MV-Blend	Itman/ Masco LV/ Bailey HV	Coal Cliff LV	Liddell[a] HV	Balmer LV	Luscar MV	Kuznetsky K-10 LV	Witbank HV	Kailuan HV
1970	16.88	17.10	A$11.03	A$ 9.10	12.65	11.86	n.a.	n.a.	n.a.
1971	20.80	22.05	A$13.97	A$10.15	12.65	11.86	16.70	n.a.	n.a.
1972	21.40	22.10	A$13.72	A$10.68	12.65	11.86	17.10	11.01	n.a.
1973	22.30	20.50	A$14.85	A$11.29	19.54	18.21	18.75	11.22	n.a.
1974	48.20	50.90	A$19.15	A$16.26	C$21.64	C$20.50	34.00	20.78	n.a.
1975	59.00	59.00	A$36.15	A$28.44	C$47.81	C$47.79	52.50	31.05	n.a.
1976	60.67	62.29	A$39.96	A$32.26	C$51.53	C$50.19	52.50	35.41	n.a.
1977	63.32	67.79	A$45.75	A$38.00	C$54.64	C$55.24	53.00	36.55	n.a.
1978	78.70	72.35	A$47.58	A$38.00	C$58.66	C$57.87	52.00	37.30	45.15
1979	67.42	74.11	A$45.60	A$37.60	C$58.66	C$57.87	52.00	38.83	45.15
1980	67.42	53.15	A$45.60	A$37.60	C$62.94	C$61.76	54.95	41.75	48.10
1981	67.42	60.53	A$56.00	A$49.50	C$66.98	C$65.70	62.50	54.13	60.60
1982	71.05	64.96	66.00	57.25	C$82.63	C$69.83	64.95	56.10	61.75
1983	59.05	54.13	54.00	44.25	C$69.83	C$69.83	52.59	43.80	50.00
1984	55.61	51.67	52.50	44.50	C$69.09	C$69.09	51.80	40.85	46.50
1985	55.61	51.67	52.50	44.50	C$69.09	C$69.09	51.80	40.85	46.50
1986	53.15	49.21	49.00	41.75	49.00	49.00	48.80	38.88	42.00
1987	48.23	44.29	44.00	37.25	44.00	44.00	43.80	33.88	36.00
1988	50.58	47.14	46.90	40.65	46.90	46.90	46.70	37.63	38.90
1989	52.85	46.50	50.40	46.15[c]	50.40	50.40	50.20	42.13	42.40
1990	54.77	48.42	52.30[b]	47.35	52.80	52.80	52.60	44.30	44.80
1991	50.69	46.80	51.30	46.35	51.80	51.80	51.60	43.30	43.80
1992	50.08	46.18	50.80	45.85	51.30	51.30	51.10	42.80	43.30
1993	48.11	44.18	48.80	43.85	49.30	49.30	49.10	40.80	41.30

Source: Data compiled from the Tex Report *Coal Manual*, Tex Report and Japan Echo.

Notes: Prices are in US$/t FOBT unless specified below. Years are Japanese Fiscal Years (JFY, 1 April to 31 March). **United States:** For Itman/Masco/Bailey, prices are for Itman coal for 1970-1979, Masco coal for 1980-1986 and for Massey LV coal for 1987-1988, Bailey HV for 1989-1993. **Australia:** For Coal Cliff (hard coking coal) and Liddell (soft coking coal), prices are in Australian dollars for 1976-1981. **Canada:** For Balmer and Luscar, prices are in Canadian dollars for 1974-1985. **Russia:** For 1980 and 1981, prices are for KJ-14 quality.

(a) Hunter Valley HV from 1990/91 onwards.
(b) Coal Cliff changed its specification in JFY 1990. Tahmoor coal which maintains continuity with previous data had a JFY 1990 price of $52.80/t and a JFY 1991 price of $51.80/t.
(c) This has been reclassified and it is Big Ben from 1989 onwards.

