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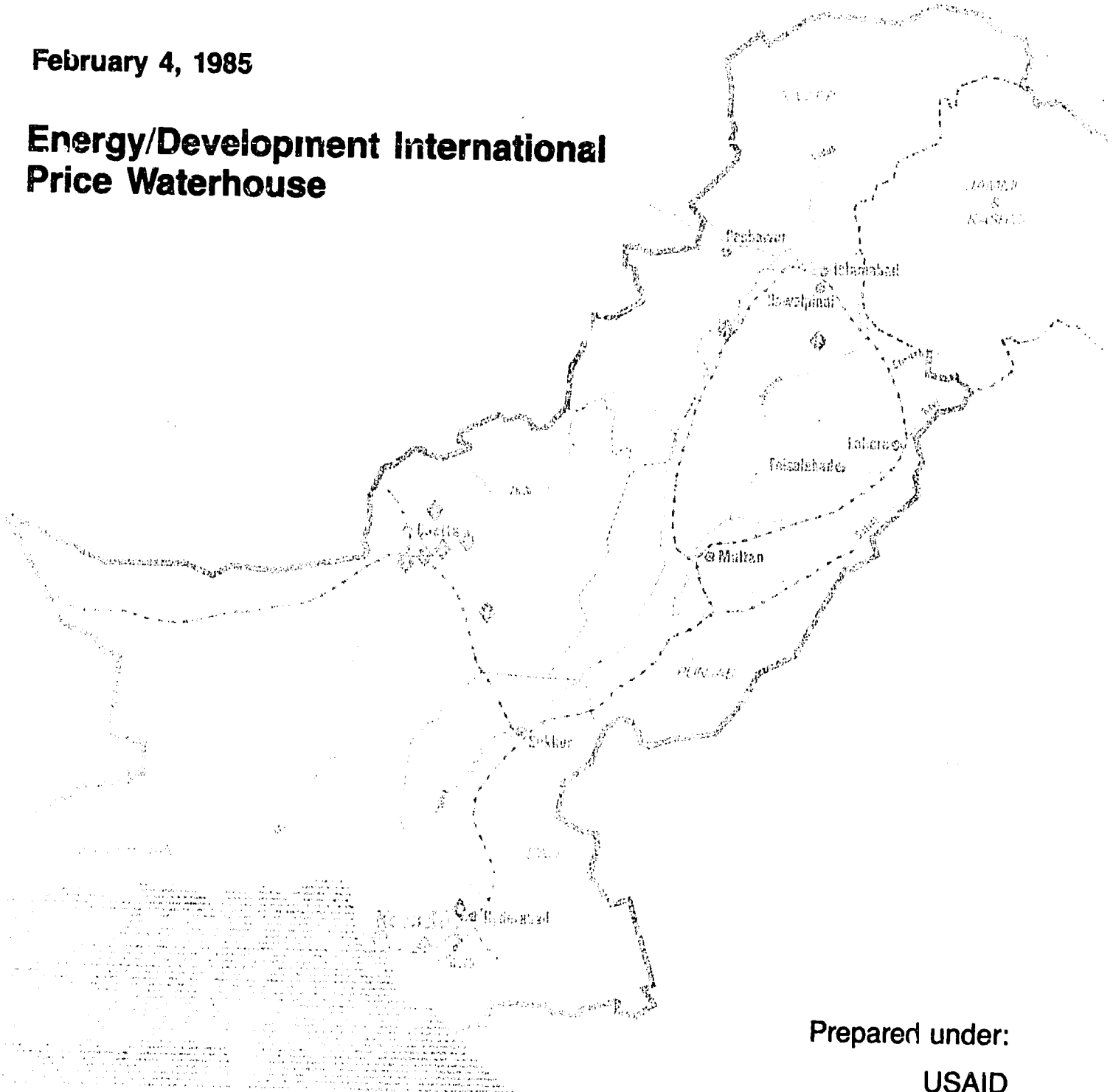
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The Coal Industry In Pakistan: Requirements For Growth

February 4, 1985

Energy/Development International
Price Waterhouse



Prepared under:

USAID

Indefinite Quantity Contract

No. PDC-0001-I-06-313 W.O. No. 6

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ENERGY/DEVELOPMENT INTERNATIONAL
PRICE WATERHOUSE

with

MMDS Mathtech Division
and A.F. Ferguson & Co.

100 North Country Road
Setauket, N.Y. 11733

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PREFACE

This report is based on discussions held in Islamabad, Lahore, Karachi, Washington and New York between October 1984 and February 1985. A very large number of people in the Government of Pakistan and the Provincial Governments, the U.S. Agency for International Development (USAID), the World Bank and the Pakistani private sector were very forthcoming and helpful in providing views and information for the report. The staff of A.F. Ferguson & Co. (Karachi) and Masud Siddiqui carried out important aspects of the data collection and analysis. The report's conclusions, however, are those of its principal authors, Niels de Terra (MMDS - Mathtech), Steve Munson (E/DI), John Korbel (Price Waterhouse) and Philip Palmedo (E/DI). It should be emphasized that this report has not been officially reviewed by the Government of Pakistan. Its proposals and recommendations thus do not necessarily reflect either the views of the Government or those of USAID.

One purpose of this report is to serve as the basis for a background paper for a planned conference on the future of coal in Pakistan. More broadly it is intended to act as a stimulus of discussion of the important issues surrounding the development of Pakistan's coal sector. If the report makes a positive contribution to that important aspect of Pakistan's energy future, its authors will be gratified.

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ABBREVIATIONS

The following is a list of abbreviations which have been used in the report: "The Coal Industry in Pakistan: Requirements for Growth".

Mt	million tonnes of Pakistani coal
mt	thousand tonnes of coal
Rs	rupees
Btu	British Thermal Unit
MW	megawatt
Mtoe	million tonnes of oil equivalent
MBtu	million Btu
Mcf	million cubic feet
ADBP	Agricultural Development Bank of Pakistan
CCI	Controller of Capital Issues
CIPCOC	Central Investment Promotion Committee and Coordination
E/DI	Energy/Development International
GDP	Gross Domestic Product
GSP	Geological Survey of Pakistan
IBRD	International Bank for Reconstruction and Development (The World Bank)
ICP	Investment Corporation of Pakistan
IDBP	Industrial Development Bank of Pakistan
IEDC	International Energy Development Consultants S.A.,
IPB	Investment Promotion Bureau
JICA	Japan International Cooperation Agency
KESC	Karachi Electric Supply Corporation
MCB	Minerals Co-ordination Board
NCA	National Coal Authority
NCCC	National Credit Consultative Council
NDFC	National Development Finance Corporation
NIT	National Investment Trust
PCSIR	Pakistan Council for Science and Industrial Research
PICIC	Pakistan Industrial Credit and Investment Corporation
PMDC	Pakistan Mineral Development Corporation
RDFC	Regional Development Finance Corporation
RDC	Resource Development Corporation
SBP	The State Bank of Pakistan
WAPDA	Water and Power Development Authority

Exchange Rate

At the time of writing (October 1984 - January, 1985)
the rate of exchange was approximately 15Rs = \$1 U.S.

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EXECUTIVE SUMMARY

A. INTRODUCTION

The publication of the Sixth Plan in mid-1983 marked the beginning of a turnaround for the coal sector in Pakistan. The plan gave new official backing to an expanded role for coal in the energy economy. Until that time the heavy reliance on Sui gas and on oil use had relegated coal to second class status despite the potentially large domestic reserves and the relatively low economic cost of extraction. However, it is now accepted that an economy with GDP growth objectives of over 6 percent per year and historical energy/GDP ratios of around 1.3 must increase its use of domestic energy resources wherever this is economic.

With the ability to substitute for imported oil as well as for gas, which could then be reserved for higher value uses, coal has the potential to save very significant amounts of scarce foreign exchange. The scale of possible savings may be seen in two areas: thermal power generation, where furnace oil would most likely be used if coal was unavailable, and cement production, which is entirely based on furnace oil. Furnace oil for a 300 MW power station would cost the country approximately \$115 million/year (assuming \$190/tonne). Conversion of the current cement plants to coal at a demand level of 1.25 Mt could save around \$100 million/year in imported furnace oil.

It seems quite possible that world oil markets will remain soft throughout the 1980s, and one should not exclude the possibility that Pakistan's recent successes in increasing domestic oil reserves and production will continue up to the point of self-sufficiency. However, it is the consensus of virtually all experts in the field that increasing world demand for oil, combined with the exhaustion of certain areas of production, will create upward pressure on oil prices at least by the 1990's. In the fortunate event of Pakistan being able to continue to increase domestic oil production to approach self-sufficiency, it would still most likely be preferable for the

country to export any surplus oil and to use its large domestic coal reserves to the maximum extent possible.

Because coal was to some extent a "forgotten fuel" the coal sector has remained comparatively free from government controls and nationalizations. At least 85 percent of production is in private hands and the market is free to set price levels at all stages. Thus, within the energy sector, coal is the only fuel whose production and pricing is not controlled and/or owned by the state. Furthermore, growth of an efficient coal sector in the future will continue to require active private sector participation probably including some participation of the international coal industry. However, because so much of the economy is influenced by government policies and investment decisions, the future of the coal industry also depends heavily on public sector decisions at both the Federal and Provincial levels on fuel choice, infrastructure development, regulation and credit. Furthermore, the next large increments in coal demand are likely to come from WAPDA's Jamshoro 2 power plant and cement plant conversions - both areas in which the Government will have a deciding influence on investment decisions. Thus, expansion and modernization of the coal sector will require a form of cooperation between the public and private sectors which has not been characteristic of their recent relationship.

There is good reason to view the present as a major transition period for Pakistan's coal sector. Demand from the first Jamshoro coal plant will roughly double officially reported coal use levels. Demand from the anticipated series of Jamshoro plants will be of an entirely new - assured, concentrated - character. It is recognized that new technological approaches and new contractual arrangements are necessary. At the same time new markets for coal are in the offing: the cement industry and coal briquettes. Thus, it should be possible to create a new climate for discourse and planning in which the relevance of past perceptions and problems is minimized.

This executive summary groups the discussion of the various issues that have been identified in the body of the report, and summarizes the recommended actions to address these issues in the following areas:

1. Expanding the Demand for Coal
2. Increasing Efficiencies in the Coal Chain: Exploration to End User
3. Reform of the Regulatory Framework
4. Meeting the Credit Needs of Modernization
5. Improving Infrastructure, Support Facilities and Planning
6. Attracting Foreign Investment

The National Coal Conference, planned to be held later in 1985, is expected to address all the major issues raised in this paper.

While all the problems identified in this report require prompt attention, it is clear that some are major issues requiring high level attention, while others could be solved with a lower level of effort. Thus, the discussion below distinguishes between Major Issues and Issues in order to indicate the scale of effort that might be needed to resolve the problem. This distinction does not imply that Issues have a lower priority than Major Issues.

B. EXPANDING THE DEMAND FOR COAL

Reported coal production as reflected in official statistics now supplies about 5 percent of commercial primary energy, but if one includes an estimate for the large amounts of unreported production, together with imports, the figure is close to 10 percent. Investment in expanded coal production depends on the private coal mining industry's perceptions of future coal demand levels. If the only increases in demand are to come from a 4-5 percent annual growth in brick production, then the expansion of mining capacity is likely to continue on the basis of current mining methods and to be financed

from the cash flows of the private mining companies. If, on the other hand, coal is to penetrate new markets, displace furnace oil in the cement industry, and provide fuel for thermal power generation, increases in mining productivity (new technology) will be needed, which in turn will mean larger investments and financing from the banking sector. The inability of the transportation system to move additional volumes of coal economically dictates that new large users will have to locate near the sources of coal.

A "policy case" projection, which assumes a concerted Government program to stimulate demand and improve the efficiency of energy use in industry, suggests that the demand for coal could reach 10.6 million tonnes (Mt)/year by the end of the Seventh Plan period (1993). There are opportunities to increase the demand for coal in virtually all economic sectors:

1. Brick Industry

A growing economy will continue to need bricks, and coal demand may be expected to grow at very close to the rate projected for brick production, namely, 5 percent per annum during the Sixth Plan. By the end of the Seventh Plan this sector could be using 3.2 Mt/year.

2. Cement Industry

The majority of cement plants in industrial countries have now switched to coal, and the same trend is foreseen for Pakistan. Where economic, some existing plants can be switched. Coal use by the cement plants could reach between 2.4 and 3.0 Mt/year by 1992-93.

3. Power Generation

To the extent that Pakistan requires baseload generating plants, coal and nuclear are the only possibilities that utilize a domestic energy resource. Jamshoro/Lakhra will introduce a new generating technology, and from the experience gained through this project it may be expected that coal will find increasing use in thermal generation. By 1992-93 1.8 Mt could be used for power production.

4. Household Sector

Smokeless coal briquettes have the theoretical potential to substitute for kerosene and for fuelwood in household cooking, particularly in urban areas. Assuming satisfactory market studies, with active promotion it might be possible to use 0.5 Mt in this sector by 1992-93.

5. Iron and Steel

Although this sector relies primarily on imported coal, its demand is expected to reach 1.2 Mt by 1992-93. Plans for washed Baluchistan coal to be blended with imported coking coal appear to be stalled.

6. Other Industries

Prior to the arrival of Sui gas, many industries relied on coal for process heat and steam raising. With increasing gas prices the incentive to switch will be strengthened, but the coal industry will have to drastically upgrade its ability to provide reliable supplies of consistent quality coal. The potential for 1992-93 is seen as 1.1 Mt including the textile industry.

The total demand for domestically produced coal in 1992-93 thus could be around 9.3 Mt, as compared to its current estimated level of 2.8 Mt. The importance of a credible plan to increase coal demand must be stressed, because without such a plan there is unlikely to be movement on the part of mining companies to boost production capacity.

MAJOR ISSUE 1: Coal Use in Power Generation and the Reliability of Demand: The Government has already taken the most important first step of committing itself to build the country's first commercial scale coal-fired power station. Other measures should be considered to expand coal-based electric power. In the Sixth Plan the Government declared its intention to encourage private power generation. Recently, private mining companies have expressed concern over the reliability of demand for coal from the proposed Lakhra power station,

fearing that the station might not be operated during periods of full hydel production.

PROPOSED ACTION: The Ministry of Water and Power should consider reviewing the buying rates that WAPDA has offered to private companies with a view to being more responsive to some of the offers that have already been made to build small coal-fired plants. With respect to the reliability of demand, it will be necessary for WAPDA to explain its power system expansion plan and demonstrate that it will in fact need all the power that coal-fired stations such as Jamshoro can generate.

MAJOR ISSUE 2: Cement Industry Coal Use; Through the Ministry of Production the Government influences the investment decisions and the fuel choices of state-owned industries. The State Cement Corporation of Pakistan will need Government approval to invest in fuel switching, where the plant economics make it possible.

PROPOSED ACTION: The new private sector cement plants that are planned should be encouraged to plan for coal (or dual-firing). A policy directive may be needed in this area, as well as the allocation of investment funds to cover the costs of coal conversion. In its oil product pricing policies the Government should give a clear signal that it intends to price furnace oil at or above import parity. Dialogue between coal mining companies and the backers of new cement plants should be encouraged.

ISSUE 3: Coal Use in Other Industries; The potential for coal use for process heat and steam and for cogeneration is significant, but poorly understood. There is little management experience in coal use and a lack of familiarity with the current end-use technologies. Many companies that used coal prior to the advent of Sui gas have memories of an unreliable supply of varying and unpredictable coal qualities.

PROPOSED ACTION: Sector-by-sector surveys should be carried out during the Sixth and Seventh Plans to assess each industry's potential coal use, technological and capital requirements. A national boiler census has recently been completed by a local consulting firm and this could provide important input to these sectoral fuel substitution studies.

ISSUE 4: Coal Use in the Household Sector: Coal briquettes could one day play an important role in displacing kerosene and in substituting for fuelwood in certain areas. The possibilities of briquette exports to the Gulf are also worth investigating. However, experience has shown the need to test markets carefully and to evaluate the results before designing and investing in commercial scale briquette production.

PROPOSED ACTION: A series of regional-specific studies on the market for smokeless coal briquettes should be commissioned before committing major funds to plant feasibility studies. Such studies would provide the necessary information on competitive price levels, product acceptability in terms of ease of use, need for special stoves and distribution systems. If positive results are obtained from the studies, a production-marketing plan could be drawn up for each province. Briquette prices may have to be fixed by the Government, at least initially, in order to avoid price fluctuations that could prevent consumer acceptance of briquettes.

ISSUE 5: Adequacy of Demand Data: Coal is the only commercial fuel with such poor data. With around 50 percent of total domestic production unreported it becomes very difficult to assess developments as a basis for policy-making.

PROPOSED ACTION: Improving the reporting process itself will take a long time, given the institutional problems that must be solved. In the meantime ENERPLAN should set up a regular estimating process by using Census of Manufacturing Industries, field surveys and other

sources. The work could be undertaken by ENERPLAN itself or by the Ministry of Petroleum.

C. INCREASING EFFICIENCIES IN THE COAL CHAIN: EXPLORATION TO END-USE

1. Institutions and Planning

As a fraction of fuel supply, coal has decreased in importance over recent decades. This, and perhaps a deference to Provincial authority has induced an unusual laissez-faire attitude on the part of the Federal Government to coal development. Stimulating the kind of growth in coal use projected above will require more serious attention to coal on the part of the Government while, at the same time, a climate is created in which the private sector will be willing to play its necessarily active role.

MAJOR ISSUE 6: Need to Strengthen Coal Sector Institutions: At the Federal level, coal does not have a high enough profile to enable the numerous cross-cutting issues to receive high level attention. Coal is handled with minerals when it is in fact not a mineral and should be treated as a fuel. The Geological Survey of Pakistan (GSP) suffers from the problems typical of a mission-oriented professional service hampered by civil service funding and management restrictions. At the provincial level, the staff resources to administer the coal mining regulatory regime are inadequate.

PROPOSED ACTION: The Ministry of Petroleum and Natural Resources should consider giving coal the same institutional status that oil and gas enjoy. The functions proposed for a "National Coal Authority" are important, although it might be that a choice of name other than "authority" would be more appropriate, indicating its coordination role. The Government should review the operating restrictions on GSP with a view to enabling it to carry out its mission more efficiently. Provincial governments should consider augmenting their staff resources related to the coal industry, recognizing that their own revenues will be increased as coal production grows.

ISSUE 7: A National Coal Strategy: Beyond the objectives in the Sixth Plan, there is no consistent plan or strategy for the future development of the coal sector.

PROPOSED ACTION: The government, in close collaboration with industry, should develop a national coal strategy. The strategy should include approaches to dealing with the various issues identified in this report.

2. Exploration

Pakistan's coal reserves are still poorly understood and much reliance is still placed on inferences. Total coal reserves in Pakistan are estimated to be over 750 million tonnes, but only 85 million tonnes are classified as proven. Of the proven reserves, 62 million tonnes are in the Lakhra area. Greater effort is needed on exploration at all levels ranging from location and defining of reserves to detailed development drilling. New ways of financing exploration should be explored, including the possibility of an exploration loan fund. Public sector license areas could be explored with public funds and then auctioned to the private sector. The capabilities of local drilling firms need to be upgraded so that exploration data meets international standards.

ISSUE 8: Local Drilling Capabilities: A local drilling industry already exists, but its equipment and practices need improving, particularly if the reserve assessment criteria of international agencies are to be met.

PROPOSED ACTION: Banks should be encouraged to finance local drilling companies' acquisition of new equipment. Public sector agencies owning drilling rigs should be encouraged to sell off surplus rigs to the private sector. A donor agency or country might usefully set up a short-term training program to improve the skills of drilling supervisors and crews.

ISSUE 9: Coal Analysis Capabilities: At present, only PCSIR has the capability to carry out coal analysis to accepted standards, and it cannot meet the turnaround requirements of the existing demands.

PROPOSED ACTION: Coal analysis should be carried out by private companies operating under certified procedures and standards. A more appropriate role for PCSIR would be to emulate the U.S. Bureau of Standards and be the certifying authority for all analytical laboratories in the country.

3. The Supply Chain

The coal supply chain consists of numerous producers, agents, transporters, and distributors. The market has evolved an effective system that is adapted to Pakistani conditions, e.g. lack of developed credit system for certain sectors, inadequate transportation infrastructure, etc. While a certain amount of collusion exists at various points in the chain, which operates to reduce competition and therefore increase prices to end users above what they might otherwise be, the system as a whole seems to serve the needs of existing markets. Certainly, the market information and distribution functions of coal agents are particularly important to the functioning of the industry. There is less long-term justification for their role as credit providers.

One aspect of the system which operates to raise prices to end users is that the method by which PMDC and PUNJMIN coal is sold is manipulated by coal agents for the ultimate purpose of tax avoidance. Public sector coal is sold to the highest bidder and agents deliberately bid up the price above market levels in order to obtain an "official" document showing a higher price which they then use to cover the sale of lower cost coal while inflating their apparent coal costs across the board. All parties, excepting the end user, benefit from the current state of affairs. The high-cost public sector producers capture an added economic rent, while the agents and private mining companies in Baluchistan and Punjab realize higher profits.

MAJOR ISSUE 10: Using PMDC and PUNJMIN to Increase Price Competition: The present system of sale by tender invites manipulation by coal agents. The Government should consider removing this opportunity to raise prices in the market, and at the same time require PMDC and PUNJMIN to compete for business on the same basis as other coal companies.

PROPOSED ACTION: Sale of coal by tender to agents should be phased out over, say, a three year period. At the end of that period the public sector companies would have to sell all their coal directly to end users at market prices, and agents would have to replace the coal they now buy from PMDC and PUNJMIN with private sector coal.

ISSUE 11: Dependence of End Users on Agents' Credit: The fact that brick kilns and a number of mining companies are heavily dependent on agents for credit limits the ability of end users to shop around for the lowest price coal and the ability of mine owners to generate capital for expansion. If the brick industry and small to medium mining companies had access to short-term (seasonal) credit, this should result in lower coal prices through increased competition among agents and in lower brick prices through reduced financing charges.

PROPOSED ACTION: In the medium term the Government should consider developing a credit system for brickmakers along the lines of the innovative small scale loan operations developed with considerable success by the Agricultural Development Bank of Pakistan, and should also consider improving seasonal credit facilities for producers.

4. Coal and Other Fuel Pricing

Coal has suffered as a result of the Government's overall approach to energy pricing. By pricing natural gas at extremely low levels the demise of coal was ensured in virtually every end use market except brick making (which was unable to obtain gas) and iron and steel. More recently, cement plants have been shifted from gas to furnace oil by government directive. Government policy needs to be

directed at keeping coal prices as low as possible, which means promoting efficient and appropriate methods of production, and avoiding opportunities for public and private sector producers to take advantage of quantum increases in demand. It also means correct pricing for oil products and natural gas.

MAJOR ISSUE 12: The Prices of the Fuels against which Coal Competes Must Be Set in a Rational Manner: Of particular concern is the price of natural gas from the point of view of stimulating both natural gas and coal production. Fuel oil prices have dropped by some 30 percent (in dollar terms) since 1982 when the natural gas target price was agreed to (two thirds of world fuel oil price by 1988).

PROPOSED ACTION: The current targets for natural gas prices should be reviewed in light of: a) recent trends in fuel oil prices, b) incentives for natural gas production, and c) effects on competition between natural gas and coal.

ISSUE 13: Price "Subsidies" for Public Sector Purchasers: There does not appear to be any justification for requiring PMDC to sell coal to public sector companies or agencies at prices below market levels.

PROPOSED ACTION: Public sector purchasers of coal, such as Pakistan Railways, the Defence Forces and WAPDA (Quetta) should be required to purchase their coal by tender from the lowest bidder subject to strict provisions on quality.

5. Coal Quality

Brick kilns can and do accept a wide variety of coal qualities, with the distinction made between coals that are roughly higher and lower in heating value as well as those whose mineral properties impart different colors to bricks. Industrial users require a much higher degree of quality adherence, and neither coal producers nor agents have the habit of supplying customers with coal of a consistent

quality. A recommendation has been made above to improve national coal analysis capabilities.

6. The Import Option

The international steam coal market is characterized by intense competition among producers in Australia, Canada, South Africa, Poland and the United States. It is generally accepted that long-term price trends for traded steam coal will remain closely related to costs of production. For instance, a 1984 World Bank report estimated that the export price of U.S. steam coal would increase at 0.3 percent per annum in real terms between 1985 and 1995. Thus, unlike the case of petroleum, the economic risks associated with dependence on imported coal are relatively small. Energy planners as well as industrialists should take into account the alternative of using imported steam coal in projects where financial and economic analyses indicate that the net benefits to the economy would be positive.

D. REFORM OF THE REGULATORY FRAMEWORK

The regulatory framework must protect the broad long-term interests of the Provinces and the Federal Government, but it must not act as a hindrance to the entry of new companies or to the expansion of activities by existing companies. Some of the procedural aspects of the current system under which the government, which has ultimate ownership of coal and mineral resources, permits exploration and extraction of coal are not particularly well suited to the needs of a modern coal sector. Revisions that would discourage fragmentation of licensed areas, speed up the granting of leases and make leases fully acceptable as collateral for bank loans would be desirable.

MAJOR ISSUE 14: The Leasing Regime: Specific problems are i) long delays in converting prospecting licenses to leases delay mine development; ii) granting of small leases operates against efficiencies of scale and probably encourages the poor mining practices typical of small operators; iii) the non-assignability of mining leases inhibits banks from accepting them as collateral and

prevents companies from expanding their reserves through acquisition; iv) small and medium sized mines are unwilling or more likely, incapable of preparing adequate mine development plans necessary for the granting of leases.

PROPOSED ACTION: Reforms in provincial mining regulations are under discussion, and some developments have already taken place. The need is for greater awareness in the provinces of the need to expedite the necessary changes, which can only benefit these governments through the increased revenues that more coal production will bring.

ISSUE 15: The Business Environment: Innovative change is required in the regulatory and institutional environment as well as in the atmosphere of negotiation and trust between the private sector, the parastatals, the national government and the provincial governments. The prospect for increased and new coal use and a more efficient regulatory framework creates a new context for positive dialogue.

PROPOSED ACTION: The planned First National Coal Conference should be carried out as planned with the overall objective "To create the opportunity for all parties concerned with rapid, efficient coal development in Pakistan to work together to identify, define and discuss the basic requirements to be met if coal is to play the increasingly important role in meeting national energy needs as announced in the Sixth Plan."

E. MEETING THE CREDIT NEEDS OF MODERNIZATION

Virtually all coal mine development to date has been financed either from the corporate resources of a group of companies to which the coal mine might belong, or from cash flow. This has sufficed for a non-mechanized, labor intensive industry that was growing only slowly if at all. Rapid growth in demand will require increases in mining productivity that in turn will need investment in modest levels of mechanization.

ISSUE 16: Lack of Project Evaluation Expertise in the Banks: The key banks that are likely to finance coal mine expansion and development need to acquire skills already possessed by banks in countries with long traditions of lending to mining companies. Although some progress has been made during 1983-1984, with the IDBP having created a coal cell and staffed it with an economic geologist, and the RDFC having announced a program to identify projects and provide consulting assistance to mineowners to develop bankable projects, the skills based on the experience of project evaluation are not there.

PROPOSED ACTION: One or more bilateral donors might set up a small high level program to second one or more experts in mining project evaluation experience to banks such as RDFC, IDBP, NDFC and PICIC.

ISSUE 17: Lack of Financing for Exploration: The high risk associated with exploration puts it outside the normal bank's consideration. Some mechanism is needed to provide credit on a risk-sharing basis to mining companies for exploration.

PROPOSED ACTION: Drawing on the experience of countries such as Turkey, Brazil and Mexico, the Government should discuss with the coal industry the desirability of setting up a revolving exploration loan fund that would be replenished from the fees paid by successful mine development.

F. MINING TECHNOLOGIES, TRANSPORTATION, INFRASTRUCTURE AND MANPOWER

Mechanization at present is minimal, and is confined to diesel rail trolleys, diesel or electric haulage winches, exhaust fans and some pneumatic tools for development work. Even at this level, mechanization would only be found in mines of some of the large companies. The next steps in mine mechanization are likely to involve coal cutting and coal transport systems.

All developing countries have pressing infrastructure needs that extend to all areas of the economy. Coal mining has a clear set of requirements in this area that includes transportation, water and power plus basic social services such as housing, medical assistance, etc. Coal is often found in remote areas with hostile geography.

Virtually every step in the coal chain has the potential for environmental damage. The low quality and high sulfur content of much Pakistani coal increase environmental problems. Attention will have to be given to the future environmental consequences of coal extraction and use.

Most coal mines are dependent on migratory workers from Swat, Azad Kashmir, Kohat, etc. whose preferred season for returning home happens to coincide with the slack season in brickmaking due to monsoon rains. However, with constant levels of output needed for industry and power production a year-round supply of labor would be required.

MAJOR ISSUE 18: Access to Mining Technology: All mine operators, but particularly medium and smaller companies, could benefit from being able to inspect and then lease or purchase mining equipment. The need for inspection arises from varying local conditions that may dictate different equipment needs.

PROPOSED ACTION: The Regional Development Finance Corporation has stated its intention to set up regional mining equipment depots that would appear to accomplish the above objectives. If this program does not materialize, the new "National Coal Authority" might undertake the task of selecting one or two qualified individuals from each mining area who would first undertake an assessment of where the appropriate equipment was available on a new and used basis, and then recommend specific equipment procurements to local depots that would be established by the NCA to demonstrate, lease and sell coal mining equipment.

ISSUE 19: Local Coal Mining Equipment: Manufacture of much of the equipment needed for modernization of Pakistan's coal industry is within the capability of local industry. It is difficult for that industry to anticipate and prepare for producing that equipment, however.

PROPOSED ACTION: The Government, perhaps as part of an overall coal R, D&D plan should develop, in consultation with industry, the profile of future equipment needs and the means to indigenize the manufacture of such equipment.

MAJOR ISSUE 20: The Rail System: High transportation costs can add up to 100 percent to the mine-mouth cost of Quetta area coal. It may be many years before the rail system is improved to the point where coal can be transported efficiently and at low cost. In the meantime, users will have to locate closer to sources of coal. The implications for the coal mining industry in the Quetta area are serious as its markets in Punjab are being eroded by coal from Sind, Dukki and some Punjab production.

PROPOSED ACTION: There are short-term operational measures that Pakistan Railways can take to alleviate the situation. These have been identified by government advisory committees and now need urgent implementation. The real solutions will require major investments in railway infrastructure. The Sixth Plan calls for the electrification of the Bolan Pass section, which would do much to eliminate the bottleneck and enable the railways to capture a higher percentage of coal traffic. This investment should be given a high priority.

MAJOR ISSUE 20: Improving Conditions for an Expanded Workforce: An expanding coal industry is going to need more miners and it will need a labor force capable of sustaining constant output year round. Improving conditions and the equity of the labor systems will make it easier to attract labor. Increased levels of mechanization will probably require greater attention to training.

PROPOSED ACTION: Provincial governments will have to take action to improve housing and related facilities at mines, whether by setting standards or in some cases, undertaking some improvements themselves. These could be financed from coal royalty payments. Reforms in the jamadar system to eliminate abuses have been under consideration for some time. Certainly, if gang bosses were required to be licensed and to pass examinations in mine safety, there would be a heightened safety consciousness underground. A school to train skilled workers should be set up.

ISSUE 22: A Possible Shortage of Wood for Mines: With one estimate indicating that each additional million tons of coal could require 2-3 million trees, it is necessary to plan for the mining industry's need for underground supports.

PROPOSED ACTION: The Minerals Co-ordination Board might examine this question in detail, considering the alternatives of dedicated plantations for mining timber, imported or local manufactured steel pit props.

ISSUE 23: Inadequate Infrastructure for Mine Development: Private mine owners are continually raising the issue of absent or inadequate infrastructures, often with the expectation that it should be provided without charge. The issue is a difficult one to resolve because of the intense competition for infrastructure improvements from all sectors of the economy.

PROPOSED ACTION: The coal sector is capable of contributing to the cost of infrastructure and there does not seem to be justification for de facto subsidies where the improvements are solely for the use of coal companies. Provincial governments should consider setting aside a portion of their royalty receipts to devote to infrastructure improvements that will help the growth of coal (and other mining) industries. However, there are areas where the payback on infrastructure improvements is very long and the Government will have to make the initial investments.

ISSUE 24: Environmental Impacts: Although the environmental aspects of the Lakhra-Jamshoro complex are being examined as part of normal project development, the potential rapid growth of the coal industry in Pakistan and the nature of Pakistani coal raises a much broader and serious set of environmental issues. Neither existing analysis or the current set of environmental and safety regulations are adequate to assure socially responsible growth of this characteristically dirty industry. Attention to these issues now is necessary to avoid potentially serious consequences and delay in accomplishing the national coal strategy.

PROPOSED ACTION: An environmental policy analysis should be undertaken to evaluate: 1) the potential environmental (including health and safety) impacts of Pakistan coal development over the next 10 years; 2) policies and programs that would be beneficial from the standpoint of total social cost, and 3) institutional or regulatory changes that are needed to accomplish those policies and programs. The analysis should consider all steps in the coal chain: production, processing transport, distribution and final combustion in all using sectors.

G. ATTRACTING FOREIGN INVESTMENT

The Lakhra/Jamshoro project will be the first real test of whether foreign mining companies can be attracted to participate in coal mining ventures. The Government has numerous incentives to attract foreign capital, but it is also clear that coal production in the context of the way the market operates is more of an "art" than is the case in the petroleum sector. Ultimately it will come down to what rate of return (and risk) an expatriate mining company can expect when compared with the other investment/production opportunities that it faces. The currently depressed worldwide coal market may make a number of firms more interested in joint ventures in Pakistan than they would have been, say, in the late 1970s. The Government should keep open

the question of linking the acquisition of technology, management and finance.

H. CONCLUSIONS

A significant increase in the use of domestic coal is one of the few alternatives available to the Government of Pakistan to reduce the energy-related foreign exchange cost of future economic growth. Attaining the benefits that greater coal use has to offer will not be easy. The public-private sector business climate will have to be improved; new contractual and regulatory arrangements will have to be put in place; new technological approaches will have to be instituted. Both the international, and particularly the local, private sector have absolutely key roles to play if the overall enterprise is to succeed. In the set of policies and actions discussed in this report, highest priority should be given to those which stimulate and assure new coal demand. Until new demand for coal in the electric sector and in the cement industry is assured, it is unlikely that all of the financial, institutional and technical requirements for increased supply will be put in place. Another high priority is for government to make clear, through concrete steps, that the private sector will play a major role in coal supply to these new markets. The nature and magnitude of the necessary changes are such as to require a concerted effort and commitment on the part of the National and Provincial Governments and the private sector. More difficult, perhaps, it will require an unusual degree of flexibility and innovativeness to consider and implement new approaches of the kind suggested in this report. We are convinced that any risks inherent in following this path will be amply rewarded by a more efficient and resilient national energy system.

I. INTRODUCTION

A. BACKGROUND

Recognizing that the availability of affordable supplies of energy is crucial to sustained economic growth, the Government of Pakistan focussed a major portion of its economic resources on energy supply projects and planning in its Sixth Plan. As a country with GDP growth targets of over 6 percent per year and historical energy/GDP growth ratios of around 1.3, Pakistan has launched a diverse supply expansion program covering oil, gas, coal, hydroelectric, nuclear and renewables, as well as a program to improve energy end-use efficiencies. In an effort to make the most economic use of domestic energy resources, coal has been singled out for particular attention because of the pressing need to restore the position of this indigenous fuel as a major contributor to the energy economy. Pakistan still imports over 80 percent of its petroleum requirements and although recent production increases are encouraging it is highly improbable that plentiful and cheap domestic oil reserves will be discovered. The gas reserve ratios are higher than oil but still modest when compared with the long-term needs of the economy. There are, however, good indications that the country may possess very large coal reserves and this, combined with relatively low-cost production, makes coal an attractive fuel for the future.

Coal, once the predominant primary energy source (60 percent of commercial primary energy in 1940), is now primarily a fuel for brick kilns (supplying 5 percent of commercial primary energy in 1983-84, based on reported coal production). The reasons for the decline are well known, and lie in the rapid penetration of low-priced domestic gas and electricity into end-use markets once served by coal.

The Government has habitually set coal production targets in successive five-year plans that go unmet by wide margins. The reason for the shortfalls has not been inadequate production capacity, but rather that demand has not grown to match the "potential" increase in

production. Unlike petroleum, coal will not be produced unless identifiable demand is there and this fact has not been taken into account until recently.

The Government's goal of expanding coal use arises partly out of the need to conserve gas and limit oil use and partly as a source of baseload power generation. Private companies currently provide approximately 85 percent of production and may be expected to continue to supply the bulk of increased supply. However, up until the present time the private sector has been able to finance nearly all of its development costs from internally-generated funds, and it is recognized that future expansion involving mechanization will probably require external bank financing.

B. OBJECTIVES

The purpose of this paper is to examine the current state of the coal sector and to identify actions and policies that would lead to an expanded use of coal by stimulating demand, improving efficiencies in the coal supply chain and facilitating increased production. This necessarily involves stressing the role of the private sector. It is in the private sector that the lowest cost production and the greatest capabilities to develop the industry are found.

A number of recent studies have identified problems that must be addressed if the private sector is to double or triple output over the next five to eight years. This paper draws on these studies, and new information, to identify areas where progress has already been made and to pinpoint additional considerations that have not been previously brought to light. In each Chapter "Policy Issues" are identified. These arise from the preceding discussion, and are intended to bring out problems that require action together with suggested measures to be considered by the Government of Pakistan and/or provincial agencies. The final chapter covering recommended policies and actions pulls together the various chapter issues into a coherent strategy for Pakistan's coal future.

C. METHOD

Published and unpublished studies and reports have been reviewed and analyzed. Interviews have been carried out with a large number of individuals in the Federal and Provincial Governments, public and private sector coal companies, financial institutions, middlemen and other persons involved in the movement of coal from mine-mouth to user, as well as with representative end users such as brick kiln owners, cement manufacturers, etc.

In the interests of keeping this report to a readable length, an effort has been made to avoid unnecessary repetition of background material. Instead, studies and reports are cited so that the interested reader may refer to them for greater detail.

II. THE RESOURCE BASE

A. CURRENT STATE OF KNOWLEDGE

1. Introduction

The history of coal in the area now covered by Pakistan shows two cycles starting with the local mining of coal in the 19th century which was then cut back with the discovery of better quality, larger deposits in India. Efforts to re-expand local production began with independence in 1947 and continued until the giant Sui gas field was brought into production.

From Figure II-1 it will be seen that known coal resources occur in three major areas: Northeastern Baluchistan, Northern Punjab (Makerwal and the Salt Range) and in the vicinity of Hyderabad in Sind. There is a common belief among Pakistani and expatriate geologists that actual reserves are in fact much greater than the documented state of knowledge would indicate. The reserve data shown in Table II-1 are drawn from the 1984 study by Chemical Consultants (Pakistan) Ltd. (Chemcon, 1984), which reviewed and re-interpreted all pre-existing data for the Ministry of Petroleum and Natural Resources. The reserve data covering private leases (about four-fifths of known coal-bearing areas) may be less reliable than those of public leases because these data are neither standardized nor controlled. The most systematic exploration has been undertaken on public leases and in particular on a portion of the PMDC lease at Lakhra. Efforts are now being made to clarify the distribution and extent of coal reserves. These include programs supported by USAID and the World Bank, at Lakhra and Dukki respectively, WAPDA/PMDC at Sonda, as well as efforts undertaken by the private sector to clarify their holdings on existing leaseholds.

Inadequate understanding of the coal reserves due to lack of exploration is still one of the most critical obstacles in the way of planning for expanded coal use in the economy. The Geological Survey

FIGURE II-1

COAL FIELDS IN PAKISTAN

A. MAJOR COAL FIELDS:

- ◆ Makarwal/Guflakhal
- ◆ Sah Range
- ◆ Ser Range/Degari
- ◆ Khest Sharqit Narsan
- ◆ Mach
- ◆ Lakhra
- ◆ Jhampur Mezig

B. OTHER PROMISING AREAS

- ◆ Ser Range/Katch
- ◆ Dukti
- ◆ Pir Ismail Zierot
- ◆ Sonda/Thatta

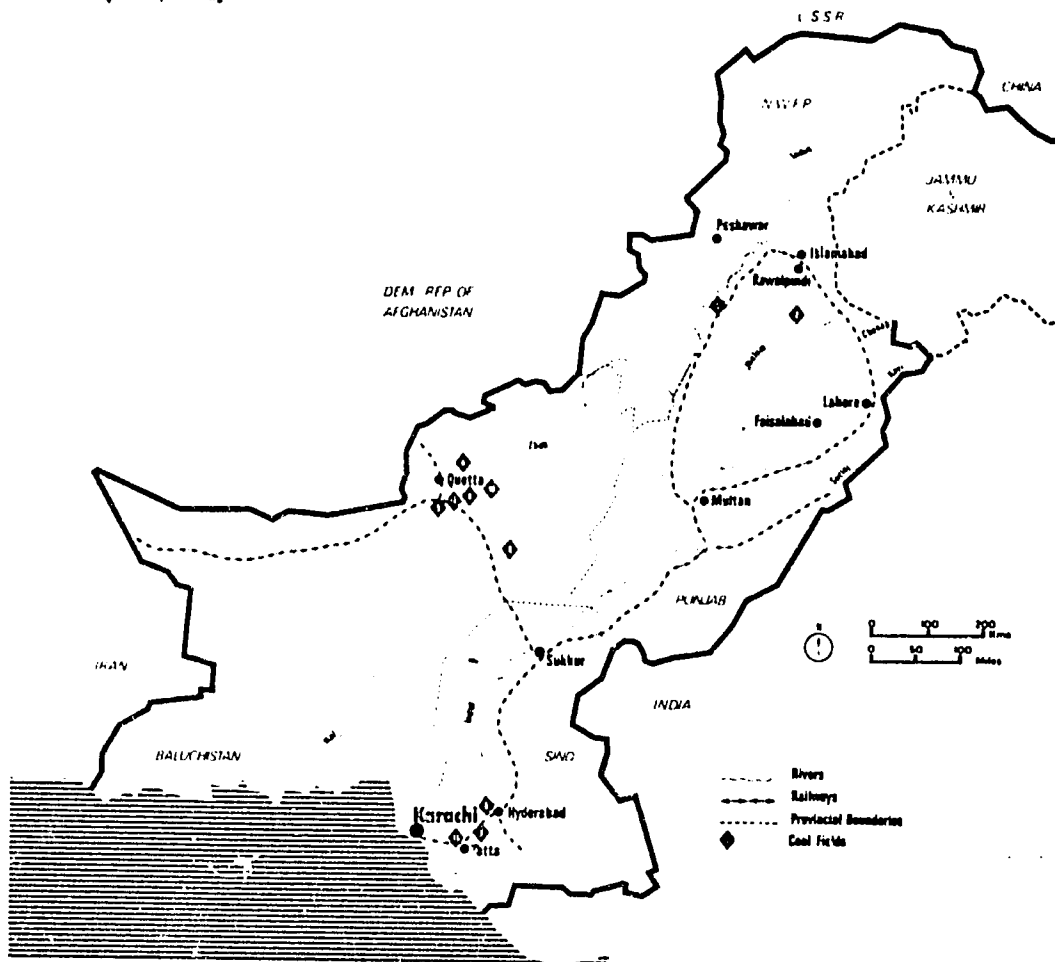


TABLE II-1

SUMMARY OF COAL RESERVES
(Current Recoverable Reserves)
(Million Tonnes)

<u>Major Coalfields</u>	<u>Proven</u>	<u>Indicated</u>	<u>Inferred</u>	<u>Total</u>
Punjab/NWFP				
Makerwal - Main	3.0	7.0	2.0	12.0
- New Seam	-	-	5.0	5.0
Gullakhel	-	-	2.6	2.6
Eastern & Central Salt Range	4.0	40.0	13.0	57.0
Western Salt Range	-	-	0.36	0.36
Misc. Cherat	-	0	0.04	0.04
Baluchistan				
Sor Range-Sinjidi-Deghari	7.6	20.9	-	28.5
Khost Shahrigh-Nakus-Harnai	0.3	8.3	19.4	28.0
Mach	0.5	5.5	7.5	13.5
Abegum	0.1	2.4	6.5	9.0
Pir Ismail Ziarat	0.1	1.7	2.7	4.5
Dukki (Private)	0.1	2.0	3.9	6.0
Dukki (Public)	-	-	2.6	2.6
Chamalang	-	-	6.0	6.0
Sind				
Lakhra - Main Area	62.0	44.0	274.0	380.0
- Subsidiary Area	-	-	118.0	118.0
Jhimpir/Meting	5.0	10.0	25.0	40.0
Sonda	2.0	8.0	40.0	50.0
TOTAL	84.7	149.8	528.6	763.1

Source: Chemical Consultants (Pakistan) Ltd. May, 1984

of Pakistan (GSP) has, in principle, a mandate that includes the identification of the geologic strata of the country and the location of important mineral deposits. Its mission stops short of exploring any particular deposit to the level of detail necessary to assess mining feasibility and the design of mine development plans.

B. COAL CHARACTERISTICS

The quality of Pakistani coal varies considerably, which has important implications for its potential role in the energy economy. The data below and Table II-2 are taken from the most recent authoritative survey (Chemcon, 1984) which also carried out new coal analyses for all areas.