Table 2.12 Export Contract Base Prices of Semi-Soft Coking Coal to Japan
($/t FOBT)

	Australia			South Africa	Canada	New Zealand
	C&A[a] Big Ben	Wambo	BHP-Utah Blackwater	Gencor Optimum	Fording Fording HV	Coal Corp NZ Buller
1987	33.00	31.50	32.50	26.75	32.00	49.75
1988	36.90	35.40	35.00	30.05	n.a.	51.75
1989	42.40	40.50	39.85	34.45	42.40	52.85
1990	44.20	42.70	41.65	36.22	44.20	55.25
1991	43.20	41.70	40.65	35.22	43.20	54.25
1992	42.20	40.70	39.65	34.70	41.20[b]	53.75
1993	39.70	38.20	37.15	32.20	37.70[c]	n.a.

Source: *ACR Coal Marketing Manual 1990*, Tex Report *Coal Manual 1991* and Japan Echo.

(a) Renamed "Newcastle semisoft" in 1992.
(b) Smoky River in 1992.
(c) Coal Mountain in 1993.

Table 2.13 Export Contract Base Prices of Coking Coal to Brazil
($/t FOBT)

	United States			Australia		Canada			Poland
	Pittston Clinchfield MV	Island Cr. Beatrice LV	Massey Peerless HV	BHP-Utah Goonyella LV	German Ck. LV	Devco HV	Westar Balmer LV	Smokey River LV	Weglokoks
1987	47.66	47.85	47.45	44.70	42.50	n.a.	n.a.	n.a.	n.a.
1988	50.41	50.60	50.20	47.45	45.25	47.25	43.75	46.29	n.a.
1989	51.85	51.60	51.20	47.95	45.52	48.25	44.75	47.25	50.67
1990	53.33	53.35	52.95	n.a.	48.65	50.00	47.75	50.78	52.42
1991	51.70	50.85	48.70	n.a.	47.50	47.75	47.41	49.78	51.11
1992	50.70	51.00	49.60	46.60[a]	46.60	46.70	46.71	47.28	50.05
1993	48.50	48.80	47.25	44.60	44.50	44.35	n.a.	47.75	47.25

Source: Japan Echo, *Australian Coal Report* and *Coal Week International*.

(a) Peak Downs LV from 1992.

Table 2.14 Average CIF prices for Coking Coal Imported into the European Community from Non-EC Countries

	Average all contracts	
	$/t	$/tce
1977	62.13	58.50
1978	61.90	58.40
1979	65.30	61.50
1980	69.20	65.10
1981	81.70	76.90
1982	81.40	76.60
1983	69.60	65.50
1984	65.00	61.20
1985	62.40	58.80
1986	58.50	55.10
1987	54.00	50.85
1988	56.45	53.15
1989	60.04	56.53
1990	59.95	56.69
1991	59.55	56.07
1992	57.92	54.54
Q189	58.25	54.85
Q289	60.15	56.64
Q389	60.65	57.11
Q489	61.10	57.53
Q190	61.45	58.97
Q290	59.00	55.55
Q390	59.40	55.93
Q490	59.80	56.31
Q191	60.40	56.87
Q291	59.70	56.22
Q391	58.90	55.46
Q491	59.20	55.74
Q192	58.90	55.46
Q292	58.00	54.60
Q392	57.50	54.14
Q492	57.30	53.95
Q193	57.50	54.14

Source: Commission of the European Communities, *Community Imports of Hard Coal from Non-Member Countries for use in Coking Plants* (various years).

Notes: Coking coal refers to coal standardised to the following characteristics: ash, 6.0%; sulphur, 1.0%; volatile matter, 24.0% (all measured on a dry sample basis); moisture, 5%; screen size 0-30 mm.