1. Baluchistan Coal

Baluchistan coals are generally higher quality than Punjab or Sind coals. Analysis of run of mine Sharigh coal indicates 1 to 2 percent moisture, 36 to 42 percent volatiles, 26 to 44 percent carbon, 9 to 35 percent ash, 5 to 7 percent sulphur and 9,557 to 10,297 Btu/lb. Thus, Sharigh coals have coking properties and, if washed fractions were mixed with other mid-volatile, low sulphur, low ash coals, it seems likely that they could be used by the Pakistan iron and steel industry. The coal is subject to spontaneous combustion but not to the degree of Lakhra coal. The best quality coal in this region is from the Sor Range where Chemcon's analysis indicated 1 to 3 percent sulfur. There are low sulfur seams in the Deghari range but not consistently.

2. Punjab Coal

There is considerable variance of ash and sulfur content in Punjab coal, where calorific values range from 6,000 Btu/lb to 9-10,000 Btu/lb in the Central Salt Range and Makerwal. Central Punjab has not been opened to coal exploration, although oil companies reported shows of high quality Permian coal at 3,000 feet some years ago.

TABLE II-2

REPRESENTATIVE ANALYSIS OF PAKISTANI COALS

Field	Proximate Analyses				Ultimate Analysis %				Calorific Value (Btu/lb)		Analyzed by
	Moisture	VCM	Ash	FC	C	H	Sulphur	Chlorine	Gross	Net	
<u>Baluchistan</u>											
Sor Range	14.7	36.4	7.1	41.8	51.2	4.1	5.0*	0.02	9969	9431	(A1)
Sinjidi	10.6	35.9	19.8	33.7	51.2	3.9	4.0	0.01	8764	8290	(A1)
Deghari	12.1	35.5	18.0	34.4	50.9	4.2	2.2	0.02	8840	8326	(A1)
Pir Ismail Ziarat	10.7	38.1	8.1	43.1	60.2	4.5	4.1	0.02	10566	10036	(A1)
Dukki	6.2	33.4	17.6	42.9	57.6	4.2	6.0	0.03	10636	9577	(A1)
<u>Punjab</u>											
Makerwal	3.6	37.6	20.8	38.0	-	-	6.11	0.08	10065	-	(A2)
Padhrar (Cent. Salt Range)	4.2	33.5	21.8	38.7	-	-	9.96	0.04	9942	-	(A2)
Katha	5.2	31.8	32.0	31.0	-	-	5.64	0.06	8024	-	(A2)
Nili	3.5	25.0	47.0	24.5	-	-	5.26	0.05	6121	-	(A2)
Ratucha	3.9	23.2	50.0	22.9	-	-	7.82	0.07	5147	-	(A2)
<u>Sind</u>											
Lakhra (North)	26.9	25.9	24.3	22.9	34.4	2.9	4.3	0.15	5804	5251	(A1)
Lakhra (Central)	24.9	30.3	17.4	27.5	41.4	3.2	4.2	0.11	7073	6516	(A1)
Lakhra (South)	22.7	32.0	14.2	31.2	45.1	3.3	6.1	0.28	7732	7190	(A1)
Jhampir-Meting	12.25	33.98	31.23	22.54	-	-	-	-	7136	-	(A3)
Sonda	13.4	30.3	27.5	26.7	NA	NA	NA	NA	NA	NA	GSP

Analyzed by (A1) - Holderbank A.G. Switzerland

Analyzed by (A2) - N.C.B. Yorkshire Regional Laboratory U.K.

Analyzed by (A3) - PCSIR Lahore

* Differs from Chemcon's 1 - 4 percent analytical results

Source: Chemical Consultants (Pakistan) Ltd., 1984

3. Sind Coal

Coal from Lakhra has the following characteristics: 23 to 27 percent moisture, 26 to 32 percent volatiles, 23 to 31 percent fixed carbon, 14 to 24 percent ash, 4 to 6 percent sulphur and 5,800 to 7,734 Btu/lb. Its strong tendency to spontaneous combustion makes storage and transport difficult and its main markets would continue to be located not too distant from the coal fields.

The reserves at Sonda are thought to be large but to date only thin seams have been encountered.

C. EXPLORATION

A concise description of previous exploration work is given in Reference 7. The nationwide exploration program of the GSP is scheduled to receive a large boost from the Rs. 70 million USAID Coal Assessment Programme. The major objectives of that program are included below. It should also be noted that a joint U.S. Geological Survey - GSP workshop on exploration is planned for 1985.

1. Lakhra (Sind)

A portion of the PMDC lease area was intensively explored by GSP and Japan International Cooperation Agency (JICA, 1981), and USAID and WAPDA are currently extending this work in support of the mining feasibility study. The level of exploration in the private lease areas varies considerably. In most cases exploration is by means of sunk shafts rather than bore holes. In some areas USGS carried out exploratory drilling in the 1960s. In view of the intensive drilling program now being carried out for WAPDA, the future role of GSP will be to define the limits of the coalfield and provide advisory services as and when required by WAPDA.

2. Sonda/Thatta (Sind)

A modest exploration program is currently underway financed by WAPDA, PMDC and GSP and this will continue until June, 1985. Some

geologists believe that the potential reserves here are greater than at Lakhra. As of 1982-83 nine seams had been identified, one of which was over four feet thick.

3. Dukki (Baluchistan)

The World Bank has been assisting a GSP drilling program that aims at proving a reserve level adequate to support a moderately sized power station. In parallel, WAPDA has been undertaking a water study because of the critical shortage of cooling water in this region. Recent results from the water study are reported to be encouraging and this may clear the way for more intensive drilling. The initial GSP program of 10 holes will shortly be the subject of a report. There is considerable production from the private areas at Dukki (c.200,000t/yr).

4. Sor Range - Zarqhun and Degari (Baluchistan)

Geologic mapping, drilling and sampling will be carried out in the Zarqhun area to locate possible sites for new mines. Exploratory drilling will also be done to locate an area for a new mine south of Degari. (There is no indication as to whether the areas to be drilled are already under licences and whether they are publicly or privately held.)

5. Khost, Sharigh, Harnai, Mach (Baluchistan)

Topographic and geologic mapping is planned together with measurement, sampling and analysis of coals from mine workings. Several holes will be drilled to assess the possible extent of reserve areas and determine structural conditions for more extensive mining.

6. Jhang (Punjab)

Investigation will proceed but at a lower priority than other areas. Sirai Sidhu coal is interpreted to lie at 500-850 meters. Drilling of about 1000 meters is anticipated.

7. Makerwal and Salt Range (Punjab)

A comprehensive report on Makerwal is planned, and this will be followed by structural studies and drilling to extend the reserves and guide future mining operations. Limited studies will also be carried out on the tertiary coal regime of the eastern Salt Range.

D. DEVELOPMENT DRILLING

The GSP has always been considered responsible for exploration drilling, i.e. locating and defining the quantity and quality of the mineral deposits of Pakistan. This is a huge task and, while considerable progress has been made since independence, at least 80 - 85 percent of the country remains to be mapped geologically at a scale of 1:50,000; few known fields are well defined as yet.

The next two stages of drilling - namely drilling to prove reserves and pre-mining development drilling - are undertaken infrequently by the large private mining companies and inadequately by GSP for PMDC and PUNJMIN. The typical medium size private coal firm carries out exploration by assessing the overall geology, by looking for outcrops and by driving (horizontal) drifts or sinking shafts. This is obviously a time consuming, inefficient and costly process.

There are a number of Pakistani private companies capable of carrying out contract drilling although their skills and equipment need modernizing. One is under contract to USAID for Lakhra work, and others are at work currently in the Lakhra area under contract to Amin Bros. and Habibullah Mines. Thus, although some technical upgrading is called for, in this regard the coal sector is better off than the petroleum sector, which is 100 percent dependent on expatriate drilling companies. Drilling costs in the Lakhra area now are \$10 to \$15/foot depending on depth and amount of coring.

ISSUE: Upgrading of the standards and capabilities of local drilling companies may be needed in order to meet the assessment criteria of international donor agencies. The incentive to improve

capabilities will come when the demand for higher quality services is perceived to be increasing.

ACTION: Banks should be encouraged to finance local drilling companies' acquisition of new technology. Public sector agencies such as PIDC, RDC and GSP with surplus drilling equipment inventories should be encouraged to sell their surplus rigs to private sector companies. Finally, a donor agency could usefully set up a short-term training program to upgrade technical skills in local drilling companies.

ISSUE: Except for the large mine owners, the cost of development and reserve drilling seems to be beyond the capability of mine owners to finance. Yet, normal commercial lending will not be used, nor would it be available for such a purpose.

ACTION: The donor community should consider the possibility of an exploration loan fund for the private sector. The Government has been examining other LDC institutions that finance coal exploration. The time seems right for a special exploration fund to be set up.

Drawing on the experience of Argentina, Brazil and Turkey described in Chapter III, the Government should set up regionally based coal/mineral exploration funds that would cost share with private mine owners. External donor agencies might consider providing some seed money to such a fund that would be self-financing through repayments from successful mining developments. The National Coal Authority could operate such a fund through one of the major development banks.

E. COAL ANALYSIS

Pakistan lacks facilities which can provide coal analysis services at a reasonable cost and schedule. PCSIR could provide such services with some upgrading of equipment, but its costs are high (in one recent case, twice as high as a comparable U.S. firm would ask)

and demand exceeds its capabilities. In any case, in an expanded coal economy it is debatable whether private firms selling coal under contract to public corporations would accept a public analytic service as the sole quality arbiter. Accordingly there is a need for more coal analysis facilities, and facilities which are independent.

ISSUE: The private sector, including producers and industrial users of coal, needs ready access to moderately priced coal analytical services. For the time being, it will probably be necessary to rely on the capabilities that are already in place with PCSIR, but in the near term more independent analytical facilities must be added.

ACTION: PCSIR should be encouraged to evolve a role similar to that of the U.S. Bureau of Standards in regards to coal analysis; setting appropriate standards, methods and criteria for the analysis of coal and reviewing the activities of independent laboratories in the public and private sectors. Pakistani universities and private companies should be encouraged to develop independent coal analysis capabilities.

III. COAL SUPPLY AND DEMAND

A. CURRENT ENERGY AND COAL SUPPLY AND DEMAND

The share of reported coal production in commercial primary energy declined from 59 percent in 1947 to just over 30 percent in 1963 and to about 5 percent by 1982 as a result of its displacement by natural gas and, to a lesser extent, residual and furnace oil. During this period reported production remained relatively static at 1.2 to 1.3 Mt/year. During the Fifth Plan (1978/79 - 1982/83) reported production increased to 1.6 Mt in 1980/81, although it dropped back somewhat to 1.5 Mt in 1982/83. While these figures on reported production are useful as a rough guide to long term trends, unreported coal production does distort the role of coal in the economy. Under reporting of coal production and coal movement is the result of efforts to avoid payment of royalties and other taxes such as octroi which in turn could provide a basis for assessing income tax. The problem is compounded by a shortage of provincial government inspection staff. Table III-1 gives estimates of unreported production and the footnote to the table explains the background to the use of a rule-of-thumb that unreported coal is equal to at least 55 percent of reported coal production.

Reported coal production in fiscal year 1983/84 was 1.816 Mt, an increase of 18 percent over the previous year. Unreported production is taken at 55 percent of reported production, which would indicate a total domestic production of 2.82 Mt. The addition of 0.491 Mt. of imported coking coal for Pakistan Steel yields a total demand of 3.33 Mt, or 10 percent of total commercial primary energy demand. The overall share of coal (including unreported coal) in total primary energy has remained at around 10 percent since 1980/81 with fluctuations in share being largely due to changing levels of coal imports.

The very considerable seasonal variations in production are brought out in Table III-2. Production in Sind varies by a factor of

TABLE III-1
COAL DEMAND IN PAKISTAN
(million tonnes)

<u>Year</u>	Reported Production	Estimated Unreported ^(a) Production	Imports	Total Demand	% of Total Commercial Primary Energy
1979-80	1.504	.827	.098	2.429	8
1980-81	1.569	.878	.418	2.865	10
1981-82	1.765	.970	.540	3.275	
1982-83	1.544	.850	.520	2.914	
1983-84	1.869	1.000	.491	3.360	

Source: DGER (DGER, 1983) and E/DI estimates

(a) Note: Unreported coal production represents a significant portion of total domestic production [see Table II.1.(2)] and is not included in any GOP official statistics. It is taken as 55% of reported production. IEDC estimated 1980/81 unreported production by taking data on coal consumption as reported in the Census of Manufacturing Industries and building up estimates through the detailed fuel-mix tables of energy end-uses in each sector (IEDC, 1983). The ratio established by IEDC for 1980/81 has been applied here to reported production in succeeding years and this rule of thumb is regarded as reasonable by people familiar with the industry.

TABLE III-2

SEASONALITY OF REPORTED COAL PRODUCTION
(1983-84) (tonnes)

<u>Quarter</u>	<u>Sind</u>	<u>NWFP</u>	<u>Punjab</u>	<u>Baluchistan</u>	<u>Total</u>
3Q83	34,605	6,779	64,223	120,577	225,284
4Q83	118,386	8,182	111,917	209,940	448,925
1Q84	126,347	10,743	156,461	306,496	600,047
2Q84	158,173	8,465	124,851	251,206	542,695
1983-84	437,511	34,169	457,452	888,219	1,817,735

Source: Ministry of Petroleum

4.6 between the second and third quarters of the year. This is due to seasonal changes in brick production (responding in turn to demand) and to the departure of a certain proportion of the migratory labor force. In Punjab and Baluchistan the variation is less, but is still a factor of two.

As can be seen from Table III-3 in 1980/81 the brick industry purchased over 80 percent of total domestic production (including unreported), with other industrial users (including railways and military) accounting for 9 percent and the power sector and households around 1 percent each. These market shares have been applied to the 1983-84 data in Tables III-4 and III-5.

ISSUE: Coal is the only commercial fuel with such poor supply/demand data. With around 50 percent of total domestic production unreported, it becomes very difficult to assess developments as a basis for policy-making.

ACTION: Improving the reporting process itself will take a long time given the institutional problems that must be solved. In the meantime ENERPLAN should set up a regular estimating process by using Census of Manufacturing Industries data, field surveys and other statistics. The work could be undertaken by ENERPLAN itself or by the Ministry of Petroleum.

B. THE FUTURE DEMAND FOR COAL

1. Introduction

Perceptions within the private sector as to likely future demand levels for coal are the most important single factor affecting investment decisions by private mine owners. Other questions, such as the regulatory environment and availability of financing, must be seen as subordinate issues. This is particularly true given current excess production capacity in the private sector.

TABLE III-3

UTILIZATION OF COAL IN 1980-81

Sector	% of Total Supply	% of Total Domestic Supply	'000 tonnes
Power	1.1	1.3	31
Rural Households	0.4	0.4	11
Urban Households	0.8	0.9	23
Iron and Steel	15.9	1.6	456
Brick Industry	70.3	82.3	2013
Cement	0.2	0.3	7
Other	9.4	11.0	268
Distrib. losses	2.0	2.3	56
Total	100.0	100.0	2865
of which imports	14.6		418

Source: IEDC Sixth Plan Report (IEDC, 1983). These data are built up from CMI data and sub-sectoral fuel mix tables and differs from COP published data.

Table III-4
ACTUAL AND ESTIMATED DEMAND FOR COAL
POLICY CASE (WITH CONSERVATION)
(thousand tonnes)

	1980/81	1983/84 ⁽²⁾	1987/88	1992/93
<u>SUPPLY</u>				
Dom. Production	2447	2869 ⁽¹⁾	4033	9633
Imports	418	491	862	982
TOTAL SUPPLY	2865	3360	4898	10615
<u>DEMAND</u>				
Power Sector	31	24	25	1800 ⁽³⁾
Field/Plant Use ⁽⁴⁾	-	-	-	180
Dist. Losses ⁽⁵⁾	56	66	96	208
Sub-Total Energy Sector	87	90	127	2188
Households	34	40	200	540
Iron and Steel	456	535	1027	1177
Bricks	2013	2360	2738	3220
Cement	7	8	250	2395
Fertilizers			11	120
Textiles	4	5	30	170
Other	264	322	500	805
Sub-Total H-holds & Industry	2778	3270	4756	8427
TOTAL DEMAND	2865	3360	4883	10615
SIXTH PLAN PROJECTED SUPPLY (incl. imports)			5400	-
SIXTH PLAN PROJECTED DEMAND			2600	-
IEDC PROJECTED SUPPLY (Policy, Case incl. imports)			5400	
IEDC PROJECTED DEMAND (Policy Case incl. fuel switching)			5400	10204

- (1) Reported production of 1816 x 1.55.
(2) Sectoral demand breakdown is estimated.
(3) 400 MW additional of which Lakhra 300 MW.
(4) Taken as 10% for the first coal fired power stations
(5) Assumed to be 2% of total supply

Table III-5

ACTUAL AND ESTIMATED DEMAND FOR COAL
BASE CASE (DELAYED POLICY ACTION, LOW CONSERVATION)
(thousand tonnes)

	1980/81	1983/84 ⁽²⁾	1987/88	1992/93
<u>SUPPLY</u>				
Dom. Production	2447	2869 ⁽¹⁾	3619	9267
Imports	418	491	862	999
TOTAL SUPPLY	2865	3360	4481	10266
<u>DEMAND</u>				
Power Sector	31	29	31	1430
Field/Plant Use ⁽³⁾	-	-	-	140
Dist. Losses ⁽⁴⁾	56	66	88	201
Sub-Total Energy Sector	87	90	119	1771
Households	34	40	47	120
Iron and Steel	456	535	1036	1197
Bricks	2013	2360	2894	3603
Cement	7	8	20	3000
Fertilizers			5	20
Textiles	4	5	10	85
Other	264	322	350	470
Sub-Total H-holds & Industry	2778	3270	4362	8495
TOTAL DEMAND	2865	3360	4481	10266
SIXTH PLAN PROJECTED SUPPLY			5400	-
SIXTH PLAN PROJECTED DEMAND			2600	-
IEDC PROJECTED SUPPLY (low demand case)			4415	8305
IEDC PROJECTED DEMAND (low demand case)			4415	8305

(1) Reported production of 1816 x 1.55.

(2) Sectoral demand breakdown is estimated.

(3) Taken as 10% for the first coal fired power stations

(4) Assumed to be 2% of total supply

The advent of commercial scale coal-fired power generation will give a great impetus to demand, but with very localized impact on production. As currently planned, most of the coal supply for the Lakhra/Jamshoro power station will come from new, dedicated mines and the impact on the coal industry nationwide may be minimal. However, if the supply sources are diversified to include a number of private mines, the required increased levels of mechanization could very well lead to new practices being adopted in Baluchistan and Punjab mines under the same ownership as some of the Lakhra mines. As Jamshoro will be a "pilot" project for coal-fired power generation, it may be unlikely that other areas, such as Baluchistan, will see similar opportunities before Jamshoro is completed and operates satisfactorily.

It follows that aside from a few private mines which receive contracts to supply coal to WAPDA at Jamshoro, the coal industry will look to sectors other than power as the source of new demand. While correct energy pricing will help stimulate demand for coal, it may be necessary for the Government to take a number of specific actions to bring about fuel switching from gas and fuel oil to coal. This arises from the fact that some important potential coal users are owned by the Government (i.e. State Cement Corporation of Pakistan) and that penetration of other markets (i.e. households) will require Government involvement. These issues are discussed in greater detail below.

2. Two Coal Demand Scenarios

The reasons for a deliberate policy of increasing coal use have been amply discussed in the IEDC report (IEDC, 1983), and various World Bank and USAID assessments (e.g. USAID, 1983). The basic issue is whether electricity produced with local coal is less expensive than electricity produced with imported oil (or coal) when due account is taken of the total social costs and benefits of each alternative. This chapter, therefore, focuses on how and where coal demand can be raised. However, it must be stressed that recent successes in oil exploration resulting in oil production which exceeds the deliberately conservative targets of the Sixth Plan, must not be allowed to

undermine efforts to increase coal use. Just as India has not slackened the pace of developing coal-fired power generation despite rapid growth in oil production, and as Texas utilities began to move to lignite-based power stations in the mid 1960's when the oil price was still \$2/bbl, so Pakistan must not ignore a large, low-cost domestic energy source.

As suggested above, coal is unlikely to recapture some of its historic markets or penetrate new markets without Government intervention. Price signals are essential and can assist the process but will be insufficient on their own. Where fuel-switching involves investment in new plants, state-owned companies will require financial allocations from the Ministry of Production. Private firms will also need incentives and financing. The choice of fuel for new industrial plants will also be determined by government decision at the time project approval is first given. Thus, each of the two scenarios examined assumes different levels of Government Involvement.

The demand scenarios outlined below are revisions of the projections made by IEDC and are based on the same methodology. Energy demand is, thus, driven by activity levels (physical production targets) specified in the Sixth Plan. The principle differences between the IEDC scenarios and these lie in the demand levels estimated for the power sector and the brick and cement industries. IEDC's assumptions on efficiency improvements have not been altered but some activity levels have been modified. For example, the timing of Lakhra has been revised to show the power station becoming operational during the Seventh Plan period (1987/88 to 1992/93) instead of at the end of the Sixth Plan. The projections do not reflect a re-estimation of 1987/88 and 1992/93 overall integrated energy balances. Since the coal demand levels estimated here are lower than in the IEDC report, it may be that oil use would be higher than shown in the IEDC energy balances for those years. The implications of this have not been addressed. However, with the economy already experiencing lower GDP growth than assumed by the Sixth Plan (as seen in 1983-84 when GDP growth was 4.6 percent instead of the targeted 6.5

percent) oil and other energy demand levels are also likely to be lower than projected.

Policy Case (Table III-4)

This case assumes that a combination of price signals and deliberate fuel switching measures will be implemented. On the pricing side, gas prices to industrial and utility users are assumed to reach import parity with furnace oil during the Seventh Plan period while the domestic price of furnace oil is assumed to be at import parity. Specific sectoral assumptions and underlying measures are mentioned below. Efficiency improvements are also assumed to be taking place in all sectors largely as a result of price effects. A total of 400 MW of coal-fired power generation are assumed, 300 MW at Jamshoro and 100 MW elsewhere.

Base Case (Table III-5)

The assumptions in this case are that the Government is slow to implement fuel switching measures and to raise the prices of competing fuels, and that there are minimal gains in energy efficiencies. Lakhra is assumed to go ahead but, unlike the Policy Case, no additional coal-fired power plants are commissioned during the Seventh Plan period.

(a) Brick Industry

Demand for coal by this sector is assumed to grow at around 5 percent per annum throughout the period. In the policy case, modest improvements in efficiency (3 percent over 13 years) are realized throughout the Sixth and Seventh Plan periods with the result that coal demand grows at a slightly lower rate than the Sixth Plan target of a 5 percent annual increase in brick production. In the base case, the effect on coal demand of no improvement in efficiency is shown as leading to a level of coal demand 6 percent above the policy case by 1987/88 and 12 percent above it by 1992-93. Fuel switching is not

assumed in this sector since coal already supplies 96 percent of the brick industry's energy requirements.

This brick industry market is sensitive only to large differences in coal quality (i.e. Sind vs. Baluchistan coal) and, because of this, coal suppliers have not acquired the knowledge or habit of supplying coal to meet precise specifications. In addition, the inability of the brick industry to produce during monsoon periods contributes to large variations in production levels over the year. Fortunately for the brick makers (and the mining companies), the monsoon coincides with a drop in production due to the absence from the coal fields of large numbers of migratory workers.

(b) Cement Industry

This sector has the potential to use large amounts of coal, and in converting to coal firing it would be following the examples set by cement industries in most OECD countries over the past ten years. In 1982, a study prepared by ENAR Petrotech and the State Cement Corporation of Pakistan (SCCP)(ENAR, 1982) on fuel substitution, recommended selective switching of plants from gas to furnace oil and coal. The study estimated that the cement industry could be using 0.6 Mtc by 1987/88. However, the Ministry of Production subsequently decided that nearly all SCCP plants should convert to oil, and 97 percent of production is now oil-based. Thus, prospects for coal conversion have been set back. The fact that Pakistan has gone from being an exporter to an importer of furnace oil during the past two years should now help to focus attention on the situation, particularly with regard to the siting and design of new plants, and these are indications that this is starting to happen.

A 1984 study by Chemical Consultants (Pakistan) Ltd. proposed a conversion strategy for the cement industry covering 9 wet process and 4 dry process plants. The estimated cost was Rs. 820 million excluding customs duties and IDC. For the Hyderabad wet process plant and the dry process plants now under construction, it was proposed that low sulfur imported coal be blended with Baluchistan coal until

such time as trouble free operation with 100 percent Pakistani coals was achieved. Chemcon estimated the coal demand of the converted plants at 1.25 Mt/year. Because of a very large variation in the cost of coal per tonne of cement (Rs. 205/tonne for Dawood Khal getting Makerwal coal to Rs. 529/tonne for Wah using Baluchistan coal), a nationwide equalization of coal prices is proposed through new coal distribution companies.

The government has set high target growth rates for cement production (13 percent per annum in the Sixth Plan) and IEDC assumed a 10 percent growth rate during the Seventh Plan. With so much new capacity coming on-stream, there should be ample opportunities to design new plants to use coal, and to locate some plants near new and existing centers of coal production. At the same time a shortage of investment funds seems likely to limit coal conversions by plants now using furnace oil.

The policy and base cases assume differing rates of conversion and construction of new coal-based capacity. In both cases all capacity built during the Seventh Plan is assumed to be coal based (5.1 million tonnes capacity). In the policy case, it is assumed that 0.25 Mt/year will be used by 1987/88 and that 80 percent of the cement industry's process heat requirements will be met from coal by 1992/93. In the base case, it is assumed that very little is done to increase coal use during the Sixth Plan, but that 60 percent of process heat is coal-based by 1992/93. The policy case coal demand is significantly lower than in the base case at the end of the Seventh Plan period, despite greater reliance on coal, as a result of important efficiency improvements. Given the likelihood of a \$40 - \$50 million World Bank loan to upgrade cement plant efficiencies and the SCCP's in-house conservation program, there seems a high probability that the large efficiency gains assumed in the policy case can be realized.

It is clear that after the power sector, the cement industry provides the most important opportunity to increase coal demand. In the policy and base cases cement emerges as the second largest coal

consumer after the brick industry by 1992-93, and though it would probably be overtaken by the power sector with the addition of a second 300 MW at Lakhra/Jamshoro, it may be that cement will have a greater impact in modernizing the coal sector nationwide than the power sector because of its dispersed locations, and because the relationships between producers and consumers will be less regulated.

In January 1985, a first step was taken when the SCCP published a Notice of Prequalification for coal companies to supply its Zeal Pak Plant, which could use around 360,000 tonnes/year.

ISSUE: New cement plants are planned to be privately owned and operated and it may be that SCCP will de-nationalize two or three of its current plants. Actions may be needed by the Government to bring about the maximum economically feasible amount of coal use by the cement industry.

ACTION: 1) It is essential for mineowners and the backers of new cement plants to begin a dialogue that will educate both sides as to generic (e.g. take-or-pay contracts) and project specific requirements (e.g. quality control, transportation, price negotiation and escalation). Provincial mineowners associations might take such initiative with the support of provincial governments and the relevant Federal ministries. Working groups could be established to discuss coal supply prospects. In some of the large new plants, such as Fecto (Taxila), Cherat (Cherat), Sarela (Quetta), Dadabhoy, Pakland, Galadari and Attock (all Karachi), it may be desirable to use coal from the nearest available deposit. In addition, some of the existing SCCP plants could also be considered (Maple Leaf: Makerwal; Zeal Pak: Thatta; Jaredan; Lakhra and D.G. Khan; Dukki or Makerwal), for conversion to coal. This may need the stimulus of the Ministry of Production. 2) In its final price policy the Government must give a clear signal to the cement industry that reflects the intention to price furnace oil at or above import parity.

(c) Power Generation

IEDC (and WAPDA) originally assumed that the Lakhra/Jamshoro power station would be operating before the end of the Sixth Plan, January 1988. This is now unlikely, and no increase in coal for power generation is therefore projected until the Seventh Plan. For the policy case, it is assumed that 300 MW of coal-fired capacity will come on-stream early in the Seventh Plan period and that another 100 MW will be commissioned prior to 1992/93, possibly a WAPDA unit at Dukki or smaller private power plants. The second 300 MW unit is assumed to come on-line at the start of the Eighth Plan. For the base case, only the Lakhra unit is assumed to be operating by 1992/93. The demand by Lakhra is taken at 1.4 Mt/yr. for the 300 MW unit.

This report addresses some of the specific issues of how the coal supply to the Lakhra/Jamshoro power station is to be structured in Chapter VIII. However, some aspects of the eventual arrangement will be applicable to the next large coal-using projects. The contract forms and the provisions for monitoring quality control at Lakhra will certainly be applicable to other power and cement plants.

Private mining companies in the Lakhra area have expressed serious concern over the reliability of coal demand from the WAPDA Jamshoro plant, and this seems to be affecting their interest in the power plant project. This issue is discussed in Chapter VIII.

(d) Other Industries

Official Government statistics do not show coal use in other industrial sectors. However, IEDC identified 0.27 Mt consumption in 1980/81 for process heat in the textile, sugar, food, beverage and tobacco industries, as well as the railways and military. An urgent requirement is that the GOP assess the final substitution potential in these sub-sectors. For instance, the fertilizer industry used 1.3 Mtoe of gas in 1980/81, of which 0.8 Mtoe was for feedstock and 0.5 Mtoe for energy. Clearly, some of the 0.5 Mtoe might be converted to coal.

Estimates of the potential for substitution in these industries are highly subjective at this stage, but it should be possible to double coal use in these industries by the end of the Sixth Plan with a carefully targeted program. The policy case assumes such a doubling, while the base case has only a one-third increase in coal use. For the Seventh Plan period, higher and lower penetration rates for coal have been assumed without any effects for conservation.

ISSUE: The potential for coal use for process heat and steam is significant, but poorly understood. There is little management experience in coal use and a lack of familiarity with current end use technologies. Many companies that used coal prior to the advent of Sui gas have memories of an unreliable supply of coal that varied in quality.

ACTION: A sector-by-sector survey should be carried out during the Sixth Plan to assess each industry's potential coal use and technological and capital requirements. A national boiler survey has recently been completed by a local consulting firm and this could provide important input to these sectoral assessments.

(e) Household Sectors

Without concerted action by the Government, rural and urban household demand for coal is unlikely to grow at a rate above that of household formation (2.73 percent). Obviously, the immediate potential is for the replacement of kerosene, "commercial" wood and charcoal, whose cost per Btu exceeds that of briquettes. Urban households will be the main targets since they account for most use of these fuels. Nevertheless, with a carefully tested marketing program, coal briquettes could begin to displace kerosene. Government coal experts believe that 50 percent of kerosene demand could be met within a three-year period by coal briquettes. However, we think this may be optimistic. IFDC estimated that even if briquettes sold for Rs. 1000/tonne on a heat equivalent basis they would still show an advantage over kerosene (at Rs. 0.57/MBtu vs. Rs. 0.81/MBtu). However, with raw coal now selling for over Rs.1000/+ in NWFP and Northern

areas, it may be that briquettes would not be competitive given their lower end use efficiency.

The policy case assumes a demand/production level of 700-800 tonnes/day of briquettes by the end of the Sixth Plan for an annual total of 0.20 Mt. Given the need to prepare the market and to commercialize a suitable, inexpensive stove, even this figure may be unattainable. In the base case, the briquette program is delayed until the start of the Seventh Plan and household coal use grows at 5 percent per year to 1987-88.

ISSUE: Briquettes could one day play an important role in displacing kerosene and in substituting for fuelwood. The possibilities of exports to the Gulf are also worth investigating. However, experience has shown the need to test markets carefully and to evaluate the results before investing in large scale briquette production. It is quite unlikely that consumers would switch to briquettes if retail prices were fluctuating. The current PUNJMIN and PCSIR studies appear to be oriented towards assessing production feasibility and they both restrict the source of coal to public sector agencies. The PCSIR study has no market assessment component and the PUNJMIN study gives first priority to plant feasibility and third priority to market evaluation. Pakistan already has one coal plant (Sharigh Washing Plant) that was built only to find itself without customers.

ACTION: A series of region-specific studies of the market potential for smokeless coal briquettes should be commissioned. Such work would provide the necessary information on target price levels and product acceptability in terms of ease of use and the need for special stoves and distribution systems. If positive results are obtained from the studies, a production-marketing plan could be drawn up for each province and plant feasibility studies carried out. Briquette prices may have to be fixed by the Government in order to avoid price fluctuations that would probably dash any hopes of

briquettes competing successfully with kerosene and commercial fuelwood.

(f) Iron and Steel

Pakistan Iron and Steel Corporation (PASMIC) used .418 Mt of coal in 1980/81 while foundries, etc. consumed another .038 Mt. Demand from this sector is expected to double by the end of the Sixth Plan. By that time PASMIC is presumed to be producing at capacity and the expansion in coal demand during the Seventh Plan comes mainly from foundries and fabrication industries.

It is worth noting that PASMIC is a large consumer of natural gas, primarily for its large power generating plant which feeds surplus power into the KESC grid, and that at some point it may be necessary to consider generating the plant's power with coal in order to free up sizeable quantities of gas.

The demand for coking coal is estimated to grow at 3 percent per annum during the Seventh Plan. Demand in the two cases does not differ greatly due to the small efficiency improvement deemed possible.

C. NATIONAL ENERGY POLICY

1. The Sixth Plan

Pakistan's Sixth Five Year Plan, covering the period from 1983 to 1988, gives energy the highest priority among all sectors of the economy in terms of the budget allocations. During the Sixth Plan, 38 percent of public sector investments are earmarked for energy, and 23 percent of total national investment is expected to go into energy.

The Plan itself contains the most recent expression of the Government's energy policy, and the key overall statement of policy is quoted below:

"The essential task is to de-link growth from energy demand or at least to weaken this link. The industrial countries with high dependence on an energy intensive style of life have succeeded in breaking this close link. The adjustment was painful but has been rewarding. In Pakistan where the transition to an energy-intensive alien style of life is still limited to a relatively small minority, early measures are essential to avoid more difficult adjustments later.

Basic adjustments require a tenacious approach over a long period. A forceful beginning has to be made within the Sixth Plan: the target is to bring down the elasticity of energy demand to 1.15, on the way to being brought to less than 1.0 in the Seventh Plan."

The basic objectives of the Sixth Plan are:

- to ensure adjustments for realizing growth targets of the Sixth Plan in an energy-efficient manner;
- to arrange inter-fuel adjustments with the objective of minimizing import-dependence within the Plan period;
- to prepare the ground for growing self-reliance in energy in the Seventh Plan and beyond;
- to develop indigenous resources of energy, intensify the search for yet undiscovered resources, develop nuclear and renewable energy resources and acquire full command of technology relating to energy substitutes;
- to ensure coverage of the entire rural population residing in compact villages by rural electrification;
- to evolve mechanisms for greater participation of the private sector in meeting the energy requirements of the nation;
- to ensure proper institutionalization of longer-term energy planning, monitoring and evaluation;
- to rationalize energy prices.

With regard to pricing policy, the Sixth Plan states that:-

"In the conservation of energy and enforcing efficient use of energy, proper pricing is the heart of the strategy. Apart from the clearly identified justification to raise the price of gas to ensure its use for most essential and high priority purposes, other price measures would need to be carefully evolved. Technical arrangements may have to be made as a pre-requisite for peak hour and peak season charges. It is equally essential to use non-price instruments".

Specific sectoral measures to implement the above policies are also planned.

a. Oil and Gas

On the exploration side, the Government is continuing its efforts to attract more foreign companies despite the fact that, to date, exploration programs have not yielded large hydrocarbon discoveries with the exception of the Sui gas field.

New oil is priced at world market levels and there are a variety of tax and import duty concessions relating to hydrocarbon exploration. The World Bank is assisting the national oil company - Oil and Gas Development Corporation - to upgrade its technical capabilities and to drill in gas prone areas. Within the last months there has been an increase in interest among foreign oil companies.

b. Coal

The Sixth Plan recognizes that coal should play an increasingly important role in meeting national energy needs. The first commercial scale coal-fired power plant is to go ahead using Lakhra coal, supplies to the brick industry are to grow, coal briquetting is to be introduced and certain industries now using gas are to be switched to coal.

The Minerals Chapter of the Sixth Plan announced the Government's intention to create a National Coal Authority. This organization is discussed in the next chapter.

c. Electricity

The Sixth Plan calls for the addition of 3,795 MW of generating capacity to the existing capacity of 4,809 MW. This schedule may, in fact, slip but the Government will continue to devote around three quarters of its energy investments to the power sector. At the same time, improved efficiency is recognized as essential. The utilities are implementing loss reduction programs and, as part of a National

Energy Conservation Plan, improvements in end use efficiencies are to be achieved.

d. Energy Pricing

Given the sensitivity of energy pricing in developing countries, Pakistan has made considerable advances towards achieving price levels that meet world market levels and other accepted standards. Although there are cross-subsidies among oil products, the barrel as a whole is priced at world market levels. Retail (and wellhead) gas prices are still very low. The Government is implementing a covenant with the World Bank/IMF under which retail gas prices will reach the equivalent of two thirds the import parity price of fuel oil by 1988 and in which the wellhead price is pegged to the import parity price of fuel oil, less certain discounts. The most recent retail gas price increase was in June 1984. Electricity tariffs have not been increased since 1981, although until now WAPDA has been able to self-finance approximately 40 percent of its capital investments. Coal prices are unregulated, although they are inflated in some areas by high transport costs and imperfections in market mechanisms. Energy pricing is discussed at some length in Chapter IV.

e. Recent Modifications of the Sixth Plan

As a result of a major shortfall in resources available for the Sixth Plan, the GOP has recently moved away from the Sixth Plan investment targets and has instituted (according to press reports) a rolling plan that retains the priorities of the original plan, but scales back public sector spending from Rs.210 to Rs.180 billion.

D. TOWARDS A NATIONAL POLICY FOR MINERALS

This was to be left to be subsequent minerals policy statements. The need to develop a national coal and minerals policy grew from the realization that the public sector companies had not produced satisfactory results and that the private sector had to be brought in and foreign participation attracted to Pakistan. The Minerals Chapter of the Sixth Plan set out in broad terms some of the major conclusions

of the process up to that point, but it failed to provide details as to how policies would be implemented. In 1982, an Expert Working Group on the Mineral Sector was set up with public and private sector participation. Its 1983 report addressed twelve key areas: i) constitutional aspects; ii) legal aspects; iii) policy initiatives; iv) mineral strategies; v) sectoral roles; vi) technical manpower; vii) credit facilities; viii) incentives structure; ix) physical infrastructure; x) mining practices; xi) mining equipment; and xii) the investment program. Another part of the process was the holding of the Second National Mineral Seminar in Peshawar in May 1983.

As a result of these endeavors, the factors hampering fuller exploitation of the mineral resources of the country were identified by the Working Group as: i) insufficient geological knowledge and know how; ii) inadequate research and development facilities; iii) shortage of trained and experienced manpower; iv) lack of adequate equipment and infrastructure; v) undefined responsibilities and uncharted activities of public agencies; vi) imbalance between public and private sector; vii) extra-industry interference in operations; viii) irrational mining practices; ix) high freight rates; x) disproportionate and discriminatory taxes; xi) unsatisfactory laws and regulations; and xii) non-availability of risk capital and operative credit.

IV INSTITUTIONS, POLICY AND THE COAL SUPPLY CHAIN

This section provides a description of the major components of the regulatory, production, distribution and marketing system for coal in Pakistan. While the existing system has inefficiencies and bottlenecks, these are not likely to prevent coal from penetrating new markets in the medium term. However, major changes must be made if coal is to emerge as a main long-term energy resource.

A. GOVERNMENT AGENCIES AND FEDERAL AND PROVINCIAL REGULATION

This section describes the basic government setting in which coal exploration and development takes place. Public sector producers are described in Section B. Credit institutions are discussed in Chapter V, Pricing and Credit.

One general observation should be made, however. Federal policies with regard to coal differ from policies regarding other commercial energy forms. The federal government reserves all rights to explore, exploit, lease distribute, sell, set prices and set policies regarding oil and gas (and uranium). This level of control is reflected institutionally in development policies and in funding. Coal, on the other hand is treated as a mineral (which it is not) and, with some exceptions, as a provincial matter: The level of federal development support is low. (The exceptions are support provided for PMDC development and federal over-rides on provincial autonomy in regard to coal resources in certain areas targeted for development.)

We would argue that coal should be treated as an energy, not mineral, matter. Policy and funding support for coal, consequently, should be based on its potential economic role in national energy development which is a sixth plan priority. This requires that the government develop a new perspective on the potential role of coal in the national economy. Institutional, policy and financial support for coal development should match this potential role.

1. Developing the Policy and Strategic Framework

This study has made clear that there are many complex technical, institutional and financial issues that must be addressed in order for coal to grow rapidly into a major energy source for Pakistan. In addition to the individual actions recommended in this report, work should continue on building a strong analytical, strategic and policy framework to guide individual decisions. A number of elements should be included in that framework as follows:

ISSUE: In this report we have identified several elements of a national coal strategy. This report, however, strictly represents only the view of its authors, even though we have attempted to reflect the views of all of the parties interested in the coal sector. The process of developing a national coal strategy should be continued with the active participation of all elements of the coal sector.

ACTION: The Government should form a working group or groups to develop a national coal strategy. Several of the elements of that strategy are identified below and this document can be used as the starting point for analysis and discussion. The National Coal Conference, described in an appendix, should be used as one mechanism for extended discussion during the development of the strategy. As further background for the development of the strategy, the experience of other countries with similar coal situations, such as Turkey, should be reviewed.

ISSUE: A Coal R,D&D Plan. The future growth of coal in Pakistan will be most productive if it is based on an indigenous base of knowledge of coal science and technology. Research Development and Demonstration (RD&D) activities should not be aimed at expanding the state-of-the-art in coal science or technology but to developing a cadre of scientists and engineers knowledgeable about coal chemistry, combustion and the engineering of coal fired systems, and enthusiastic about applying their knowledge to the coal development problems of Pakistan. A substantial R&D program is already under way at the Fuel Research Center of PSCIR in Karachi.

ACTION: As part of the development of a national coal strategy, a coal RD&D plan should be developed. All relevant coal development planning, research and educational institutions should play a role in the creation of this plan which should consider education and human resource development issues, as well as RD&D priorities. Both immediate needs (e.g. coal chemistry, processing and combustion) as well as longer term possibilities (e.g. coal conversion and advanced combustion methods) should be considered.

ISSUE: Environmental Impacts. Although the environmental aspects of the Lakhra-Jamshoro complex are being examined as part of normal project development, the potential rapid growth of the coal industry in Pakistan and the nature of Pakistani coal raises a much broader and serious set of environmental issues. Neither existing analysis or the current set of environmental and safety regulations are adequate to assure socially responsible growth of this characteristically dirty industry. Attention to these issues now is necessary to avoid potentially serious consequences and delay in accomplishing the national coal strategy.

ACTION: An environmental policy analysis should be undertaken to evaluate: 1) the potential environmental (including health and safety) impacts of Pakistan coal development over the next 10 years; 2) policies and programs that would be beneficial from the standpoint of total social cost; and 3) institutional or regulatory changes that are needed to accomplish those policies and programs. The analysis should consider all steps in the coal chain: production, processing transport, distribution and final combustion in all using sectors.

2. Government Institutions

a. The Federal Ministry of Petroleum and Natural Resources has primary responsibility for the coal sector at the Federal level. This ministry appoints the Chairman of PMDC and a majority of its directors and also is the focus of the Minerals Co-ordination Board. In bureaucratic terms, coal is not given as high a level of attention as oil and gas, each of which have a Director-General.

b. The Minerals Co-ordination Board, whose Secretary is Mr. Moh. Nawaz Khan, was created in 1973 under the Ministry of Petroleum and Natural Resources. It is made up of representatives of public and private sector companies, relevant officials from provincial governments and representatives from the Federal Government. Its primary function is to provide a forum in which the key institutions in the minerals sector can formulate views on issues facing the industry and communicate these to the Government. It has done excellent work under the guidance of its Secretary, but its profile within the federal structure is not high enough for its views to receive priority attention from the Cabinet.

Its specific responsibilities includes the following:

- coordinate the activities of various central and provincial agencies involved in planning, funding, regulating and/or implementing mineral development;
- review the progress made;
- consider the annual programs of various agencies;
- resolve any differences between Provincial Governments and federal agencies with regard to priorities;
- advise the regional and federal governments on policies and plans in the mineral sector.

According to the Sixth Plan, the MCB has brought about a consensus on the fundamentals of minerals concession policy; a review of geo-scientific manpower; and has contributed technical comments on the exploration and development schemes submitted by public sector bodies. In 1982, the MCB formed a Coal Utilization Committee comprised of representatives from PMDC, private industry, GSP, PCSIR and the Ministry of Petroleum and Natural Resources.

c. The Planning and Development Ministry has a Minerals Section, whose head is Mr. Tajammal Hussain. This Section prepared the Minerals Chapter of the Sixth Plan, and also co-ordinates the Annual Development Program for Minerals.

There is also an Energy Policy Board chaired by the Ministry of Planning and Development. The Board is supported by the energy analysis and planning group, ENERPLAN. ENERPLAN is responsible for energy planning and analysis and includes evaluation of the role of coal in the national energy economy.

d. The National Coal Authority. In its Sixth Plan the Government of Pakistan stated that it would establish a National Coal Authority to create a focal point at the Federal level for a number of activities that required co-ordination and initiation. In particular:

- assessment of the quantity and quality of coal reserves and formulation of a national exploration program;
- investigation and assessment of the economic potential of coal and formulation of projects for coal based industry close to coal-mine heads;
- coordination and supervision of coal utilization feasibility studies, e.g. manufacturing and marketing of smokeless coal briquettes and fuel substitutions;
- to act as an information clearinghouse, and to provide advisory and consultative services for the processing of leases and concessions and in consultation with provincial governments for public/private and domestic/foreign joint ventures;
- to provide assistance to the Government in establishing the appropriate structure and mechanism to finance mining, especially the financing of private sector mining.

Although there has been a delay in launching the NCA, due, we understand, to the need to resolve certain Federal and Provincial issues, it is now possible that the NCA will be announced.

ISSUE: The issue of expanding coal use is very different from the problems of other minerals. It is a mistake to treat coal together with minerals. As long as this happens, the unique problems faced by the coal industry will be blurred and left unaddressed.

ACTION: Coal should be elevated to a higher profile within the Federal Government. This could be accomplished by creating a higher level position within the Ministry of Petroleum and by launching the National Coal Authority. These agencies should maintain close coordination with ENERPLAN which, as a high priority, should establish updated targets for future coal use.

ISSUE: Unless an entity such as the National Coal Authority is created, there will be no effective focal point for bringing together the diverse elements which must be coordinated to implement a national coal strategy.

ACTION: The National Coal Authority should be created. It should be made clear, however, possibly through a change of name to a "coordinating council", that it is designed to assist and promote rather than to regulate. Close coordination should be maintained with ENERPLAN, particularly regarding overall energy development and policy.

e. Pakistan Council for Scientific and Industrial Research
(PCSIR)

PCSIR, which comes under the Ministry of Science and Technology, is the national organization set up to carry out applied scientific and industrial research. It has laboratories in Karachi, Lahore, Peshawar and Islamabad and employs some 3,000 people. It operates a fuel research center in Karachi and a coal analysis laboratory in Lahore.

f. Geological Survey of Pakistan (GSP)

The GSP is responsible for collecting and providing information on the geology of Pakistan and for the coordination with other geo-scientific organizations for exploration and evaluation of mineral resources. It is staffed by qualified professional geologists, geophysicists, drilling engineers and qualified technicians. GSP's potential has been limited by budget constraints which have also affected its ability to replace and modernize its equipment. It has

also suffered from the lack of policy guidance and up-to-date technical management skills. (As the Oil and Gas Development Corporation has found, it is not possible to plan and execute an effective exploration program when actual budget allocations are realized mid-way through the fiscal year.)

ISSUE: GSP's effectiveness is impaired by budgetary and management constraints resulting from normal civil service procedures.

ACTION: The Government should review the operating environment of GSP with a view to increasing its efficiency and ability to carry out its mission.

g. Provincial Governments

The 1973 Constitution gave the provinces the authority to administer laws and regulations governing the exploitation of minerals. The typical organizational arrangement at the provincial level consists of a senior official (in Sind; Addl. Director-Minerals), heading an office that grants prospecting licences and mining concessions and a Chief Inspector (Mines), whose office enforces the various mining regulations, including safety. The organizations which have evolved in Sind are typical of mineral and mining organizations found in other Provinces. These are described briefly, below.

The Directorate of Industries and Mineral Development

The Directorate of Industrial and Mineral Development is under the jurisdiction of the Sind provincial government's Department of Industries, Mineral Development, Transport, Excise and Taxation. The Directorate has two functional areas. The first is responsible for matters pertaining to "Industries". The other section, the "Mineral Development Wing" has responsibilities in the following areas:

- administering of prospecting licenses and mining leases for minerals in Sind;

- collection of revenues (royalties) from mineral producers and rent from licencees and lessees;
- technical appraisal of mineral prospecting and development plans of licencees and lessees;
- provision of infrastructure for mineral-bearing areas under specific schemes;
- undertaking mineral identification studies.

The Mineral Development Wing has the authority to grant, transfer and cancel prospecting licenses and mining leases. In Sind, prospecting licenses are normally granted for a period of one year although periods of three to four years are possible. A license is allowed to be renewed for a maximum of three times, but the Directorate may allow further renewals.

In 1983, the Mineral Development Wing had a receipts budget of Rs22.5 million and an establishment budget of Rs2-300,000. The receipts budget is the revenue target set for a particular year by the provincial government. The Mineral Development Wing has surpassed its revenue targets for the last four years. The establishment budget is used to defray operating expenses.

The Mineral Development Wing has its main office in Karachi and two regional offices at Hyderabad and Sukkur. It has a total staff of 102 individuals including technical, non-technical and clerical employees. The technical staff consists of nine geologists and three mining engineers who verify, modify, if necessary, and approve the prospecting and development schemes of licencees and lessees.

As no systematic work has been done on the exploration and development of minerals in the past, the Mineral Development Wing has undertaken the studies and infrastructural schemes outlined below under the framework of the Sixth five year plan. These schemes and studies will be financed from a Development allocation of Rs 3.5 million of the provincial government.

A two stage Mineral Identification Study is being conducted with the assistance of consultants in the Dadu area. The first stage of the study involves a general identification of various minerals in the area. The second stage involves a detailed study of selected minerals. The estimated cost of the study is Rs 1.723 million for the first stage and RS 16.812 million for the second stage.

The provision of infrastructure to the Lakhra Coal field has been assigned a high priority and two projects are already underway. The first involves construction of a twelve mile road from Lakhra to the Khanot railroad station and will be completed by June 1985. At the request of the Mineral Development Wing, WAPDA will complete the electrification of the Lakhra area by the end of 1985.

The granite-bearing area in Mithi will be provided with a 75 mile road to Navkot (Tharparkar) during the Sixth plan period.

Construction of a sixteen mile road will be undertaken from the National Highway to the Jungsbahi railroad station through the Meting-Jhimpir coal-field at an estimated cost of Rs 16.009 million.

A mineral identification study will be undertaken for the Thatta area.

According to the Mineral Development Wing no "Sind Exploration Fund" exists at the moment. Also, no major alternate leasing/licensing arrangements have been considered, except for various minor changes that have occurred over time and the fact that bank financing will be facilitated by some lease collateral arrangements that will be implemented.

The Inspectorate of Mines

The Inspectorate of Mines is under the jurisdiction of the Sind provincial government's Department of Labor and Cooperation. The Inspectorate's raison d'etre is the "Mines Act" which defines the

authority and responsibility of the Chief Inspector of Mines, the Inspector of Mines and the Junior Inspector of Mines.

The primary role of the Inspectorate is enforcement of the Mines Act and other acts, laws, rules and regulations which bear upon the mining operations. The Inspectorate has to ensure that mines are operated properly and safely, that labor and working conditions comply with legal requirements and that legal and juridical sanctions are pursued and imposed in cases of violation.

The main office of the Inspectorate is located in Karachi while the two regional offices are at Hyderabad and Sukkur. A total of 46 employees are employed at these three offices. A Junior Inspector of Mines is responsible for each of the two regional offices. Each office also has a staff of one Senior Clerk, one Junior Clerk, One Niab Qasid and one Driver. The 1984-85 budget of the Inspectorate is Rs 688,690.

3. The Regulatory Environment

This Section provides a brief review of mineral and mining laws and regulations in Pakistan. Conformity with these laws and regulations is also evaluated. Appendix A provides detailed information on mineral and mining laws.

a. Overview

The Mines Act of 1923 forms the basis for most of the mining legislation in Pakistan. Since its inception this Act has undergone substantial revision and amendment, most importantly as revised by the Mines, Oil Fields and Mineral Development (Government Control) Act of 1948 which defines the jurisdiction and powers of the Federal and Provincial governments. Under this Amendment the Federal government retains the power to grant licenses, leases and concessions for oil, natural gas and nuclear raw materials throughout Pakistan and for all minerals in the tribal areas and offshore zones. The government also remains the owner of

minerals, and concession holders merely obtain the right to extract and sell these minerals.

The provincial governments of Sind, Baluchistan, Punjab and the North West Frontier Province retain legal authority for the exercise of mineral development and regulation for all minerals excepting oil, natural gas and nuclear raw materials. In the exercise of these powers, the governments of NWFP and Baluchistan have revised the Mineral Concession Rules and the Governments of Punjab and the Sind are planning to do so. Despite such changes, there is substantial regional uniformity in mineral concession and regulation practices. The typical provincial organization which has evolved in regard to mineral concession and regulation is as follows: Mineral exploration licenses and development leases are granted by the Directorate of Industries and Mineral Development under the provincial Ministry of Industry. Regulation of mines and mining related activities is carried out by the Inspectorate of Mines under the provincial Ministry of Labor.

The regulatory environment, under which concessions are granted and operations and labor welfare regulated, is defined by a series of legislation and rules and regulations at both the federal and provincial levels. Some of the most important are noted below:

- The Mines Act of 1923
- The Coal Mines Regulations of 1926
- The Metalliferous Mines Regulations of 1926
- The Mines Maternity Benefits Act of 1941
- The Mines Maternity Benefit Rules of 1943
- The Coal Mines Pithead Bath Rules of 1946
- The Mines Creche Rules of 1946
- The Mines, Oil Field and Mineral Development Act of 1948
- The Payment of Wages (Mines) Rules of 1950
- The Mining Board Rules of 1951
- The Consolidated Mines Rules of 1952
- The Coal Mines Fixation of Wages Ordinance of 1960
- The Mineral Concession Rules of 1960
- The Excise Duty on Minerals (Labor Welfare) Act of 1967, (as amended by Sind, Baluchistan and Punjab in 1969)

In general the rules and regulations which exist concentrate on four aspects of mineral development: the allocation of rights and responsibilities for the granting of concessions and the enforcement of operations; establishing basic criteria for the granting of concessions and mining operations; protection of labor, and particularly as regards the employment of women and children, and salary payments; and reporting.

b. Enforcement

With the exception of several of the larger private coal mining companies and the Pakistan Mineral Development Corporation, most coal mining companies do not fully comply with existing mining rules and regulations. Most small companies cannot afford to comply with health, safety and infrastructure requirements: and their workers have little knowledge of their rights, nor in many cases, do they want protection if the alternative is unemployment. At the same time, mine owners are under little pressure from the government to maintain good safety practices.

There are many factors which affect enforcement of mine health and safety standards, and enforcement of mining operations. It is clear that the level of training of both mine labor and management is poor. At the same time, it is felt that both labor and management ignore marginally safe operations due to economic pressures. Perhaps more importantly, however, the provincial governments fail to provide adequate regulatory staff. Table IV-1, for example, presents a breakdown of the availability of inspectors by province. A total of 23 "inspectors" are authorized nationwide and only 17 posts are actually filled. At the same time there are in excess of 2500 working mines which must be inspected. If each mine is to be inspected twice a year, then each mining inspector must conduct 300 inspections a year. In the Sind, however, each mine inspector actually conducted about 75 inspections in 1983, thus, on average, each mine in the Sind would be inspected once every two years.

There is no information that suggests mines have been closed due to malfeasance. It is clear, however, that current enforcement practices do not protect the health and safety of mine workers. Furthermore, such practices result in revenue losses to the provinces: particularly as regards payment of royalty income.

ISSUE: The enforcement of licensing/leasing, mining, and health and safety regulations is poor. This stems from staff and funding inadequacies in Provincial Governments.

ACTION: Upgrade capabilities in provincial inspectorates by increasing funding and providing training programs.

TABLE IV-1

AVAILABILITY OF INSPECTORS

<u>Province</u>	<u>Chief Inspector of Mines</u>	<u>Inspector of Mines</u>	<u>Jr. Inspector of Mines</u>	<u>Training Officer</u>	<u>Number of Mines</u>
Punjab	1	3	5	1	1736
Baluchistan	1	2*	6#	1*	390
NWFP	-	1	-	1	131
Sind	1	-	3	-	607

* : 1 post vacant

: 4 posts vacant

Note: The figures for Sind are 1984 figures while they are 1983 figures for the other provinces.

Source: Mian Rafiq Ahmad, 1983

c. Loss of Government Revenue

Provincial and Federal revenues from coal sector activities come from many sources. Provincial revenues result from licensing and leasing payments, land rent and dead rent, production royalties, road toll taxes, and excise taxes. Federal revenues result from corporate and personal income taxes, and to a lesser extent, from public sector operations (PMDC and the rail corporation), from sales taxes and from customs duty on imported equipment. Lack of mining regulation and poor control of corporate activities in the coal sector decreases potential government revenues substantially. Among the principal factors implicated in government losses are those outlined below.

Unreported Production: It is generally believed that unreported production (sic sales) is from 40-60 percent of reported production. This is possible because there is an insufficient number of provincial mine inspectors, there are no alternatives in place to monitor production and penalties for under-reporting are weak. Unreported production results in several problems: (a) direct loss in royalties, (b) direct loss in excise and sales taxes and (c) overstated operating costs for reported production and, thus, reduced corporate taxes on reported income.

Overstated Costs and Understated Revenues: It is hypothesized that coal agents act as a buffer between producers and the revenue service: that is, the reported price paid by agents may be less than the actual price. Agents can inflate their costs (loading, transport, and finance and service costs) to make up the difference.

There is little doubt that government revenues from coal sector operations are less than they should be. Although the amount of such losses cannot be calculated accurately, it is clear that they may be large: first lost royalty, then the ripple effects as cost for unreported production are deducted from stated earnings to reduce taxes, and revenues from unreported production are not taxed. Given that unreported production probably exceeds 750,000 tonnes/year, it is likely that revenue losses from this factor alone are large.

This problem may be expected to decrease as the nature of the coal industry in Pakistan changes, at least in relative terms.

4. Licensing and Leasing Practices

Licensing and leasing for coal mining areas is carried out by the Directorates of Industries and Mineral Development in each province. There are two basic differences between a coal license and a coal lease. A coal license is nominally a short term instrument, initially three years with two potential renewals. A coal lease is a long-term instrument, thirty years, with one optional thirty year renewal. Further, a coal license is assigned under the stipulation that a licensee carry out exploration activities (but does not preclude mining); a coal lessee is nominally required to produce coal. Lists of coal licenses and leases by region and licensee/lessee are presented in Appendix C.

A license confers sole right to mine, quarry, bore, dig, search for, win and work any mineral within the land specified. A license may be granted when the applicant provides satisfactory evidence as to their financial and technical capabilities and there is evidence as to the existence of the minerals mentioned in the application. In practice licenses are granted on a first come first served basis, with no minimum or maximum size limitations on the area to be granted under the license and without a demonstration of financial and technical capabilities.

A license is valid for a period of three years and may be renewed twice. Thus, a license may be in effect for up to nine years. An annual fee of one rupee per mineral per acre is charged for the license. A royalty charge of 7.5 percent of the value of production at mine-mouth subject to a minimum of Rs. 1.5 per tonne is also levied^{*}. The licensee is required to keep a record of all exploration and production activities and is to submit these to the licensing authority each quarter.

* These are the royalty, rents, fees and charges quoted in the rules reviewed. Each province has set their own fee schedule. These vary from the figures noted in this section. The amount of payment varies from province to province.

A lease confers upon the lessee the right to work mines and use any water in the existing lease area, so long as the lessee does not preempt preexisting uses. A lease may be granted when the licensee provides satisfactory exploration data and submits a plan for the working and exploiting of the minerals authorized under license and a banker's guarantee. A licensee is not required to obtain a lease to produce coal nor are licensees guaranteed the right to convert a license to a lease even given submission of appropriate technical and financial guarantees. The provincial government is under no obligation to grant a lease even if the licensee has complied with all application criteria.

The initial term of a lease is thirty years and this may be extended for an additional thirty years. The licensing authority may terminate the lease without notice if the working obligations are not carried out. The Federal Government may also terminate a lease at any time subject to payment of "fair" compensation. There is some concern in the mining community about these provisions particularly since the geological information is generally not available to specify a mine development plan against which actual development can be compared. The answer is not to loosen the requirements but rather to assure that conditions are created to allow mine developers to create adequate development plans. Another important requirement is to allow mine development plans to be revised in light of experience during development. Leaseholders pay a production royalty based on mine mouth sales value. The lessee may also pay dead rent charges ranging from Rs. 0.25 to 2.5 per acre. The lessee also has to pay surface rent up to a maximum of Rs. 3 per acre.

Leases are subject to a variety of conditional requirements depending on the needs and desires of the province and federal governments. Some of these are outlined below:

- the lessee may be required to fulfill provincial requirements for the mineral before it can be exported;

- nationals of the province must be employed in all grades and branches and training must be provided;
- the lessee may be required to associate government capital up to 51 percent of all classes of capital;
- the lessee may be required to sell the mineral to a particular party at a price stipulated by the government;
- the lessee may be required to meet production targets and store and distribute the mineral in a manner prescribed by the government;
- the lessee may be required to set up a concentration, refining or processing plant for improving the quality of the mineral or ore.

The pattern of private sector licensing and leasing could run counter to efficient production and good mining practice because of the fragmentation of coal fields into small leases. For example, at present there are over 240 coal leases in Pakistan for holdings ranging from 80 to 14,500 acres. Further, there are over 400 exploration licenses potentially convertible to leases. As coal mining is an activity which benefits from scale efficiencies, conversion of these many small licenses to leases may produce inefficient mining and may damage reserves because poor mining is usually associated with small operations.

Table IV-2 presents a provincial breakdown of existing lease holdings. Sixty percent of the leased acreage is in Baluchistan, 36 percent in Punjab and only 4 percent in Sind. The average lease size is greatest in Sind, 2,765 acres/lease, and smallest in Baluchistan. Overall 20 percent of the leases account for 59 percent of the leased area (or 110,000 acres). PMDC alone holds 35,510 acres (19 percent of total leased acreage) on 10 leases. Almost half their holdings are on one lease. PMDC holdings in Lakhra (Sind) do not appear in the Sird Province list of reported lease holdings. Discounting public sector leases, the average size of each private sector lease falls to 646 acres/lease.

TABLE IV-2

LEASEHOLDINGS BY PROVINCE AND SIZE CLASS

<u>Province/ Size Rank</u>	<u>Number of Leases</u>	<u>Total Acres</u>	<u>Average Per Lease</u>	<u>% of Owners</u>	<u>% of Acres</u>
The Sind	3	8,296	2,765	2.1	4.5
Punjab	93	110,587	1189	38.4	60.0
Baluchistan	146	1,189	456	60.3	35.5
0-250	55	7,338	133.4	22.7	04.0
251-500	75	26,629	355.0	31.0	14.4
501-750	40	24,965	624.1	16.5	13.5
751-1000	23	20,813	904.9	9.5	11.2
1001-1250	12	14,214	1,184.5	5.0	7.7
1251-1500	10	13,521	1,352.1	4.1	7.3
1501-1750	7	11,476	1,639.4	2.9	6.2
1751-2000	4	7,342	1,835.5	1.7	4.0
2001-2250	5	10,587	2,117.4	2.1	5.7
2251-2500	2	4,607	2,303.5	.8	2.5
2501-2750	0				
2751-3000	0				
3001-3250	5	15,704	3,140.8	2.1	8.5
3251-3500	0				
3501-3750	0				
3751-4000	1	3,783	3,783.0	.4	2.0
4001 & Over	3	24,452	8,150.7	1.2	13.2
TOTAL.	<u>242</u>	<u>185,431</u>	<u>766.24</u>	<u>1.00</u>	<u>1.00</u>

ISSUE: Specific problems are: i) long delays in converting prospecting licenses to leases delay mine development; ii) granting of small leases operates against efficiencies of scale and probably encourages the poor mining practices typical of small operators; iii) the non-assignability of mining leases inhibits banks from accepting them as collateral and prevents companies from expanding their reserves through acquisition; iv) small and medium sized mines are unwilling or more likely, incapable of preparing adequate mine development plans necessary for the granting of leases.

ACTION: Establish minimum sizes for leaseholds based on the area necessary to take advantage of mining efficiencies. Establish maximum sizes for individual (or multiple) leaseholdings to discourage monopoly practices. Test new leasing procedures.

B. MAJOR ACTORS IN THE COAL SUPPLY CHAIN

Figure IV-1 depicts the basic structure of the coal supply chain in Pakistan. The figure shows three ways in which the system works. Physical coal flows are indicated by solid lines. Cash flows and extension of credit are indicated by dashed lines. For example, in the upper right hand quadrant, Agent-II provides credit to the consumer for coal purchased from Agent-II. When the consumer has sold his product he repays Agent-II.

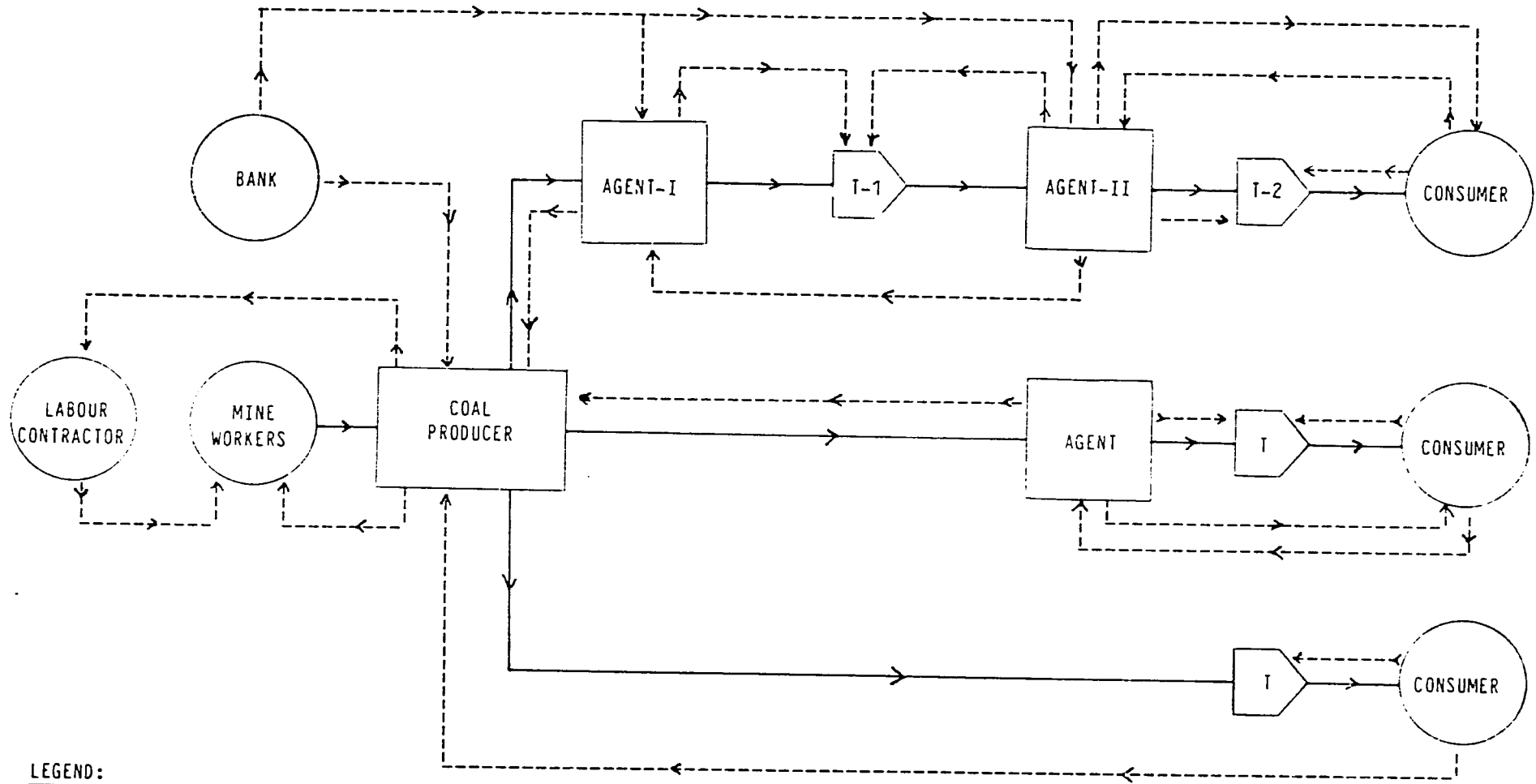
Each of the actors in this structure is described in some detail in the sections which follow. In general, the basic structure of the coal supply system in Pakistan is quite similar to highly efficient systems in market economy countries with large scale coal development. Each of the roles of the actors can be clearly delineated. Each role can be justified, based on a distinct set of services, within the coal sector.

There are, as shown in the figure, many possible variations to the structure described; for example, some coal producers deal directly with final consumers and also arrange to transport coal to

FIGURE IV-1

COAL/MONEY FLOW CHART

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LEGEND:

T = Transporter

- > Money flow
- > Coal flow

the final consumer, as shown in the lower horizon of Figure IV-1. In this case, the consumer finances purchases directly. There are also cases in which one actor may take several roles; for example, a large brickmaker/consumer may also act as a local coal agent and distributor.

1. Mine Owners and Operators

At present there are over 242 separate leases and over 200 exploration licenses granted in the three major coal producing provinces in Pakistan. The total number of licenses and leases does not represent the total number of actual/potential mine owners and operators. A review of lease records suggests that there are probably fewer than 150 lease owners. Similarly, the number of leases, presumably indicative of actual mining operations, does not reflect reality. In Baluchistan and Punjab, for example, many leaseholdings are not worked. Conversely, in all three provinces there are lands held under exploration license which are being worked. In the Sind, for example, there are fifteen areas being worked. Only three of these are held under lease and are producing about 18 percent of total regional production: the remaining production of about 650,000 tonnes is taken from licensed areas, Table IV-3.

Coal mining is carried out by both public and private sector organizations. These are described briefly in the subsections which follow. It is worth noting, however, that the public sector organizations hold larger tracts of land under lease than private firms. Indeed, one PMDC lease is 4 times larger than the largest private sector lease. PMDC, nonetheless, was only the third largest producer in 1982-1983.

a. Public Sector Mining

There are two public sector coal mining corporations, the Pakistan Mineral Development Corporation (PMDC) and the Punjab Mineral Development Corporation (PUNJMIN). PMDC holds licenses to 35510 acres in all three major coal provinces and licenses (but not yet leases) to

TABLE IV-3

COAL PRODUCTION IN SIND

<u>Producer</u>		<u>Size of Actual Lease</u>	<u>Inspectorate⁽¹⁾ Production</u>	<u>Directorate⁽²⁾ Production</u>	<u>Inspectorate⁽³⁾ Production</u>
Habibullah	ML	6,400	110,500	117,510	110,332
Kazi Faiz	CM		88,400	3,230	N/A
H.M. Iqbal	CM	1,896	67,840	31,110	N/A
National	CM		67,700	66,542	66,537
Mehran	CM		59,000	54,242	45,242
Amin	B		57,240	54,532	56,126
Indus	CM		56,000	54,040	54,040
Qazi	AQ		43,000	N/A	N/A
Baluchistan	CL		35,300	35,221	33,236
Sind	CM		22,530	640	N/A
PMDC			15,000	N/A	13,614
Noor	CM		12,425	199	199
Deluxe	T		10,980	493	680
Qalandar	CM		2,700	473	700

(1) Calculated, Chief Inspectorate of Mines, Sind

(2) Directorate of Industries and Mineral Development,
Sind figures "reported" for payment of Royalties

(3) Figures reported by Mine Owners

N/A Not Available

additional areas. PUNJMIN holds two leases totaling 811 acres and additional licences and operates only in Punjab.

To a large extent the financing and marketing activities of PMDC and PUNJMIN are different from the private sector. The Government and parastatal agencies, such as the Water and Power Development Authority, the National Defense Forces and the railroads, buy only from the public sector coal companies on a firm contract basis with price and quality stipulations not made public. PMDC and PUNJMIN sell most of their coal on an advance tender basis to the private sector, primarily to coal agents, who then market through traditional lines. Public sector marketing practices are believed to adversely affect consumer prices, as discussed in the next Chapter. A general description of the two public sector companies follows.

Punjab Mineral Development Corporation

Punjab Mineral Development Corporation (PUNJMIN) was established in 1975 with an objective to promote exploration, development, production and marketing of minerals within the Punjab. PUNJMIN is subject to the administrative and financial control of the Punjab Provincial Government.

PUNJMIN is a small company employing about 250 workers including technicians, administrative staff and executives. The corporation mines non-metallic minerals, such as gypsum, silica, dolomite, fireclay, bauxite, hi-alumina clays and fuller's earth, as well as coal. PUNJMIN owns and operates coal mines in the districts of Khushab (Padhrar mine) and Jhelum (Dandot mine) with a total estimated annual coal production of 30,000 tonnes in 1983 and 21,000 tonnes for 1984-1985. PUNJMIN is carrying out further exploratory and development activities in the Dandot area.

PUNJMIN sells its annual coal production through agents on the basis of competitive bidding. In some special cases a bidder other than the highest bidder can be awarded a contract if the circumstances

so warrant. PUNJMIN sells against payment on delivery or in advance but it does not sell on credit terms. The agents assume responsibility for transportation.

PUNJMIN owns the equipment necessary for exploration, production and development. It also employs technically competent staff. The employment of mine labor, however, is done through labor contractors, although PUNJMIN pays the mine workers directly. The labor contractor assumes full responsibility for labor supervision and other related matters (such as arranging food and accommodation). The labor contractors receive a commission of Rs 5/tonne for production and 10 percent of the wage bill for dead work.

PUNJMIN normally does not receive any financing from banks. Capital costs for its two operating mines at Dandot and Padhrar are relatively low, approximately Rs 7.85 million. PUNJMIN reported that its total operating cost in 1983-84 to produce 21,000 tonnes was RS 10.16 million. The average production cost per tonne was Rs 396 and Rs 601 at Dandot and Padhrar, respectively. Financing for exploration, development and production is met in the following ways:

- (a) Funds generated through the sales of its minerals including coal; and
- (b) The Government of Punjab allocations for PUNJMIN in its Annual Development Plan which finance exploration and mine development and which are treated as loans.

As PUNJMIN does not involve itself in the marketing of its coal production, it does not incur any significant marketing costs.

Pakistan Mineral Development Corporation (PMDC)

PMDC is a private limited company under the Companies Act of 1913, whose shares are owned by the Government. At the moment, about 18 percent of its capital is equity (roughly Rs 96 million) and the remainder is comprised of long and short term debt and deferred liabilities. All debt financing for PMDC is obtained through direct Government of Pakistan debt financing, or indirectly through public

finance corporations: in 1983 outstanding Government of Pakistan development loans amounted to Rs 230 million at an interest rate of 13.5 percent/year. The National Development Finance Corp. (NDFC) has provided long term foreign exchange loans amounting to Rs 22.9 million of which Rs 7.2 million was risk capital for exploration and feasibility studies. PMDC uses its own resources to meet operating expenses.

PMDC holds leases in excess of 35,500 acres and rights to additional reserved areas. At present PMDC has four subsidiaries engaged in the production of coal. The total output of these coal mines was 171,633 tonnes in 1982-83 (roughly 11 percent of total reported coal production or 7 percent of total estimated production) as against 204,146 for the previous year, Table IV-4. The decline in coal production was reportedly due to deeper mining and depletion of reserves. PMDC has efforts underway to increase production capacity from roughly 200,000 tonnes/year, at present, to over 500,000 tonnes/year in 1987. PMDC is also planning additional expansion at new mines. These plans are summarized in Table IV-5.

TABLE IV-4
PMDC Coal Production

	<u>Production</u> 1981-82		<u>Production</u> 1982-83		Increase (Decrease)	Percent Increase/ Decrease %
	<u>Tonnes</u>	<u>% of Total</u>	<u>Tonnes</u>	<u>% of Total</u>		
Sharigh Collieries	24,015	11.8	16,591	9.7	(7,424)	30.0
Sor-Range Collieries	34,700	17.0	20,119	11.7	(14,581)	42.0
Degari Collieries	53,172	26.0	49,632	28.9	(3,540)	6.6
Makerwal Collieries	92,259	45.2	85,291	49.7	(6,968)	7.9
TOTAL	204,146	100.00	171,633	100.00	(32,513)	15.9

PMDC sells its coal to both public and private sector organizations. Public sector sales (to WAPDA, the national defense industry and the railroad) are made directly. The sale contract is

TABLE IV-5

PMDC
MODERNIZATION AND EXPANSION PLANS

<u>Existing Subsidiaries</u>	<u>Total Cost</u>	<u>Existing Financing</u>	<u>Production Targets</u>	<u>Estimated Investment (Rs/+ of prod.)</u>
1. Sharigh Collieries	Rs 47.7 million	NDFC Rs 10.3 million in FX	Double current capacity of 50,000 T/annum	950
2. Degari Collieries	Rs 25.9 million		Increase production from 50,000 to 140,000 T/annum	290
3. Makerwal Collieries	Rs 65 million	NDFC Rs 12.6 million	Increase production from 85,000 to 300,000 T/annum	300
<u>New Plans</u>				
4. Lakhra, Dado	Rs 51 million		Production targets of 200,000 T/annum	255
5. Jhimpir	Rs 1.9 million		Production targets of 30,000 T/annum	65

based on a negotiated mine-mouth delivered price, all due in advance. Sales to private consumers are made through contractors/agents who purchase coal on a tender basis. Generally, the terms of such tenders specify advance deposits and a delivery schedule requiring that the contractor purchase at least 20 percent but no more than 35 percent of the total contract amount in any quarter (thus easing the seasonality problem). PMDC will add income and excise taxes to the tender price. (For example, in 1984-85 PMDC has tenders for coal from its Baluchistan collieries totaling 49,000 tonnes with a total anticipated revenue of Rs 41.9 million. The average sale price is Rs 854/tonne, inclusive of taxes. Minimum and maximum tender prices are Rs 610 and Rs 972 per tonne, respectively. Quarterly deliveries will be between 10,000 and 17,000 tonnes.) Transportation is arranged and paid for by the consumer.

b. Private Sector Owners and Operators

Unlike the public sector there are many large and small private companies involved in the production of coal in Pakistan. In the private sector coal is produced by mine owners or by private contractors working under fixed seasonal agreements with mine owners. Almost all of the privately held mines produce on a seasonal basis.

Brief profiles of some of the major private sector coal mining companies are provided below. These profiles are based on information obtained through direct interviews and some written information provided by each company.

H.M. Habibullah Mines Limited

Habibullah Mines is the oldest mining company in Pakistan and currently mines coal in both Baluchistan and the Sind where it holds leases for over 6400 acres with estimated reserves of 30 to 60 million tonnes. Between 1959 and 1984 Habibullah Mines produced over 1.1 million tonnes from their combined holdings. In 1983 they produced approximately 150,000 and 125,000 tonnes from their Lakhra and Baluchistan holdings, respectively. This is considerably more than is produced by the public sector coal companies and represents about 11 percent of total estimated coal production. All of their coal is sold, ultimately, to the brick kiln industry.

Habibullah Mines estimate they spend from Rs 2-2.5 million per year on capital improvements in their mines. The company employs over 400 people in staff and technical positions and an additional 1000 seasonal workers at their various mines. They estimate their salary expenditures in the Quetta region alone to exceed Rs 6 million per year.

Under the guidance of Mr. Saifullah Khan Paracha (who holds a degree in mining engineering from the University of California) and Mr. Saeedullah Paracha, Habibullah has been among the most aggressive domestic corporations pursuing increased development of the coal sector. They have stated they are prepared to create a new subsidiary, Habibullah Lakhra Coal Ltd, and will invest from their own holdings, and from outside shareholders, once a firm supply contract is available from WAPDA for its 300 MW Jamshoro Plant.

National Coal Mines Ltd.

National Coal Mines Ltd. is a limited private company established in 1961 as part of the Dawood Group. Mr. Shahid Baig is the company's Chief Executive, a mining engineer, and the General Secretary of the (Sind) Provincial Mine Owner's Association. The Chairman of the company is Mr. Ahmed Dawood. The company was started with owner's capital, and minimal bank financing is employed in its mining operations. National employs approximately 385 individuals, the majority of whom are mine workers.

National Coal Mines Ltd. holds licenses for 2662 acres of land in Lakhra and a 5-year extendible lease for 2560 acres of land in Jhampir. The company currently produces about 170,000 tonnes of coal per year, ranking it third in production behind Habibullah Mines and PMDC. Coal production fluctuates from 400 tonnes/day during the winter season to 100 tonnes/day during the summer.

Most of the coal produced by National is sold in the Sind and the remainder in the Punjab. About 80 percent is sold directly to the final consumer and the rest is purchased by coal agents. Agents purchase National's coal on a monthly basis by making an advance payment to the company; however, coal agents shop among producers on the basis of price. The stated price of Sind coal varies from Rs 150-220 depending on the season and quality. A fair amount of coal production is lost during storage. (Peak production is in the winter in Lakhra, peak demand occurs during the summer.) National estimates they lose Rs30-50 per tonne in depreciation losses alone.

Mehran Coal Mines Ltd.

Mehran is a family owned and operated company and all its capital consists of owners' equity. Mr. Laeeq Ahmed is the Managing Director and his son, Pervez Ahmed, is responsible for the company's mining operations at Lakhra. The company has held a mining license at Lakhra since 1968 and has been mining on a limited basis since 1975.

Mehran's production at Lakhra is purchased by coal agents and final consumers. The company does not have any fixed supply contracts and, consequently, the amount of coal it sells and the price it receives varies according to fluctuations in the market.

It is worth noting that the extended Ahmed family has been active as coal agents in Baluchistan since the mid-1960's, and the company itself is currently involved to a limited extent as a coal agency. Mr. L. Ahmed backed into mining operations because he felt that higher margins were available to mine owners than to coal agents.

Baluchistan Coal Company Ltd. (Gilani Mines)

The Baluchistan Coal Company and the Gilani Company are sister companies jointly founded and held by three equal shareholders and their descendents. The company is privately capitalized and external financing has not been used for either capital or operating expenses. The company holds a mineral lease in Baluchistan and two prospecting licenses covering over 4900 acres in Lakhra.

The company currently has 50 salaried staff and over 250 wage-workers at their Sind operation and has stated that their workforce in Baluchistan is roughly five times larger. Current production is approximately 100,000 tonnes per year. Roughly 75 percent of production is sold to coal agents and the remainder directly to final consumers. The company has no fixed supply contracts. Most of the company's production is consumed in Sind, the Punjab and the NWFP and is moved from mine to consumer by truck.

The larger private sector mining companies have been active in encouraging expansion of existing coal markets. Habibullah, National and several other mining companies have been actively exploring the possibility of private, mine-mouth, electric capacity development for sale to the national grid. Some of the private sector mining companies have been actively pursuing the development of joint ventures with overseas mining companies for the exploitation of Pakistani coal resources.

c. Worker Employment Systems

The vast majority of mine-workers are not permanent employees of mine-owners. Indeed, only the largest operating mines employ technical staff to oversee mine planning, operations and other services. Employment is highly seasonal and largely dependent on imported labor from Swat, Kashmir and the Northern Areas. (To date attempts to attract and train Sindis and Baluchis to work underground,

at the face, have failed). The mine-worker employment system is generally as follows:

- Mine owners pay a commission to Jamadars who recruit workers. Jamadars also provide services to workers such as food procurement, handling remittances, mail and the like. Jamadars receive a fee, based on production, from mine owners and also deduct commissions, based on services, from mine workers. Jamadars pay the mine-workers through the Jorisar.
- Jorisars are contract "foreman" contracted to head a gang of mine workers at a specific production stage: face-work, moving coal from face to mouth, loading coal, and the like. Jorisars are paid by Jamadars based on the collective output of the gang, they then pay each mine-worker.

There are many variations to this system, however. For example, Amin Bros. in Sind and many mines in Punjab follow a variation known as the "Maid" system. In this system mine operators pay mine-workers directly. In another variation mine owners distinguish between face workers and contractors, paid directly on the basis of production and surface workers and indirect labor who are paid daily wages. Depending on the region the three terms - Maid, Jamadar and Jorisar - are sometimes used interchangeably.

2. Coal Agents

Coal agents play a key role in the coal sector in Pakistan. It is important to understand, however, that the coal agent system is heterogeneous. There are large variations in the importance of agents in each province. Equally importantly, some major consumers and producers have integrated vertically to assume some of the functions undertaken by coal agents. Coal agents, nonetheless, play crucial roles in (a) transmitting information on market requirements; (b) providing short-term financing for producers and consumers; (c) establishing the retail price for coal; and (d) providing a tax buffer.

In Sind, most producers deal directly with consumers or local distributors. The role of agents is minimal and it is extremely rare to find more than one agent between the producer and consumer. In contrast with this is the importance of agents in Punjab, regionally dominant in terms of coal consumption while the majority of production is in Sind and Baluchistan. Almost all agents are independent, regardless of region, although some mine owners will employ market agents as representatives.

The first important role of the coal agent is that they take advance orders and delivery schedules from consumers, primarily brickmakers who have little or no working capital and then contract for supplies from producers. If a single agent has sufficient demand and capital he may deal directly with mine owners. If not, he will order through a higher level agent. The agent will also contract directly with transporters, although payment for transport is generally made by the consumer. The initial element of the agent's role, then, is coordination and the transmittal of market information.

The second major function of the coal agent is finance. Coal agents normally provide mine-owners with a cash advance against a fixed price purchase for up to sixty percent or more of the purchase price. Such advances may be made at the time of contract, although, where the contract has a fixed term, the cash advance may be made on a monthly basis. The coal agent also extends credit to consumers (bricks kilns) for the total delivered price of the coal, which is needed because most brick shipments are themselves on credit. Such credits may range from one to three months in duration. Normally, consumers will pay transportation costs, but on occasion, the agents will pay these costs and incorporate them into the sales price.

There is indirect evidence, discussed in the following chapter, that agents do in fact use commercial credit to service a portion of their transaction requirements. Further, while they may not identify an interest charge as a component of their retail prices to brick

kilns, one source suggests that in the Punjab the financing charge may be as much as 30 percent of the final coal price.

The final important facet of the coal agents' role is their effect on price. The public sector coal producers, PMDC and PUNJMIN, produce at higher costs than private companies. Their coal prices set the benchmark against which private mine owners price their production. Coal agents buy back into the system by shopping around. They then have a tendency to price private coal at or just below the level established by the public sector producers, allowing for quality differential. In effect, private producers and agents cooperate to capture and divide the higher available margins. This is possible because competition is light and highly localized. Further, local agents establish coal prices on a cooperative basis.

3. Transporters

Coal is transported by two modes in Pakistan. Roughly 10 percent is moved by rail and the remainder is moved by truck. The average load carried by rail is 24 tonnes and the average load moved by truck is 10 tonnes. Transit times might be from 2-10 days from mine-mouth to consumer. Rail freight is noticeably less efficient. Freight loading schedules are not fixed and coal freight trains might be shunted to a siding for priority carriers (there are nine priority levels above coal). It has been estimated that it takes from 2-4 weeks, more often the latter, to move Sind coal to Rawalpindi by rail.

Most truck freight is by private contract. Coal agents, consumers and distributors may contract directly with owners/operators or small fleet owners to move their coal, but this is rare. In most cases transport bookings are made through a series of middlemen who operate central booking stations. These middlemen may also own small truck fleets and serve as coal agents and in practice control the transportation system through control of local transport services, through financing of transportation costs for brickmakers and through control of loading crews. Payment is generally made up-front or on

delivery. Booking agents will, however, extend credit to consumers who would otherwise be liable for the entire cost. Most truckers try to arrange to carry coal one way and other goods on return. If they cannot they may charge a premium for one-way freight. There are large seasonal variations in the demand for trucks to move coal and, thus, there is also a seasonal transportation premium. Delivery schedules are set by purchasers. There do not appear to be any large contract freight firms, and capital financing information for the system is not available.

Pakistan Railways has a fixed system of transport handling priorities in which coal freight is ranked relatively low. Coal cars are often shunted to sidings to allow unscheduled but higher priority freight or passenger trains to move along single rail routes. The unreliability of train service and the lack of firm schedules has caused this mode of freight to be undesirable. It is used primarily for marginal, non-committed or scheduled supplies, or as additional transport during peak demand seasons when truck transport is expensive and scarce. There is evidence that some agents make use of the railways to store their coal for weeks at a time.

4. Consumers

The various categories of consumers of coal were described in Chapter II. Over 80 percent of total coal used in Pakistan is consumed by private brickmakers. There are many brickyards in Pakistan and most are of moderate to small size, employ primitive technology, are labor intensive, and low cost (both operating and capital). Brickyards are concentrated in Punjab and parts of Sind. Most are small family and/or local businesses. The majority of Punjab brickyards purchase coal directly from agents, and the Sind yards will typically purchase directly from producers.

Although brickmakers are sensitive to price they have little negotiating recourse. Most will shop for marginal supplies on the spot market. They are used to price fluctuations due to

seasonality of supply and the quality of the coal to be delivered. Brick kiln owners are not loyal to specific agents, however, and will shop among available agents for the best price/quality combination. Additionally, because their revenues lag coal deliveries by a considerable period, they usually deal with agents who will extend credit.

For most brickmakers the quality of coal is important and the price they will pay for coal varies according to perceived quality. They appear to recognize quality in three regards: differences in heating value, age, and source. Brickmakers recognize that coal from different regions and different mines will have different heating values. For example, in the Punjab, preferences are for Baluchistan coal, high quality Punjab coal, low quality Punjab coal and Sind coal, in that order. They will, or may, purchase all but will then mix them to obtain an appropriate heating mix. The age of coal also affects quality and price. Sind coal, for example, is known to decrepitate if exposed to air during transportation or storage and, consequently, lose substantial heating value. And, finally, the nature of coal from different sources is presumed to affect the "quality" of the brick produced. In this regard the color of the final product appears to be the determining factor in assessing its quality. Different regions prefer different colored bricks; coal from different sources produce different colored bricks; thus, brickmakers' coal purchases are based partly on the quality of brick they wish to produce.