Table 5.6 **Indicative Inland Transportation Charges in Major Coal Exporting Countries (1992)**
(continued)

Country, Region, Carrier, Route	Distance (km)	Freight Charge (US$/t)	Unit Charge (US cents/ t/km)	Port Charges (US$/t)
United States 1992 [all rates (except for CSX and NS) are from Fieldston's 1993 U.S. Coal Export Manual[1]]				
Central Appalachia (eastern Kentucky, southern West Virginia, western Virginia)				
Rail to Baltimore (CSX)[2]	600-973	16.50-21.05		2.15-2.54
Rail to Hampton Roads (CSX)[2]	700-1350	13.80-15.39		1.82-2.15
Rail " " " (NS)[3]	600-750	16.65-18.00		[4]
Rail to Charleston (CSX)[2]	830-1414	16.48-23.71		2.20-2.87
Rail " " (NS)[4]	480-1260	19.15-22.05		2.20-2.87
Truck/Barge to New Orleans/Baton Rouge[5]	2350-2900	12.68-16.53		1.27-2.76
Northern Appalachia (northern West Virginia, Pennsylvania, Maryland)				
Rail to Baltimore (CR)	350-700	13.78-16.53		[4]
Rail to Baltimore (CSX)[2]	350-625	12.63-14.05		2.15-2.54
Southern Appalachia (Alabama)				
Barge to Mobile	600-700	5.24-5.79		1.93-2.54
Rail (CSX) to Mobile	480-1425	12.30-15.25		1.93-2.54
Illinois Basin (Illinois, Indiana, western Kentucky)				
Truck/Barge to New Orleans/Baton Rouge[5]	1500-1700	7.72-12.40		1.93-2.54
Rail (IC) to Mobile	1050-1150	8.27-9.92		1.93-2.54
Uinta Basin				
Rail (SP/Utah-UP) to Los Angeles/Long Beach[6]	1300-1550	16.53-17.64		4.13-4.68
Rail to Richmond (SP)[6]	1529-1803	15.43-16.53		3.03-3.58
Rail (SP)-Barge to New Orleans/ Baton Rouge	3098-3630	21.50-25.90		1.27-2.76
Powder River Basin (Wyoming, Montana)				
Rail-Barge to New Orleans/Baton Rouge	-	17.64-24.25		1.27-2.76
Rail to Mobile (BN or CNW-UP-IC)	2800-2832	17.64-21.50		1.93-2.54
Rail to Roberts Bank (BN)	-	15.43-16.53		3.86-4.13
Rail to Superior-St. Lawrence Seaway[7]	1658	11.85-12.95		0.83-0.99
Raton Basin (New Mexico)				
Rail (SP)-Barge to New Orleans/ Baton Rouge	3026-3251	20.94-24.80		1.27-2.76
Washington				
Truck-Rail to Roberts Bank	379	4.96-6.89		3.86-4.13

Source: CIAB Standing Committee on Coal Information and Secretariat Sources.

Note: U.S. rail rates shown are published tariff charges. Most of the export coal moves under contract rates below published charges. U.S. rail and barge rates in $/t include port transloading costs while unit charges do not include barge or vessel transloading costs. Exchange rate assumptions are: 1 US$ = A$ 1.36; C$ 1.21; Rand 2.84.

(1) The Fieldston Company, 1920 N St. N.W., Suite 210, Washington D.C. Tel: (202) 775 0240, Fax: (202) 872 8045.
(2) All CSX rates are tariff rates, and include single-car shipments, 7000 net short ton (6350 t) trainloads and 10000 net short ton (9072 t) train loads.
(3) All NS figures, including stevedoring/transloading fees, are tariff rates, and are for single-car shipments. NS claims that under contract, rates are equalized with CSX rates.
(4) Port charges incorporated into rail rate.
(5) Transloading fees for New Orleans/Baton Rouge vary widely due to the differential between midstreaming and loading ships from ground storage.
(6) Freight rate is for Utah origins. Add $2.20-$3.30/t for Colorado origins.
(7) Freight cost is to Superior terminal.

Table 6.5 Export Supply Capacity, 1992
(Mt/year)

	Steam Coal	Coking Coal	Total Coal
Australia	65	72	137
United States	81	65	146
South Africa	56	3	59
Canada	9	35	44
Colombia	20	-	20
Venezuela	4	-	4
Indonesia	17	-	17
China	16	5	21
Poland	14	6	20
Former USSR	12	7	19
Others	2	1	3
Total Supply	296	194	490

Source: Gruss, H., PreussenElektra, Hannover, Germany.