A second group of consumers would be public sector consumers including the Water and Power Development Authority, the National Defense Forces and the railway system. This group accounts for about 10 percent of current consumption. At present they purchase all of their supply from public sector mining companies, although the National Defense Force purchases roughly 20,000 tonnes/year of briquettes from the Quetta briquetting facility. All purchases are made on the basis of closed contracts: with the specific terms (quality, price, duration, etc) unrevealed. At one time WAPDA did

purchase coal for their Quetta power plant from the private sector but voided their contract because of reported quality problems.

As discussed in the demand section, public sector consumers have the greatest apparent potential for increasing the use of coal. WAPDA currently plans to bring the Jamshoro coal-fired facility on-line some time in the early 1990's and contemplates co-locating an additional 1500-1800 MW of coal-fired capacity if the initial plant proves a success. The State Cement Corporation of Pakistan (SCCP) is considering conversion of several of their facilities to coal. SCCP has not, however, set out specific conversion plans as yet although it has called for pre-qualification of coal suppliers for its Zeal Pak plant. The level of potential demand for coal is greater in the cement industry than elsewhere in the short to mid-term.

5. Regional Perspectives

The nature of the coal sector varies greatly by region. As we have pointed out 65 percent of proven coal reserves are in the Sind, 28 percent in Baluchistan and the remainder in Punjab. Reported production is greatest in Baluchistan (roughly half of total national production) and the remainder is evenly split between Sind and Punjab. The majority of consumption, however, is in Punjab and, thus, Punjab imports much of its coal. Consumption of coal in Baluchistan is negligible and self-supplied. With the exception of imported coal for the steel plant the Sind produces all of the coal consumed within the region. Recent growth in coal use, primarily in brickmaking, has been largest in Sind and only slightly smaller in Punjab resulting from healthy growth in construction in those provinces. Future coal demand is also likely to be concentrated in these two provinces as electric capacity development and cement plants are reasonably co-located with coal resources.

As pointed out in Chapter V mine-mouth coal prices are greatest in Punjab and Baluchistan, from 2-5 times larger than mine-mouth prices in the Sind. Truck transport costs for coal freighted to (say) Rawalpindi from the Sind and Punjab production sites are only 25-50

percent of the freight rates from Baluchistan. As a consequence the delivered price of Baluchistan coal is high and Baluchistan coal is becoming non-competitive.

The only possible way of preventing a steady decline in Baluchistan's coal industry would be to increase mining productivity through a combination of discovering better coal deposits that would lend themselves to some mechanization, and by developing local industries to use the coal and export the product. In the case of power generation, the other critical element is the lack of adequate water sources for cooling. Briquette manufacture for use in Northern areas, and possibly for export via road to Karachi, could take a certain amount of production, but it would be many years before a briquetting industry could use a major part of Baluchistan's 1Mtc/year production.

C. THE COAL SUPPLY CHAIN: A VIEW OF THE FUTURE

If growth in demand occurs as envisaged in Chapter II then one must also assume that the nature of the coal supply chain will also change. In our view, two distinct systems may well emerge: one supplying traditional markets, as is done at present, and the second providing for the needs of large producers and bulk consumers. The basis for postulating independent systems lies with several factors discussed in this report, the most important of which are the following:

Transportation Infrastructure: bulk consumers of coal will be very sensitive to cost and schedule. The rail system is not reliable and is ill prepared to meet greatly increased needs of bulk coal consumers. Truck transport is overly expensive. Future power and industrial sector consumers will, thus, be located at or adjacent to coal production areas.

Coal Quality: power and industrial consumers will require coal of a predictable quality, and will seek to ensure that producers and/or agents guarantee coal that meets their needs. The most effective way of obtaining such guarantees

is dealing directly with producers and eliminating the middlemen.

Price: bulk consumers will seek to ensure prices and pricing levels that allow control over delivered cost of their product and are more or less predictable. They will be unwilling to accept current pricing systems and controls. Instead, they will push for direct contractual controls.

As a consequence of these and other factors, two independent systems may emerge. The existing system will remain (in the short to mid-term) to serve the needs of the traditional brick-making market. The system is unlikely to change radically until either (a) coal agents face competition directly from producers with excess capacity looking for new industrial markets, or (b) the brickmaking industry changes or new disbursed markets emerge. The second system will, at least in the short term, probably involve direct producer to consumer relations. New bulk consumers will seek to reduce price and cost, provide for quality controls, and ensure that schedules are met by having their purchasing or engineering departments assume the functions of middlemen.

As with changes in the overall structure of the coal supply system the functions of individual actors are also likely to change. As large, long-term, competitive coal contracts become available, the largest and most capable coal companies will become even more dominant. Smaller producers, unable to compete with the available scale economies and excess production capacity of large producers, will gradually be forced out of the market. The fragmentation of the current production system will give way to greater centralization and the system will contain fewer but larger and more capable producers.

It is not clear whether the production system of the future will be dominated by public or private sector companies, even though the private sector currently produces over 90 percent of coal. This question may well be answered fairly quickly, however. If the private sector is able to obtain long term coal supply contracts from the cement or power sectors, and prove themselves capable of supplying

coal of a predictable quality on a set schedule at a reasonable and contractually fixed price, then their role in production in the future may and should increase. If not, the current preference for public sector producers will increase and PMDC and PUNJMIN may well provide an increasingly large share of production. Under current circumstances it is difficult to argue, however, that a move to public sector production is justified.

Similarly, the nature of the coal agent system will also change. As the production system changes and becomes centralized coal agents will lose control over purchase prices at the mine mouth. In all likelihood control of the agent system, at least that portion of the system which purchases coal, will become centralized among fewer agents. Their role in the financing of mining may also change. At the consumption end the same pattern may emerge, but will depend on how effective the policies recommended in this report are followed. If, for example, working capital credits become available to brickmakers or to cooperatives of brickmakers, the coal agents will be forced to compete for customers. Their supply and price control activities will give way to price and service based competitive activities.

It is possible that a new system of agents will emerge. These agents will be able to provide the services and skills necessary to assure that quality, price and scheduling concerns of bulk consumers in the industrial sector are met. In a sense, they will assume the role that a purchasing and quality control department might take in a coal consuming organization.

We doubt whether there will be significant change in the current consumer system. A new set of consumers will, of course, emerge in the industrial and power sectors. But the traditional consumers, brickmakers, will continue to function much as they do at present. One of the major questions, with regard to growth in the coal sector, is whether residential and commercial markets will emerge if Pakistan develops the technical capabilities to produce briquettes on a price

competitive basis. The technology exists. The primary question to be answered is whether consumers will accept this new fuel and whether the transportation and marketing system can limit costs so that briquettes are competitive with commercial fuels.

We must emphasize that these basic shifts in the coal supply chain are predicated on a basically free-market system with few new government interventions or incentives. The system would change dramatically if steps were taken to improve infrastructure, in the mid-term; to establish coal mining areas as priority zones for industrial development; to actively control the price of coal; or other policy actions.

V. COAL PRICING AND FINANCE

A. PRICE SETTING STRUCTURE AND POLICIES

1. Commercial Energy

According to federal law each publicly-owned enterprise in the energy sector is charged with setting prices at levels that cover costs, provide sufficient revenue for forward investment and earn an acceptable rate of return on capital. For regulated energy forms, formal responsibility for setting prices lies with the Director General, Oil --for petroleum products; the Director General, Gas --for natural gas; the Managing Director of the Karachi Electric Supply Corporation (KESC) --for electricity in the Karachi system; and the Managing Director, Member Power, WAPDA --for electricity in the WAPDA grid. In practice, however, all pricing decisions are made by the Executive Committee of the National Economic Council.

Up to 1980, the pricing policies followed by the Government attempted to buffer the economy from escalating energy costs by restraining domestic fuel prices to levels substantially below the economic costs (the border price for tradeables and the long run marginal cost for non-tradeables). As a result real energy prices decreased between 1973 and 1980 leading to serious distortion in the relative prices of competing fuels, increased uneconomic use of energy resources and products, and substantial transfer and balance of payment problems.

By 1980, the drawbacks of these pricing policies had become apparent and, with assistance from some of the major international donor agencies, the Government moved to rationalize both producer and consumer energy prices, as reflected in consumer fuel price shifts shown in Table V-1. The major components of the new pricing program with relevance to the coal sector are shown below (World Bank, 1984).

TABLE V-1

CONSUMER FUEL PRICES⁽¹⁾
(Rs/unit)

<u>Year</u>	<u>Natural Gas</u>		<u>Kerosene</u> (litre)	<u>Fuel Oil</u> (tonne)
	<u>Industry</u> (Mcf)	<u>Residential</u>		
1975	7.06	9.6	0.88	600
1976				
1977	9	12	0.88	600
1978				
1979	10.7	12	1.0	800
1980	10.7	12	1.0	
1981	10.7	12	2.75	1350
1982	11.2	17.5	2.75	
1983 ⁽²⁾	17.6	16-24	2.75	1720
1984	21.9	18-27	3.0	1720

(1) DGER, "Energy Yearbook", 1983, Ministry of Petroleum and Natural Resources

(2) Taken from Pakistan Petroleum Ltd., Progress, Vol. XXVIII, No. 12, July 1984.

Natural Gas: the Government has agreed to reconsider the current producer pricing formula (which provides for a negotiated, fixed rate of return on investment) in favor of a formula pegged to the border price of fuel oil discounted for field location, size and geology. On the consumer side, the Government has implemented a pricing policy which would move average natural gas prices to 66 percent of the fuel oil equivalent border price by 1988. The World Bank is now pressing the Government to accept a second stage which would move natural gas to full parity by 1991.

ISSUE: The prices of the fuels against which coal competes must be set in a rational manner. Of particular concern is the price of natural gas from the point of view of stimulating both natural gas and coal production. Fuel oil prices have dropped by some 30 percent (in dollar terms) since 1982 when the natural gas target price was agreed to (two thirds of world fuel oil price by 1988).

ACTION: The current targets for natural gas prices should be reviewed in light of: a) recent trends in fuel oil prices; b) incentives for natural gas production; and c) effects on competition between natural gas and coal.

Petroleum: By and large consumer prices for petroleum products are now at levels above border prices. For example, the weighted average domestic price for petroleum products was at 150 percent of the border price in 1984. As a result, the petroleum sub-sector is a net contributor to the resources of the Government of Pakistan. The two major exceptions to this situation are fuel oil, which is currently below its border price by about 15 percent, and kerosene.

Electricity: Weighted average electric tariffs in Pakistan increased in real terms over the past decade. By January 1984, revenues averaged 64.46 paisas/kWh for WAPDA and 87 paisas/kWh for KESC. Both WAPDA and KESC currently employ internal financial ratios based on capital valuations to justify understated

generation costs and consequent tariffs. The World Bank has urged the Government to set electric tariffs at parity with LRMC by 1990. The Government has stated that the LRMC tariff system will be difficult to implement and has proposed to link tariff adjustments to cash generation levels sufficient to underwrite given investment targets. For example, the system which the Government has proposed for 1985 through 1987 is as follows: WAPDA would establish tariff levels sufficient to generate 40 percent of the target investment; the target level would be calculated as the average of the given year investment plus the investment levels for the two preceding years. Under the existing investment, plans the average tariff increases necessary to meet such targets would be 10 percent in June 1985, 13 percent in June 1986, and 18 percent in June 1987.

2. Coal Pricing

The price of coal is not regulated, unlike prices for the fuels previously discussed. There is essentially no systematic information on coal prices, costs and mark-ups at various points in the system. As part of this study we conducted a limited survey to provide indicative numbers. The following information gaps and problems are of particular importance:

- there is no reliable record of coal prices by region, nor has there been any survey of recent coal prices. The current price information included in this analysis is based on a limited survey of producers, agents, transporters and consumers. Substantial variation in prices by season, producer region and consumer region are apparent. A more comprehensive survey would add insight into the operation of the coal system;
- operating cost information for any segment of the coal system is sparse and available financial and operating cost data are too variable to provide an authoritative financial overview of the industry.

The assessment undertaken in this section, then, is based on a limited sample of prices from numerous interviews with producers, agents, transporters and consumers. The basic intent was to define

how the system functions in establishing coal prices and, to a lesser extent, to determine whether prices are related to costs.

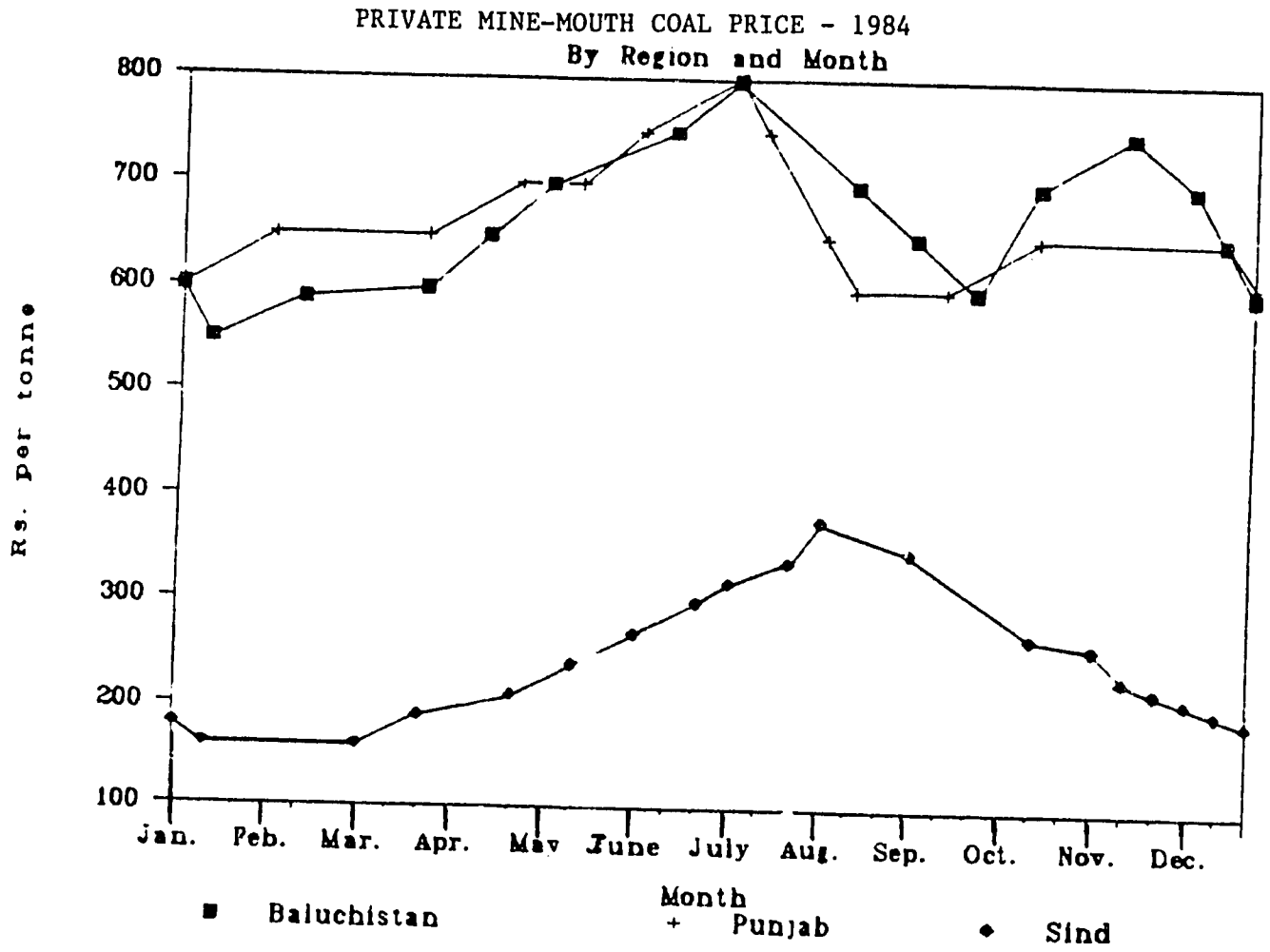
As discussed below, the coal pricing system in Pakistan has inefficiencies that contribute to higher retail prices, retaining and distributing incremental revenue among the various actors. The inefficiencies vary by region. In Punjab and Baluchistan, for example, the coal agents are the dominant actors, while in Sind the transporters (who may also be producers and/or agents) are most important. In the former case agents will, given appropriate market conditions, price up to publicly produced supplies. In the latter case transporters act together to set transportation freight rates.

a. Production Costs

Actual production costs vary by region, by owner and by mine. Primary factors in determining variations in costs include geology (dip, depth and width of the coal seam), the level of capital development and adherence to regulatory requirements. Because of more favorable geologic conditions Sind coal is cheaper to produce than either Baluchistan or Punjab coal.

In the private sector mine-mouth coal prices do, however, reflect the regional and seasonal importance of these factors. Figure V-1 shows average, private mine-mouth coal prices (which include the coal-agents margin) for the three primary coal producing regions. Baluchistan and Punjab, with higher quality coals, thinner seams, and greater dips and depths shows significantly higher prices than in Sind. All three regions show significant seasonal variation in price: roughly 60 percent variation from trough to peak in Baluchistan and Punjab and over 100 percent in the Sind. The June-July peaks are caused by an overlap between continuing demand from brick kilns (sometimes helped by a late monsoon) and declining supply from mines due to exhaustion of inventory and decline in output as a result of a drop in seasonal labor force. Sind coal, thus, shows the greatest variation as

FIGURE V-1



it is the most volatile and loses the greatest proportional value during storage, and is most affected by the shortage of summer labor.

As with the private sector there is little data on the operating cost structure of public sector mining operations. The probability that public sector mine-mouth prices can shed any light on actual production costs and variations is unlikely. Table V-2 provides data on PMDC sales ex-mine and ex-depot across the country. PMDC tender prices (sales to the private sector) are from Rs 100-160 per tonne higher than average private sector prices and about 20 percent higher than PMDC sales to public sector organizations. PMDC sales are made on a flat price basis. There is no seasonal variation in PMDC tender prices. Punjmin operating costs vary from Rs 396/tonne to Rs 601/tonne at Dandat and Padhrar, respectively.

While PMDC coal does have a reputation for having a more consistent and higher quality coal than private sector coal, the size of the price differential between public and private sector coal cannot be explained by quality differences. It may be asked why agents would bid up the price of PMDC coal that they will later have to sell together with lower priced private sector coal. The answer lies in the deliberate bidding up of the price of PMDC (and PUNJMIN) coal by coal agents as part of a practice designed to reduce the agents' exposure to income tax assessments.

A successful bid for public sector coal leaves the agent with irrefutable documentary evidence of the price paid for that coal. (An invoice from a private mining company would carry less credibility with the Central Board of Revenue.) If the public sector invoice shows a high price, the coal agents' apparent profits are reduced when this price is compared with their receipts from sales. In addition, one PMDC or PUNJMIN purchase voucher can be used to "cover" the sale of a considerably larger volume of lower cost private sector coal. Private mining companies are not ignorant of this practice, and to varying degrees they will derive a benefit by increasing their prices

TABLE V-2

PMDC SALES BY CONTRACT AND TENDER, 1984-1985

<u>Region</u>	<u>Tonnes</u>	<u>Price Average</u> <u>Ex-mine</u>	<u>Price Average</u> <u>Ex-depot</u>	<u>Notes</u>
Baluchistan	21,000 19,000 9,000	774.2	830.0	3 tenders 4 tenders Rs 943/t
Public Sales	50,000 <u>26,500</u> 125,500	650.0		washed, ex-depot
Punjab	120,000	828.0		
Sind	<u>50,000</u>	<u>295.2</u>	_____	
TOTAL	295,500			

Note: PMDC sells by contract to the Public Sector and by tender to the private sector. A deposit of Rs 42/t is required from tender holders. Not all of the coal committed on tenders is taken.

towards the price paid to PMDC by the coal agent. The ability of mine owners to price their coal up will often depend on their financial strength, i.e. on their dependence on the coal agent for credit in the form of advance payments against production.

MAJOR ISSUE: PMDC and PUNJMIN Coal Selling Practice Inhibits Price Competition.

The issue for coal policy is not tax avoidance, which is endemic to many developing as well as developed countries, but the fact that coal's penetration of new markets depends on keeping its price as low as possible while allowing a fair rate of return to the various actors in the coal supply chain. The method by which coal is sold is open to manipulation for the ultimate purpose of tax avoidance. However, all parties, excepting the end user, benefit from the current state of affairs. The high-cost public sector producers capture an added economic rent, while the agents and private mining companies in Baluchistan and Punjab realize higher profits. Price competition could be enhanced by denying agents the opportunity to affect the price of public sector coal.

ACTION: The Federal and Punjab governments should consider changing the way in which PMDC and PUNJMIN sell coal so as to remove the opportunity for agents to bid up prices. This might be done by eliminating the right of agents to buy coal from these two bodies, and requiring that public sector coal sales be negotiated directly with end users only. In order to avoid disruptions and recognizing that agents are vital to the distribution of public sector in the northern areas of the country, a phased changeover might be considered under which the proportion of public sector coal allowed to go to agents would be reduced by one-third each year over a three year period. This would give PMDC and PUNJMIN time to find other buyers at market rates, and it would give agents time to organize private sector coal supplies to serve their markets. The added pressure on the public sector companies to compete, and hence reduce costs, would be healthy. It is recognized that implementation of such a reform would mean overcoming

the inherent difficulty that most public sector companies have in delegating responsibility for commercial decisions within the organization.

ISSUE: Price "Subsidies" for Public Sector Purchasers: There does not appear to be any justification for requiring PMDC to sell coal to public sector companies or agencies at prices below market levels.

ACTION: Public sector purchasers of coal, such as Pakistan Railways, the Defence Forces and WAPDA (Quetta) should either be required to pay PMDC the going market price for coal supplied, or to purchase their coal by tender from the lowest bidder subject to strict provisions on quality.

b. Transportation Costs

In Pakistan transportation costs are of critical importance in determining the delivered price of coal. While such costs vary with distance, with season and by mode of transport they are high, and can add up to 100 percent or more to the actual mine-mouth coal price, as shown in Table V-3.

In all regions truck transportation is arranged by booking agents, who are also members of local transportation councils. These councils set freight rates from the point of origination to the point of destination. The level of freight charges fluctuates dramatically reflecting both demand and the cost of operations. Most booking agents have their own truck fleets (most of modest size), book independents for excess freight, and employ loading and unloading crews at the mines and depots. The nominal commission for booking (truck "addas") is Rs. 100/truck. During peak demand seasons or for non-fleet independents, however, agents will obtain a commission of up to Rs.500/truck. The truck "addas" and loading and unloading fees are added to the freight charge and miscellaneous taxes to determine the total cost of trucking.

TABLE V-3

COAL FREIGHT CHARGES BY REGION AND MODE, 1984

Rs/tonne

	Truck Freight Costs	Other costs per truck	Rail Freight Costs	Rail Other Costs per tonne
<u>Baluchistan</u>				
Quetta to Lahore	400-450	a) loading/unloading	268	a) loading/
Rawalpindi	500-550	Rs 150	308	unloading
Dagari		b) booking commission	310	Rs15-22
Peshawar	600-650	Rs 100	328	b) local
Dukki to Rawalpindi	400-450	c) road tax		delivery by
Faisalabad	450-500	Rs 50 - 80		truck 40-50
D.I. Khan	300-350			c) local road
Peshawar	500-600			taxes Rsl
<u>Sind to:</u>				
Moro	100	a) loading/unloading		
Mirpurkas	90	Rs 150		
Nawabshah	110	b) booking commission		
Sukkhur	140	Rs 50		
Tando Allahyar	80	c) road taxes and tolls		
Punjab	225-470	Rs 15-60		
		d) export tax		
		Rs 70		
<u>Punjab to:</u>				
Lahore	170			
Sargodha	110	a) loading/unloading		
Faislabad	120	Rs 100		
Rawalpindi	170	b) export tax/union		
Guyrat	150	council tax Rs 80		
Peshawar	180	c) booking commission		
Abbotabad	180	Rs 50		
Jhelum	140	d) road tax Rs 20		

Note: actual fees charged on truck or car, not per tonne basis

High costs in the rail transportation system at least in Baluchistan stem from a different source. In the railroad system coal loading plots at each station are allocated to mine owners and coal agents. Coal wagons are allocated by the central office to each rail station, which then re-allocates wagons to plot holders on a rotating basis. Because the demand for coal wagons exceeds supply, a "stock exchange" has developed whereby "wagon-holders" sell their rights to wagons. The current "rate" for a coal-wagon is from Rs.1500-2500 or more: a cost which is then rolled back into the actual freight charge. (It is interesting to note that despite this trade in coal-wagons the railroad charges no allocation fee, only a freight charge. It is also important to note that wagon holders may add to scarcity, to a certain extent, by withholding wagons from the freight system until demand is high.) Incremental transportation charges at the demand end are levied for local distribution by truck. These are approximately Rs. 40-50 per tonne. Rail transport agents, thus profit from the disparity between rail and truck freight charges by inflating the total cost of delivery.

ISSUE: Inefficient operation of the rail system in Baluchistan, and particularly the methods of allocating railcars and establishing freight priorities results in inflated transport costs.

ACTION: Rationalize the railcar allocation system or at least control the trading of railcars on the stock exchange. Revise the system of freight priorities.

c. Coal Agent Costs

There is little doubt that coal agents influence the delivered cost of coal. Nor can there be any doubt that coal agents play important functional roles in the coal production and marketing system. Almost no documentation exists with which to measure the actual costs of the agent system, although it is presumed to be small in relation to the costs of production and distribution. At the same time, it is widely believed that agents take the lion's

share of the marked-up price of coal. The great range in estimates of their mark-up on coal sales, Rs 20-240 per tonne, demonstrates the lack of information about the final affect of their actions on delivered coal prices.

There is some justification for the agents large mark-up of coal prices. After all, agents assume a considerable financial risk. They finance both the producers and consumers, providing cash advances to producers and extending payment credits of up to 90 days supply to consumers. Whether their assumed risk justifies their probable revenue from a system in which they influence delivered prices and margins cannot be determined without better data. In the previous sections the participation of agents in controlling prices in the production and transportation sectors was discussed. In this section additional controls and activities are discussed.

ISSUE: Dependence of End Users on Agent's Credit: The fact that brick kilns are heavily dependent on agents for credit limits their ability to shop around for the lowest price coal. If the brick industry had access to short-term (seasonal) credit this should result in lower coal prices through increased competition among agents and in lower brick prices through reduced financing charges.

ACTION: In the medium term, the Government should consider developing a credit system for brickmakers along the lines of the innovative small scale loan operations developed with considerable success by the Agricultural Development Bank of Pakistan.

The most basic form of price control undertaken by coal agents is through cooperative pricing. Agents distributing coal in a demand region appear to set prices at mutually agreed on levels. There is little or no price competition from within the agent system: customer loyalty and preferences are retained not by favorable prices but through differences in the extension of credit and innovative discounts. When setting prices coal agents appear to acknowledge regional and seasonal variations in demand. In

the Sind, for example, coal prices have grown at significantly faster annual rates than in other regions; and the Sind is also experiencing large growth in the construction industry, which is the primary source of demand for bricks. Seasonal price variations at the mine-mouth are shown in Figure V-1 and reflect increased costs and seasonal imbalances between supply and demand for coal in an industry in which production occurs seasonally. But the financing needs of the users and their lack of collateral dictate the agents' financing charges.

There is little doubt that the financing activities of the coal agents provide tremendous incentives for producers and consumers, both of whom need credit, to accept the prices established by the agent system, as well as substantial (risk) justification for the agents mark-up of coal prices. Table V-4, for example, presents a hypothetical cash flow statement for an agent. The assumptions used in developing this cash flow statement are conservative. The agent purchases 8500 tonnes of coal over a 10 month period, 6000 tonnes of new coal and 2500 tonnes of inventory. The price paid for coal is Rs 440 and Rs 550 and the price received is Rs 570 and Rs 715, for old and new coal respectively. Coal purchased from inventory is paid for on the spot. The agent pays an advance of 50 percent of the purchase price for new coal and the remainder on delivery. The agent extends credit for 75 percent of the purchase price for sixty days and 25 percent for thirty days. The agent neither pays nor finances transportation costs. And, the agent finances all these activities out of retained earnings. Under these conditions the agent has a cumulative cash flow deficit of over a million rupees by the beginning of the fourth month. In the fifth month his monthly cash flow is finally positive. It is not until the end of the eighth month that the agent starts to accumulate revenue. Producers, on the other hand, have the majority of their production costs, risk, paid for up front. If the agent reneges on final purchase the mine owner still has the coal to sell. Brickmakers receive 30-90 day sales credits against production, thus, they have little or no risk. Only the agent has significant risk investment in the system.

TABLE V-4
HYPOTHETICAL COAL AGENT CASH FLOWS

		(Rs Thousands)											
MONTH		1	2	3	4	5	6	7	8	9	10	11	12
<u>Delivery Schedule</u>													
Tonnes		750	750	1000	1000	1000	1000	1000	1000	750	250		
<u>Revenues</u>													
	30 day	106.8	106.8	178.7	178.7	178.7	178.7	178.7	178.7	178.7	106.8	35.6	
	<u>60 day</u>		<u>320.6</u>	<u>320.6</u>	<u>536.2</u>	<u>536.2</u>	<u>536.2</u>	<u>536.2</u>	<u>536.2</u>	<u>536.2</u>	<u>536.2</u>	<u>320.6</u>	<u>106.8</u>
	0	106.8	425.4	499.3	714.9	714.9	714.9	714.9	714.9	643.	356.2	106.8	
<u>Costs</u>													
purchase	330	330.								330.	110.		
50% Advance		275.	275	275	275	275	275	275					
50% on delivery			275	275	275	275	275	275					
		(303)	(605)	(550)	(550)	(550)	(505)	(505)	(275)	(330)	(110)		
<u>Cash Flow</u>													
Monthly		(303)	(498.2)	(124.6)	(50.7)	164.9	164.9	164.9	439.9	384.9	533.0	356.2	106.8
Cumulative		(330)	(828.2)	(952.6)	(1003.3)	(838.4)	(673.5)	(508.6)	(68.7)	316.2	849.2	1205.4	1312.2

d. The Consumer

In Pakistan private coal purchasers, primarily brickmakers, have little effect on price. They have little recourse to alternative sellers and almost no recourse to alternative fuels. They do discriminate between coals based on source, age and perceived quality: facts which agents recognize in setting the price of different coals. Consumers do shop around but, more often than not, their final decision is based on the most favorable financial terms, on loyalty to specific suppliers, and on the extent of innovative financing and rebates.

In regard to the brick industry, it is misleading to view coal as a fuel which may be displaced by other fuels because the production technology is primitive, the average scale of production small, and the capability of producers to design and finance conversion to alternative fuels is minimal. It is, thus, not the price of alternative fuels which determines the price of coal for the industry, else they would have converted to fuel oil or natural gas long ago. Instead, coal might better be viewed as a "feedstock" used to produce bricks supplied to the high-growth construction industry. The alternative to bricks is scarce and high priced: cement - in a price controlled public industry. The increase in the price of coal is more strongly related to the demand (and price) for bricks, than to the price of other fuels.

The discussion above sets out the general conditions and factors by which coal prices are set in Pakistan. The pricing system is not, however, homogeneous. The coal agent system, for example, is not as prevalent in Sind, although there is some evidence that coal agents control the freight system. In other cases mine-owners have been bought back into the system: dealing directly with larger brickyards and providing transportation. The reverse is also true. In almost every case, however, minimal price competition occurs: instead, advantage is taken of prevailing prices in the marketplace to earn high returns.

The system outlined above functions well for producers, agents and transporters and for consumers. It can do so because consumers have no alternative, they do not have recourse to substitute fuels. In all likelihood the system functions to reduce competition.

Coal prices over the past three years are shown in Table V-5. Several trends are apparent. First, the price of coal is growing more rapidly than other fuels. Second, Quetta area coals are becoming increasingly non-competitive as transportation costs escalate. Finally, the price of Sind coal is rising as regional demand increases.

3. Price as a Competitive Factor

Sections V.A. 1 and 2 (above) set out current prices and pricing policies for fuels, for which coal is a possible substitute, and current coal prices for domestically produced coal. Under current conditions it is not clear that fuel prices play a major role in determining the demand for coal. Table V-6 sets out the comparative prices for high and low price coal and other fuels; it also shows a price comparison of these fuels against high and low priced coal. It is immediately apparent that on a price basis alone coal is currently competitive with wood, charcoal and kerosene, even at the upper price level. It is also competitive with fuel oil at low to moderate coal price levels. Thermal based or unit based price comparisons are potentially misleading, however. Consumer decisions are based on the delivered cost of specific services, thus would include capital investment, relative efficiencies and the like. It is clear that with present technologies coal is directly competitive only with wood and charcoal. Coal can be competitive with kerosene if coal utilization efficiencies are 40 percent or more of the utilization efficiency of kerosene.

The importance of price as a market factor in the future is an issue that needs to be addressed. Given current Government of Pakistan policies, with respect to the pricing of petroleum products and natural gas, it seems certain that consumer prices for natural gas

TABLE V-5

COAL PRICES
(Rs per tonne)

	Watson (1982)		PMDC (1983)		<u>Private</u>	E/DI (1984)	
	<u>Mine</u>	<u>Punjab</u>	<u>Mine</u>	<u>Ex-freight</u>		<u>PMDC</u>	<u>Delivered</u>
Baluchistan					550-775		880-1275
Sere Range	500	612-652	612	679	583	807	
Degari	350	502	498	577		790	
Sharigh	375	508	375	558		540	
Punjab					575-780	828	750-960
Makerwal	325	556-603	256	603	612		
Sind	150-250				150-380	259	270-600

Note: Current exchange rate (1/85): Rs15 = 1US\$

TABLE V-6

COMPARATIVE DELIVERED FUEL PRICES

	<u>Rs/10⁶ btu</u>	<u>Ratio of Coal Price to Price of Fuel X</u>	
		<u>Low Priced Coal</u>	<u>High Priced Coal</u>
Natural Gas			
residential	24.10	1.13	2.14
industrial	19.80 - 29.70	1.38 - 0.92	2.60 - 1.73
Petroleum			
kerosene	86.70	0.31	0.59
fuel oil	40.00	0.68	1.29
Wood	41.00 - 59.00	0.66 - 0.46	1.26 - 0.87
Charcoal	79.00 - 146.00	0.35 - 0.19	0.65 - 0.35
Coal			
domestic	27.27 - 51.51	1.00 - 0.53	1.89 - 1.00

Note: Low domestic coal @ 450 rupees/t,
high domestic coal @ 850 Rs/t. 1t = 16,500,000 btus.

and fuel oil will increase over the long run. Offsetting factors such as increases in supply (due to increased exploration and development for natural gas and the current global surplus in refining capacity and fuel oil supplies) may, however, dampen the rate of increase in natural gas and fuel oil prices. It does not seem likely, however, that consumer prices for wood and charcoal will decrease: particularly as Pakistan is facing a deforestation problem of some magnitude.

As outlined earlier, the actual cost structure of the existing coal production and marketing system is understood only in general terms and not in regards to actual costs and mark-ups. It is generally believed that mine-mouth prices at both public and private mines overstate costs plus a reasonable margin: for reasons of inefficiency in the public sector and hidden mark-ups in the private sector. More clearly documented are high transportation costs, often reaching 50 percent or more of the delivered price of coal. To these costs are added the costs and mark-ups of the coal dealer/agent which, given the current practice of pricing up to the level of publicly produced coal, are believed to reach up to Rs 200 per tonne. If these suppositions are correct, current prices probably overstate actual costs and reasonable margins by from 15 to 40 percent.

4. Pricing Strategy

If coal is to become an important energy resource for Pakistan, and if its use is to be economically based, then the system by which coal prices are set should be rational.

Direct government price supports and/or controls of coal prices might be counter-productive. Instead the strategy should seek to ensure that participants in the production and marketing of coal recover their costs plus a reasonable margin, that government controlled costs (such as in rail transport) are justifiable and as low as possible, and that anti-competitive practices are discouraged. The primary mode of achieving such ends is to ensure that

competition occurs. The following steps are suggested to achieve such control and competition:

- Rationalize the railcar allocation system or at least control trading in railcars on the stock exchange. Ensure that revenues accrue to the Railway corporation, not agents and producers. Ease rail transport bottlenecks through infrastructure improvements and through revisions in the system of railway priorities.
- Require public sector consumers to purchase coal on a competitive basis, not through closed subsidized contracts from public sector producers.
- Require public sector producers to sell coal on the open market at their long run marginal cost.
- Consider establishing local purchasing and distribution cooperatives, and allow bank financing of their working capital needs. (Consider restricting bank financing for working capital for coal agents.)
- Allow imports of coal to restricted markets on a test basis. For example, provide an opportunity for industry located along the coast and/or in, or close to, Karachi to substitute imported coal for fuel oil if economically justified.

B. THE IMPORTED COAL OPTION

Pakistan has been importing metallurgical coal for coke production for a number of years and in 1983-84 nearly one-half million tons were imported via Pakistan Steel's Bin Qasim ore handling facility near Karachi. However, suggestions that the import of steam coal be considered invariably meet with such a negative reaction that the economic merits have not received serious attention.

The international steam coal market is characterized by intense competition among producers in Australia, Canada, South Africa, Poland and the United States. It is generally accepted that long-term price trends for traded steam coal will remain closely related to costs of production. For instance, a 1984 World Bank report estimated that the export price of U.S. steam coal would increase at 0.3% per annum in real terms between 1985 and 1995. Thus, unlike the case of petroleum,

the economic risks associated with dependence on imported coal are relatively small.

The economic case for using imported coal as an alternative to imported furnace oil or domestic coal will depend on a number of factors. The imported coal vs. imported oil case will be heavily influenced by the delivered cost of the fuel, and hence the geographical location of the user, and by a comparative judgement on the risks of long-term price movements for each fuel. Coal-burning equipment tends to have somewhat higher initial capital requirements than does oil-burning. Thus, in a choice between imported coal and imported furnace oil, users in or near the Karachi area may find imported coal an attractive investment.

A choice between imported and domestic coal involves not only comparisons of delivered costs per MBtu, but also an analysis of the opportunity costs of capital employed in mine development, as well as of indirect gains to the economy resulting from employment, technology transfer and upgrading of skills. Thus, shadow wage rates and foreign exchange rates need to be considered. To date, such analyses have not been carried out for Pakistan, although the economic and financial feasibility analysis of the Lakhra project will address forms of these issues for the first time. In addition, a World Bank/CIDA (Canada) study is expected to examine the feasibility of coal-fired power generation in Karachi.

Certain individuals in the coal industry have expressed the view that if steam coal imports are started the effect on the domestic coal sector will be negative and possibly destructive. The argument seems to rest on the assumption that users, once exposed to a reliable supply of consistently higher quality coal, will prefer to remain with imported coal. There may be some merit to this, given the experience of some industrial users, and the fact that Polish and Chinese steam coal was even brought to central Punjab in the 1960s in order to improve the quality of boiler fuel.

The regulatory situation is such that no special licenses would be required to import coal today, although any private importer would probably have to make arrangements with Pakistan Steel to use its unloading and storage facilities.

ISSUE: The option of importing steam coal does not receive serious analysis and attention.

ACTION: Energy planners at the Federal and Sind government levels, as well as industrialists should take into account the alternative of using imported steam coal in projects where financial and economic analysis indicates that the net benefits to the economy would be positive. A discussion of the import option at the forthcoming National Coal Conference is essential.

C. DOMESTIC CREDIT

1. Domestic Credit Structure

Commercial lending policies and the availability of domestic credit for the mining sector in general, and the coal sector in particular, are subject to the overall financial policies of the Government of Pakistan. These policies cover the following areas:

- determining priorities for sector lending,
- providing for different rates of interest based on development priorities and other considerations,
- developing rural banking facilities, and,
- establishing guidelines and banking policies.

Among the principal institutions in respect to establishing credit policy and implementing credit instruments are the following:

CREDIT POLICY

The Federal Ministry of Finance

The State Bank of Pakistan

The National Consultative Council
The Industrial Promotion Board

CREDIT FACILITIES

The State Bank of Pakistan (SBP)
Pakistan Industrial Credit and Investment Corporation (PICIC)
The Industrial Development Bank of Pakistan (IDBP)
The Regional Development Finance Corporation (RDFC)
The National Development Finance Corporation (NDFC)
Agricultural Development Bank of Pakistan (ADBP)
National Investment Trust (NIT)
Investment Corporation of Pakistan (ICP)
Various Commercial Banks

The Federal Ministry of Finance lays down broad guidelines and the government economic strategy is translated into banking policies in consultation with the State Bank of Pakistan. The State Bank is the authority responsible for the control and supervision of the licensing, direction, inspection and exercise of the instruments for monetary control.

The National Credit Consultative Council (NCCC) is the key official body which determines the sectoral credit requirements in light of the Annual Development Plan. The Council develops a Credit Plan which sets overall limits on expansion and distribution of domestic credit by private and public sectors to ensure optimum utilization of bank credit in accordance with national priorities. The Credit Plan estimates the credit needs for the private sector by each economic sector. Moreover, credit targets are set for the Pakistani banks in respect to preferred sectors and fixed (mandatory) industrial investment.

While credit ceilings on overall lending are strictly enforced and non-compliance subject to penalty, the allocation of credit by economic group is essentially indicative. Minimum credit

allocations to priority sectors are, however, mandatory and failure to meet such targets results in the credit facility having to deposit an amount equal to the shortfall with the SBP. (Such deposits do not earn interest nor do they count towards the depositor's mandatory cash reserves or liquid assets.) Within overall credit ceilings are separate allocations for fixed industrial investment (allocations used to induce commercial credit facilities to provide term lending for industrial development).

2. The Availability of Domestic Credit

Domestic credit increased from Rs.19 billion to Rs.81 billion per year between 1974 and 1984. As shown in Table V-7, the preponderance of credit is allocated to the private sector, although the proportionality of credit has grown in favor of the public sector. In 1974, public credit allocations were approximately 11 percent of total credit. By 1983, public sector credits had grown to roughly 20 percent of total credit. In the Sixth Five Year Plan, estimated credit is Rs 305 billion, more than double that of the Fifth Plan.

Table V-8 compares actual credit advances in the mining sector and coal subsector to the Annual Development Plan (ADP) Allocations for the mining sector. Despite the fact that total credit allocations have grown at less than 8 percent/year (compound growth) over the past 10 years, credits to the mining sector have grown at a much lower rate. The potential credit outlays, the credit targets, exceed actual outlays by 150 to 300 percent in every recorded year. (Extensions of credit to the mining sector are not mandatory as with some other sectors.)

ADP credit allocations to the mining sector have grown by fits and starts over the ten year recorded period, from less than three percent of total annual credit allocations in 1973 to more than 7 percent in 1982. The utilization of credit has, however, fallen although no pattern is apparent. In 1982 the actual utilization of credit in the mining sector was less than 27 percent of the credit authorized. It is significant that in no year has credit for

TABLE V-7

OUTSTANDING BANK CREDIT
(billion Rs)

<u>Year</u>	<u>Total to all groups</u>	<u>Private</u>		<u>Public</u>	
			<u>%</u>		<u>%</u>
1974	19.90	17.50	0.88	2.40	0.12
1975	22.20	18.50	0.83	3.70	0.17
1976	25.50	20.70	0.81	4.80	0.19
1977	31.10	26.00	0.84	5.10	0.16
1978	34.30	29.20	0.85	5.10	0.15
1979	41.20	35.10	0.85	6.10	0.15
1980	47.70	40.60	0.85	7.10	0.15
1981	56.60	45.80	0.81	10.70	0.19
1982	65.60	54.50	0.83	11.00	0.17
1983	81.80	65.80	0.80	16.00	0.20

Source: Sixth Five Year Plan, Ministry of Planning and Development

TABLE V-8

ACTUAL - VS - PLANNED CREDIT
(million Rs)

<u>Year</u>	<u>Total ADP Credit Allocations</u>	<u>Credit Allocated To Mining</u>	<u>Advances to Mining Sector</u>	<u>Advances To Coal Sector</u>
1973	3870	113	66	11
1974	6415	315	166	7
1975	11371	630	225	14
1976	13144	751	254	13
1977	16239	429	283	30
1978	17150	587	224	47
1979	20485	664	274	19
1980	21500	835	530	14
1981	26663	1596	726	37
1982	29187	1891	509	
1983	32832	2244		
	31758	2315		

the coal sector exceeded 0.3 percent of total authorized national credit allocations. In the last year of record total cumulative, credit advances to the coal sector were less than Rs 38 million. It is clear that since the minerals sector benefits from only modest outlays under the Sixth Five Year Plan and the Annual Development Plans, the allocations for the private mineral sector (as received by the NCCC) are also insignificant.

One additional fact regarding credit is striking. Between 1973 and 1981, the number of bank advances for coal sector activities grew from 133 to 1623 transactions. Over the same period of time actual credit advances grew from Rs 10.6 to Rs 37 million: that is the average size of each transaction declined from roughly Rs 82,000 to roughly Rs 23,000. The value of each transaction, in real terms, considering both changes in the relative size of each transaction and inflationary effects, has declined by over 80 percent. One implication of this trend is that the private coal sector is using credit facilities to finance working capital needs, whereas in the past they used credit to finance both working capital and capital expansion needs.

3. Credit Policies and Programs

With the possible exception of the IDBP and RDFC, credit institutions in Pakistan do not have specific policies or procedures for lending to the coal sector; rather, they follow the policies applicable to industry in general. Before extending credit each institution will examine the books and the credit worthiness of the borrower. Among the aspects of concern are the following:

- feasibility analysis of the "project";
- reputation of the firm and officers;
- financial capabilities and status, including assets and liabilities relative to both the project and the firm;
- debt and equity structure, sources, and first call on assets;

- existing production and value of standing inventory and equipment;
- labor force and labor relations;
- cash flow, balance sheets and sources and uses of cash.