Table 6.10 Possible Additional Export Capacity from Existing and New Mines
(Mt/year)

	Firm Existing	Firm New	Planned Additions to Existing	Planned New	Total
Australia	10.7	10.3	16.6	41.8	79.4
Canada	-	-	0.5	1.0	1.5
Colombia	-	-	14.6	16.0	30.6
Indonesia	8.9	2.0	2.7	0.6	14.2
India	-	-	-	1.2	1.2
Mozambique	-	-	-	9.0	9.0
New Zealand	-	-	-	1.5	1.5
Norway	-	-	-	1.4	1.4
South Africa	3.3	-	4.3	3.5	11.1
Venezuela	-	-	5.7	13.2	18.9
United States (Alaska)	-	-	-	7.7	7.7
Vietnam	-	0.5	-	-	0.5
Total	22.9	12.8	44.4	96.9	177.0

Source: Gruss, H., PreussenElektra, Hannover, Germany, IEA Country Submissions and Secretariat sources.

Note: Expected reductions in capacity from mine closures or for other reasons are not included in the Table.

Table 6.12 Representative Export Costs for Coking Coal
(1992 US$/t)

	Mine Oper. Cost[1]	Capital Recovery Charge[2]	Rail/ Barge Cost	Loading Cost	FOB Cash Cost	FOB Total Cost	Japan: Ocean Transp. Cost	Japan: CIF Cash Cost	Japan: CIF Total Cost	Europe: Ocean Transp. Cost	Europe: CIF Cash Cost	Europe: CIF Total Cost
Australia[3]												
Queensland												
Underground												
Representative	23.4	10.0	9.9	3.3	36.6	46.6	6.0	42.6	52.6	10.5	47.1	57.1
Range	23-37					46-56	4-9		50-65	7-13		53-69
Surface												
Representative	23.6	11.5	9.9	3.3	36.8	48.3	6.0	42.8	54.3	10.5	47.3	58.8
Range	14-30					36-56	4-9		40-65	7-13		43-69
New South Wales												
Underground												
Representative	23.8	7.1	5.7	2.9	32.4	39.5	7.0	39.4	46.5	11.0	43.4	50.5
Range	23-40					40-53	5-10		45-63	8-14		48-67
Surface[4]												
Representative	23.2	9.3	5.7	2.9	31.8	41.1	7.0	38.8	48.1	11.0	42.8	52.1
Range	19-40					38-53	5-10		43-63	8-14		46-67
United States[5]												
Central Appalachia												
Underground												
Representative[6]	28.0	2.2	16.5	2.5	47.0	49.2	11.0	58.2	60.2	5.5	52.5	54.7
Range	26-40					43-55	9-14		52-69	4-8		47-63
Surface												
Representative[7]	30.0	2.0	17.3	1.5	48.8	50.8	13.0	61.8	63.8	7.5	56.3	58.3
Range	na						10-19			6-10		
Western Canada												
Surface												
Representative[8]	25.0	5.0	17.3	3.9	46.2	51.2	7.0	53.2	58.2	11.0	57.2	62.2
Range	18-40					43-69	6-11		49-80	8-14		51-83
South Africa (Transvaal)												
Underground												
Representative[9]	18.6	8.7	9.9	2.6	31.1	39.8	7.5	38.6	47.3	6.0	37.1	45.8
Range	13-19					30-42	6-10		36-52	5-9		35-51

Source: IEA Coal Research, London.

Exchange rates used in Tables 6.11 and 6.12

Australia:1 US$ (1992) = A$ 1.36
Canada:1 US$ (1992) = C$ 1.21
South Africa:1 US$ (1992) = R 2.84

Table 6.11 Representative Export Costs for Steam Coal (1992 US$/t)