NDFC has provided loans to PMDC. MCB, which provides working capital loans up to RS 100,000 or up to 70 percent of the amount of the cost of coal shipped to market, has lent to coal agents. While PICIC is known to have sanctioned coal loans (for example, Rs 0.6 million in 1977 to the Mach Khan Coal Co. and Rs 2 million to Sardar M. Usman Jomezai & Co. Ltd.) these were ultimately withdrawn.

Despite concern expressed by the private sector over credit there is credit available, although it appears to be used primarily for (coal agents') working capital needs. In 1983, credit allocations to the minerals/mining sector were less than one half of one percent of total ADP credit targets.

While most credit institutions are positive in regard to their institutional policy in regard to coal sector loans, few make such loans and few have the experience and capabilities to evaluate mining projects. In addition, the apparent criteria and security against which such loans might be made are stringent. Credit may, thus, continue to favor working capital credit and the credit needs of public sector coal companies. As a consequence, the very real need for extensive credit to assist capital development in the coal mining industry and associated infrastructure, and particularly as regards private sector needs, cannot be met under current circumstances.

4. Recent Developments

Since the IEDC report and the publication of the Sixth Plan in 1983, there have been a number of significant developments with respect to financial institution's willingness and ability to lend to the private coal sector. To some extent these financial developments may have outpaced the ability of the private sector to make use of them. These developments may be summarized as follows:

a. The State Bank of Pakistan has set aside Rs. 25 million to be available for loans to the coal sector. Indications are that if this amount is used, more can be made available.

b. The Industrial Development Bank of Pakistan (IDBP) has created a "Coal Cell" and has hired a geologist for the express purpose of evaluating coal projects. The IDBP states that it does not see any obstacles in the current leasing system so far as using leases as collateral and is confident that any problems that might arise could be easily resolved. (To date, no mine owners have approached IDBP for financing.) This assessment of the acceptability of leases as collateral is disputed by at least one mine owner.

c. The Regional Development Finance Corp. RDFC has announced an innovative "outreach" coal project development/financing activity. The RDFC is a new (1983) lending institution limited by statute to underdeveloped areas of the country, defined as Baluchistan, NWFP, Azad Kashmir, FATA, Northern Areas and a few districts in Sind and Punjab (which exclude the coal-bearing areas). Its approach to lending in the mining sector was the result of recommendations by a private-public sector committee and of recognition by the Finance Ministry that new mechanisms were needed that took account of uncertainties connected with the early stages of mining projects. In order to promote the objective of building local entrepreneurship in less developed areas of the country, RDFC was given a mandate to undertake intensive promotional efforts, open branch offices in mining areas, hire mining engineers and geologists, and offer clients assistance in formulating financing proposals. RDFC is now setting up a consulting service which will help small/medium sized coal (and other mineral) companies develop mining projects. This will use outside consultants and in-house expertise. RDFC has also obtained certain modifications in the Baluchistan Government's leasing regulations that help clear the way for RDFC to be able to accept leases as loan collateral.

RDFC has stated its intention to set up local mining equipment depots where small and medium sized mine owners can hire or purchase equipment they may need.

Of particular interest are RDFC's prerequisites for consideration of mining credit applications and collateral/security requirements against which such loans might be made. These are outlined below.

Prerequisites:

- applicants should have a valid mining lease;
- applicants should have established recoverable reserves through appropriate investigations;
- applicants should have maintained, or their staff, an adequate number of technical staff for the management of mining/prospecting operations;
- applicants should produce acceptable evidence of sale price and production cost.

Security:

- mortgage/hypothecation of entire fixed assets including equipment, tools, etc;
- personal guarantees of directors (in the case of private companies only);
- assignment of mineral lease;
- other collateral securities and personal guarantees considered necessary.

It is not clear that such criteria will measurably improve the credit environment for the coal sector in the short term. For example, at the moment few companies have valid leases --although many have been producing coal for more than 10 years; and few companies have established coal reserves through "appropriate investigation and physical work". (Indeed the lack of credit for exploration, or at least the lack of exploration, is one of the principal problems facing private coal mines.) Additionally, the requirements for personal guarantees continue the past practice of

banks and are likely to discourage new interest by private mine owners in using the domestic banking system. Much will depend on the flexibility with which these criteria are applied.

ISSUE: There are no clearly established terms, conditions and criteria for the extension of capital credit to the coal sector. It is unclear whether, for example, RDFC's requirements are consistent with the capabilities of the coal sector and standard business practice in Pakistan.

ACTION: Criteria, conditions and security for the extension of credit should be consistent with normal business practice, risk and the development priorities of the government. Credit institutions should be provided assistance to develop appropriate credit criteria and security guidelines.

5. Experiences of Other Countries

Government inputs of capital and other facilities to encourage small private mining operations are not uncommon in developing as well as developed countries, even in countries where large mining operations are common. The success or failure of various systems of government financial support seems dependent more upon the style of implementation than on the extent and quality of loan guarantees.

In Argentina a Mining Development Fund has been established which is predominantly used to finance prospecting and exploration up to the conclusion of the pre-feasibility study. For a small mining company the Fund contributes the entire cost of an approved exploration program and in case the exploration fails, the Fund assumes 80% of the company's debt, leaving the company responsible for the balance. The Fund is financed by a 2-6 percent tax on imported minerals and mineral based chemicals. The National Development Bank of Argentina is authorized to grant a mining development credit, with mineral reserves being the prime guarantee. The Mining Promotion Law of Argentina of 1978, which embodies the above scheme for private mine owners, is an

effort to stimulate private mining investment in a country which otherwise has a predominantly agrarian economy.

In Brazil, the Companhia de Pesquisas de Recursos Minerals (CPRM) was set up in 1969 with one of the functions being "financial assistance to other companies for exploration and mine development". CPRM generally concentrates on financing of exploration rather than mine development. CPRM provides up to 80 percent of the cost of exploration if satisfactory evidence of mineralization and a well-conceived work program is presented. Exploration funds are provided with or without risk clauses. In the former case, there is no repayment if exploration results are negative but in the event of successful discovery, the loan amount is repaid with a risk premium ranging from 50 to 200 percent depending upon the profitability. Under a no-risk loan agreement, the loan carries 5 percent interest regardless of the outcome of exploration.

In Mexico, the Comision de Fomento Minero (CFM), created in 1939, acts as a promotion and financing body for small and medium sized mining firms, by taking minority equity, providing technical assistance and transportation facilities, renting equipment at a low rental and making cash advances against production.

In Chile, the Empresa Nacional de Minería (ENAMI) provides many promotional services and subsidies to small mine owners.

In some countries, state-owned mining companies, such as SOQUEM, in the province of Quebec in Canada and Etibank in Turkey, encourage exploration and mining activities in the private sector by taking equity in joint ventures. The contribution of parties is evaluated on a premium depending on the risk of the stage at which capital is injected.

ISSUE: Lack of Project Evaluation Expertise in the Banks:

The key banks that are likely to finance coal mine expansion and development need to acquire skills already possessed by banks in a

country with long traditions of lending to mining companies.

ACTION: One or more bilateral donors might set up a small high level program to second a few experienced bankers with mining sector experience to banks such as RDFC, IDBP, NDFC and PICIC.

D. FINANCING NEEDS OF COAL SECTOR

Reliable information on which to base an assessment of financing requirements for the coal sector is not available. The analysis which follows is based on anecdotal information and a limited number of interviews.

The actual financing requirements of the coal sector cannot be reliably determined. This is true for several reasons. First, with the possible exception of the Sixth Five Year Plan, there has been no statement of the coal production targets against which to measure increased mining and infrastructure needs. Second, as with the electric sector, the allocation of infrastructure development costs (which are co-requisite for large scale coal development) cannot be reliably determined. Third, the level of modernization necessary for mining in Pakistan is the subject of much debate: some arguing that full modernization (and, hence, extensive capitalization) is necessary while others argue that an intermediate level of labor intensive mining is more desirable. And, finally, and again because of the lack of geologic exploration, there has been no determination of the breakdown of mine by type, underground -vs- strip-mining, for example.

Despite the fact that it is not possible to specify the extent of financing needs within the coal sector, some general observations might serve to set bounds on these needs. At the upper end, for example, are estimates of the capital costs for developing mines using state-of-the-art mining technology. Several examples are set out

below. In these estimates capital costs range from \$60-\$130 per annual tonne with the SWEC estimate for Lakhra being the highest.

Capital expenditures for surface mining in the United States range are in excess of \$190 million for a mine designed to produce 2.5 million tonnes of high btu coal per year. (USDOE, 1981)

Capital expenditures for underground mining in the U.S. are in excess of \$120 million to produce 2 million tonnes per year of high btu coal. (USDOE, 1981)

Stone and Webster estimates capital costs to produce 1.3 million tonnes/year of Lakhra coal for the Jamshoro plant to be in excess of \$173 million. (SWEC, 1983)

In contrast with capital costs resulting from state-of-the-art mining are those estimates based on current or slight improvements in mining technology in Pakistan. For example, in conversations with local coal companies, estimates regarding development at Lakhra ranged from \$60 million for development of 1.4 million annual tonnes to \$44 million for development of 800,000 annual tonnes, or \$43-\$54 per annual tonne. All of this simply to suggest that the capital requirements for development of the mines alone will be extensive. The financial requirements estimated by Stone and Webster for Lakhra development are 20 percent greater than the ADP credit allocation to the entire mining sector in 1984 and are more than 50 percent of total credit allocations set out by the Sixth Five Year Plan for the mining sector between 1983-1988. Since the Sixth Five Year Plan targets increased production in the coal sector at twice current levels the need for capital for mine development, let alone for associated infrastructure, could exceed \$US250 million. The availability of financing for development of the coal sector is, thus, of great concern.

At present, as outlined in the Credit Section, commercial credit is used primarily for working capital loans. While some debt financing has been obligated by PICIC for capital development, such transactions have not been completed. As a

consequence it appears that the private sector underwrites capital development through retained earnings and cash flow.

In the public sector, capital development is underwritten through obligations of the government and through credit from public and commercial sources. Since the government is the backer, such credit is more easily obtained. Public mining operations are almost totally financed through debt. While they display a higher level of technology development and operations, it also appears that they operate at lower capital (economic) efficiencies than private mines.

Cash flow needs for the mining sector are underwritten in many ways. Commercial credits are available to, and used by coal agents and mine owners. These credits may account for 20-30 percent of cash flow requirements of the sector. The coal agents in turn provide purchase credits to consumers and cash advances to mine owners. Coal agent credits or cash advances provide the majority of remaining working capital required by the sector. Some of the larger mine owners and consumers subsidize the remaining working capital requirements through retained earnings.

No study of the working capital requirements for the coal sector has been made but they are believed to be large. If, for example, average system costs are 60 percent of the delivered price for reported sales then average monthly working capital requirements are on the order of Rs 100 million but may range from Rs 60-170 million given different levels of seasonal production. Total external working capital credit supplied to the coal sector in 1982 amounted to less than 40 percent of one average months working capital requirements.

E. ATTRACTING FOREIGN INVESTMENT

1. Introduction

Pakistan welcomes foreign participation in economic development.

Both public and private sector organizations are strongly attracted to projects with a large foreign component, although their reasons differ. Both view direct foreign exchange financing and participation of trained management and technically competent operations staff favorably. But from there paths diverge. It would appear that the private sector views foreign participation as risk insurance - against possible nationalization by government - and as an opportunity to secure favorable financing terms from the government - terms which are not generally available to Pakistani corporations. The public sector, on the other hand, views foreign participation as a means of attracting investment in industries which cannot be developed with local expertise alone, as a method of justifying funding by international assistance agencies for economically attractive projects, as a method of "forcing" the local private sector to comply with legal requirements, and, as a method of improving indigenous management and operating expertise.

Regardless of the rationale, as a general rule, both the public and private sectors favor foreign investment. And, in general, they are willing to negotiate for potential investment on a case by case basis and are very flexible with respect to the specific terms, conditions, criteria, and benefits for foreign investment in projects. The extent to which this attitude will affect foreign investment in coal mining and marketing activities, particularly private sector activities, is debatable, however. The discussion which follows examines various issues: attitudes, requirements, and incentives and disincentives that could affect private overseas investment in the coal sector.

2. Establishing Investment Priorities

Local and foreign private investments are channeled by the Government of Pakistan into priority sectors to achieve national economic objectives. The objectives and priorities are defined in the Investment Schedules which are part of Five Year Development Plans. These plans also set out capacity targets and credit allocations for each type of industry by year. Investments which

are particularly favored include those which: (a) bring new technology and skills; (b) train Pakistani technicians and managers; (c) manufacture products from indigenous raw materials; (d) develop and create employment in economically backward and/or priority areas; and (e) are export oriented or import substitution industries. Certain industrial undertakings are reserved for government organizations and/or parastatal corporations. Such organizations may also take positions in enterprises which are not reserved solely to the public sector.

Despite the fact that coal development and use might seem to satisfy many of the criteria for foreign investments, development of the coal sector has lagged because it has not been targeted for capital injection since the domestic private sector has had no difficulty in meeting demand levels that have been either static or growing at very low rates. As discussed in the section on Credit, the total investment target for mineral development by the Government of Pakistan is less than 1 percent of total planned investment. The actual credit allocation (according to the Annual Development Plan) is not fully used. Indeed, in the last recorded year, the mining industry used less than half its allocation and the coal sector used only Rs 37 million (or 2 percent of the total credit allocated to mining).

The historical lack of foreign interest in investing in coal production is certainly due to the perception that growth prospects were poor, given the absence of markets other than brickmaking. The emergence of power generation as a market that could lead to a quantum jump in demand has stimulated the first serious interest on the part of foreign companies in coal production.

Current discussion of the Lakhra Coal (mining and power development) Project revolves around the possibility of creating a joint public-foreign private sector Lakhra Mine Development Corporation to develop PMDC reserves. While the structure and financing of the project are still to be decided, the initial thinking

emphasizes substantial foreign investment and management with a strong government role in financing. This, however, would not necessarily imply a strengthening of the private coal sector in Pakistan. Indeed, it could strengthen public sector operations and weaken the local private sector if LMDC is majority public sector controlled.

3. Permission to Invest

The most important organization in Pakistan, from a prospective foreign investors viewpoint, is the Industrial Promotion Bureau of the Ministry of Industries. IPB permission is always required where: (a) foreign private investment for a project is required; (b) foreign exchange debt financing from an external financier is required; (c) an industry is wholly based on imported raw material or its entire plant and machinery are imported; and (d) a project is predicated on imported plant and machinery to be purchased on a pay-as-earn scheme. If the Investment Promotion Bureau has approved a project all further permits are formalities. Such permits vary but may include the following:

- approval by the Controller of Capital Issues to raise local and foreign share capital;
- approval by the Pakistan Industrial Credit and Investment Corporation or the Industrial Development Bank of Pakistan for sanctioned loans;
- approval by the Export Processing Zone Authority for permission to establish a project in the Export Processing Zone;
- approval by provincial governments for projects to be established in a province.

The IPB assumes primary responsibility for ensuring that sanctioned/approved projects have complied with all applicable criteria and conditions, regardless of the nature and location of the proposed project. All other permitting authorities, consequently, seek to ensure that IPB approval has been obtained prior to their review.

4. Safeguards for Foreign Investment

The Foreign Private Investment (Protection and Promotion) Act of 1976 and the Protection of Rights in Industrial Property Order of 1979 are the principal regulatory safeguards to foreign investment. These provide protection of the following types:

- complete repatriation of investments, loans, interest, corporate dividends, payments (for royalty, trade-marks, and technical fees), and the like for approved investment projects;
- coverage of remittances by locally employed foreign national staff;
- due recourse, arbitration recourse, and compensation standards for nationalization of wholly or partly owned foreign investment projects;
- protection for recovery of interest and principal for foreign source loans;
- tax and corporate structure protection, including consideration of double taxation of multi-national enterprise.

There are no restrictions on repatriation of capital, profits, debt, principal and interest, and payments for use of royalties, trade-marks and the like. It is generally desirable, however, to establish permission for repatriation and specific contingency provisions (for example, as regards repatriation of equity holdings on liquidation of investment or on disinvestment) during the course of investment negotiations with the Investment Promotion Board and the State Bank of Pakistan. Pakistan, however, has an exemplary record with respect to repatriation.

5. Investment Incentives

As stated previously, the Government of Pakistan strongly favors foreign investment. While there are general policies and specific incentives with regard to attracting foreign investment and promoting investment in specific priority industries, the activities of the Government are marked by flexibility. The Government of Pakistan is willing to negotiate

specific benefits and conditions for foreign investment based on the merits and needs of each case. The incentives outlined below are, thus, not the only benefits available.

- regional incentives: the Government of Pakistan provides 5-year total tax holidays and partial tax exemptions (up to 10 percent of capital) in specific target regions. Further, tax credits of up to 15 percent of the cost of machinery for modernization and balancing are available for industry and up to 30 percent for acquisition of share capital for a company which sets up an industrial undertaking in specific regions;
- exports: a tax rebate of up to 55 percent of the tax attributable to income from exports of goods manufactured in Pakistan;
- export processing zone: complete tax holiday for five years, 75 percent tax reduction for next five years, exemption from capital gains tax, infinite operating loss carry-forwards, and exemption of foreign technicians from income tax for five years.

Further, for the mineral and mining sector, there are a number of other incentives available. While most of these are to be negotiated before investment, and most are limited to projects completed before 1988, they include the following:

- for companies engaged in refining or concentrating minerals extracted in Pakistan, profits, up to 10 percent of capital employed, are exempt from tax;
- depletion allowances of up to 15 percent of total income or 50 percent of capital employed, whichever is less, if an equal amount is set aside for development and expansion;
- tax credits of up to 15 percent for specific types of machinery and up to 30 percent for investment in specific regions;
- exemption from or reduction of import duty for specific types of machinery and plant for projects undertaken in specific areas;
- operating loss carry forwards for up to six years and infinite unabsorbed depreciation carry forwards;

- taxes for companies engaged in mineral exploration and extraction are "0" for the first 5 years of commercial production and to 50 percent of the normal rates for income and super tax for the next five years;
- accelerated depreciation allowances.

6. Special Considerations for Foreign Investment in Coal Mining

As with incentives for investment, disincentives vary depending on the nature of the project. Tax, organizational and regulatory factors are examined in Appendix B, which outlines legislation and procedures relating to foreign investment in Pakistan. With the possible exception of tax rates and import duties there are no insurmountable issues. Particularly, as the Government of Pakistan has been extremely flexible in regard to offsetting or amending these specific disincentives based on the merits and needs of specific projects.

On the other hand, there are two areas that may require special attention on the part of potential foreign investors. These include: a) strained relations between the public and private sectors in Pakistan; and b) an unfamiliar and informal coal sector business environment.

Relations remain strained between some parastatal companies and the private coal sector. This is not so much because of government policy as it is a question of attitude within the civil service. Whether this situation is merited or not (and there is some truth to each side of the issue), the result has been that Governmental support for private sector development is weak, and for public sector development is strong. There are many examples of private foreign investment in public sector corporations in Pakistan and elsewhere in the developing world. There are many variations in financing and management by which such corporations are created. In almost all cases, however, they are difficult to implement as the government must cede management control or provide extraordinary incentives to attract foreign investment.

The differences between how the Pakistani private sector functions and how foreign corporations are allowed to operate may also provide disincentives foreign investment. Normal business practices and allowable interlocking of corporate relationships in Pakistan differ greatly from norms in other countries.

ISSUE: Equality of Treatment Between Oil and Coal Sectors.

It should be noted that the coal sector does not benefit from the same tax concessions enjoyed by the oil and gas industry. These include duty-free import of drilling rigs and related exploration equipment and income tax exemption for expatriate technical personnel.

ACTION: To stimulate investment in coal exploration and development, the Government should extend the concessions that apply to oil and gas exploration to the coal sector.

VI. COAL MINING, TRANSPORTATION AND INFRASTRUCTURE

A. MINING

1. Characterization of Current Practices

A combination of cheap labor and geologic conditions that do not lend themselves to mechanical coal cutting result in mining practices that use very little of the technology used in the developed countries. Nearly all coal in Pakistan is won by hand, bagged at the face in gunny sacks and then transported to the surface by manual labor, donkeys or electric/diesel driven hoists or trolleys, or a combination of these. In Baluchistan, where seam thicknesses of one foot with 50° dips are being worked, the opportunities for mechanization are quite limited. In Lakhra some mines use pneumatic drills on development headings. Some of the larger companies use electric cap lamps and have electric ventilation fans, but open flame lights are common as are "natural" ventilation systems.

In a number of areas basic support infrastructure such as electric power, water and communications are lacking. This in turn inhibits the use of even basic forms of mechanization.

Mining methods are primarily room and pillar with some short wall. Where the coal is liable to spontaneous combustion the method adopted minimizes the seam area exposed with only the most essential entries and gateways developed. In such conditions the openings in a coal seam are kept in service for the least possible time, and as soon as a panel reaches its limit it is depillared and the panel area sealed off.

2. Technology Requirements

Most mine owners are interested in a gradual increase in the level of mining mechanization. They are conscious of the need to avoid levels that current labor forces could not cope with, and of the need to keep coal prices from being pushed up by expensive mining methods. While specific requirements will vary extensively from mine to mine

and area to area, the following example, based on documentation provided by the Indus Coal Mines, illustrates the requirements of a mine that is already advanced in the Pakistan context, and that enjoys wide seams of 6 to 14 feet. There are numerous mines for which the level of mechanization now existing at Indus is still a goal to be achieved in the future.

Current Machinery in Service:

- a. Diesel-driven winches with one ton buckets.
- b. Manually operated rail trolleys.
- c. Exhaust fans.
- d. Compressors and pneumatic tools for development work.

Machinery Proposed to be Installed for Expanded Production:

- a. 200 KW diesel generating set (and related transformers, switchgear).
- b. Chain conveyor at coal face.
- c. Pneumatic tools for coal cutting with necessary compressors and related equipment.
- d. Rails, mining tubs and locomotive for underground transport.
- e. Belt conveyors for underground transport.
- f. Mine ventilation fans. Hydraulic roof supports for longwall faces.
- g. Winches with head gears and buckets of sufficient capacity.
- h. Tractors and trolleys for surface stacking of coal.

For the large coal mining companies access to information on technologies is somewhat easier than it is for the medium and smaller size companies. A large concern is likely to be aware of where the equipment it needs is manufactured, and could even send a manager abroad to select the right equipment. While this is not to say that large companies could not benefit from better access to data on mining technologies, the problem is much greater for the smaller companies. They do not know what is available, let alone who makes it. They

clearly need the support of some mining technology information and demonstration service.

ISSUE: All mine operators, but particularly medium and smaller companies, could benefit from being able to inspect and then lease or purchase mining equipment. The need for inspection arises from varying local conditions that may dictate different equipment needs.

ACTION: The Regional Development Finance Corporation has stated its intention to set up regional mining equipment depots that would appear to accomplish the above objectives. If this does not materialize, the new National Coal Authority might undertake the task of selecting one or two qualified individuals from each mining area who would first undertake an assessment of where the appropriate equipment was available on a new and used basis, and then recommend specific equipment procurements to local depots that would be established by the NCA to demonstrate, lease and sell coal mining equipment. Some initial seed money would be required, but over the medium term these depots should be self-financing.

3. A Coal Mining Equipment Industry

Pakistan already has the capability to fabricate a number of heavy industrial products. The SWEC report proposed that railway cars for Lakhra coal haulage be manufactured locally, in view of the fact that railway cars are already being made in the country. The Heavy Machinery Complex at Taxila produces industrial boilers and various products requiring iron and steel casting, rolling and stamping. There is every reason to assume that a large proportion of the machinery that will be needed in the early stages of mine mechanization can be produced locally, including large buckets and tubs, conveyors, trolleys, pneumatic tools, exhaust fans, pumps, etc.

As the coal industry of Pakistan is now poised to embark on a new stage of growth that will require progressive mechanization, the time is right for the Government and relevant industries to develop a concerted program of technology transfer and local manufacture. This

could involve a standardization of various classes of mining equipment, and where necessary, a series of joint ventures with foreign manufacturers in order to develop domestic manufacturing capabilities for an increasing proportion of the mining equipment that will be needed.

ISSUE: Pakistan should not miss the opportunity to build a local mining equipment manufacturing industry.

ACTION: As an extension of the task to develop coal R, D and D priorities, the Government, in consultation with industry, should develop a comprehensive program to transfer and indigenise the manufacture of mining technology.

B. COAL TRANSPORTATION AND INFRASTRUCTURE

It is an unfortunate characteristic of the coal economy that the sources of supply are located at considerable distances from the end users. Pakistan is by no means unique in this respect, but the problems arise from the lack of an efficient, developed rail transportation system which can move quantities of coal at reasonable prices. Inefficiencies, and hence higher costs, also arise in the road transport system.

1. Road

The standard truck used for intercity freight haulage is the 10 ton Bedford truck assembled in Pakistan. The following table shows the relative importance of truck transport of coal in each Province.

Province	% of National Production (Reported)	% of Coal by Truck	Average Distance Coal Moved (km)	Average Consumpt. of diesel ton(liter) liters/tonne
Baluchistan	49	60	500	23
Punjab	25	100	180	8
Sind	24	100	280	13

Source: E/DI Estimates (ms)

NWFP production is very small and is not shown

From Baluchistan the truck movement of coal is to Lahore, Rawalpindi and Peshawar with the addition that some Dukki coal also moves to D.G. Khan, and then to Punjab.

Truck transport is considerably more expensive as may be seen:

Unit Cost of Coal Transport

	Quetta/ Lahore	Quetta/ Rawalpindi
Railway (Rs./tonne)	Rs. 268	R. 308
Road (Rs./tonne)	425	525

The absence of paved or metalled roads in certain mining areas is

both a hindrance to the expansion of production and an added cost to the country because of reduced truck life expectancy and increased fuel use. The Sixth Plan identifies seven specific stretches of road in Punjab, Sind and Baluchistan that are to be upgraded to facilitate coal transport - a total of 253 kms. In Sind, the improvements include linking the Lakhra coal field with the Khanote railway station.

The typical 10 ton Pakistan truck is an inefficient size for coal haulage. Trucks with the capacity to haul 20 and 30 tons would reduce the cost of coal haulage both in labor and fuel/ton of coal moved. There are mine owners in Baluchistan and Punjab who are interested in acquiring the 30 ton articulated trucks. From the Government's point of view, there will have to be an assessment of the trade off between the higher efficiency but higher foreign exchange costs of imported trucks and the foreign exchange savings from remaining with the locally-assembled chassis and locally-built bodies of the Bedfords.

2. Rail

Forty percent of the coal leaving Baluchistan now goes by rail. However, this percentage has fallen over the years. In 1970-71 some 41,000 railway coal wagonloads left Baluchistan, while in 1984 the estimated number is around 17,000. This does represent a modest increase from 1982 and 1983, however, when the number dropped to around 13,500.

The rail transport of coal from Baluchistan is fraught with a number of operational problems:

i) The gradient through the Bolan Pass is such that with the current inventory of locomotives, trains must be broken up into units of 6-8 wagons on the Quetta-Sibi section.

ii) From the time of loading, trips take an average of 3 to 4 weeks to Lakhra and 5 to 6 weeks to Rawalpindi and Peshawar. Operational delays result from the relatively low handling priority

accorded to coal traffic, but also from informal arrangements between shippers and railway staff to detain loaded wagons in order to obtain free storage during periods of slack demand.

iii) Pakistan Railways applies a 'gradient' tariff penalty to coal that is hauled through the Bolan pass.

The solutions that have been proposed, but not yet implemented are to:

i) Use unit coal trains of up to 72 wagons that would be formed after the Bolan Pass.

ii) Limit the number of rail delivery points for Baluchistan coal to a maximum of 10 from the present number of nearly 100.

iii) Electrify and double the railway line, as well as improve the signalling system and purchase more diesel/electric locomotives with dynamic braking systems.

iv) Eliminate the tariff penalty for the gradient of the Bolan Pass.

ISSUE: Unless the delivered cost of Baluchistan coal to the Punjab can be reduced, this already high cost coal may be driven out of Punjab markets by coal coming from closer Baluchistan mines at Dukki and from Sind. There is evidence that this is happening already as Dukki and Sind coal is beginning to displace Quetta area coal.

ACTION: There are some short-term operational measures that PRR can take to alleviate the situation. The real solutions will require major investments in railway infrastructure. The Sixth Plan calls for the electrification of the Bolan Pass section for various uses, which would do much to eliminate the bottleneck and enable the railways to capture a higher percentage of coal traffic.

3. Barge

There has been occasional talk of using the Indus to transport coal by barge. At present there is some river traffic in agricultural commodities below the Sukkur Barrage. Between Sukkur and Kalabagh, according to an earlier WAPDA report, the Indus has a 4 ft minimum depth year round. However, there are three barrages in this stretch which would limit traffic. As most of the Baluchistan coal movement is from West to East, and the Indus flows North to South, river transport is not likely to offer much advantage, except perhaps in helping Sind coal to reach Southern Punjab. The economics of hauling it around the barrages or building by-pass canals would have to be studied, and the overall economics would of course be heavily affected by the availability of backhaul cargoes.

4. Manpower

a. Skilled and Semi-Skilled Workers

The system of contract labor and work gangs was described in Chapter III. This system does not lend itself to safe and efficient mine operation because typically, the jamadars, jorisars and maids (labor contractors) have no specific training in mine safety and are not licensed or certified by Provincial authorities in these matters. The only underground supervisory position that is subject to examination and licensing is that of the Sirdars. The great majority of workers are migratory, coming from Swat, Azad Kashmir and Kohat. Their common characteristic is that they will work hard under trying conditions in return for relatively high pay. Many of these workers are available only during the winter, however, when they cannot pursue their principal vocation - farming. Typically, underground workers are paid based on output, while surface (maintenance and supervisory) workers receive a fixed salary and are directly employed by the mine.

ISSUE: An expanding coal industry is going to need more miners and it will need a labor force capable of sustaining constant output year round. Improving conditions and the equity of the systems will

make it easier to attract labor. The level of mechanization will affect the growth in labor demand to an unknown degree at this point.

ACTION: Provincial governments will have to take action to improve housing and related facilities at mines, whether by setting standards or in some cases, undertaking some improvements themselves. These could be financed from coal royalty payments. Reforms in the labor contractor systems to eliminate abuses have been under consideration for some time. If the underground gang bosses were required to be licensed and to pass examinations in mine safety, there would be a heightened safety consciousness underground. A school to train skilled workers should be set up.

b. Middle Line Supervisors and Engineer/Managers

A recent study (Sultan, 1983) estimated that for the entire mineral mining sector only 10 percent of engineer/manager needs and only 40 percent of trained middle-line supervisory needs were currently filled. (A separate assessment for coal has not been made.) Five of the universities award post graduate degrees in geology and related subjects, and there are three departments of mining engineering (Peshawar, Mehran and Punjab) capable of graduating a maximum of 75 persons in total each year.

ISSUE: With the various mineral projects planned, it has been estimated that the mining sector as a whole will need the following additions during the Sixth Plan period:

Geologists 184, Mining Engineers 276, Drillers and Other Engineering and Technical Staff 165, Para-engineering staff 2390, Para-geological 150, Unskilled Workers 5730.

ACTION: New training courses should be established for mine surveyors, sirdars and jorisars, mechanics, photogrammatists, etc. Incentives and pay need to be adequate to retain skilled staff. Geo-scientific manpower should be made a specific responsibility of

the Ministry of Petroleum and National Resources in co-ordination with the Manpower Division.

5. Wood Supply

The timber used for pit props comes from Sind and Punjab. One estimate indicates that the production of 1 ton of coal from a seam up to 1 m. thick requires props and planks amounting to 30 board feet. Thick coal seams require around 15 feet of timber per ton of coal produced. Thus, two to three acacia trees would be needed for each ton of coal. While a certain amount of timber is reusable, the expansion of the coal sector should not be working against the efforts to slow down, and eventually reverse, the current deforestation trend. Current price trends for pit prop timber are steadily rising, which suggests decreasing availability.

ISSUE: Pakistan will have to gradually move away from a dependence on naturally grown domestic timber for mine use. The alternatives include importing or specially growing timber, importing rigid and hydraulic steel props, or manufacturing steel props from locally-made steel.

ACTION: This question should be the subject of a separate study, and could be undertaken under the auspices of the Mineral Co-ordination Board.

6. Quality Control and Reliability of Supply

As a general rule, the coal industry has no established habit or even ability to supply coal of a consistent quality on a regular basis to users. The private sector is worse in this regard than PMDC and PUNJMIN, which are regarded by the market as supplying consistently higher quality coal than the private sector. The market, in this case, being seen in the price differential given to public sector coal. Within the private sector the problem is greater with the medium and smaller firms than with the larger companies.

An illustration of the problem may be seen in the experience of one company that switched from coal to Sui gas in 1966. The I.C.I. Pakistan Soda Ash Plant at Khwera (Jhellum District, Punjab) was using 85-90 tons of coal per day. (Since then its energy requirements have trebled.) ICI used coal in boilers and calciners. Coal came from ten suppliers of which only 3-4 had low ash (18 percent) coal. Ash content from the others varied up to 30 percent. ICI would pay for coal on the basis of carbon/ash content, which they would analyze. The supply was always uncertain and they tried to maintain a 6 week stock. At times this was not possible, and there were occasions of the plant shutting down for periods during the rainy season when lack of demand from the brick kilns caused coal supply to dry up.

Technical problems as a result of poor coal quality included frequent breakage of linkages in the chain grate stokers, unsteady steam pressure resulting from varying coal quality in the boiler, and heavy deposit of ash in the flue channel leading to backpressure. To maintain a certain level of coal quality, ICI blended in imported Polish and Chinese coal brought by train from Karachi!

This one case is illustrative of the general lack of sophistication that will have to be overcome if coal use in industry is to increase.

7. Infrastructure (Roads, Water and Power)

As often happens, coal deposits along with other minerals, are rarely found near developed areas of a country. The Baluchistan coal fields are located in extremely hostile territory, although Lakhra is at least not too distant from established towns. Without access roads, water and power, mines cannot be properly developed.

ISSUE: Private mine owners are continually raising the issue of absent or inadequate infrastructures, often with the expectation that it should be provided without charge. The issue is a difficult one to

resolve because of the intense competition for infrastructure improvements from all sectors of the economy.

ACTION: The coal (and the rest of the mining) sector is capable of contributing to the cost of infrastructure and there does not seem to be justification for de facto subsidies where the improvements are solely for the use of coal companies. Provincial governments should set aside a portion of their royalty receipts to devote to infrastructure improvements that will help the growth of coal (and other mining) industries. However, there are areas such as upgrading the railroads, where the payback on infrastructure improvements is very long and the Government will have to make the initial investments.

VII CONTRACTUAL ISSUES

Coal supply contracts have many purposes. The most basic of those is to set out the elements which define a sales/purchase agreement including term, price, schedule, quality and the like. Another, is to define the roles and responsibilities of each of the participants in the contract. Still another purpose is to define arbitration, rights of recourse and penalties should any of the basic conditions be violated.

There are several different types of contract normally used by the coal industry. In countries in which coal is a commodity bulk, consumers generally enter into more than one contract and more than one type of contract. This provides them with an opportunity to control inventory and specifically to keep inventories at low levels without greatly increased risk. It also allows bulk consumers to take advantage of price decreases, without exposing themselves unnecessarily to price increases. The most important purpose of multiple contracts is to reduce risk: risk that quality or supply from one supplier will fail or that market demand will drive prices, and thus production costs, up.

To our knowledge coal supply contracts are not normally used in Pakistan. Given that near-term growth in coal demand will probably result from new bulk users in the power sector and cement industries and that these will require the type of security available from well defined coal supply contracts, it would behoove the industry to develop a familiarity with, and standards for, these instruments. (The most common forms of coal supply contracts are outlined in Section A. The common elements of all of these contracts are defined in Section B.)

Specifically, as regards Pakistan, it will be necessary for both producers and purchasers to be assured of stability in long-term markets. In the case of Lakhra, for example, WAPDA would need to be assured that producers, whether public or private sector, have the

resources and technical and management skills necessary to provide the requisite volume and quality of coal.

In other countries an evaluation of these factors is normally external to a contract itself. Because of the coal production and supply situation in Pakistan, however, it may be that WAPDA would need more formal confirmation. If such is the case, it might be desirable to incorporate non-traditional elements into supply contracts. These elements (additional to those outlined in Section VII.b) might include the following:

- stipulations that the producer show proven reserves equal to x percent of lifetime supply or, alternatively, conduct an active exploration program sufficient to prove incremental reserves;
- stipulations regarding the development of annual mining plans;
- stipulations regarding the source and qualifications of line and staff management at the mine;
- stipulations regarding production capacity in excess of contract requirements; and,
- highly specific definitions in respect to violations of terms.

Producers on the other hand might need equally deep protection. Several have noted, in regard to Lakhra/Jamshoro, that they suspect the initial plant may be operated in a peaking capacity and, thus, would be unwilling to enter into a contract without absolute take-or-pay provisions. Further, if foreign participants are to be brought into production through some form of equity/management, joint-venture provisions will need to be made in regards to currency repatriation, accounting for inflation/deflation and the like.

A. TYPES OF COAL SUPPLY CONTRACTS

1. Spot Purchase Contracts

These contracts provide for the purchase of small quantities of coal delivered (generally in one shipment) in less than 90 days from the date of the contract.

The advantages and disadvantages of this type of contract are as follows. The price is fixed at a determined level. If the market is oversupplied then the price is almost always lower than for other types of contracts; if the market is undersupplied then the price is almost always higher. This type of purchasing arrangement allows users to control their inventory, almost always allowing them to reduce inventories to levels below what might be necessary if they only had long-term types of contracts. Similarly, it allows producers to get rid of excess inventory and, thus, diminish inventory holding costs. On the other hand, the costs to utilities might be large: utilities would be required to have active purchasing departments and quality control is generally a problem.

2. Evergreen Contracts

Evergreen contracts are long-term agreements on quantity, quality and price. Any or all of these are negotiated on a yearly basis and the contract is cancellable if mutual agreement is not reached. Generally, price is the major negotiable factor. Such contracts cannot be considered long-term commitments even though they potentially involve large volumes of coal over a long time frame.

These types of contracts require active utility purchasing staffs. They must conduct active pre-contract investigations regarding potential production levels, the security of production, quality and potential price shifts within the industry. There is only nominal protection for both the buyer and seller during inflationary/deflationary periods. On the other hand, price is fixed for a year and the price and price changes generally lag behind price shifts in current long-term contracts.

3. Base Contracts

Such contracts are long-term agreements on quality, quantity and price. Prices and price escalation factors are established within the contract as are delivery schedules, volumes, quality and adjustments. (This is the general type of contract reviewed in the Elements of Coal Supply Contracts, below.) Such contracts may contain provisions for sharing productivity improvements and declines.

The benefits of such contracts are that they provide the purchaser with an assured quantity of coal, at an assured quality and assured or calculable price over a sustained period. Similarly, such contracts allow producers better control over production and capital development through sustained cash flow and reliability of demand.

On the other hand, such contracts require that purchasers are assured that producers can fulfill their commitments, in all regards, and sellers must be assured that purchasers will, in fact, follow through on their commitments. Because such contracts are committal and long term, all parties must be diligent in reviewing capabilities, intent, terms and protection.

4. Cost-Plus and Captive Mining Contracts

Many of the elements of these types of contracts are similar. In captive mining contracts the utility holds rights to the production area and "contracts" to a mining company for production. In cost-plus contracts they do not hold rights to the production area, nor do they "manage" the mining operation. The most basic benefits of such types of contract are that they provide for an assured quantity and quality of coal over a sustained period of time, and that the price of coal supplied is almost always below the price of coal for any of the other forms of contract (except spot market contracts in an over-supply situation). In effect, the purchaser strips the profit mark-up from the producers price.

The principle drawback of such contracts is that they place utilities in an active management and/or oversight position in the

mining operation. In captive mining operations the purchaser must carry out all due diligence requirements to assure themselves that coal can be supplied from their area at a lower cost than purchases from private producers, and that production (in volume and quality) can be sustained. They must then actively manage the production company in terms of operations and investment to ensure that mining operations are being run cost-effectively and efficiently and that these conditions can be sustained.

In cost-plus contracts purchasers must also verify quantity, quality and economic recoverability but then must actively monitor the production and cost conditions of the producer. The purchaser would allow a fixed profit based on percent of operating cost, amount per ton, percent of capital cost, or some other index. The purchaser is, thus, directly interested in assuring that the determinants of cost are tightly controlled and, would also seek to control these factors.

5. Take or Pay

In regards to coal, "take or pay" does not refer to a separate type of contract but, rather, to elements or provisions within contracts of different types. In general, the supplier seeks to confirm the agreement to supply a variable volume and quality of coal at a fixed price by requiring that the purchaser pay, even though the purchaser would like relief or variation. Such provisions are more common in natural gas or petroleum contracts in which the purchaser agrees to lift "as much" supply as can be delivered. The producer invests in and gears up production to meet some "higher" level of supply than he would under a fixed quantity contract and seeks to assure that the market, or at least cost coverage, will be there when production starts.

B. ELEMENTS OF COAL SUPPLY CONTRACTS

1. Definitions

Contracts attempt to be precise in defining actors, relationships and context. In this type of contract definitions would include the

actors (purchasers, contractors, transporters and other involved parties, such as analytic laboratories and arbitrators), technical terminology (f.o.b., free-on-board), units (tonnes, metric tonnes equal 2200 pounds), and formulae. In most contracts such elements are defined as they occur, with the initial section of the contract always defining the principal actors. For example, "this agreement...by and between the Water and Power Development Authority (hereinafter called "WAPDA") and the Lakhra Mine Development Corporation (hereinafter call the "Contractor").

2. Roles

The contract would then go on to define the roles and responsibilities of each of the actors and additional participants, as necessary. The initial element would be a simple definition of the intent of the contract: "Contractor shall produce, or arrange to have produced, and sell coal to WAPDA, and WAPDA shall purchase said coal from contractor as provided herein." All of the following elements are an attempt to define context, responsibility and conditionality.

3. Term of the Contract

The date the contract starts and ends. The duration of the contract. Options for renewal and definitions of how they are to be exercised: advance notice, who gives it, how much lead time, conditionality and acceptance, procedures to be followed in closing the contract.

4. Source (of Coal Provided)

The contracts reviewed varied in their treatment of "sources" of coal. The treatment seemed to depend on the nature of the contract (fixed term and supply versus spot supply), the precision of quality, and other objectives (for example, contracts to purchase coal by government agencies were very specific as to sources). Some contracts defined sources to the level of specific mines.

In Pakistan, the source of coal supply may be an important element of the supply contract, simply because the quality of coal

produced is highly specific to the mine and region in which it is produced; and some say it is also highly related to the seam from which it is taken. In the absence of coal cleaning and beneficiation facilities, coal quality for large industrial and power users is a most important and largely uncontrollable factor. Every effort must be made to ensure that the quality of coal provided meets the standards of consumers, and this may involve specification of the source of coal in great detail.

5. Scheduling

The contracts reviewed were, without exception, extremely precise as regards delivery schedules, delivery volumes and responsibility for transport. These elements and others are outlined below:

a) Transport -- in some contracts the issuer reserved the right to specify reasonable limitations on the type and size of transport equipment, the method of transportation, the exact routing, the use of specific instruments (bills) of lading, upper and lower bounds on the volume (or weight) transported by carrier type, and the type of loading/unloading equipment: even though the contractor was responsible for implementing delivery.

b) Scheduling -- the contracts set out base delivery schedules, for example: source; base weekly schedule in tonnes from source and f.o.b. point. Beyond that each contract set out terms and conditions under which schedules may be altered. Some of the conditional elements are as follows:

- notification requirements for increases/decreases in scheduled deliveries;
- limits on the amount (volume) of change in scheduled deliveries which may be made at one time;
- upper and lower limits on the amount which may be delivered during specific periods;
- limits on the total amount by which all variations may vary scheduled deliveries.

c) Rights and responsibilities for transportation and scheduling; penalties for deficiency/oversufficiency and the form of damage and collection; cancellation, variation, delays, interruptions, liability and rights of refusal; and, supervening clauses.

6. Quality

Again, all the contracts reviewed were highly specific as regards coal quality. The major elements of these as regards quality are outlined below:

a) The quality specifications outlined generally included those shown below;

QUALITY SPECIFICATIONS

<u>Criteria</u>	<u>Source 1</u>	<u>Source 2</u>
i) total moisture, not more than		
ii) ash (dry basis), not more than		
iii) sulfur, as received		
iv) delivered heat content, btu/lb, as received		
v) ash softening temperature on a reducing basis (Hemispherical Temp. H=1/2W), not less than		
vi) volatile matter, dry basis, not less than		
vii) grindability, Hardgrave index, not less than		

Further, in regard to size, most specified maximum sizes (for example, top size not to exceed___) and ranges (at least 85 percent of the product larger than 28 mesh). Other criteria include references to temperature (not to exceed 120 degrees f.) and to impurities (not to include bone, slate, earth, rock, pyrite, wood, water, washer tailings -- slurry pond material, mine refuse, petroleum coke, oxidized coal, or blends of all and other such materials).

Most, but not all, of the contracts also defined the formulae and procedures to be used to evaluate quality. Further, some of the contracts incorporated conditionality statements within the quality criteria. For example, "average qualities over any period are not acceptable".

b) Sampling and analysis. The contracts were specific as to sampling and analytic procedures. Each contract set out: i) sampling locations; ii) frequency and variation at which samples may be taken; iii) the amount of sample, and variations in the amount, by period (weekly, quarterly, etc.); and by source (of coal) and carrier (rail and truck). For example, "for each quarter samples shall be taken from 10 percent or more of the tonnage delivered...when sampling during the unloading of a car a minimum of four increments, from two or more levels, shall be taken or an aggregate sample of 40 or more pounds or more shall be accumulated gradually during the unloading period...when coal is sampled from a truck, generally the sample is collected from a full stream cut...samples may include increments in excess of the minimums listed above, but from not more than 10,000 tonnes of coal."

In most of the contracts reviewed, the buyer/issuer reserved rights of analysis; "Samples shall be analyzed by ____, or by its designated representative, in accordance with the Standards of the American Society for Testing and Materials, U.S. Bureau of Mines, or methods acceptable by the coal industry." In a few cases the source and methods of analysis were defined through negotiated agreement, and were not reserved unto the buyer.

c) Affect of quality on price. All of the contracts provided for adjustment of price based on a decrease in quality of the coal supplied; some provided for adjustments based on an increase in quality above the specified minima. In almost all cases the methods of price adjustment were based on indexing to the specified quality minima and base price, as follows:

<u>Assumptions</u>	<u>Actual Quarterly Value</u>	<u>Contractual Base Minima</u>
btu/lb	11,900	11,500
moisture	12%	10%
ash	13.5%	12%
sulfur	1.9%	1%
base price/ton		\$20
tonnes delivered	100,000	
i) quality adjustment for btus delivered		
	(\$20.00/tonne x 11,900 btu/lb)/11,500 btu/lb = \$20.70	
ii) minus adjustment for ash content		
	\$0.26 x (12.0-13.5) = (\$ 0.39)	
iii) adjusted cost per tonne		= \$20.31
iv) less delivered cost per tonne		(\$20.00)
v) adjustment per tonne		\$ 0.31
vi) tonnes delivered		x100,000
vii) adjustment due contract		\$31,000

(note: the contract spells out the adjustment indices for each element of quality based on agreed on formulae.)

d) The contract then sets out definitions of violation of quality criteria, how often they occur, how large they may be, penalties, default, procedures for price adjustment -vs- violations that would cause the contractor to be in default, rights of refusal, arbitration procedures, rights of recourse and the like.

7. Price

Price is defined on a currency per unit (\$/tonne) basis. If there are multiple sources of supply the contract may specify prices and price adjustment for coal from each source. (As they may for quality, delivery schedules, and other terms.)

The contracts reviewed were of three types (between U.S. producers and U.S. consumers, between overseas producers and U.S. consumers, and between U.S. producers and public sector consumers) and each set of contracts established price adjustments and price adjustment contingency clauses based on different concerns. By and large the first two sets of contracts specified a fixed price with escalators. The escalators were pegged to various measurements, for example, to the wholesale price index, to the overall nominal

inflation rate, and to the equivalency price of fuel oil. In most cases minimum and maximum price adjustments per period were specified. Only in the case of short term contracts were absolute price adjustments established.

Pricing adjustments in the case of government purchasers, however, differed from the pattern set out above. In these cases the base price was indexed to the components of cost which established the base price (wages, overhead and fringe, workers compensation, payroll taxes, health and welfare costs, administrative costs, materials and supplies, transportation by mode, and the like). Adjustments to the base price were then allowed, based on changes to the individual indexes, as below:

PRICE ADJUSTMENTS FOR TRUCK TRANSPORTATION

i)	base rate is	$\$3.33 \times .75 = \2.50	
ii)	index values (a) base period		
	producer price index all commodities		262.0
	consumer price index all items		239.6
	weighted average index value	=	250.8
iii)	index value for period of adjustment		
	producer price index all commodities		265.4
	consumer price index all items		243.6
	weighted average index value	=	254.5
iv)	middle distillates index value, base period		740.4
	middle distillates index value for adjustment		761.0
v)	75% of base rate adjustment		
	$.75 \times \$2.5 = \1.875		
	$\$1.875 \times (254.5/250.8)$	=	\$1.903
vi)	25% of base rate adjustment		
	$.25 \times \$2.5 = \0.625		
	$\$0.625 \times (761.0/740.4)$	=	\$0.642
vii)	revised rate	=	\$2.545
viii)	base rate	=	(\$2.500)
ix)	adjustment per tonne	=	\$0.045

In all cases the parties involved in the transactions required a series of representations, certifications and guarantees. In the case of government purchasers, the required documentation extended to all facets of their operation which would affect pricing, quality and delivery. The purchasers, had in effect, audit recourse to the suppliers books.

8. Recourse Provisions

In most of the contracts reviewed recourse provisions were outlined in the element being discussed (for example, as regards arbitration of quality issues). Additionally, most of the contracts set out general recourse provisions which included the following:

- a) internal administrative review;
- b) external arbitration;
- c) rights and contingencies via legal recourse.

In general the purchasing groups assumed uni-lateral rights to measure quality, establish price adjustments, make and revise to delivery schedules and the like. The supplier, the contractor, was reactive to the activities and notices of the purchasers. Thus, either party could initiate arbitration given appropriate circumstances. The recourse clauses, by and large, set out procedures, guarantees, schedules and the like under which the recourse provisions would be pursued.

9. Contracts in the Context of Pakistan

The situation that may exist in Pakistan is radically different than the circumstances under which the contracts reviewed were developed, most importantly, in terms of the experience and sophistication of the potential participants. At the same time, it is unlikely that the lawyers who drew up the contracts reviewed would be sufficiently knowledgeable of the circumstances' under which (large volumes of) coal would be supplied in Pakistan to do justice to balancing the needs of the various interested parties; and, at the same time, integrating considerations of all of the possible

contingencies to be considered. I would, for example, doubt that a "coal" attorney in the U.S. would be sufficiently knowledgeable of the problems with transport, quality and price in Pakistan to do justice to the needs of protecting the parties involved. If Coal Supply Contract are a major concern as regards Lakhra or SCCP, then the time is ripe to bring together some legal experts from the U.S. and Pakistan, as well as the major potential suppliers and purchasers, to start defining the issues that must be resolved and/or represented in coal supply contracts.

Further, as the number of parties to any contract increases the complexity and uncertainty of the contracts, provisions also increases. While it's often desirable to cut clean and concise contracts, this will probably not be possible in Pakistan, particularly if the parties involved are the government (the purchasers) on one side and private producers (the suppliers) on the other. There is sufficient distrust between these parties to make the "perceived necessity" of absolute guarantees, rights of recourse, independent arbitration, and cross-checking extremely complex, or potentially so.

Further, if the terms of the contract are dependent on third-party arrangements (as might be the case if coal is to be shipped by the rail corporation) then control of the supply/purchase arrangement (which is, as much as anything else, the primary purpose of a coal supply contract) slips away from the parties most directly involved.

The contracts reviewed placed stress on schedule, quality, price and the roles and responsibilities of each of the parties involved. It should be clear that, in the context of potential large scale coal supply contracts in Pakistan, such factors are implicated in the poor record of development in the coal sector. If the situation is to improve and coal is to become an important fuel in the power and industrial sectors, methods must be found to ensure that such factors

can be corrected and the risk of entering long term coal purchasing relationships diminished.

Additionally, it would appear that a reasonable arbitration and recourse infrastructure does not exist in Pakistan. One of the problems mentioned is the lack of coal analysis laboratories other than PCSIR. As a public sector entity it could be unlikely that private sector firms would accept PCSIR as the sole final arbiter of delivered coal quality.

ISSUE: Coal supply contracts are not normal in the current coal industry. The provisions of coal supply contracts including coal quality, delivery schedules, and price and price adjustments are exactly a common concern of potential long-term bulk purchasers such as WAPDA and SCCP.

ACTION: The Government of Pakistan should initiate work to develop standards, criteria, form and content for coal contracts. This should be carried out by a working group of lawyers familiar with coal contracts and the legal and business environment in Pakistan. Some foreign technical assistance may be useful.

ISSUE: Coal supply contracts are of little use if (both) producer and purchaser lack staff with the skills and experience to monitor and assure that the contractual elements are met and/or independent and unbiased arbiters are not available (for example, independent quality analysis laboratories).

ACTION: Seminars should be initiated for both the public and private sectors to teach quality control practices and standards in mining. These should be tailored specifically, at least initially, to the situation at Lakhra.

VIII THE CASE OF LAKHRA

A. BACKGROUND

As discussed above, the key to the future of coal development in Pakistan is to create major new users of coal whose characteristics are clear in advance to potential coal suppliers. Prominent among such users is the planned Lakhra coal mine and Jamshoro power generation project. This single project, whose characteristics are summarized in Table VIII-1 will increase national coal demand by roughly 50 percent.

Lakhra has been under consideration as a site for coal based power generation since the early 1960's. In 1978, the Government of Pakistan asked the Japan International Cooperation Agency (JICA) and the International Trade Institute to examine the economic, technical and financial feasibility of a Lakhra-based power plant. The results of that study (JICA, 1981), and a subsequent study by Stone and Webster Engineering, provided sufficient justification to the Government and to USAID for the latter to finance a series of feasibility studies for the project (USAID, 1984).

The coal mine feasibility study is being carried out by John T. Boyd Company and includes supervision of an exploratory drilling program that may include a total of about 50 holes. The report, which will establish the feasibility and costs of surface and underground mining in the PMDC lease areas, is expected to be completed by August 1985. Thus far, it appears that priority will be given to developing a mining plan for surface mining of the western areas of the 52 square km of the PMDC lease area.

The power plant feasibility study is being carried out by Gilbert/Commonwealth International and is also scheduled for completion in August 1985. Critical activities will include: (1) washability testing; (2) combustion testing; (3) identification and evaluation of at least one working boiler which uses coal as similar

to Lakhra coal as possible; (4) an assessment of optional power plant sites; and, (5) an analysis of the economically optimum succession of additional power generation projects to the WAPDA system.

There are also studies being carried out on social soundness, environmental assessment and economic and financial feasibility.

B. PRIVATE SECTOR INVOLVEMENT

In June of 1983, USAID and WAPDA issued a worldwide request for expressions of interest by private firms to participate in the supply of coal to the Lakhra-Jamshoro power plant. As part of this study we have assisted USAID and WAPDA in the evaluation of responses to that request. That review served to focus several issues regarding participation of overseas and local firms in Lakhra and, by extension in coal development in Pakistan more generally.

1. Roles of the Public and Private Sectors

There are several options for the further development of the Lakhra coal field to serve the Jamshoro coal plant. These options include:

- A joint venture between the public and private sector as represented by the Lakhra Mine Development Company.
- Development of coal resources by private companies on their privately held mining concessions or from PMDC lease areas with supply to WAPDA or LMDC on long term contracts.

Within the first option there are different possible mixes and roles for PMDC, the local private sector and the overseas private sector. In this context, one must keep in mind that the ultimate rationale for involvement of the local private sector is not the achievement of some theoretical goal of political economic philosophy but, rather, simple economic efficiency. In our view that objective will best be met by allowing the local private sector to operate in its natural institutional environment (as independent producers)

rather than as part of a complex three party coal production system (LMDC). Nor can the local private sector be expected to supply the requisite technical expertise. Thus, the first option would primarily involve PMDC and an expatriate company or companies and is unlikely to satisfy the objective of substantial private sector participation.

WAPDA will probably question whether the second option, private supply, could be sufficiently reliable to be the major source, at least for the first Jamshoro Coal plant. At the same time, precluding strictly private supply would be contrary to the basic objective of increasing local private sector involvement. Thus, the final option, a combined approach, seems inevitable. The only question is the relative roles of the LMDC and private supply. Assuming that satisfactory contractual terms can be worked out, private supply to Jamshoro should be:

- a) large enough to create a sufficient incentive to the private firms to exert their best effort to fulfill contracts; and to demonstrate a commitment on the part of the Government to support the local private sector;
- b) distributed between more than one firm to assure continuity of supply in the case of a single firm's failure to perform and to enhance competition and promote economic efficiency;
- c) small enough to be acceptable to PMDC and WAPDA; to create the assurance that the contractual terms can be met by the suppliers; and to reduce the cost of any necessary redundancy in production capacity.

Before the completion of current resource evaluations and feasibility studies, it is too early to say what the best compromise level of private supply should be.

The process of arranging for private supply to the first Jamshoro coal plant should also be as explicit as possible regarding future coal fired power plants. Supply to the first plant should be regarded as an opportunity for the local private sector to demonstrate its capability to provide larger quantities of coal to subsequent plants.

Of course this test must be - and must be perceived to be - a fair one. This underlines the importance of specific terms of the supply contracts and the regulatory environment which monitors contract performance.

Regardless of the supply option selected, there are several issues that are common to these options that will affect the nature and extent of private sector participation in coal exploration, development and production. Issues such as management of mining and power plant development and operation, financial participation, provision of technical assistance and production conditions are areas of concern for both the private sector, that may participate in the venture, and the government, that must assure a stable and reliable source of supply, to meet its fuel requirements for power plant operation.

2. Management of Mining and Power Plant Operation

Expatriate firms interested in the opportunities offered by participation in Lakhra, expressed the desire to exercise management control over the development and production of the mine in the early stages of the project (e.g. 5 to 10 years). This management and control is considered necessary to satisfy the company itself and potential investors, as well as those that will finance the project, such as USAID and the World Bank.

The Government of Pakistan is also concerned with management and control but only to the extent that it is consistent with the extent of equity participation on the part of the expatriate firm. For example, WAPDA did not feel that minority equity participation was consistent with management control. Nevertheless, some expatriate companies believe that it is appropriate for their firm to be the managing partner with a modest equity contribution (e.g. less than 10 percent).

In our view it is important to distinguish between management, provision of technical expertise and financing. As discussed below,

there are good reasons not to link these artificially. Given the importance of effective project management, we consider it unwise to place unnecessary preconditions on management arrangements.

3. Financial Participation

Expatriate firms are willing to participate in Pakistan coal development, but the extent of their equity participation is still very much a matter of negotiation. The equity contribution could take the form of cash, plant and equipment, and/or the provision of services. Concerns expressed over the nature and form of the equity contribution include:

- The size of the equity contribution. Some observers believe that private firms should contribute a minimum of 20-25 percent of the equity (based upon a 70/30 debt/equity structure).
- Type of the equity contribution. Expatriate firms have indicated that their equity contribution would be some combination of cash, equipment and services.
- Return on Investment. Several foreign investors would like a guaranteed return on their investment as a condition of their participation. Depending on the required level, such conditions may prove unacceptable to the WAPDA. (Discussed further under regulations pertaining to foreign investors.)

Several expatriate firms offered to raise capital beyond their own equity contribution from other sources.

4. Technical Assistance

Most expatriate companies understand and are willing to provide technical assistance to the IMDC joint venture. WAPDA would also like to see expatriate technical assistance in joint ventures with local firms developing privately held concessions. The government would require expatriate technical assistance in the mining but would not want the expatriate equity participant to be a manufacturer or supplier of materials and equipment used in the project.

The foreign companies would be willing to provide a portion of their equity contribution in the form of technical assistance as well as provide technical assistance as a vendor. However, WAPDA feels that the acceptance of technical assistance by the LMDC from an equity partner must be contingent upon the quality of the technical assistance offered, and further, upon receiving discounted fees consistent with the captive nature of the private partner's association with LMDC. In other words, the private partners' objectives should not be to make commercial profits on the technical assistance.

WAPDA has also expressed interest in expatriate technical assistance in exploring, developing and establishing production capabilities on privately held concessions. WAPDA is not confident that local firms can develop their lands alone and is reluctant to enter into long-term supply contracts without expatriate technical assistance to local firms. WAPDA would like confirmation of the geology and adequacy of reserves and some assurance that the reserves will be developed efficiently, utilizing modern production techniques, and thus increase the long-term reliability of supply.

5. Reliability of Power Plant Demand for Coal

The large Lakhra mine companies have been holding discussions among themselves concerning a possible consortium approach to supplying the power station's coal requirements. At present they regard the prospect of supplying coal to WAPDA as second priority to selling to other expanding markets such as cement. One mining company states that, "We have put it on the back burner until we are convinced that the power station represents a reliable demand for coal." The reason is that they do not believe that WAPDA is a serious buyer, i.e., that it will purchase a predictable amount of coal. They have been told in the past by WAPDA that the coal-fired power station will have an average annual capacity factor of 60 percent and that the variation over the year will be 40 to 80 percent. They interpret this to mean that the plant would not be operated in a year-round baseload mode, but as an intermediate plant. When hydro power is producing at

full or above rated capacity they believe that Jamshoro would not be operated. (Jamshoro would at that point probably be one of the highest cost power plants in the system, and normal load dispatching practice would suggest that Jamshoro power would not be used, unless a specific decision had been taken to run it as constant baseload, despite the higher cost.) Hence, they see a fluctuating and highly uncertain level of coal demand, because they realize that thermal power only represents about 12 percent of WAPDA's supply in the May-August period, and that WAPDA may choose not to keep a coal plant going throughout that period. A take-or-pay contract offers no real guarantees for the mining companies because they believe that if the pre-conditions are not there it will be broken.

No Lakhra mine owner appears ready to commit more than 50 percent of its reserves or production to WAPDA. At the same time, the collective group of large Lakhra mine-owners could and would be prepared to supply the entire requirements of the power station.

ISSUE: The Mining Companies' perception of uncertain coal demand levels is delaying progress on the supply arrangements for the power station.

ACTION: With the analysis that is expected from the National Power Plan and the Lakhra Economic and Financial Feasibility Project, it should be possible to authoritatively demonstrate the probable pattern of coal demand and thus give potential suppliers a more accurate picture.

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Punjab (Karachi Liason Officer), Mr. Rizvi
Punjab Directorate of Industries and Mineral Dev., Mr. Naseeb
Punjab Mineral Development Corp., Bashir Gill, General Manager

Sind Department of Industries, Imtiaz Rasool
Sind Department of Industries, Tasneem Ahmed Siddiqui
Sind Directorate of Industries and Mineral Dev., Khwaja Waheedullah
Sind Inspectorate of Mines, Bashir Ansari, Chief Inspector
Sind Inspectorate of Mines, Mr. Chandio, Jr. Inspector
Sind Mineral Development Wing, Fazal Siddiq Shaikh

II. Government of Pakistan and Public Sector Corporations

ENAR Petrotech, Dr. Shahid Hak, Chief, Energy
ENAR Petrotech, Sajid Pervaiz, Energy

Geological Survey of Pakistan, A.H. Kidwi, Deputy Dir. General
Geological Survey of Pakistan, Dr. Farhat, Director

Investment Corporation of Pakistan, Shahid Anwar, Deputy Manager
Investment Promotion Board, Zainul Abideen, Director General
Investment Promotion Bureau, Mr. Rughio

Mineral Coordination Board, M. Nawaz Khan, Secretary

Ministry of Finance, Javed Talat, Joint Secretary

Ministry of Planning and Development, Ashfaq Mahmood, Chief, Energy
Ministry of Planning and Development, Dr. Ghulam Rasul, Chief Econ.
Ministry of Planning and Development, A. Izharul Haque
Deputy M.D., ENERPLAN

Ministry of Planning and Development, Sadaqat Hasan Mir,
M.D., ENERPLAN

National Bank of Pakistan, Sabir Ali Jafri, Sr. Vice President

National Development Finance Corp., Nader Morshed, Sr. Vice President
National Development Finance Corp., Yousef Memon, Sr. Vice President

Pakistan Mineral Development Corp., A.A. Malik, Chairman
Pakistan Mineral Development Corp., Kh. Asifullah, Director
(Technical)

Pakistan Mineral Development Corp., Mr. Rasheed, Aud.

Regional Development Finance Corp., Mustafa Qureshi, Managing Director
Muzaffor M. Qurashi, Chief Exec.

Resource Development Corporation, Dr. S.A. Bilgrami

WAPDA, Abdus Sattar Memon, Director, Mining and Geology
WAPDA, Syed Masoom Hussain, Assistant Director
WAPDA, Ghulam Murtaza Ilias, Chief Engineer

Cement Research Institute, SCCP, Dr. Zia Ullah Chaudhary, Gen. Mngr.
Cement Research Institute, SCCP, G.A. Qureshi, Director

III. Private Sector Corporations

Amin Bros. Ltd., Mr. Aminuddin, General Manager
Baluchistan Coal Company Ltd., Aslam Hashmi, General Manager
Banque Indo-Suez, Mansoor Ali Khan, Credit Officer
Chemical Consultants (Pak.) Ltd., Dr. Ahmed Shah Nawaz, Director Mgr.
Chemical Consultants (Pak.) Ltd., Mr. M. Alan, Director
Dawood Ltd., K. Amanullah
Fauji Foundation, Mr. Rizvi, General Manager
Habibullah Mines Ltd., Saifullah Khan Paracha
Hong Kong and Shanghai Bank, M. Asimuddin
Investment Advisory Center of Pakistan, Mr. Nasir, Consultant
Katha Collieries Ltd., Mian Rafiq Ahmed, Chairman and President
Mehran Coal Mines Ltd., Laeeq Ahmed, Manager Director
Mine Owners Association, (Retired Chairman) Mian Rafiq Ahmed
National Coal Mines Ltd., Shahid Raig, Chief Executive and President
Overseas Investors Chamber of Commerce and Industries, S. A. Rizvi
Stone and Webster, Peter Jezek
Sui Gas Transmission Co., S.H. Siddiqi, Chief Int. Auditor
United States - Pakistan Alliance, Dr. Charles Naseem

IV. International Assistance Organizations

A. USAID, Pakistan

Charles Mosely	John Blackton
Donor Lion	Ken Lu Phang
Harold Falconberry	Paul Mulligan
James Bever	Robert Lappi
Jimmy Stone	Masud Siddiqui
Mian Shahid Ahmad	

B. USAID, United States

Charles Bliss
James Sullivan
Robert Ichord

C. World Bank
Bernard Gouviea
Chris Wardell
Paul Dyson

D. OPIC
Dick Post (former U.S. Consul,
Karachi)

E. U.S. Pakistan Economic Council
P. Kemelor

APPENDICES

APPENDIX A

MINING LEGISLATION

I THE MINES ACT 1923

INTRODUCTION

One of the most important pieces of legislation for the mineral industry in Pakistan is the Mines Act of 1923. The Mines Act concentrates on the the regulation of mining operations and working conditions in private and public mines.

DEFINITIONS

Mines Act definitions for key terms are as follow:

- "Appropriate government" refers to Provincial Governments with jurisdiction over the mining of coal.
- "Child" is any person below the age of fifteen.
- "Employed" refers to any individual who works in any mining operation. The individual may or may not be working for wages, but is working with the knowledge of the manager of the mine.
- "Chief Inspector Mines" is the main government officer responsible for the enforcement of the Mines Act.
- "Inspector of Mines" are government officers below the Chief Inspector who are responsible for enforcement of this Act. District Magistrates or Special Officers appointed by the Chief Inspector can also perform a similar role.
- "Mine" refers to any excavation made during a mineral search on production operation. Coke making and mineral (coal) dressing are included in this definition.
- "Owner" is the proprietor, lessee or occupier of the mine. A person who only receives a royalty, rent or fine or is the owner of the soil who is not interested in sub-surface minerals are excluded from this definition.
- "Agent" is a mine owners representative superior to the Manager of the Mine.

- "Miner" is a person employed otherwise than in a position of supervision or management of the mine.

INSPECTORS

The second chapter of the Act defines the power and responsibilities of law enforcement officers. The Chief Inspector or the Inspectors are prohibited from any form of participation in any mining business or mine rights. These enforcement officers are empowered to enter, inquire and inspect any mine under their jurisdiction or can require any necessary documents from the owner, agent or manager. Normally a Special Officer should give an advance notice of at least three days to the manager before entering a mine. However, in emergencies an advance notice is not necessary. It is mandatory for an owner, agent or manager to provide all necessary facilities to the Chief Inspector, Inspector or the Special Officer.

Law enforcement officers are prohibited from divulging information that has been collected from a mining operation to unauthorized individuals. A violation of this regulation is punishable with a fine or one year imprisonment or both. Law enforcement officers are also prohibited from informing the owner, agent or manager of a mine about the source of complaints leading to an investigation.

MINING BOARD AND COMMITTEES

Each province is empowered to set up a Mining Board for any group or class of mines to look after the affairs of miners. The composition includes a public servant nominated as a Chairman by the Provincial Government, the Chief Inspector or Inspector of Mines, two nominees of mineowners, one nominee of the Provincial Government and two nominees to represent the miners (and their trade unions). The Secretary of the Board is to be appointed by the Chairman to assist in the operations of the Board.

Apart from the Board, a Committee may also be set-up to deal with any questions relating to a mine. Such a committee would include a Chairman who is to be a nominee of the Provincial Government, one nominee of the Chairman, one nominee of the mine owners and one nominee of the Provincial Government to represent the interests of the persons employed in the mine.

The Board or Committee is endowed with the same powers as the Inspector as well as the Powers of a Civil Court (Code of Civil Procedure 1908) for the purpose of enforcing attendance of witnesses and compelling the production of documents and material objects to be used in any investigation. The committee can consider and decide on any matter put to it by law enforcement officers or mineowners. Expenses incurred on any inquiry conducted by the Board or Committee are to be borne by the mineowner(s).

MINING OPERATIONS AND MANAGEMENT OF MINES

Before mining operations can commence the mineowner should notify the Chief Inspector of Mines and the District Magistrate in writing at least fifteen days in advance. Mining operations cannot begin if there is a delay of more than sixty days from the date the advance notice was given by the mineowner (another notice is allowed even after this delay period).

Every operating mine must be under the responsibility of a qualified manager appointed by the owner. Every owner, agent and manager must ensure that the Mines Act is followed. If there are violations they will be charged for such offences unless they can prove that such offences were committed without their knowledge. The owner, agent and manager may be guilty of a violation but only the manager is liable for such an offence.

HEALTH AND SAFETY OF MINERS

The Mines Act stipulates that proper toilets and drinking water facilities must be provided by owners at the mines along with adequate shelters above ground to be used by the miners during rest intervals. If the number of employees at a mine exceeds a hundred then a canteen should be made available for employees. Provisions must also be made by the owners for the existence of first-aid rooms equipped with medical supplies.

In case of danger or unsafe conditions at the mine, the Chief Inspector or an Inspector may give a written notice for remedial action to the owner, agent or manager. All work in a mine (or part of the mine) can be stopped if the law enforcers so decide. The owner, agent or manager can object to the above orders. However, the objection must be made to the Provincial Government in writing within twenty days of the issuance of those orders.

The owner must notify the authorities in case of an accident that takes place in a mine. If there is a loss of life then the Inspector concerned should conduct an inquiry. The responsible person at the mine should ensure that the place of accident is not tampered with, for the purpose of such an inquiry.

The Chief Inspector should be informed by an owner if it is discovered that an employee is suffering from any occupational disease. The Chief Inspector should have the patient examined by a qualified medical practitioner. The medical officer should submit his report to the Chief Inspector and in return receive a payment for his services. This medical expense will then be recovered by the Chief Inspector as an arrear of Land Revenue from the owner, agent or manager. If the qualified medical practitioner so recommends the patient should be shifted to work where there is less or no danger of aggravation of the disease.

In case of explosions, fire, water or other accidents the Provincial Government can set up a court of enquiry. Such a court will have the same powers as those of an Inspector and those of a Civil Court. At the conclusion of any such enquiry the court should submit its report to the Provincial Government.

HOURS AND LIMITATION OF EMPLOYMENT

The Mines Act stipulates that there should be a weekly day of rest. The normal working hours are fixed at eight hours daily and forty-eight hours per week for both above and underground work at mines. Notices regarding the hours of work and shift timings should be posted outside the office of the mine by the manager.

The Act also regulates the employment of women. Women are prohibited from working between 7:00^{pm} and 6:00^{am}. Women holding managerial, technical or health/welfare related positions in the mining enterprise are exempted from these restrictions.

Whenever employees work overtime wages would be paid at a rate twice the ordinary rate (this is the basic wage rate excluding all allowances and benefits). The employers must maintain an overtime register to record all relevant information about overtime work.

Children are prohibited from being employed in a mine or being present in any part of a mine which is underground. An individual who is below the age of seventeen must produce a fitness certificate before being employed. The Chief Inspector is authorized to resolve any dispute about the age of such a young person in the absence of an age certificate. Every mine is required to maintain an Employee Register which contains information about each employee, their work hours, rest intervals and rest days etc.

LEAVE AND HOLIDAYS WITH WAGES

This part of the Act was incorporated in 1973. An employee who has worked for one year at the mine is eligible to take a leave with wages within the next twelve months. The total number of days of leave are calculated as one day for every seventeen days of work performed underground during the last twelve months and one day for every twenty days of work performed above ground during the previous period of twelve months.

If the employee does not take all leave it will accumulate until it exceeds a total of twenty days. Whenever an owner refuses a leave request of an employee, leave will be accumulated. If an employee leaves employment or is dismissed he will receive wage payment for the unavailed period of leave. The Act also stipulates that mine employees are to be paid for public holidays as and when they occur during a year.

Mine employees are eligible for ten days of casual leave with full wages during a year and sixteen days of sick leave at one half of the average wages for the year. Casual and sick leaves cannot be accumulated and carried forward. The Act specifies the wage rate for leaves and holidays. Whenever the leave period exceeds four days an advance leave wage payment can be made to the employee. An owner, agent or manager who is delinquent in the payment of wages earned by an employee against leave or holidays can be compelled to make the necessary payment by an Inspector of Mines.

REGULATIONS, RULES AND BY-LAWS

Within the framework of this Act the Provincial Government are empowered to formulate any regulations geared towards all or any of the following purposes:

Setting qualifications of the Chief Inspector of Mines; defining the powers and duties of the Chief Inspector, Inspectors, owners, agents and managers; setting

qualification for managers, examinations and renewal of competency certificates of managers, fixing of fees for such certificates and the definition of conditions under which one manager is allowed to supervise more than one mine; appointment of safety/welfare officers; monitoring of the provisions of the "Explosives Act of 1884" and the "Electricity Act of 1910" as they apply to mining; overseeing the employment of women miners; training of employees before their involvement in mine - related activities; employee medical examinations before and during employment; and ensuring safety, ventilation and lighting in mines and precautions against explosions and other harmful accidents.

The Provincial Government is further empowered to draft rules for Mining Board and/or Committee Courts of enquiry; provision of rooms for children of female miners (less than six years of age); and, provision of separate bathing place and rooms for male and female employees at the mines. It is stipulated in the Mines Act that a mining operations must not be conducted within fifty yards of any Pakistan Railway Property ("The Railway Act of 1890").

The Provincial Government is further empowered to frame rules for the establishment and operation of rescue stations in a mining area. An excise duty of three paise per ton can be levied and used to develop a central rescue station fund.

The owners, agent or manager, if requested by the Chief Inspector or Inspectors, should submit draft by-laws, rules and regulations consistent with the Mines Act; failing which law enforcement officers may draft such rules themselves.

PENALTIES AND PROCEDURE

For various offences of the following nature: obstruction, falsification of records, omission to furnish plans etc, contravention of employment rules, non-notification of accident, disobedience of orders, contravention of the law with dangerous results, varying amounts of fines (Rs.300 to Rs.1000) are imposed with or without varying periods of imprisonment (one month to one year). No one

except for the Chief Inspector, Inspector or the District Magistrate are authorized to initiate prosecution.

MISCELLANEOUS

The Provincial Government is authorized to exempt any local area or mines from this Act subject to certain conditions, As indicated in a Schedule attached to the Mines Act, the Central government has specified certain mines, groups and classes of mines and persons who are exempted from certain provisions of this Act subject to certain conditions. However no mention of exemption exists for coal mines.

II PAKISTAN MINING CONCESSION RULES 1949

A. INTRODUCTION

These rules were framed on the basis of the Mines Act 1923 and deal with the procedures for leasing and licensing, the rights of lessees/licensees, the powers of the government and the Licensing Authority and other related matters. Over the years various amendments have been made to these rules. As mineral development in general and coal mining in particular are provincial subjects, each province has framed its own rules based on the Concession Rules described below. Some variation exists in these Rules, province to province, although the general contents are identical.

DEFINITIONS

The various terms used in these Rules are defined as follows:

- "Chief Adviser" means the Chief Adviser to the Provincial Government.
- "Government" means the Provincial Governments.
- "Senior Secretary" means the Senior Secretary to the Provincial Government.
- "Lessee" means a person to whom a lease is granted and includes his successor in title.
- "Licensee" means a person to whom a license is granted and includes his successor in title.
- "Licensing Authority" means the authority to whom the applications for prospecting licenses and mining leases are to be submitted.
- "Mine" means an excavation where any operation for the purpose of searching or obtaining mineral has been or is being carried on and includes all works, machinery, ropeways, roadways and sidings whether above or below ground, in or adjacent to or belonging to a mine.
- "Mineral" means any mineral except nuclear minerals, mineral oil and natural gas.

GENERAL ASPECTS

The Senior Secretary is authorized to sanction prospecting licenses and mining leases. Any person can apply for a license or lease. Such an application should be submitted to the Director, Mineral Concessions of the government. If an appeal is made against the orders of the Director, Mineral Concessions this appeal should be submitted to the Chief Adviser.

The Licensing Authority must maintain separate registers of applications for licenses and leases and should contain all the required information specified in the Rules. Any individual can inspect these register for a fee of five rupees per hour. The application fee for a license is thirty rupees per mineral for the first 400 acres and ten rupees per mineral for each additional 400 acres. The application fee for a lease is sixty rupees per mineral.

Each application must be accompanied by eight copies of a map showing the boundaries and areas of the land for which the application is made. The applicant must submit evidence as to his financial and technical qualifications and in case the applicant is an alien or a company incorporated outside Pakistan then proof of this fact should also be indicted. The applicant is also required to state whether any application for such a license or lease has been made by him in the past in any other country and the result of such an application. If further information required by the Licensing Authority is not submitted within thirty days of the request then the application will be deemed void. Any information contained in the applications except for the information recorded in the registers will be treated as confidential. For an alien applicant it is mandatory that an undertaking is furnished that he will abstain from all political activity and espionage.

With respect to a particular area the Licensing Authority may require the applicant to follow the procedure outlined below in lieu of furnishing the particulars required above.

- He shall, before forwarding his application to the Licensing Authority, demarcate the area applied for in a manner prescribed in Rule 10.
- To meet the cost of a survey of the area the applicant should send a deposit prescribed by the Licensing Authority. (The L.A. should conduct a land survey soon after the receipt of an application. The L.A. is authorized to dispense with such a survey if this area was previously part of a revenue survey.)

Whenever an applicant requires a license or lease for two or more areas, separate applications should be made. The same person can be the recipient of more than one license or lease. To be assigned a particular license or lease the licensee or lessee must submit an application to the L.A. with a fee of one hundred rupees. This application should contain the same information required in the application for the license or lease.

The principle of reciprocity is followed in not granting a license or lease to any individual or company of a country which prohibits the grant of a license or lease to an individual or company of Pakistan. An outsider or a company incorporated outside the concerned province/Pakistan which wishes to apply for a license or lease, can do so only if it incorporates itself in the concerned province/Pakistan.

If more than one application is received for the grant of a license or lease for the same land then unless the L.A. decides otherwise, preference will be given to the first applicant. If the land applied for is required for a public purpose the L.A. can refuse the request. If a license or lease is not executed within sixty days of the approval of the application then the applicant will forfeit his right to such a license or lease unless the L.A. decides otherwise. A licensee or lessee is allowed to surrender his license or lease in whole or in part after the L.A. has been given a ninety days notice. On such a surrender the licensee or lessee become eligible for a proportionate reduction in rent.

Before a license is granted the applicant should make a security deposit at the rate of one rupee per acre subject to a minimum of one hundred rupees. For an application for the grant of a lease for non-metalliferous minerals the security deposit required is one thousand rupees.

B. PROSPECTING LICENSE

A license confers on the licensee the sole right to mine, quarry, bore, dig and search for, win and work any mineral within the land specified for the license. The license is granted when the following conditions are met:

- the applicant satisfies the L.A. as to financial position and ability to employ qualified staff.
- the applicant furnishes satisfactory evidence such as a Geological Survey of Pakistan report or a report from a qualified Geologist or a discovery report accompanied by a mineral sample, as to the probable existence of the mineral(s) mentioned in the application.

The Licensing Authority must maintain a register of prospecting licenses granted and it should contain all the relevant information specified in rule 30.

The licensee must inform the L.A. about the name and address of the Resident Manager appointed for an area.

A license is valid for an initial period of three years after which it can be renewed two more times. thus the total period of time during which a license is operative cannot exceed nine years. For a renewal a thirty days notice is necessary. In case an application has been made for a lease before the expiry of the license the licensee shall have the right to renewal of the license until the lease applied for has been granted or refused.

The license should carry out such schemes of prospecting that have been approved by the L.A. Quarterly progress reports should be submitted to the L.A. by the licensee. Once possession is granted the licensee should clear the land of any undergrowth and brushwood and also to construct any road on the lands if necessary. If water is present on the lands the licensee will not deprive any villages, houses or cattle of a reasonable supply of this water which was traditionally available to them.

The licensee cannot carry-on any operations within a distance of 100 yards from any reservoir, canal, public work, a building or an inhabited site unless the government so permits. Similarly, a licensee cannot commence prospecting, in a reserved forest situated on the licensee's lands without a thirty days advance written notice to the Divisional Forest Officer. If there is an adjacent prospecting area and access to it is over the licensee's lands then the licensee should not interfere in the passage of other licensees to that area. The government is entitled to build roads, telephone and telegraph lines, pipelines or any other public works on a licensee's lands if it becomes necessary.

The licensee cannot enter any land which is occupied by another person or cut trees, or crops or damage huts, buildings or any other property without the consent of the owner, or occupier. Likewise the licensee cannot disturb any road or enter any public pleasure ground, burning or burying ground or a place held sacred by any class of persons or interfere with any right of way, well or tank.

An annual fee of one rupee per mineral per acre is charged from the licensee. Royalty charge is also payable on all minerals won and carried away over and above the quantity which is allowed in the Rules which can be taken free. In the case of coal the royalty charge is 7 and 1/2 percent on the value of the coal at the pit's mouth subject to a minimum of Rs 1.50 per ton over and above royalty-free amount of fifty tons. The royalty is to be paid within sixty days after the end of each year of the term or any renewal.

If the lands are damaged in any way by the licensee then the government can claim compensation from him. The government in general can at any time claim or take over the lands of a licensee. However the licensee is to be compensated at a price considered fair by the government. In certain cases the government may take over an area without compensation.

Once a prospecting area is abandoned the government expects the licensee to leave any productive bore-holes, pits or mines in good condition or if these have been utilized sufficiently then they should be properly closed. All surface property should be removed by the licensee. However, any area or mine cannot be abandoned without the prior approval of the L.A.

A weighing scale in good order must be kept in good order by the licensee to weigh the production of minerals. Also the value of the minerals extracted should be determined in order to ascertain the amount of royalty that is payable. These accounts should be reported to the L.A. from time to time. If other minerals for which the licensee was not given are discovered then the licensee must report this discovery immediately to the L.A.

A record of drilling, deepening, plugging or abandonment of all pits, bore-holes and wells should be kept and copies of these records must be delivered to the L.A. every three months. The licensee should also keep samples of strata or water encountered in any pit, bore-hole or well and samples of petroleum and/or/any other mineral for a period of twelve months.

Amendments made in the Memorandum of Articles of Association or in the constitution of the licensee or any fresh issues of capital which may from time to time be made should be reported to the government.

In the event of inadvertent inclusion of lands in the licensed area, such lands should be released to the government.

The government has been granted various powers under these Rules. Lands can be taken away from licensees for public purposes. The representatives of the L.A. can enter the land of the licensee for any of the five reasons specified in the Rules. The L.A. can also have certain works executed on the lands at the licensee's cost. In time of war or national emergency the government can takeover a licensee's lands and/or any operations on such lands. Fair compensation is to be paid in case of loss or damage.

No claim can be made against the licensee by the government in case he is not able to fulfill the terms and conditions of the license due to force majeure, there is a requirement that nationals of the provinces/Bakistan should be employed in the licensee's organization in all grades and in all branches.

C. MINING LEASES

The Licensing Authority has been authorized to grant a lease with the previous approval of the Senior Secretary provided that the applicant submits a scheme for the working and exploiting of the minerals and a banker's guarantee and, that if the applicant does not possess a license, he submit a scheme, a banker's guarantee and a report from the Geological Survey of Pakistan or a qualified geologist or a discovery report accompanied by sample of the mineral which provides evidence of the existence of the said mineral(s).

The Rules require the L.A. to maintain a register of all the mining leases granted containing all the information specified in the Rules for each lease.

A grant of a lease confers upon the lessee the right to work the mines and to use any water that exists in the lease area as far as this use does not deprive any lands, villages, houses or watering places for cattle a reasonable supply to which they are accustomed to. The lessee also has the right to appropriate the surface of the lease land and any works that may exist on them. The lessee can erect

houses, build the necessary infrastructure, conduct excavations, cut down trees brushwood and undergrowth, enclose the area with a fence and perform any other activities which are essential for a mining operation to commence and to continue.

The boundaries of the areas that are covered by a lease are to run vertically downwards below the surface towards the center of the earth. The lessee should be given possession of the area in association with the D.C. (Collector) of the concerned district and the District Forest Officer (D.F.O.) in case the forest department is concerned in any way with it.

The initial term of a lease is thirty years which can be extended for another thirty years. However, the lessee must submit an advance written notice to the government at least one year and not more than two years before the expiration of the term. For the extended term the annual dead rent and surface rent cannot exceed twice the original rents during the first term of the lease. The royalty charge will be amount applicable on the first day of the second term. The L.A. has the right to terminate any lease without notice if the working obligations specified in the Rules are not carried out. The government can also terminate a lease at any time on payment of a fair compensation to the lessee.

The royalty charges which the lessee must pay to the provincial treasury amount to 7 and 1/2 percent of the sales value of coal at the pit's mouth subject to a minimum of Rs 1.50 per ton for the production of the last six months. The royalty payments should be made on the first day of January and July of each year. The annual dead rent charges per acre for coal are a minimum of Rs 0.25/acre and a maximum of 2.5/acre. However, the lessee has to make a payment for either royalty or dead rent depending upon whichever amount is greater. The lessee finally has to pay a surface rent for the use of the land, the amount of this revenue is to be assessed by the Revenue authorities. If no such rent is assessable then a maximum payment of Rs. 3 per acre should be made. Any surface rent or water charges should be paid

every first day of January and July for the previous six months period. If the land belongs to a private person or the Forest department the lessee shall pay the surface rent to the owner at a rate mutually agreed upon.

The government can claim compensation from the lessee if his work causes damage to the mineral property of the leased lands. Likewise the lessee must compensate any third parties whose property or rights are damaged or hurt by his mining operations.

Unless the L.A. decides otherwise the lessee must commence his scheme and mining operations within one hundred and eighty days from the date of the grant of permission to start work. Also, the lessee cannot stop his work for more than one hundred and eighty days in consequence of which the average annual production fixed for him by the L.A. may not be achieved.

The lessee should erect and maintain boundary marks and pillars. No mining operations can be conducted upon any public pleasure ground, burning or burying ground are a sacred place or where a house, village or public road exists. Finally no mining operations can be done within one hundred yards from a reservoir canal or other public works.

The lessee is required to keep and maintain in good condition a weighing machine on which the minerals taken out from the pit's mouth can be weighed and a daily record of the production would be kept. Accurate account books containing information on the quantity and particulars of all minerals obtained, the number of persons employed and other information should be kept by the lessee. The L.A. can at any time inspect the weighing machine and the account books. The lessee should allow the L.A. or his representative to conduct an inspection for the above mentioned or any other purpose.

The lessee should permit other licensees or lessees access to their lands through his lease area. If other minerals are discovered then the L.A. should be duly informed. In case the lessee plans to

conduct operations within a reserved or protected forest an advance notice of thirty days should be given to the Divisional Forest Officer. If prospecting is done in an area outside the lease area then a fine of five thousands rupees and/or an imprisonment of six months can be imposed.

The right of surrender of a lease by the lessee has been provided in the Rules. The lessee has to submit a written notice ninety days in advance to the L.A. The government can take over the leased lands if the lessee defaults on royalty or rent payments.

The government requires the lessee to fulfill any provincial and/or national requirements for the mineral before it can be exported. Also, nationals of the concerned province must be employed in the lessee's organization in all grades and branches and training must be provided to them. The government can, if it so wishes, require the lessee to associate Government capital up to 51 percent of all classes of capital and debentures issued by him from time to time and to associate any private capital of the province as well.

The lessee can be required by the government to submit to the L.A. at the end of every year statements of accounts audited by an approved auditor; sell the mineral to a particular party or the general public at a price fixed by the government; set up a concentration, refining or processing plant for improving the quality of the mineral or ore; meet production targets fixed by the government; store and distribute the mineral in a manner prescribed by the government; and, supply the mineral regularly to the government or another organization sponsored by the government at agreed prices.

The lessee must not cultivate the lands he has been allotted. If the lands are occupied by someone else then the lessee should give them adequate compensation in return for the possession of those lands. Before mining operations commence the name and address of the Resident Manager for the area should be furnished to the L.A. In order to ensure the health, safety and welfare of the workers and

employees the lessee will comply with the instructions of the Inspector of Mines. The lessee should also keep samples of minerals or water for one year. If mine, pit or boreholes are made then the written consent of the L.A. must be obtained. At the expiration of a lease the pit heads and boreholes should be plugged if the L.A. requires, otherwise, they should be left in a good working condition.