	Mine Oper. Cost[1]	Capital Recovery Charge[2]	Rail Barge Cost	Loading Cost	FOB Cash Cost	FOB Total Cost	Japan Ocean Transp. Cost	Japan CIF Cash Cost	Japan CIF Total Cost	Europe Ocean Transp. Cost	Europe CIF Cash Cost	Europe CIF Total Cost	Heat Cont.[3] GJ/t
Australia[4]													
Queensland													
Surface													
Representative	11.7	8.5	9.9	3.3	24.9	33.4	6.0	30.9	39.4	10.5	35.4	43.9	28.4
Range	10-19					30-43	4-9		34-52	7-13		37-56	
New South Wales													
Underground													
Representative	25.6	9.1	5.7	2.9	34.2	43.3	7.0	41.2	50.3	11.0	45.2	54.3	28.3
Range	15-38					35-47	5-10		40-57	8-14		43-61	
Surface													
Representative	20.1	11.5	5.7	2.9	28.7	40.2	7.0	35.7	47.2	11.0	39.7	51.2	28.2
Range	15-25					35-46	5-10		40-56	8-14		43-60	
United States[5]													
Northern/Central Appalachia													
Underground													
Representative[6]	23.3	1.5	17.5	2.5	43.3	44.8	11.0	54.3	55.8	5.5	48.8	50.3	30.9
Range	17-26					38-48	9-14		47-62	4-8		42-56	
Surface													
Representative[7]	27.5	1.8	9.6	1.5	38.6	40.4	13.0	51.6	53.4	7.5	46.1	47.9	29.0
Range	na						10-19			6-10			
Southern Appalachia													
Surface													
Representative[8]	32.5	1.0	5.5	1.5	39.5	40.5	13.0	52.5	53.5	7.5	47.0	48.0	30.0
Range	25-37					35-45	10-19		45-64	6-10	41-55		
Utah													
Underground													
Representative[9]	20.0	3.5	14.0	3.6	37.6	41.1	7.5	45.1	48.6	-	-	-	28.3
Range	na						na			na			
Wyoming													
Surface													
Representative[10,11]	5.0	2.5	18.3	1.5	24.8	27.3	-	-	-	7.5	32.3	34.8	19.8
Representative[12]	5.0	2.5	15.5	3.9	24.4	26.9	7.0	31.4	33.9	-	-	-	
Range	4-9					24-30							
Western Canada[13]													
Surface													
Representative	20.0	1.5	17.3	3.9	41.2	42.7	7.0	48.2	49.7	11.0	52.2	53.7	28.5
Range	15-35					35-55	6-11		41-66	8-14		43-69	
South Africa (Transvaal)[14]													
Surface													
Representative	12.0	2.2	10.1	2.6	24.7	26.9	7.5	32.2	34.4	6.0	30.7	32.9	28.2
Range	8-17					23-33	6-10		29-43	5-9		28-42	
Colombia (Cerrejon Region)[15]													
Surface													
Representative	20.0	20.0	3.8	3.0	26.8	46.8	-	-	-	5.0	31.8	51.8	28.1
Range	17-28					26-53				4-7		30-60	
Indonesia (Kalimantan)[16]													
Surface													
Representative	10.5	7.5	5.0	3.5	19.0	26.5	7.0	26.0	33.5	8.0	27.0	34.5	26.6
Range	8-12					21-28	5-10		26-38	6-12	27-40		

Source: IEA Coal Research, London.
See notes after Table 6.12

Notes for Table 6.11

1. Mine operating costs	Includes all operating costs for saleable coal, taxes and royalties and return on equity at 0% DCFROR.
2. Capital recovery charge	Difference between 0% and 15% DCFROR on equity investment.
3. Heat content	Gross air dried.
4. Australia	Representative costs originally provided by a consultant to IEA Coal Research, revised through contacts with Australian industry and government contacts.
5. United States	Representative costs derived from U.S. Department of Commerce reports on comparisons of exporting country coal supplies compared with U.S. coal supplies. The figures were substantially revised and updated in the course of preparing an IEA Coal Research report on North American coal supply prospects, published in March 1993.
6. Northern Appalachia	Underground representative mine: a large longwall mine located in northern West Virginia, shipping through Hampton Roads.
7. Central Appalachia	Surface representative mine: contour mine located in Eastern Kentucky, shipping by barge through Mobile.
8. Southern Appalachia	Surface representative mine: high strip ratio seam operation in Alabama, shipping by barge through Mobile.
9. Utah	Underground representative mine: mine shipping through Long Beach.
10. Wyoming	In addition to the Department of Commerce reports, IEA Coal Research received consultants reports on the Powder River Basin which provided recent figures for the representative case and for ranges. Rail costs have been analysed in several recent studies for Wyoming, Utah and neighbouring states.
11. Wyoming	Transport route to Europe is via Gulf.
12. Wyoming	Transport route to Japan is via Vancouver, BC.
13. Western Canada	Representative costs and cost ranges were derived from discussion with industry and government contacts, in the course of preparation of a report on Canadian coal supply prospects published by IEA Coal Research in March 1993. Surface representative mine: established open pit operation in the mountains of British Columbia shipping through Vancouver. Thermal coal is a secondary product of this mainly metallurgical coal producer.
14. South Africa	Cost information from a report published by IEA Coal Research in 1991 updated in early 1993 by information from industry sources.
15. Colombia	Costs for individual mines are proprietary. Those shown were developed using a variety of sources, including contacts in Colombia and analysts in Europe.
16. Indonesia	Figures based on industry contacts in Indonesia and elsewhere.