The government as mentioned before can take over any leased lands or works under certain conditions, as specified in the Rules, especially in conditions of war or national emergency.

According to the rules the lessee cannot be held responsible for any breach of the terms of the lease if such a breach was due to uncontrollable factors. In case of a dispute between the lessee and the government the Chief Adviser will be arbitrator and his decision will be final.

Note: (a) Any monetary figures quoted in these Rules for the royalty, rent, application fee etc. may not reflect the present figures which exist and vary province to province and are modified with time.

(b) The above Rules are based on the Concession Rules for Azad Kashmir.

III GOVERNMENT REPORTING REQUIREMENTS

The following are the reporting and recording requirements under different mining acts and regulations.

A. MINES ACT

1. Maintenance of a register of medical practitioners (Section 3(h)(1)).
2. A written notice of at least 15 days in advance has to be given to the Chief Inspector Mines or the District Magistrate before the mining operation commences. (Section 14.(1), (2)).
3. A notice of the occurrence of accidents (the various types are listed in section 20 (1)) to the authorities.
4. Accidents other than those specified in Section 20 (1) which cause bodily injury resulting in the enforced absence from work of the injured person for more than 48 hours shall be entered in a register. A copy of the entries in this register must be sent to the Chief Inspector within 14 days after June 30 and December 31 in each year. (Section 20 (2), (3)).
5. If an employee has or is believed to be suffering from an occupational disease then the Chief Inspector should be notified (Section 20-A).
6. A copy of a notice that is to be posted at the mine giving the work hours, shift timings and rest timings should be sent to the Chief Inspector if he so requires. If any amendments are made then a copy of it should be sent 7 days before the change is undertaken (Section 23-E(1), (3)).
7. An employee register is to be maintained containing the information specified in Section 28 (1).
8. A register is to be maintained which shows at any moment of time the name of every person then working below ground in the mine.
9. A register for the recording of overtime payments can be required by the authorities.
10. Applications for leave and payment of leave wages can be required by the authorities.

11. A register of casual leave, sick leave and holidays for each employee can also be required to be maintained.

B. CONSOLIDATED MINES RULES 1952

(Rules based on Section 30 of the Mines Act)

12. The minutes of the Canteen Managing Committee should be recorded in a minute book (Section 10 F(3)).
13. The accounts of the canteen are to be audited once every twelve months by registered accountants and auditors. The balance sheet prepared by the auditors should be submitted to the Canteen Managing Committee within 2 months from the closing of the audited accounts. These can be inspected by the Inspectors of Mines. (Section 10-H(2)).
14. Every person who has been certified as fit for employment underground is to be provided with a metal token by the Manager before he is so employed. Every token is to be stamped with the letter "P" and numbered. A record of every token so issued and the person to whom it was issued shall be maintained in the office of the mine. (Section 19).
15. The Chief Inspector should be notified within seven days of the appointment of a new Manager about the terms and conditions of his appointment and the details of administrative and financial powers delegated to him. (Section 23-B(2)).
16. If the mining operations are to be commenced or extended to any point within 50 yards of any public roads, buildings, structures, works or rivers not belonging to the owner then an advance written notice of 60 days should be issued to the Chief Inspector. This notice should contain a plan and other detailed information as specified in Section 26 of these rules. (Section 24).
17. When there is a danger of an existing occupied building (in a leased area) being affected by the mining operations being conducted then a written notice along with a plan should be sent to the Chief Inspector within one month before the commencement of the operations or soon after the deterioration of the underground workings are detected. (Section 30).
18. If a mine on whose surface are located government property or property owned by others is being abandoned then the Chief Inspector should be notified in writing within 30 days. (Section 32).

19. A Muster roll is to be maintained (Section 40A).
20. The originals or true copies of all reports or the registers should be maintained at the mine for a period of five years after the date of the report or the date of last entry in the register. (Section 41).

C. MINING BOARD RULES 1951

(Based on Section 30 of the Mines Act)

21. The Secretary the Mining Board is to conduct all the correspondence of the Board, keep its accounts and record the minutes of its meeting. (Section 14).

COAL MINES REGULATIONS 1926

22. On or before the tenth of every month the owner, agent or manager of the mine should send to the Chief Inspector a correct return of all raisings (coal mined) and dispatches during the preceding calendar month. (Section 3(1)).
23. On or before January 21 in each year the owners should forward to the District Magistrate and the Chief Inspector annual returns in respect of the preceding year in Forms II, III, IV, V, VII, and VIII shown in these regulations (Section 3(2)).
24. If any mine is abandoned or the working of any mine has been discontinued over a period exceeding three months or if a change occurs in the ownership of any mine the above returns should be submitted within one month from the date of abandonment or change of ownership or within four months from the date of discontinuance. Extension in this period can be granted by the Chief Inspector. (Section 3 (3)).
25. On or before the first day of March in Each year the Chief Inspector should be forwarded in duplicate a return in Form II-A duly filled in. The figures in the return shall related to that day on which the number of persons attending work was highest during such week in February of that year as is selected in advance by the Chief Inspector. (Section 3(4)).
26. When a mine or seam has been abandoned or the working thereof has been discontinued over a period exceeding two months, the owner of the mine shall, within one month after the abandonment or within seven days after the expiry of the said period as the case may be, send to the Chief Inspector notice in writing specifying the name and situation of the mine, the name and address of

the owner and the date and cause of the abandonment or discontinuance. (Section 5).

27. Before an abandoned mine is reopened the District Magistrate and the Chief Inspector must be notified in writing (Section 6).
28. When a mine's name or ownership is changed a written notification of the change and its date must be sent to the Chief Inspector within one month of the change. (Section 7).
29. When a new agent or manager is appointed, this and the date should be notified in writing to the Chief Inspector within one month (Section 8).
30. When an accident occurs in or about a mine causing loss of life or serious injury or an explosion, etc. occur then the Inspector must be notified by telephone or telegraph and a notice should also be sent within 24 hours. (Section 13).
31. If death result from an injury then this must be reported within 24 hours. (Section 14).
32. The mine owners should keep a working plan of the mine and a surface plan in the mine office and updated within six months (Section 15).
33. All ladders and platforms used by work persons in a mine should be examined not more than 2 hours before the start of the work in a shift by a competent person appointed by the manager in writing for this purpose. The results of such inspections should be recorded in a book kept at the mine (Section 53(2)-J).
34. A competent person of more than 21 years of age appointed by the manager should at least once a week examine the state of the shaft by which persons ascend or descent and should write a report of this examination which should be kept in a book at the mine (Section 57).
35. A competent person over 21 years of age appointed by the manager should examine the external parts of the machinery and of the head-gear, ropes, chains, cages, guides and conductors in the shafts and other appliances and should write a report in a book to be kept at the mine (Section 58 (L)).
36. A competent person should inspect the mine within 2 hours before the start of a shift and record the results in a book (Section 70 (2)).

37. A like inspection should be made twice during a shift and the results recorded (Section 70 (3)).
38. A competent person is to inspect all airways and travelling roads leading to second outlets at least once a fortnight and the results are to be recorded in a book (Section 70 (7)).
39. In any mine in which inflammable gas has been found during the previous 12 months, all unused workings in which inflammable gas may accumulate and which are not permanently sealed off, should, at least once in every week be inspected for the presence of inflammable gas. The result of this inspection should be recorded in a book (Section 70-B).
40. If a competent person inspects a mine or a part of it and judges it to be free of gas, then this should be recorded in a book at the mine (Section 72-A(3)).
41. Whenever it is planned to flood the mine or a part of it with water from the surface or an adjacent mine then an advance written notice of at least seven days should be given to the Chief Inspector and the management of adjacent mines (Section 75-A).
42. For driving any gallery through any pillar or the enlargement of any gallery a one week prior notice should be given to the Inspector (Section 78-A).
43. Whenever "crush" of pillars or any symptoms of impending collapse other than that ordinarily caused by pillar extraction is detected the Chief Inspector should be informed (Section 78-B).
44. After a fire has been extinguished and the mine has been examined by the manager and the competent person and it has been declared safe then a report of this should be recorded and kept in a book (Section 87-F).
45. When a shot has misfired in a mine, the competent person in charge of the explosive at the time of misfire should report the failure to the manager or under-manager who should record the fact in a book.
46. Every safety lamp used at a mine should be examined at least once a week and the results recorded in a book.

Finally the Coal Mines Regulations provide specimens of the following different forms to be filled out:

- .. Form I: "Monthly return of coal raisings and coal dispatches for the month_____."

- Form II: "Annual return for the year ending 31st December, 19 _____".
- Form II A:
 - Part I: "Daily Attendance Sheet"
 - Part II: "Daily Absentee Sheet"
- Form III: "Persons employed during the year ending 31st December, and wages paid in December 19 _____".
- Form IV: "Accidents and Prosecutions"
- Form V: "Epidemic Diseases"
- Form VI: "Type and aggregate horse-power of electric apparatus"
- Form VII: "Explosives, safety-lamps, ventilators and coal-cutting machines".
- Form VIII: "Output for year ending on 31st December"
- Form IX: "Notice of occurrence of accident".

MINES CRECHE RULES 1946

(Rules framed on the basis of Section 30 of the Mines Act)

* "Creche" refers to the room(s) reserved for the use of female miner's children.

- 47. A medical examination of the children attending the creche should be made every month by a qualified medical practitioner and a record of such an examination should be maintained (Section 6(1)).
- 48. A register giving particulars of the children attending a creche, including their dates of birth should be maintained (Section 8 (1)).
- 49. A register of complaints should be maintained for inspection by the Medical Officer in charge and by the management of the colliery (Section 8(2)).

F. EXCISE DUTY ON MINERALS (LABOR WELFARE)
(SIND) RULES 1969

(These rules are based on Section 11 of the Excise Duty on Minerals (Labor Welfare) Act 1967)

50. Every owner should maintain in Form "D" a register of dispatches of all minerals dispatched other than by rail and the monthly production and date-wise dispatches should be recorded in it. The amount of excise duty should be calculated for the whole month's dispatches and recorded in the register. The Form D duly filled out in duplicate should be submitted to the Mines Labor Welfare Commissioner, Sind every month (Section 37 (1), (2)).
51. If no dispatches were sent then within one month the owner should send a nil return in duplicate to the Commissioner (Section 37 (4)).
52. Each owner whose mine is served by a dispensary should submit to the Commissioner the following:
 - (i) in January and July of each year, a statement showing the total amount of miners treated during the preceding 6 months.
 - (ii) in January of each year, a certified statement of the expenditure incurred on the dispensary during the preceding twelve months.
 - (iii) in January of each, a certified statement of number of persons employed in the mines and treated in the dispensary showing the nature of the disease treated during the preceding twelve months.

NOTE: The Punjab and Baluchistan Rules are similar to the above Sind Rules.

G. THE MINES MATERNITY BENEFIT RULES 1943

(These rules are based on section 6 and 15 of the Mines Maternity Benefit Act 1941).

53. Every owner or manager of a mine in which women are employed shall prepare and maintain a muster roll and shall enter the particulars of each woman as specified in Section 3.
54. Records relating to the payment of maternity benefit kept under the provisions of the Act or these rules shall be preserved for a period of two years from the date of their preparation (Section 11).
55. The owner should on or before the 21st of January in each year submit to the Chief Inspector a return in each of the Form E, G and H (Section 15 (1)).

56. If the owner sells, abandons or discontinues a mine then he should within one month of the date of sale, or abandonment or four months from the date of discontinuance as the case may be submit to the Chief Inspector a further return in the above forms for the period between the end of the preceding year and the date of sale, abandonment or discontinuance.

H. PAYMENT OF WAGES (MINES) RULES 1959

(These rules are based on Section 26 of the payment of Wages Act 1936)

57. A Register of Fines is to be maintained by the paymaster (Section 3(1)).
58. A Register of deductions for damage or loss in Form II is to be kept (Section 4).
59. A Register of Wages is to be maintained (Section 5).
60. The Registers in 57, 58, 59 should be preserved for at least three years after the date of last entry (Section 6).
61. An employer should send an application for the imposition of a fine, to the Central Labor Commissioner (Section 10).
62. A notice of the dates of wage payments and the rates of wages and scale of allowances payable should be posted at the mine entrance two months in advance (Section 8).
63. Every employer should send an annual return in Form IV (total deductions from wages) to the Inspector so that it reaches him on or before 15th of May following the end of the year to which it relates.

The following forms are listed which may be required from the owner under the above rules:

- Form I: "Register of Fines"
- Form II: "Register for deductions for damage or loss caused to the employer by the neglect or default of the employed person"
- Form III: "Register of payment of Wages"
- Form IV: "Deductions from Wages"
- Form V: "Register of advances made to employed persons".

I. No requirements for reports or records exist for the following Acts.

- a. PAYMENT OF WAGES ACT 1936
- b. THE MINES MATERNITY BENEFIT ACT 1941
- c. EXCISE DUTY ON MINERALS (LABOR WELFARE) ACT 1967
- d. COAL MINES PITHEAD BATH RULES 1946

APPENDIX B

LEGISLATION AND PROCEDURES FOR FOREIGN
AND LOCAL PRIVATE INVESTMENT IN PAKISTAN
WITH SPECIAL REFERENCE TO MINING ACTIVITIES

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I INVESTMENT IN PAKISTAN

A. GENERAL

Pakistan is actively pursuing a policy of encouraging foreign industrial investment. Local and foreign private investment is promoted and channeled into priority sectors through periodic investment schedules to achieve national economic objectives. These investment schedules, part of successive 5-year Economic Development Plans, set out capacity targets for each industry in each plan period.

Investments which are particularly favored include those that bring new technology, know-how, or skills or train Pakistani technicians and managers; manufacture products from indigenous raw materials; develop and create employment in economically backward areas and/or priority regions; and are export-oriented (particularly agricultural or service), and/or import substitution industries. The government's industrial policy also lays great importance on private participation. Practically the whole industrial field is open to foreign private enterprise except certain industries which the government consider as essential to the life of the community. These are operated by the state through specially constituted corporations. Such industries include armaments, atomic energy, railways, air transport and shipping.

B. BUSINESS ENTITIES

In October 1984, the government promulgated the Companies Ordinance 1984, which replaces and supercedes the Companies Act of 1913. Henceforth, the formation and operation of companies is to be regulated by the Companies Ordinance of 1984.

1. Companies

Corporate business in Pakistan may be conducted through a private or public limited company (whether listed on the stock exchange or otherwise) or a branch of a company incorporated abroad. A private

limited company limits the rights of its shareholders to transfer shares, restricts the number of its shareholders to more than three and less than fifty, not including persons who are in the employment of the company, and prohibits any invitation to the public to subscribe to shares or debentures. A minimum of three directors is prescribed. A public limited company is permitted to offer its shares to the general public. It should have a minimum of seven shareholders. No restrictions are imposed on the transfer of its fully paid shares. The minimum number of directors required is seven. Where the paid up capital exceeds Rs 10 million, the company must be public. If a private company with foreign shareholding is required to convert itself into a public company the local shareholders are required to disinvest 50 percent of their holding for offer to the public, out of which 20 percent is reserved for the National Investment Trust.

To incorporate an application is made to the Registrar of Joint Stock Companies along with a copy of the Memorandum and Articles of Association (company's charter and objectives), evidence of payment of the stamp fees and an assurance that all requirements of the Companies Ordinance has been complied with. The permission letters from the Investment Promotion Bureau and the Controller of Capital Issues (detailed in the subsequent section "Permission to Invest") are also required for submission. After checking the documents submitted the Registrar issues a Certificate of Incorporation, on receipt of which a private limited company may commence business. A public limited company must issue a prospectus or a statement in lieu of prospectus, submitting a copy of the document to the Registrar of Companies along with an undertaking that the minimum subscription requirement has been met and that directors have for their shares. The Registrar then issues a Certificate of Commencement of Business. On receiving the Certificate of Commencement of Business a public limited company may start operations.

No company with an issued and paid-up capital of less than Rs 10 million or with shareholders from the public of less than 250 can be

listed on the Stock Exchange. The application for listing should include draft prospectus, loan agreements, copies of contracts for import of machinery, auditor's certificate, amounts subscribed by promoters, directors and associates etc.

Securities and Exchange Ordinance

Provisions of this Ordinance apply to all companies listed on the Stock Exchange in Pakistan. The Second Schedule to the Ordinance prescribes the form and the contents of the published accounts of such companies.

2. Mergers

Mergers acquisitions and divestitures are of limited significance in Pakistan. The Companies Ordinance provides a very cumbersome process for mergers and divestitures requiring High Court approval. Businessmen do not find it desirable to create larger entities, fearing exposure to increased regulation and nationalization. Restrictions are placed on corporate size by the Monopolies and Restrictive Trade Practices Ordinance which requires companies with over Rs 50 million in assets to register as a public limited company.

3. Joint Ventures

Joint Ventures between foreign investors and Pakistani entrepreneurs are an accepted method for establishing industry in Pakistan. All joint ventures based on any one of the following forms of foreign participation require prior approval of the Investment Promotion Bureau (IPB) of the Government of Pakistan: (i) foreign private investment, (ii) investment under pay-as-you-earn schemes (payment for any plant and machinery imported from abroad under this scheme is paid out of the earnings of a project), (iii) foreign private loans and (iv) foreign technical collaboration. There is no special law in force in Pakistan governing joint ventures. These ventures may be set up by ordinary agreements under the law of contract. However, where any such agreements have been approved by the Government, under section 5 of the Foreign Private Investment (Promotion and Protection) Act of 1976, these agreements are protected

by the Government in the event of nationalization or of compulsory acquisition of shares of Pakistani investors. In other words, nationalization of a project or compulsory acquisition of the shareholding of a Pakistani investor therein will not affect the agreement with foreigners.

4. Venture Capital

Venture Capital is not conducted in Pakistan as the current institutional and financial environment provides no mechanisms for tax avoidance/sheltering vehicles for venture capital investment and presents difficulties in selling off investments at venture capital returns.

II PROJECT AND INVESTMENT APPROVALS

A. PROJECT APPROVAL

It is extremely difficult to provide an accurate and comprehensive description of all approvals necessary for projects because GOP pronouncements are spread over a large number of statements, publications, circulars and other material. In Pakistan GOP permission is always required for the actual establishment of an industrial project unless exemption has been granted from such permission in respect to any area or specified industry. Furthermore, industrial investment must be made in accordance with the Industrial Investment Schedule adopted by the Government. This schedule specifies the industries which can be established only by the public sector and the industries which can be established by private parties.

1. Projects Creating Foreign Liability

Permission of the Investment Promotion Bureau (IPB), Ministry of Industries, Government of Pakistan is always required where: (i) foreign private investment in a project is required; (ii) foreign currency debt financing is required from a foreign institution or concern; (iii) an industry is wholly based on imported raw material or 100 percent of its plant and machinery is imported from outside Pakistan; and (iv) a project is predicated on plant and machinery imported from a foreign supplier under a pay-as-you-earn scheme.

Where IPB has approved such a project, all further permissions or approvals required are given in the normal course. For example, permission of the Controller of Capital Issues (CCI) for raising share capital for a company establishing a project approved by IPB is granted only as a formality. If the permission of CCI is applied for before obtaining IPB's approval for a project of this nature, however, CCI will not accept the application and will seek to obtain the permission of IPB.

2. Projects financed by PICIC or IDBP

Where a project does not fall into the categories for which IPB's approval is compulsorily required and a foreign currency or a rupee loan has been sanctioned for such a project by the Pakistan Industrial Credit and Investment Corporation (PICIC) or by the Industrial Development Bank of Pakistan (IDBP), both being government controlled financial institutions, such sanction is tantamount to approval by the government and all other permission and approvals are granted in the normal course.

3. Projects in the Export Processing Zone

The establishment of projects in the Export Processing Zone requires prior approval of the Export Processing Zones Authority.

4. Permission of Provincial Government

Permission of a Provincial Government is required for the establishment of an industrial project in those areas of a Province notified by the Provincial Government concerned under the relevant (Provincial) Industrial (Control on Establishment and Enlargement) Ordinance, 1963. For establishment of projects in these areas an application must be made to the Department/Directorate of Industries of the Province concerned. Where an industry has already been approved by IPB, PICIC or IDBP, however, and such permission gives the location of an industrial project, no separate permission by the Provincial Government will be necessary, even if the location of the project sanctioned by IPB, PICIC and IDBP falls within the areas notified by a Provincial Government under the said Ordinance. Separate permission of a Provincial Government is not required because IPB, PICIC and IDBP are required to sanction the location of an industrial project in accordance with the guidelines laid down by the concerned Provincial Government.

5. Area-Wise Restrictions

Certain types of industries are not permitted to be established in certain areas of a Province. For example, with the exception of certain specified industries, e.g., seafoods, doors and windows,

furnitures, and similar other projects of local nature, no other type of industrial projects are permitted to be established in Karachi. For establishment of other types of projects in Karachi, permission of the Provincial Government will be required even if the project has been sanctioned by IPB, PICIC or IDBP.

B. FOREIGN INVESTMENT

1. Permission to Invest

Foreign investment in Pakistan is controlled by the Investment Promotion Bureau (IPB) and all proposals for investment require approval of the Central Investment Promotion and Co-ordination Committee (CIPCOG). The application to be made to IPB is comprehensive and deals with all aspects of economic and financial feasibility including the method of capitalization. The application is circulated to the various ministries and the State Bank of Pakistan for their comments which are then circulated to CIPCOG for sanction and approval. Technical management/loan agreements must accompany the application to enable IPB to process these simultaneously. Such technical management/loan agreements are subject to the specific approval of the Federal Ministry of Finance and the State Bank of Pakistan. Once the project has received IPB permission and before a company with foreign capital can be incorporated the consent of the Controller of Capital Issue (CCI) is also required. Where shares are to be offered to the public and the National Investment Trust (NIT) the procedure and mode of issue is also specified by the CCI. In general the approvals given are conditional, as below:

- o Where the paid-up share capital (equity) does not exceed Rs 10 million there is no obligation to offer shares for public subscription. In such cases the total capital can be subscribed by foreign investors and local collaborators.
- o Where the paid-up capital exceeds Rs 10 million the company is required to offer the shares to the public. The capital participation split usually allowed is:

Promoters, Sponsors etc.	- 50 percent;
National Investment Trust	- 10 percent; and
General public	- 40 percent.

2. Local Participation Requirements

There are no special ownership requirements and no rigidity about the ratio of Pakistani and foreign equity in projects approved by the government. Association of Pakistani capital is considered desirable and normally it is expected that the required local expenditure would be met from local equity capital. This would mean that the foreign participation would be restricted to the amount of foreign expenditure required for an approved project. If the proportion of such expenditure to local expenditure is high then a part of the foreign currency cost may have to be provided as a loan or in the form of extended credit. This appears to be in line with the present policy of the government for broadening the base of ownership. But there is no rigidity to this policy and deviations are possible depending upon the importance of the project. The government would be willing to allow a higher percentage of foreign participation where highly specialized industrial projects are involved.

3. Safeguards for Foreign Investors

Statutory safeguard have been provided to protect the rights and property of the foreign investor. The Foreign Private Investment (Promotion and Protection) Act of 1976, inter-alia, provides the following safeguards:

- o All approved investment is repatriable in the currency of the country from which the investment originated both as to capital and profits earned on such capital. Any part of the profits ploughed back into an approved industry can also be repatriated.
- o Creditors of an approved undertaking can repatriate approved foreign currency loans and interest thereon in accordance with the terms and conditions of the loan.
- o Foreign nationals employed with the approval of the government are allowed monthly remittances within certain limits.
- o If the management of an industrial undertaking having foreign private investment is taken over by the government or the government acquires the ownership of the shares of citizens of Pakistan in the capital of such industrial undertaking, any previous agreement

approved by the government relating to such undertaking entered between a foreign investor or creditor and any person in Pakistan will not be adversely affected by such nationalization or acquisition.

- o Should circumstances necessitate nationalization it will be done under due process of law and provide for adequate compensation in the currency of the country of origin of the investment.
- o Foreign private investment is not to be subject to more burdensome taxes than that applicable under similar circumstances to Pakistani citizens.

Industrial undertakings having foreign private investment will be accorded the same treatment as is accorded to similar industrial undertakings having no such investment, in the application of laws, rules and regulations relating to importation and exportation of goods.

Under "The Protection of Rights in Industrial Property Order 1979" no industrial property can be compulsorily acquired without adequate compensation within reasonable time. The amount of compensation can be challenged in a court of law. Remittance of company dividends and payments for royalty, trade marks and technical fees for an approved investment are freely allowed though requiring the permission from the State Bank of Pakistan, which is more or less automatic once the relevant agreement has been approved of by IPB. (Such remittances would be subject to withholding taxes and this together with the special aspects of taxation on technical fees are discussed in the section relating to taxation).

4. Export Processing Zone

In view of the strategic location of Pakistan in relation to the Middle East and African markets a Duty Free Export Processing Zone has been established in Karachi in order to attract foreign investment, increase exports of manufactured goods and facilitate the introduction of new technologies and modern management and marketing practices.

Proposals for setting up projects in this zone require approval of the Export Processing Zone Authority (EPZA) in Karachi.

All investments and payments within the Zone are in foreign convertible currencies. The companies established may be 100 percent foreign owned or with Pakistani collaboration in the form of non-repatriable investment (NRI).

Imports of machinery, components, spare parts and raw materials for industrial concerns in the Zone as well as imported items destined for re-export are freely allowed. These items are exempted from all Federal and Provincial taxes and duties other than a 1 percent development surcharge on the FOB value. Special tax concession are allowed for undertakings set up in the Export Processing Zones.

Exports from the Zone are free from exchange controls. Exporters are free to export merchandise without obligation to repatriate their earnings back to Pakistan. With the exception of a development surcharge of 1 percent on the FOB value there is no duty or taxes on these exports.

III EXCHANGE CONSIDERATIONS

A. GENERAL

Exchange control in Pakistan is governed by the Foreign Exchange Regulation Act of 1947, the administering authority of which is the Exchange Control Department of the State Bank of Pakistan (SBP).

All currency transfers require the sanction of the Exchange Control Department; however, certain transactions can be approved by banks authorized to do so by the SBP. The exchange regulations apply to all countries and there are no countries with a preferred status.

B. REMITTANCE OF COMPANY DIVIDENDS

Approval for remittance of dividends is freely given provided the original investment was duly approved. Dividends should normally be remitted within a reasonable time or they may be regarded by the State Bank of Pakistan as finance permanently required in the business. At present, there is no limit on the amount that may be remitted as dividend. However, such remittances are allowed on the basis of the auditors' report with regard to the adequacy of profits and correct deduction of tax.

C. REPATRIATION OF CAPITAL OF APPROVED INVESTMENTS

As stated previously there are no restrictions on the repatriation of capital and its accretions to the country from where the investment originated. On liquidation of its equity holding foreign investors are entitled to repatriate the capital initially invested and stock dividends. Permission for repatriation of capital is usually granted over a period of years. When bringing into Pakistan capital in the form of cash or plant it is necessary to obtain agreement with the government authorities regarding the mode of repatriation of such capital and the refund of customs and other

duties initially payable on entry. Remittances on account of depreciation of fixed assets brought into the country are not allowed.

D. TECHNOLOGY LICENSING AND TECHNICAL ASSISTANCE

The Government does permit procurement of technology and technical assistance from outside Pakistan for the establishment (design, engineering and planning) and operation of projects, as well as for manufacture of products therein. Such permission is usually granted on case-by-case basis; principally at the time of establishment or expansion of a project or when it is decided to embark upon the manufacture of a new range of products.

E. REMITTANCE OF ROYALTY, TECHNICAL FEES, ETC

Consent for remittance of royalties, trade marks and technical assistance fees under agreements approved by the Investment Promotion Bureau are usually given for specialized services and products. Such payments are otherwise discouraged by the GOP. Royalty and technical fees are normally based on a percentage of turnover or related to specific services as and when rendered. For royalties, a fee ranging from between 2 to 3 percent is usually considered to be fair and reasonable is linked to gross turnover irrespective of whether a profit or loss has been made. Once the agreement has been approved SBP permission is a formality.

F. PAYMENTS FOR IMPORTS

There are no upper limits for payments for materials and equipment imported with an import license. Import licenses are issued on applications made to the appropriate government department to establish entitlements to import. These entitlements are subject to periodic review by the same department in light of the government's import policy. All licenses are normally on a "C&F" basis since marine insurance must be effected in Pakistan. Payments for imports must be made through authorized dealers in foreign exchange, namely

the scheduled banks. Where goods to be imported are of a specialized or capital nature the SBP is prepared to consider applications for advance remittance against goods to be imported.

Import (Customs) Duties and Sales Tax

There is a 10 percent ad valorem import duty on mining machinery used in a process directly connected with the extraction of minerals including all apparatus and appliances, mechanical/electrical controls and transmission gear, component parts and spare parts. No duty is levied on auguring machines (post hole diggers). However, a 20 percent ad valorem duty exists for bulldozers, levellers, and angledozers. Whenever a duly recognized mining concern imports items such as miner's helmets, safety goggles, self rescuers and mechanometers no duty is imposed. Likewise, no duty is paid on coal imported by the Pakistan Steel Mills Corporation. The Federal Government has the jurisdiction over customs duty and sales tax. Normally the government has a scheme whereby machinery or spare parts imported for a project approved by the government whether for new installation or for extension is eligible for grant of concession of deferred payment of half of the normal customs duty. The main features of this scheme are:

- o initial payments of 50 percent of the duty with a deferral of the balance. The balance is payable within a three year period in six half yearly equal installments.
- o grace period of two years from the date of initial payment.
- o interest to be charged at 1 percent above the bank rate.
- o public limited or private companies are to furnish six interest bearing debentures in the prescribed form.
- o partnerships/sole proprietor firms are to furnish bank and personal collateral guarantees.

No duty is payable if the project is located in Baluchistan, Malakand and Dara Ismail Kharn divisions, the Tribal Area, districts of Mansehra and Kohistan, all approved industrial estates in NWPF,

Northern Areas, Azad Kashmir, districts of Dra Ghazi Khan and Rajanpur as well as all approved industrial estates in the districts of Mianwali, Khushab Tehsil, districts of Shikarpur, Jacobabad, Tharparkar and Dadu excluding the Taluka of Kotri.

Only 25 percent duty is payable for industrial estates in areas other than those mentioned above.

A 50 percent duty is levied if projects are located in areas other than mentioned above or below.

Tehsil of Rahimyarkhan, Multan, Faisalabad, Ferozwalla, Lahore district, Tehsils of Gujranwalla, Rawalpindi and Sialkot, Islamabad, Karachi division, Talukas of Hyderabad and Kotri.

If plant and machinery are imported under the Non-Resident Investment Scheme then exemption of duty is in excess of 75 percent of the duty leviable thereon.

A duty of 40 percent ad valorem has to be paid on the import of refractory bricks.

Recently a 5 percent ad valorem surcharge on all imports has been imposed. This additional duty will not be considered in the calculation of the sales tax that is leviable.

With regards to the provisions of the Sales Tax Act 1951 a 12 1/2 percent sales tax is normally levied on the value of the goods. But in the case of imported mining machinery a sales tax of only 10 percent is payable. The same rate is applicable on the local manufacture of:

- o heat insulating bricks, blocks, tiles etc.
- o refractory bricks, blocks, tiles etc.
- o other refractory goods.

No sales tax is payable for the following items:

- o mining machinery and component parts that are produced or manufactured in Pakistan.
- o post hole diggers, bulldozers, angledozers and self-propelled levellers.
- o building bricks.
- o locally manufactured bricks other than building bricks, flooring blocks, support or filler tiles.
- o locally manufactured coal briquettes.
- o pyroelectric articles for use with machinery or for signalling purposes.

G. INWARD TRANSFER OF CAPITAL

There are no restrictions on the inward transfer of capital but repatriation will depend on whether or not the capital was brought into Pakistan with prior approval of the Government and the conditions specified in such approval.

H. FOREIGN LOANS

Foreign loans can be obtained with the prior approval of the SBP. The SBP normally gives a repatriation guarantee and permits forward exchange contract cover for such loans. Interest payment allowed on foreign loans is usually at 1 percent over labor. Interest payments on foreign loans are subject to withholding tax unless specifically exempted. (Taxation on interest, such as withholding tax exemption on approved loans, is discussed in the section relating to Taxation).

I. LOCAL BORROWINGS - FOREIGN CONTROLLED COMPANIES

Restrictions are placed on the extent to which "foreign-controlled" companies can borrow from banks in Pakistan. A company is deemed to be "foreign controlled" if 50 percent or more of the shares are subscribed by foreign nationals, or 50 percent or more

a company is deemed to be Pakistani controlled if its Chief Executive is a Pakistan National.

Under the Foreign Exchange Regulations Act of 1947 foreign controlled companies are eligible to borrow local funds for working capital subject to the following:

For the purposes of fixing the borrowing limits, "foreign-controlled" companies are classified in the following three categories:

- (i) manufacturing companies including oil distributing companies,
- (ii) semi-manufacturing companies including construction companies, and
- (iii) trading companies.

In case of manufacturing companies the limits are as under:

Companies incorporated in Pakistan with the following foreign equity		Local borrowing entitlement
50% to 60%	70%	of paid-up capital, general and free reserves, undistributed profits (less accumulated losses) and unremitted dividends as disclosed by last audited annual balance sheet.
61% to 70%	65%	
71% to 80%	60%	
81% to 90%	55%	
91% to 100%	50%	

Foreign controlled companies are normally required to meet their capital requirements out of their rupee resources or from loans raised abroad with the permission of the GOP/State Bank. However, in special circumstances such companies are allowed to raise rupee resources through medium and long term local borrowings which will not count towards their normal entitlement.

J. ISLAMIZATION

It is the declared policy of the government to Islamicize all spheres of public life in Pakistan. Islamic economic principles

preclude the charging of interest. Alternative forms of financing are being involved as a substitute. The State Bank of Pakistan under directions from the Ministry of Finance has issued circulars to all local and foreign banks and financial institutions to eliminate interest from their operations. According to the circular:

From January 1, 1985, all type of finances provided by banks to the Federal Government, Provincial Governments and their agencies, public sector corporations and public and private joint stock companies should be made only on Islamic basis. This includes renewal of finances provided to these clients. From April 1, 1985, all types of finances provided by banks will be on an Islamic basis as stated above. From July 1, 1985, no bank is permitted to accept interest bearing deposits. But foreign currency deposits maintained in Pakistan and foreign currency loans will continue to attract interest as at present, as per the terms agreed with the parties.

Interest Free Modes of Finance

Certain modes of financing based on the concept of profit and loss sharing have been suggested. These include the following:

Trade Related Financing

- o Purchase of goods by bank and their sale to clients at appropriate "mark-up" price on deferred payment basis.
- o Leasing and hire-purchase on periodic payment of rental/installment for financing the acquisition of fixed assets.
- o Financing for development of property on the basis of a development charge.
- o Purchase of moveable and immovable property by the banks from the clients with buy-back arrangements.

Investment Financing:

- o Musharika or profit and loss sharing investment to be made by the bank to finance the working capital requirement of trade and industry. The sharing of profits and losses will be on a quarterly basis computed on provisional quarterly profits of the undertaking financed. The share of each would be in proportion to their investment and would be worked out

on the basis of the daily balance on the Musharika and equity respectively.

- o PARTICIPATION TERM CERTIFICATES (PTCs) have been introduced to replace debentures carrying a fixed rate of interest. These provide for returns only out of the profits. These certificates are freely transferable financial instruments and mature in installments. The rate of profit and loss sharing and the principal redemption period are subject to mutual agreement of the company issuing PTCs and the prospective subscribers.
- o Modaraba Certificates are also freely transferable financial instruments based on sharing of profits and losses. Modaraba financing enables a management company to control and manage the business of a Modaraba Company with a minimum of 10 percent equity participation. The management company is entitled to remuneration based on an agreed percentage of annual profits of Modaraba business. The floatation and management of Modaraba Companies is regulated through the Modaraba Companies and Modaraba (floatation and control) Ordinance of 1980, and the Modaraba Companies and Modaraba Rules of 1981.
- o Zakat. Another Islamic fiscal measure introduced by the government is "Zakat": an Islamic wealth-tax on investments and financial assets to be used for charitable purposes. Zakat is recovered at the rate of 2.5 percent of the value of an asset determined in the manner laid down in the Zakat and Ushr Ordinance of 1980. The First Schedule of the Ordinance sets forth the categories of investments and other financial assets on which Zakat is "compulsorily" recoverable. Briefly, these are: savings bank accounts, deposit receipts and accounts; saving/deposit certificates; NIT units; ICP Mutual Fund Certificates; government securities; company securities (including shares and debentures other than those held by companies); and annuities and life insurance policies and provident funds.
- o Zakat is recoverable only from Muslim citizens of Pakistan and companies predominantly owned by Muslim citizens of Pakistan. Certain sects of Muslims are authorized to be exempt from Zakat based on their belief.
- o In all cases, no Zakat will be recoverable in respect to shares and debentures of other companies held by the Company. In addition, no Zakat is recoverable from a company where a majority of shares are owned by foreign investors. Thus, if the company is formed as a foreign

control company no Zakat will be recoverable on its investments and other financial assets. However, if it is controlled by Muslim citizens of Pakistan, Zakat will be compulsorily recovered (other than on shares and debentures) from it in the manner laid down in the Zakat and Ushr Ordinance in respect of its investment and other financial assets.

K. MISCELLANEOUS

Under notification No. 1016(1)-79 dated October 17, 1979, foreign nationals resident continuously for six months or more in Pakistan are required to bring into Pakistan the earnings abroad in respect of services rendered while in Pakistan. While the State Bank does not rigidly enforce this, it is still the foreign exchange law of the country and therefore government approval would be required if exemption is sought in this behalf.

IV LABOR REGULATIONS

In recent years there has been a spate of labor legislation in Pakistan to regulate the employment of labor, to fix minimum wages for workers and to lay down procedure for labor management and arbitration. Some basic facts concerning labor legislation in Pakistan are outlined below.

A. THE COMPANIES PROFIT (WORKER'S PARTICIPATION) ACT OF 1968

This act sets out a compulsory profit sharing program for workers in certain undertakings. The formula used to determine the worker's share of profit is 5 percent of the net profits before tax. The worker's "share" is deductible for income tax purposes. The Act applies to companies engaged in "industrial undertakings" which satisfy any one of the following conditions:

- o the number of workers employed at any time during a year is 50 or more;
- o the paid up capital of the company on the last day of its accounting year is Rs 2 million or more; and,
- o the value of fixed assets of the company (at cost) on the last day of the accounting year is Rs 4 million or more.

The company must establish a Worker's Participation Fund within nine months of the close of the first accounting year and to pay to the fund every year (within nine months of the close of accounting year) five percent of its "profits" during the year. "Profits" mean "net profits" as defined in section 87 of the Companies Act of 1913. All workers whose average monthly wages do not exceed Rs 1,000 per month and who have been in the employ of the company for not less than six months at the close of the year are eligible to participate in the fund.

B. THE WORKER'S WELFARE FUND ORDINANCE, 1971

A worker's welfare fund is established by the Government to provide for residential accommodation and other facilities for workers. Every "industrial establishment" whose total income during the year exceeds Rs 100,000 is required to pay to the Fund a sum equal to two percent of so much of its total income as is assessable under the provisions of the Income-Tax Law in Pakistan. The amount is payable notwithstanding any tax holiday enjoyed by the company. The amount is required to be paid to the income-tax officer having jurisdiction over the industrial establishment and is payable on or before the date on which the industrial establishment is required to furnish the return of its income under the income-tax-law. The payment made to the Fund is considered an allowable charge against profit of the establishment for purposes of assessment of income tax. Any excess or shortage as a result of actual assessment or in appeal or revision is subject to adjustment.

C. THE WORKER'S CHILDREN (EDUCATION) ORDINANCE, 1972

This Ordinance applies to every employer of an establishment in which the number of workers whose monthly wages do not exceed Rs 1,000 is twenty or more. The obligation of the employer under the Ordinance is to pay to the Provincial Government an education fee at the rate of Rs 100 per worker per annum.

D. THE EMPLOYEE'S OLD AGE BENEFITS ACT, 1976

This Act applies to every industry or establishment whether industrial or commercial wherein ten or more persons are employed or were employed on any day during the preceding 12 months. Under this Act an employer is required to register with the Employees Old Age Benefits Institution and is to communicate the name and particulars of the industry and of every person employed in the industry. The employer is required to contribute to the Institution every year in respect of every person in his employ whose wages do not exceed Rs

1,000 per month at the rate of five percent of his wages (as defined in the Payment of Wages Act 1963).

E. THE PROVINCIAL EMPLOYEES SOCIAL SECURITY ORDINANCE, 1965

Under this ordinance an employer is required to pay to the Employees Social Security Institution a contribution ranging from 4 percent to 7 percent of employee's wages in respect of all employees whose wages do not exceed Rs 1,000 per month.

F. STAFF TERMINATION BENEFITS

There is no statutory requirement for termination payment to those who do not come within the definition of "worker" under the labor laws of Pakistan. In respect to such persons the termination benefits will be according to contract.

So far as labor is concerned termination law is somewhat complicated. The principal provisions are contained in the Industrial Relations Ordinance of 1969 and the West Pakistan Industrial and Commercial Employment Ordinance of 1968. Under the former, a trade union of workers may be formed and be recognized as the collective bargaining agent of the workers. It is entitled to present demands which the management is required to negotiate. If there is no settlement the union would be entitled to take the demands for compulsory adjudication to a labor court, with a right of appeal to a labor appellate tribunal. The specific terms and conditions of a worker are governed by the Standing Orders Ordinance 1968 but by a process of judicial interpretation, it has been held that anyone who is not concerned with administrative or management functions is a "worker" and entitled to payment in lieu of unavailed leave, one month's notice or one month's pay in lieu of notice and gratuity equivalent to 20 days wages for each completed year of service or any part thereof in excess of six months on termination.

Retrenchment (termination for redundancy) may only be effected in strict compliance with the principle of "last in first out".

Termination of service must specify the reason, which is then justifiable, with the aggrieved worker having the right to move the Labor Court for redress of his grievance.

G. STANDING ORDERS ORDINANCE, 1968

The Standing Orders Ordinance applies to all establishments wherein twenty or more workmen are employed and sets out provisions for compulsory group insurance and for profit related bonuses. All workers not engaged in a supervisory, administrative or managerial capacity are entitled to a proportionate share in a bonus pool equivalent to 30 percent of the profits subject to a maximum of one month's wages.

H. UNEMPLOYMENT BENEFITS

There is no statutory unemployment benefit cover for any class of employees in Pakistan.

I. FACTORIES ACT, 1934

Working hours, leave and paid holidays of industrial workers are governed by this Act and all new industrial undertaking employing 10 or more persons are required to be registered under this Act.

V MONOPOLIES AND RESTRICTIVE TRADE PRACTICES
(CONTROL AND PREVENTION) ORDINANCE, 1970

This Ordinance seeks to control undue concentration of economic power, unreasonable monopoly power or unreasonably restrictive trade practices. These are presumed to be brought about if the total value of the assets of the undertaking is Rs 50 million or more and it is not a Public Company; if it is owned by a public company in which any one individual holds or controls 50 percent or more of the shares or voting power; and/or if there are any dealings between associated undertakings which have or are likely to have the effect of unfairly benefiting the owners or shareholders of one such undertaking to the prejudice of the owners or shareholders of any other of its associated undertakings.

When the Monopoly Control Authority is satisfied that an action is necessary it may take the following actions:

In case of undue concentration of economic power, the Authority may (a) require Private Limited Companies to be converted into Public Limited Companies; (b) require the shareholders of Public Limited Companies to offer certain portion of shares held by them to the general public including the National Investment Trust; and (c) prescribe the conditions on which the associated undertakings concerned may deal with each other.

In case of unreasonable monopoly power, the Authority may, inter-alia: (a) require the person or undertaking concerned to divest itself of the ownership of any stock or shares or other beneficial interest in any undertaking or of any asset or require the person concerned to divest himself of any position held by him as an officer/director; (b) limit the total loans which may be made by any bank to any undertaking; and (c) require the undertaking concerned to take such action as may be necessary to restore competitive prices.

In case of unreasonably restrictive trade practices the Authority may (a) require the undertaking to discontinue any restrictive trade practice; and (b) require the undertaking to take such action as necessary to restore competition in production, distribution or sale of any goods or provision of any services. In order that information relevant to performance of its functions is available to the Authority the following undertakings/agreements are required to be registered with the Authority: (a) an undertaking which is not owned by a public company and the total value of its assets is Rs 50 million or more; (b) an undertaking which during the next preceding calendar year produced, distributed, sold or provided not less than 1/3rd of the total production or supply of any goods or services; and (c) an undertaking which by agreement or otherwise, establishes minimum resale prices for retailers or wholesalers with regard to goods which it produces or distributes.

VI TAXATION⁽¹⁾

A. INTRODUCTION

1. Fiscal Year

Tax assessment in Pakistan is based on the government fiscal year beginning on July 1 and ending on June 30. The tax assessment is based on the profits of the "income year". The "income year" is ordinarily a period of twelve months ending, in the case of business, at the assessee's option either on December 31 or June 30. If the business year-end differs from December 31 or June 30 approval of the Central Board of Revenue is required. In the case of salaried individuals the income year ends on June 30.

2. Classes of Tax Payers

A tax payer may be assessed in the status of an individual, an association of persons (AOP) or a company. The incidence of tax will depend on the residential status of the tax payer.