Notes for Table 6.12

1. Mine operating cost	Includes all operating costs for saleable coal, taxes and royalties and return on equity at 0% DCFROR.
2. Capital recovery charge	Difference between 0% and 15% DCFROR on equity investment.
3. Australia	Representative costs provided by a consultant to IEA Coal Research, substantiated by Australian industry and government contacts.
4. Surface mines, NSW	Representative costs and ranges for soft coking coal.
5. United States	Representative costs derived from U.S. Department of Commerce reports on comparisons of exporting country coal supplies compared with U.S. coal supplies. The figures have been revised and updated as necessary by IEA Coal Research through industry and government contacts.
6. Central Appalachia	Underground representative mine: large room and pillar mine in Virginia, shipping through Hampton Roads.
7. Central Appalachia	Surface representative mine: contour mine in Eastern Kentucky, shipping by rail and barge through Mobile.
8. Western Canada	Surface representative mine: open pit multi pit metallurgical coal operation in the mountains of British Columbia, shipping through Vancouver.
9. South Africa	Underground representative mine: room and pillar operation in the Witbank coalfield, shipping through Richards Bay.

Table 7.0

Throughput Capacities at Existing Coal Loading Ports in the Former USSR (1992)

	Million Tonnes/Annum
Russia	
St. Petersburg	1.0
Viborg	0.3
Vystosk	0.2
Kaliningrad	1.0
Tuapse	1.5
Posjet	1.2
Vladivostok	0.2
Nadhodka	1.8
Vostochny	9.0
Vsnino	0.6
Ukraine	
Reni	3.0
Ismail	1.0
Uyzni	5.0
Berdyansk	0.2
Mariopol	6.5
Georgia	
Poti	0.5
Esthonia	
Tallinn	2.0
Latvia	
Riga	1.0
Sonstige	3.0
TOTAL	**42.2**

Source: Stinnes Intercarbon

Table A: **Primary Energy Price Assumptions**
(U.S. 1993$ *)

	1990	1995	2000	2005	2010
Crude Oil (barrel)	24.2	21.9	27.3	30.0	30.0
Natural Gas					
Producer U.S. (10^3cf)	1.9	2.2	3.0	3.5	3.5
Import Europe (10^3M^3)	106.3	118.6	136.2	156.5	156.5
Import Japan (tonne LNG)	217.2	229.8	285.1	312.6	312.6
Hard Coal					
Producer U.S. (short ton)	24.0	26.2	29.1	31.4	34.5
Import Europe (tonne)	56.0	50.0	53.2	56.5	60.1
Import Japan (tonne)	55.7	50.8	52.6	54.3	56.2
Prices in TOE (net calorific values)					
Crude Oil	174.5	157.5	196.9	216.6	216.6
Natural Gas					
Producer U.S.	80.5	94.5	127.2	149.7	149.7
Import Europe	138.2	154.2	177.1	203.5	203.5
Import Japan	185.6	196.4	243.6	267.2	267.2
Hard Coal					
Producer U.S.	41.0	44.8	49.6	53.5	58.9
Import Europe	86.8	77.6	82.5	87.6	93.2
Import Japan	96.1	87.7	90.7	93.8	97.0

* 1993 inflation rate for the U.S. is assumed to be 2.3%