3. Concept of Residence and Income Liable to Tax

In Pakistan the tax liability varies according to the residential status of the tax payer. A "resident" is liable to tax on his entire world income with certain exceptions detailed in the section relating to Individual Taxation. Non-residents are not liable to tax on income which accrues or arises outside Pakistan unless it is received in or deemed to be received in Pakistan or is deemed to accrue or arise in Pakistan. Residents are liable to tax on their total world income regardless of where it accrues or is received. Certain short-term residents are not taxed on their world income.

A company is resident in Pakistan if it is a company registered under the Companies Ordinance having its registered office in Pakistan or if the "control and management" of its affairs is situated wholly

(1) Unless otherwise noted "Ordinance" refers to the Income Tax Ordinance of 1979.

in Pakistan in that year. Thus, if a company is registered under the Companies Ordinance, the company will be resident for Pakistan tax and taxed on its world income.

B. CORPORATE TAX

1. Business Income

The taxable income of a business is determined after allowing for all direct and indirect expenses incurred wholly and exclusively in earning that income. Capital expenditures and general provisions for unascertained or contingent liabilities are not allowed. Accounting depreciation is added to income and statutory depreciation, calculated at prescribed rates, is allowed in respect of fixed assets owned and employed for the business. Listed and discussed below are some of the allowances and deductions specifically enumerated in the Income Tax Ordinance of 1979. Over and above the specific allowances there is a residual class extending the allowance to items of business expenditure not specifically mentioned.

Profits and gains from the exploration and extraction of mineral deposits (other than petroleum) shall be computed in the manner applicable to income, profits and gains chargeable under the heading "income from business or profession".

2. Allowances and Deductions Against Business Income

a. Specific Allowances

The allowances and deductions for computing business income specifically enumerated in the Ordinance include:

- o rent paid for premises in which the business is carried on. If the tax payer owns the premises used for business, no notional rent is allowed to him and correspondingly no notional income is taxable under income from property;
- o interest on borrowed capital for the purposes of the business including that on loans for acquiring capital assets or for paying trading debts. Interest payable

outside Pakistan will not be allowed if, despite being chargeable to tax, no tax is deducted at source;

- o insurance premium against risk of damage or destruction of building, machinery, plant, furniture or fittings, stocks and stores used for the purposes of business. Premiums paid for other insurance considered as commercially expedient would be allowed under the residuary clause discussed below;
- o current repairs of premises, machinery, plant, furniture or fittings used for the purposes of business. In this context the courts have held in a number of cases that the repairs and renovations which substantially extended the period of service-ability of the assets would be construed as capital expenditure;
- o depreciation (capital allowances) in respect of buildings, machinery, plant, furniture and fixtures which are the property of the assessee and used for the purpose of business.
- o bonus and commission paid to employees for services rendered provided such sums would not have been payable to them as profit or dividends had it not been paid as bonus or commission. However, the amount thereof should be reasonable with respect to the pay of the employee and the conditions of his service, the profits of the business or profession for the year in question, and the general practice in similar businesses;
- o bad debts, write offs not exceeding the amount actually written off by the assessee as determined by the tax officer to be unrecoverable;
- o expenditure on scientific research in Pakistan related to the business;
- o expenditure on training of citizens of Pakistan in connection with a scheme approved by Central Board of Revenue; and annual membership subscriptions to registered trade organizations within the meaning of the Trade Organization Ordinance of 1961.

b. Other Business Expenditure

There is also a residuary clause extending the allowance to items of business expenditure that are not covered by the preceding. For particular items of expenditure to be deductible under this residuary clause the expenditure (i) must not be of the nature enumerated in the specific clauses of expenditure, (ii) must be incurred in the

relevant accounting year, (iii) must be in respect of the relevant business and be incurred after the business is set up, (iv) should not be in the nature of personal expenses of the tax payer, (v) must be laid out or extended wholly and exclusively for the purpose of the business, and (vi) should not be in the nature of capital expenditure.

3. Non-Deductible Expenses

Non-deductible items include any salaries paid without withholding tax; any sum which is chargeable to tax in Pakistan in the hands of the recipient and which is paid to a non-resident without withholding tax, expenditure incurred by a company in providing perquisites, allowances or benefits to an employee in excess of 50 percent of the salary of the employees, any sum paid on account of any cess, rate of tax levied on the profits or gains of any business assessed as a percentage or otherwise on the basis of any such profits or gains; any allowance in respect of expenditure on entertainment in excess of such limits and in contravention of such conditions as may be prescribed; and sums paid to provident, gratuity or superannuation funds (unless they are approved by the Commissioner of Income Tax and effective arrangements are made to secure that tax would be deducted at source from any payments made from the funds).

Liabilities unpaid for three years after being allowed as a tax deduction are deemed to be income. Such items are subsequently allowed as a deduction in the year the liability is discharged. The difference between the amount of interest calculated at 2 percent above the bank rate (presently 10 percent) prevailing on the date of lending and interest actually received by a company on loans made to any person - other than to its employees for a specific purpose and in accordance with his terms and conditions of service, and to suppliers as advance - is deemed to be the income of the company. This provision does not affect loans given by foreign companies to their affiliates or subsidiaries in Pakistan at interest rates lower than that stated above.

4. Depreciation

In computing business income a deduction is allowed for depreciation on building, machinery, and plant and furniture owned by the tax payer and used for the purpose of business. "Plant" includes any ships, aircraft or vehicle registered in Pakistan as well as books, scientific apparatus and surgical equipment. In practice plant and machinery also include items such as office equipment, electrical installations, railway sidings, tramways, etc. Intangible assets such as goodwill, patents, copyright, designs and trade marks are not eligible for depreciation.

After the commencement of commercial production, depreciation allowance in respect of machinery and plant purchased or acquired after 31.3.58 for extracting ore shall be allowed as a deduction from profits and gains of the year in which they were used for the first time in an amount equal to the original cost of such asset.

Depreciation is a statutory allowance, calculated at the rates prescribed in the Ordinance and cannot be varied by the tax payer. Book depreciation is not required to conform to tax depreciation, but in case of Pakistani companies it should not be charged at less than the normal tax rates. If the rates at which depreciation has been charged in the tax payer's accounts are different from those allowable for tax purposes then appropriate adjustment must be made in the computation of taxable income.

The types of depreciation available are:

Initial Depreciation

Initial depreciation is allowed on buildings, plant and machinery (but only on certain types of motor vehicles) installed between July 1, 1976 and June 30, 1988 in Pakistan, which had not previously been used in Pakistan, and is granted once in the life of an asset in the year of erection or installation, or the year in which the asset is first used by the tax payer for the purposes of his business, or the year in which commercial production is commenced, whichever is the later. In respect to motor vehicles initial depreciation is available

only on heavy transportation such as lorries, trucks, oil tankers on wheels, buses, min-buses and station wagons used for the transport of employees to and from their places of work, but not on motor cars and jeeps unless they ply for hire. Initial depreciation is deductible from cost in determining the written down value (depreciated cost). The rates of initial depreciation stated as a percentage of cost are shown below.

<u>Category</u>	<u>Rate percent</u>
Residential buildings for industrial labor	25%
Other buildings	10%
Machinery or plant (other than ships or motor vehicles not plying for hire)	25%
In the case of industrial undertakings commencing commercial production on or after July 1, 1981	40%

Normal Depreciation

Normal depreciation is calculated on the written down value of the asset at the rate prescribed for various types of assets.

The following are examples:

	<u>Rate percent</u>
Buildings - general rate	5%
- factory or workshop (excluding godowns and offices)	10%
- residential quarters for labor	10%
Furniture	10%
Technical or professional books	20%
Machinery and plant (not otherwise specified)	10%
Motor vehicles; all sorts	20%
Electrotherapeutic apparatus	20%

Normal depreciation is calculated in the first year on the original cost (to the tax payer) of the asset and in subsequent years on the written down value of the asset at the end of the previous

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year, except in the case of ships where it is calculated on a straight-line basis.

Extra Allowance for Multiple Shift Working

At 50 percent of normal depreciation for double shift working and 100 percent for triple shift working on plant and machinery proportionate to the number of days worked in a year of 300 days.

No depreciation is allowable on any building, plant or machinery in the year in which such asset is sold, discarded or destroyed but, subject to this, depreciation is allowable for a full year even if the asset has been used only for part of the year. The aggregate depreciation allowable to a tax payer in respect to an asset may in no case, exceed the cost of the asset.

5. Depletion Allowance

Businesses engaged in the exploration and extraction of mineral deposits are allowed "depletion allowance" as established in the Fifth Schedule, Part 2 of the Income Tax Ordinance of 1969:

- o Depletion allowance allowable at 15 percent of the total income of such undertaking (before the deduction of such allowance) or 50 percent of the capital employed, whichever is less.
- o No deduction for depletion allowance shall be made unless an amount equal to the depletion allowance is set apart and left as a reserve to be utilized for the development and expansion of such undertaking.
- o In case the amount set aside is not used for the prescribed purposes the depletion allowance will be deemed to have been wrongly allowed. The total income for the relevant years may then be recomputed for up to ten years from the end of the assessment year relevant to the income year in which the amount was so utilized.
- o Taxable gain or allowable loss on the disposal of fixed assets arises only in the year in which an entire class of assets is sold or the year in which the sale of less than an entire class of assets produces sales proceeds which are in excess of the tax written down value of that class of asset to the intervening period. Sale proceeds of an asset are deducted from the written down

value of the remaining assets of the same class (pooling method) reducing the depreciation allowable on the remaining assets. Except for building where sale proceeds are deemed not to exceed original cost, even the excess of sale proceeds over cost is taken into account with the result that capital gains on such assets are also charged to tax at normal rates.

6. Loss Set Offs

- o A business loss incurred in any year may be set off against the profits of any other business of the tax-payer in that year. The balance remaining may be set off against the tax-payer's income under any other head in that year.
- o All expenditures on prospecting and exploration incurred by such undertaking after March 31, 1958 up to the date of commercial production shall, to the extent it cannot be set off against any other income of the said undertaking, will be treated as a loss.
- o Capital losses and speculation losses are to be considered separately and cannot be set off against any other income in that year. These losses can only be set off against capital gains and speculation gains respectively in that year.

7. Loss Carryovers

- o Operating losses may be carried forward for adjustment against the profits of the succeeding six years.
- o If allowable depreciation in any year cannot be used by setting it off against the profits or income of that year the unabsorbed depreciation is carried forward and added to the amount of depreciation allowable on the same assets in the following year and is treated in all respects as though it were depreciation of that year. One important effect of this is that, if in the following year the profits of the business are insufficient to absorb it, unabsorbed depreciation, unlike loss carry overs can be set off against the tax payer's other income of that year. Any depreciation which is not absorbed in this manner is carried forward to succeeding years, without limit, until fully absorbed.
- o Since the carry forward of operating losses is limited to six years and unabsorbed depreciation can be carried forward indefinitely, operating loss carry overs should be absorbed first in profitable years.
- o Pakistan tax law does not permit carry back of losses.

- o Loss carryovers arising from speculative transactions may be carried forward for adjustment against profits of speculative transactions for the succeeding six years. The term "speculative transaction" has been defined to mean a transaction in which a contract for purchase and sale of any commodity is periodically and ultimately settled not by actual delivery of the commodity but by other means. Loss carryovers arising under the head of income of "capital gains" may be carried forward for adjustment against capital gains of the succeeding six years. Capital losses not exceeding Rs 5,000 cannot be carried forward.

Loss set offs may be carried forward to the following year(s) for a maximum period of 10 years beginning from the year of commercial production.

8. Tax Rates

For Companies Other Than Banking Companies

Federal taxes in respect of the 1983-84 fiscal year payable on the income of financial year ended between July 1, 1982 and June 30, 1983:

	<u>Companies other than banking %</u>
Income tax	30
Super tax	25

Some of the relevant rebates available against super tax for companies incorporated in Pakistan are:

1. Public company not being a banking company 5
2. Public company not being a banking company whose paid up capital plus free reserves does not exceed Rs 500,000 and the rebate in (3) below does not apply to it 5
3. Public company whose paid-up capital plus free reserves does not exceed Rs 1,000,000 on income derived from an industrial undertaking 5
4. Industrial undertaking (private or public) commencing production between July 1, 1975 and June 30, 1988 with fixed assets (excluding land) costing not more than Rs 5,000,000. Such companies will not be allowed the 5% small company rebates in (2) and (3) above 5

5. Income arising outside Pakistan and brought into Pakistan

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Public company implies a company listed on any stock exchange in Pakistan or one in which not less than 50% of the shares are held by the Pakistan Government or a trust formed under Pakistan Law.

The tax rate for companies engaged in exploration and extraction of mineral deposits has been reduced for Pakistani companies in respect to undertakings set up between 1.1.1981 and 30.6.1984 to (a) nil for a period of five years from the date of commercial production and (b) to 50% of normal rates of income tax and super tax for the next five years.

Inter Company Dividends

Only super tax is payable on dividends declared by a Pakistan company and received by:

Public company	<u>5</u>
Foreign company or an association declared to be a company by the Central Board of Revenue	15 or lower rate
Private company	20

9. Capital Gain

Capital gains other than on fixed assets realized in the company's accounting period ending between July 1, 1974 and June 30, 1983 are exempt from federal taxes. From July 1, 1983 to June 30, 1988 this exemption is available only on sale of shares of public companies. Capital gains on sale within one year of acquisition are taxed as ordinary business income; after one year such gains are taxed at 25 percent.

Capital gains on fixed assets (other than immovable property) are chargeable to tax as normal business income either in the year of sale or if there are other similar assets over the life of such assets (pool basis). Capital gains on immovable property are subject to a

provincial tax at graduated rates ranging normally from 5 to 20 percent.

Capital losses can be offset only against capital gains. Unabsorbed capital losses can be carried forward for adjustment against capital gains of the succeeding six years. The carry-forward period for capital losses on sale of shares of public companies up to June 30, 1988 will commence after that date.

C. WITHHOLDING TAXES

As Pakistan has a very complicated system for deduction of tax at the source, only a brief outline is given in this report. It should be noted that failure to comply with the provisions attracts penalties and in certain cases disqualifies the payment from being claimed as an expense against taxable income.

1. Salaries

Under sub-section (i) of section 70 of the Income Tax Ordinance of 1979 tax is deducted at the source when paying salaries chargeable to tax in Pakistan irrespective of where the payment is made. The amount to be deducted is arrived at by applying the average rate of tax on estimated income of the employee for the current fiscal year to the salary being paid. The tax deducted is deposited into the government treasury (State Bank of Pakistan or National Bank of Pakistan) within a week of deduction.

2. Payment to Residents

Under the provisions of section 50(4) private companies having paid up capital of Rs 3 million or more and public companies are liable to deduct tax from all payments made to any person for goods or services or the execution of a contract where the total value of such goods, contract or services in any financial year exceeds prescribed limits (for goods Rs 30,000, for services Rs 10,000). The rates of deduction of tax are:

D. TAXATION OF ROYALTIES AND TECHNICAL FEES RECEIVED BY NON-RESIDENT COMPANIES

1. Royalty

Royalty is payable by a resident for any right, property or information used or services utilized for the purpose of a business in Pakistan which is deemed to accrue and arise in Pakistan. Royalty received by a foreign company from a Pakistan concern in pursuance of an agreement made after March 8, 1980 would be taxable in Pakistan in its entirety without deduction of any expenditure or allowance. Exemption from tax or a lower rate of tax could be claimed under the tax treaties which Pakistan has with other countries.

1. Technical Fees

Under the provisions of section 12(5) of the Income Tax Ordinance, any income by way of "fee for technical services" payable by a resident in respect to services utilized in a business or profession carried on in Pakistan would be deemed to accrue or arise in Pakistan even though the services have been performed outside Pakistan. For the purpose of the afore-mentioned section, "fee for technical services" has been defined to include "any consideration for rendering of any managerial, technical or consultancy services (including the provisions of the services of technical or other personnel)".

Limited deductions are allowable in computing the taxable income from fees for technical services. Where such income is received from a Pakistani concern under any agreement made by a foreign company, on or after May 4, 1981, the following deductions are admissible:

- expenditure incurred in Pakistan on the provisions of services of technical or other personnel, including their salaries earned in Pakistan, wherever paid;
- expenditure incurred in Pakistan in respect to any work done in pursuance of such agreement; and
- expenditure incurred outside Pakistan in respect to any work done in pursuance of an agreement not exceeding 10 percent of the gross amount of such fees.

As the major portion of the work in respect to technical fees is normally conducted outside Pakistan the tax exposure could be substantial since the expenditure incurred outside Pakistan would be limited to 10 percent of the gross fees.

E. INTEREST ON DEBT

Interest income on foreign loans deemed to accrue or arise in Pakistan under the provisions of sub-section (3) of section 13 would be liable to Pakistan taxation. Any expenditure (not being in the nature of capital expenditure or personal expenses) laid out wholly and exclusively for the purposes of earning such income, however, could be claimed as a deduction from such income. It is noteworthy that under clauses 75 to 77 of the Second Schedule to the Ordinance, shown below, interest income of certain non-resident lenders is exempt from local taxation subject to fulfillment of the relevant conditions:

Clause 75

Any interest payable to a non-resident in respect of such private loan to be utilized on such project in Pakistan as may be approved by the Federal Government for the purposes of this clause, having regard to the rate of interest and the terms of repayment of the loan and the nature of the project on which it is to be utilized.

Clause 76

Any interest payable by an industrial undertaking in Pakistan

- (i) on moneys borrowed by it under a loan agreement entered into with any such financial institution on a foreign country as may be approved in this behalf by the Federal Government by a general or special order; and
- (ii) on moneys borrowed on debts incurred by it in a foreign country in respect of the purchase outside Pakistan of capital plant and machinery in any case where the loan or debt is approved by the Federal Government, having regard to its terms generally and in particular to the terms of its payment from so much of the tax payable in respect thereof as exceeds the tax or taxes on income paid on such interest in the foreign country from which the loan emanated or in which the debt was incurred (hereinafter referred to as the "said country").

Provided that, where the amount of such tax or taxes paid in the said country exceeds the amount of the tax payable in Pakistan, no refund of the amount paid in excess shall be allowed:

Provided further that, where the said country exempts such interest or allow credit against its own tax for the tax which would have been payable in Pakistan if the said interest were liable to tax in Pakistan, no tax shall be payable in Pakistan in respect of such interest.

Clause 77

Any income of an agency of a foreign Government, or other foreign "national", company, firm or association of persons approved by the Federal Government for the purposes of this clause, from interest paid on moneys borrowed by the Federal Government or by any other person in Pakistan under a loan agreement approved by the Federal Government.

F. AVOIDANCE OF DOUBLE TAXATION

Pakistan has entered into double tax agreements with a number of countries, including the United States, West Germany, the United Kingdom, Japan, France and Switzerland. Some tax exemptions are available under these treaties. For example, under the agreements with the United States, royalties received by a resident of the U.S. derived from sources in Pakistan for the right to use patent, designs, plans, secret processing, formulas, trade marks and the like in Pakistan are exempt from payment of Pakistan taxes. In addition, the tax rate on interest income from loans made by certain companies has been restricted or totally eliminated.

Under the United States Agreement, subject to the Internal Revenue Code, taxes payable by United States residents in respect of income from sources in Pakistan is allowed as a credit against United States taxes payable in respect of that income. United States corporations having no permanent establishment (that is, a branch, a place of business or factory, etc.) in Pakistan, which are publicly owned or traded companies, and own shares carrying more than 50

percent of the voting power of a Pakistani company engaged in an industrial undertaking, are allowed a rebate (currently 6.25 percent) against super-tax payable by them on dividend income. Royalty income (not exceeding a fair and reasonable consideration) to a United States resident is exempt from Pakistani taxes, provided the person receiving the royalty does not have a permanent establishment in Pakistan. United States enterprises are not subject to Pakistani taxes in respect of their "industrial or commercial profits" unless they are engaged in a trade or business in Pakistan through a "permanent establishment" in Pakistan.

G. INDIVIDUAL TAXATION

1. Concept of Residence

In Pakistan the liability for tax varies according to the residency status of the tax-payer in an income year. An individual is regarded as "resident" in Pakistan in any income year if he/she: is in Pakistan in that year for a period or periods amounting to 182 days or more; or is in Pakistan for a period or periods amounting in all to 90 days or more in that year and who within the four years preceding that year has been in Pakistan for a period or for periods amounting to 365 days or more.

A resident is liable for tax on his entire world income with the exception that income which accrues outside Pakistan is exempted provided:

- (i) he has not been resident in Pakistan in nine out of ten years preceding the income year or
- (ii) if he has not during the seven years preceding that year been in Pakistan for an aggregated period of more than two years and
- (iii) provided the income is not derived from a business controlled in or a profession set up in Pakistan and is not brought into or received in Pakistan during such income year. On the other hand, a "non-resident" is not taxable on income which accrues or arises outside Pakistan unless it is received in or deemed to be received in Pakistan or is deemed to accrue or arise in Pakistan.

2. Taxation of Salaries

Salaries which are chargeable to tax have been very broadly defined to include wages, annuities, pensions, gratuities in excess of tax free portions, fees, commissions, allowances, perquisites or profits in lieu of, or in addition to salaries and wages, any advance salary and any compensation due to or received by an assessee from his employer or former employer at or in connection with the termination of employment or the modification of the terms of employment.

3. Perquisites

Perquisites include:

(i) the value of rent-free accommodation; (ii) the value of any concession in the matter of rent respecting any accommodation; (iii) any sum payable by the employer, whether directly or indirectly, to effect an insurance on the life of, or to effect a contract for any annuity for the benefit of the assessee, or his spouse or any dependent child; (iv) the value of any benefit provided free of cost or at a concessional rate; and (v) any sum paid by an employer in respect of any obligation of an employee.

The Income Tax Rules framed by the Central Board of Revenue have specified the extent of taxability of perquisites and allowances as discussed below. The taxability of some perquisites is calculated with reference to the minimum of "time scale" of basic salary of the employee. There are many companies which do not have "time scales" for salary and in such cases, the Rules specify that the base salary of the employee against a particular post is to be construed to be minimum of time scale.

Housing Rental Allowance

House rent allowances received by an employee in cash are exempt up to 45 percent of the minimum of the time scale of basic salary. Such an allowance is wholly taxable if the same employee is additionally provided free furnished or unfurnished accommodation by the employer.

Free Unfurnished Accommodation

Under the rules, free unfurnished accommodation includes electric fan, built in cupboards, cooking range and water heater provided under the terms of the lease. It also includes free services of a watchman, gardener and sweeper in an independent house, and such services on part-time basis where accommodation is provided in a block of flats or apartments. No addition on account of these benefits is to be made to the rental value of the accommodation. Similarly, no addition would be made where electricity is provided by the employer from his own generators and no meters have been installed.

Rent Free Furnished Accommodation

In this case, a further amount equal to 5 percent of an employee's "salary" over and above the amount determined for inclusion for unfurnished accommodation is required to be added to income.

"Free furnished accommodation" in relation to rent-free accommodation, in addition to facilities available in respect of unfurnished accommodation includes basic furniture and furnishings, appliances for cooking, refrigeration, heating and cooling and repairs thereof (but does not include items such as T.V. sets, radios, cassette players, etc).

Medical

Medical payments by company or reimbursement of actual expenses incurred by an employee are exempt from personal tax.

Conveyance

Where an employee owns a conveyance which he uses partly for business and partly for personal purposes and he bears its running and maintenance costs a conveyance allowance up to Rs 3,000 or 10 percent of his salary, whichever is higher, would be allowed. An employee given free use of a company car for official and private use would have 50 percent of the sum actually expended on the running of the conveyance or Rs 3,000, whichever is lower, added to his income.

Telephones

Reimbursement of residential telephone bills under present practice are taxed at an adhoc percentage ranging from 20 to 50 percent, provided such reimbursement is in accordance with the terms of the service agreement with the employee and business use of the residential telephone can be justified to the tax officer.

Entertainment

Entertainment allowances paid in cash are taxable in entirety. Actual entertainment expenses supported by bills, justified for business use and either paid for directly by th company or reimbursed to the employee, are not taxable and are considered as business expenses of the company.

Leave Passage

Leave fare assistance for the employee, his wife and children and dependants, could be provided every year for travel within Pakistan and once every two years for travel outside Pakistan, are not taxable to the employee. It is important that the provision of this benefit should be made part of the employee's terms of employment, the assistance should be restricted to passage costs only and, in the case of foreign travel, the payment be made either directly to the travel agency or substantiated by the employee by producing third party bills evidencing actual expenditure incurred by him equal to the amount of assistance.

Utilities

The value of gas, water and electricity provided free of charge or sums paid to an employee for purposes of meeting such charges is exempt from tax up to 10 percent of the minimum of time scale. As stated above, where there is no time scale, the exemption is available up to 10 percent of the basic salary. All allowances, benefits or perquisites in excess of 50 percent of an employee's "salary", which inter-alia would include basic salary plus bonus payable in terms of his employment, are disallowed as an expense in the company's assessment under sub-clause (i) of section 24.

4. Relief and Allowances

Individuals are entitled to a deduction of Rs 18,000 representing the statutory allowance from total income in order to arrive at the taxable income. A nominal tax of Rs 60 is charged on the first Rs 4,000 of a salaried person. The remaining income is taxed at graduated rates shown below.

Rebate at average tax rate (tax liability as a percentage of total income) is allowed on certain types of investments made during the income year e.g. new share issues, government savings certificates, etc. The maximum investment permissible under the law is the lower of 1/3rd of total income or Rs 50,000. A minimum holding period of three years is required in case of some such investments.

TAX RATES

<u>Taxable Income</u>	<u>Amount of Tax</u>
Where the taxable income does not exceed Rs 10,000	15% of the taxable not income
Where the taxable income exceeds Rs 10,000 but does not exceed Rs 15,000	1,500 plus 20% of the amount exceeding Rs 10,000
Where the taxable income exceeds Rs 15,000 but does not exceed Rs 20,000	2,500 plus 25% of the amount exceeding Rs 15,000
Where the taxable income exceeds Rs 20,000 but does not exceed Rs 25,000	3,750 plus 35 percent of the amount exceeding Rs 20,000
Where the taxable income exceeds Rs 25,000 but does not exceed Rs 30,000	5,500 plus 40 percent of the amount exceeding RS Rs 25,000
Where the taxable income exceeds Rs 30,000 but does not exceed Rs 60,000	7,500 plus 50 percent of the amount exceeding Rs 30,000
Where the taxable income exceeds Rs 60,000 but does not exceed Rs 100,000	22,500 plus 55 percent of the amount exceeding Rs 60,000

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TAX RATE (continued)

<u>Taxable Income</u>	<u>Amount of Tax</u>
Where the taxable income exceeds Rs 100,000	45,500 plus 60 percent of the amount exceeding Rs 100,000

No tax is payable if total income does not exceed Rs 18,000.

Non-resident individuals are taxed at 30 percent of total income, or the income-tax which is payable on their total Pakistan income if it were the total income of a person resident in Pakistan, whichever of these two yields a higher amount of tax. A non-resident can elect to be assessed at the average rate of tax calculated with reference to his total world income. This option is to be exercised in writing by a notice to the tax officer before September 30 of the first year of assessment. The option once exercised cannot be revoked and the right to exercise the option cannot be claimed by a person who has already been assessed for tax in Pakistan.

6. Returns to be filed

An employer is required to file a monthly return showing salaries, allowances, taxes deducted, etc in respect of all employees with a taxable income with the tax authorities. By the first of September in each year, an annual salaries return has to be filed by the employer in respect to salaries paid during the year ended on the preceding June 30. By the first of October in each year, every employee with a taxable income is required to file his return for the year ended on the preceding June 30.

7. Exemptions

Under clause 7 of the Second Schedule to the Ordinance, the salary of a person employed in an approved undertaking, who is neither a citizen of Pakistan nor a resident in Pakistan in any of the four years preceding the year of his arrival in Pakistan, is exempt from Pakistan tax for a period of three years from the date of arrival provided such salary represents remuneration for services rendered as a technician under a contract of service approved by the Commissioner

of Income-tax (CIT). The application for such approval is required to be made within one year of commencement of service.

The exemption does not apply to any remuneration, or any part thereof, as is subject to tax outside Pakistan or in respect of which the technician does not get credit for the tax which would, but for this exemption, have been payable in Pakistan or tax payable outside Pakistan, whichever is lower (i.e. no country should allow credit for the lower of national Pakistan tax or tax payable in that country).

The CBR has issued a direction vide circular No. 1(7)-IT-V/77 dated July 5, 1977 that local companies, which have entered into contracts with foreign companies for installation of machinery in Pakistan, where the foreign technicians are paid out of the contract money, but are the regular employees of the Pakistani company are also eligible for this exemption. The CIT would, however, invariably approach the CBR for obtaining approval of such undertakings.

"Technician" has been defined to mean an individual who possesses specialized knowledge in industrial arts and sciences and has experience in industrial practice and whose employment in Pakistan, irrespective of his designation, is in a capacity in which such specialized knowledge and experience are brought into play.

Under clause 8 of the Second Schedule, a technician who was eligible for exemption under clause 7 (as discussed above) on expiry of the three years' exemption period under clause 7 will be exempt for the following five years only on the part of his income which represents tax borne by his employer on his salary. In other words, there would be no "tax on tax".

Employee of Foreign Enterprise

Tax exemption is also available on remuneration received by an employee of a foreign enterprise for services rendered in Pakistan if

- (a) his employer is not engaged in any trade or business in Pakistan;

- (b) his stay in Pakistan does not exceed ninety days in the income year; and
- (c) the remuneration is not deductible from income of the employer chargeable to Pakistan tax.

8. Tax on Tax

If salaries are paid to employees free of tax (i.e. the employer agrees to bear the employee's tax liability) for the purpose of assessment of the recipient, such salaries would have to be grossed up to such an amount as would, after deducting the tax thereon, leave to the recipient the stipulated amount of tax-free salaries. The liability of the employer in respect of such tax is thus not the tax on the net income but the tax on the gross income of the recipient which would be substantially greater i.e. there would be "tax on tax".

A person not domiciled in Pakistan is required to obtain a tax clearance certificate before leaving Pakistan. Following, among others, are instances where such certificates are not required:

- all persons below the age of eighteen years
- persons who have not spent more than 90 days in Pakistan (i) at a time and (ii) in a fiscal year.

H. TAX INCENTIVES

Under the Income Tax Ordinance, 1979 the Federal Government has powers to make an exemption, reduction in rate or other modification in respect to tax. The following are some of the major tax incentives presently available.

- o Tax holiday to industrial companies set up till June 30, 1988 for 5 years if the undertaking is set up in the following under-developed areas:
 - province of Baluchistan
 - D.I. Khan and Malakand divisions in the North West Frontier Province (NWFP)

- Azad Kashmir, Northern areas, Tribal areas and districts of Mansehra and Kohistan
- Districts of D.G. Khan and Rajanpur or in approved industrial estates in the whole of NWPF, Mianwali and District Sargodha; Districts of Shikarpur, Jacobabad, Tharparkar, Dadu and Sukkur.
- o Partial tax exemption to the extent of 10 percent of capital employed in industries set up in specified areas which commences production by June 1988;
- o Tax credit of approximately 15 percent of the cost of machinery installed for modernization, balancing and replacement and in certain under-developed areas for extension of existing industrial units, is allowed to Pakistani companies where machinery is installed up to June 1988. The tax credit is deductible from the tax payable in the year the machinery is installed. Unabsorbed tax credits can be carried forward for set off against the tax liability for the following two years. The tax credit is allowed subject to fulfillment of the prescribed rules.
- o A tax rebate is allowed to all commercial and industrial exporters at the rate of 55 percent of the tax attributable to income from export of goods manufactured in Pakistan.
- o Where an undertaking also engages in refining or concentrating in Pakistan the minerals extracted by it in Pakistan, profits not exceeding 10 percent of capital employed, shall be exempt from tax. This rule does not apply to an undertaking formed by splitting, reconstruction or reconstitution of an existing business, or by the transfer to a new business of any plant, machinery or building used in a business which was being carried on before 1/7/1975.
- o The face value of any bonus shares or the amount of any bonus declared, issued or paid by a company to its shareholders with a view to increasing its paid up capital is exempt in the hands of shareholders.
- o Bonus shares issued by companies are deemed to be income and liable to super tax but such tax has been held in abeyance till June 30, 1988.
- o Tax exemptions for specified periods are also available for technical services for storage and preservation of food grains, poultry farming, dairy farming and cattle or sheep breeding and fish farming.

Concession for Undertaking in Export Processing Zones

Special concessions are allowed to undertakings set up in the Export Processing Zone as follows:

- Tax holiday for five years. For subsequent five years tax will be charged at twenty five percent of the prescribed rate.
- Tax exemption for foreign technicians for 5 years.
- Tax exemption on capital gains.
- Tax exemption on income accruing or arising outside Pakistan from such activities as are approved by the Government.
- Operating losses to be carried forward without any time limit.

APPENDIX C

This Appendix contains documentation proposing and describing the Pakistan National Coal Conference exactly as it was sent by USAID to relevant Government of Pakistan officials.

Sponsors, Agenda, Speakers and dates have not been confirmed to date.

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
MISSION TO PAKISTAN

CABLE: USAIDPAK

HEADQUARTERS OFFICE
ISLAMABAD

November 26, 1984

H.E. Dr. Mahbub ul Haq
Federal Minister for Planning and Development
"P" Block, Pakistan Secretariat
Islamabad

Dear Mr. Minister:

I am requested that your Ministry sponsor what could be a significant event in the history of coal development in Pakistan. As you know, the USAID Energy Planning and Development Project provides for the holding of a coal conference designed to bring together all the interested parties in an environment in which their interests and opportunities can be explored, and in which the major issues related to developing the indigenous coal sector can be aired. A longer term objective of such a conference is to improve the conditions under which coal production throughout the country can grow efficiently to meet a larger share of Pakistan's total energy requirements.

The attached proposal represents our preliminary thinking about the conference. It should be regarded as illustrative, and to be used as a basis for further discussion. The proposal was recently informally discussed with the Secretary General, EAD, officials of your Ministry, PMDC and the Ministry of Water and Power. There appears to be a consensus on the high utility of the conference. During the meeting, it was suggested that USAID should write to you asking if the Ministry of Planning and Development would agree to act as sponsor and to assist in constituting and convening the first meeting of a Conference Steering Committee. USAID would, under the terms of the Energy Planning and Development Project, provide the necessary funding for the conference.

I believe that a National Coal Conference could make a worthwhile contribution towards achieving the objectives for coal as set out in the Sixth Plan. One of these objectives relates to the Lakhra Project.

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I suspect that this conference could be quite helpful in moving Lahkra along, as well as to accelerate the development of coal more broadly. In our proposal, it is suggested that the Conference cannot be held before April 1985, and that the President of Pakistan might wish to open the event. I look forward to hearing from you on this matter. Please let me know with whom we should discuss this in the Ministry.

Best personal regards,

Sincerely,

Donor M. Lion
Director

- cc: Dr. M. Asad Khan, Minister of State, Ministry of Petroleum and Natural Resources, Pakistan Secretariat, Block A, Islamabad
Mr. E. A. Naik, Secretary General, Economic Affairs Division, Pakistan Secretariat, Block C, Islamabad
Mr. Akram Khan, Additional Secy, Ministry of Water & Power, Pakistan Secretariat, Block A, Islamabad
Mr. Usman Shah Afridi, Addl. Secy, Ministry of P&D, Pakistan Secretariat, Block P, Islamabad
Mr. Izharul Haq, Chief (Energy), Ministry of P&D, Pakistan Secretariat, Block P, Islamabad
Mr. Tajammul Hussain, Chief (Minerals), Ministry of P&D, Pakistan Secretariat, Block P, Islamabad
Mr. A. A. Malik, Chairman, PMDC, H-13, Sector H/9, Islamabad

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The Energy Planning and Development Project provides for the holding of a conference designed to bring together all parties interested in the development of a modern large scale coal industry in Pakistan. The conference is expected to be the forum, and provide the environment in which interests and available opportunities can be explored, and in which the major issues related to developing the indigenous coal sector can be aired.

This report conveys a USAID proposal concerning the holding of this coal conference. The proposal, preliminary and illustrative, benefitted from the views expressed at a meeting on November 8th chaired by E.A. Naik, Secretary-General, EAD.

The major elements addressed are set out below.

- I. The purpose, objectives and title of the workshop/conference.
- II. An indicative agenda (Attachment 1)
- III. The organization of the Conference, including logistic requirements and costs to be met by AID (conference secretariat, facilities hire, travel and housing for invitees, etc.) (Attachment 2)
- IV. Evaluation of the capabilities of two local organizations to carry out the functions of Conference Secretariat, with an indication of the tasks of the Secretariat. (Attachment 3)
- V. Estimate minimum time needed between AID/sponsor decision to proceed with conference and actual event. (Attachment 4)
- VI. Identify a preliminary slate of invitees and speakers. (Attachment 5)

I. PURPOSE AND OBJECTIVES

A. USAID Objectives.

There are a number of objectives for this conference. An immediate objective is to help move the Lakhra project forward by bringing all the interested parties together in an environment in which the Government's high level attention to modernizing the coal sector is made evident (e.g. it is proposed to ask the President of Pakistan to open the Conference). A longer term objective is to improve the environment under which coal production throughout the country can grow efficiently to meet a larger share of total primary energy requirements. The role of the private sector should continue to be predominant in coal production (now about 85%), and the issues addressed by the Conference will be important in assuring that adequate capital and technical expertise flows to the private sector. The rapidly growing cost of hydel and the continuing need to reduce dependence on imported oil reinforce the fact that coal must re-emerge as a key fuel in the economy, both for power generation and other uses. It is recognized that the understanding of the resource base is still very imperfect, but it is enough to warrant a major effort to prove more coal reserves and to plan for expanded coal use. The Conference is intended to bring together a wide collection of Pakistani institutions concerned with the

Pakistan's coal industry. Specific goals include:

a.) Focussing attention on various problems that must be tackled if the private sector is to achieve a major increase in coal production. Many of the problems have already been identified thanks to the work and reports of the Minerals Coordination Board and its Coal Utilization Committee. Others are relatively new and need airing, e.g. joint venture mechanisms, the terms and enforcement provisions of long-term take-or-pay coal supply contracts, coal quality control, etc. The conference is intended to generate greater awareness of the need for action through the presence of senior Provincial, Federal and private sector officials, and by providing an opportunity for the Federal Government to elaborate on its Sixth Plan Coal Policies.

b.) Providing a setting in which some of the issues surrounding the supply of Lakhra coal to WAPDA's Jamshoro 2 can be informally addressed outside conference sessions. These issues include;

- The strategy to be pursued for coal development at Lakhra, including the structure of LMDC, supplies from private mines, etc.
- Setting of prices for coal supplied to WAPDA and the possible effects on other Lakhra coal prices
- "Take-or-pay" contracts
- Financing of new exploration on private leases and unleased coal prospects (Lakhra and elsewhere)
- Meeting the demand for Sind coal in sectors other than power

c.) Informing potential foreign joint venture partners, suppliers and investors as to the structure and functioning of the Pakistan coal sector.

B. Suggested Formal Conference Objective.

"To create the opportunity for all parties concerned with rapid, efficient coal development in Pakistan to work together to identify, define, and discuss the basic requirements to be met if coal is to play the increasingly important role in meeting national energy needs as announced in the Sixth Plan."

C. Proposed Conference Title

We believe that "Conference" would be more appropriate than "Workshop", given the level of participation that it is intended, and we suggest that the title be "The First National Coal Conference: Shaping Pakistan's Coal Future". Clearly, the sponsor and/or Steering Committee may wish to change the title.

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D. Expected Results

It is important to have a realistic picture of what the Conference might accomplish. While it may be that some participants would come to the Conference to state well-known positions, and not to give public indications that they would be prepared to change their approaches to particular questions, it may be hoped that the Conference could begin to make clear to all concerned that new attitudes are called for if a modern coal industry is to be developed to create employment, provide investment opportunities and increase Pakistan's energy independence.

The payoff must be seen in i) moving negotiations on Lakhra coal supply arrangements to a more advanced stage; ii) indirectly encouraging Provincial and Federal Governments to take action on pending regulatory reform and on a whole range of other matters that will help boost private sector production; iii) focussing attention on coal use and new markets for coal; and iv) attracting foreign companies to participate in Lakhra coal development.

II. CONFERENCE AGENDA (Attachment 1)

The agenda has been designed to avoid the more academic type of session and to focus on the difficult issues that need continuing attention if barriers to expansion and modernization are to be removed. An indicative draft agenda is shown at Attachment 1. This may be further revised as a result of comments from the sponsors and the Steering Committee

III. ESTIMATED COSTS (Attachment 2)

A breakdown of estimated costs is given in Attachment 2. A number of aspects of the budget would require review by AID and the Steering Committee together with the assumptions underlying the estimates.

IV. PROPOSED MANAGEMENT AND ORGANIZATION OF THE CONFERENCE

A. Management.

The extent of delegation of management authority for the Conference will depend in part on the capabilities within E & E and partly on the functions assumed by the sponsor. Certainly, AID will need to assign either one of its staff or a contractor to exercise policy supervision. This would not be a full-time job. The actual manager of the conference could be from AID staff, from the staff of the sponsor or a contractor. We believe that if the Planning Ministry agrees to sponsor the conference, they will want to play a major role in managing and organizing the Conference in order to assure that their sponsorship is associated with a successful event. The budget in Attachment 2 does not take into account a situation in which the sponsor would take on all or most of the administrative tasks.

B. Sponsor.

It is suggested that the Federal Ministry of Planning and Development sponsor the Conference. The role of the sponsor would be to indicate the high level backing of the Government for the Conference, and possibly to provide the

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Secretary of the Steering Committee-cum-Conference Manager. As noted above, the Planning Ministry may suggested a larger role for itself as sponsor.

C. Steering Committee.

It is proposed that the Steering Committee would be composed of around 10 senior (i.e. Additional Secretary level or higher) officials from the following institutions/organizations:

- o Federal Ministry of Planning and Development
- o Federal Ministry of Petroleum and Natural Resources (Minerals Coordination Board)
- o Federal Ministry of Water and Power or WAPDA
- o National Development Finance Corporation
- o All Pakistan Mine Owners Association
- o Baluchistan, NWFP, Punjab and Sind Governments
- o PMDC
- o Other coal user ? Commercial Bank?
- o USAID
- o Other possible bilateral or multilateral donor?

The Steering Committee would be asked to approve the conference agenda, assist in identifying speakers, session chairmen and invitees. It will also be asked to assess the success of the conference and to guide follow-on activities including possible planning for a Second National Coal Conference.

D. Secretary, Steering Committee or Conference Manager.

This individual would start work prior to the first meeting of the Steering Committee. Someone is needed who can take policy decisions (e.g. changing the subject of a session, writing conference materials, etc.). The individual would be either from AID, an AID contractor or an official from the Ministry of Planning who would work in close liaison with someone from E & E or a contractor.

E. Funding Agency.

In its Energy Planning Project Agreement with the Federal Ministry of Planning and Development, USAID has already agreed to provide financial support for such a Conference.

IV. CONFERENCE SECRETARIAT (Attachment 3)

The Secretariat would handle all of the logistic and clerical work involved with publicizing the conference, tracking registration, speakers preparations, travel, etc.etc. Two possible organizations have been suggested for this role - the Pakistan Institute of Development Economics (PIDE) and the Pakistan Institute of Management (PIM). Attachment 3 elaborates on this activity. It may be that the Planning Ministry will undertake this function.

V. TIMING (Attachment 4)

A major conference with around 130 participants from Pakistan and overseas drawn from up to 40 organizations takes a minimum amount of time to prepare. A

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dummy critical path has been drawn up and is shown at Attachment 4. Indications are that 18 weeks would be needed at minimum after the Steering Committee has approved the basic agenda and all the funding arrangements are in place. While it is felt that the Conference can materially assist resolution of a number of questions surrounding a strategy for Lakhra supply to WAPDA, its timing should not hold up any other necessary activities (e.g. a special bidders conference, etc.).

VI. PROPOSED SPEAKERS AND ATTENDANCE

A list of suggested speakers, invitees and other participants is contained in Attachment 5. For decision by AID and the Steering Committee will be such questions as:

- Should participation be completely open to all interested parties?
- Should a nominal fee (say Rs. 500) be charged to permit some control over attendance (with the fee waived for desired attendees).
- Should all or some sessions be open to the Press?

cc: D.M. Lion
J. Stone
J. Blackton
K. Lue Phang
H. L. Falkenberry
R. L. Lappi
M. S. Ahmad
R. Ichord

ATTACHMENT 1
INDICATIVE AGENDA

FIRST NATIONAL COAL CONFERENCE: SHAPING PAKISTAN'S COAL FUTURE

(Provisional Title)

Location: Karachi

AGENDA

PROPOSED SPEAKERS*

EVENING DAY 0

1800	-	2000	Registration
2030	Dinner for Members of Steering Committee		

DAY 1

0800 - 0900	Assembly and Registration	
0915 - 0930	Welcoming Address	Governor of Sind
0930 - 1000	Opening Address	The President of Pakistan
1000 - 1020	Remarks	Chairman, Steering Committee
1030 - 1230	SESSION 1: Present and Future Markets for Coal in Pakistan: The Reintroduction of Coal as a Modern Fuel A. Overview of Current Demand Patterns B. Government Policies Affecting Coal Demand During the 6th Plan and Beyond i.) Power Generation ii.) Brick Industry iii.) Cement Industry iv.) Other Industries v.) Rural and Urban Households	Chairman: M.D. ENERPLAN Panel Speaker: Planning Division or MCB Panel Member: SCCP Panel Speaker: WAPDA

(Remarks: In the above session it is hoped that the Government (Ministries of Planning, Production, Industries) will indicate how fuel use policies will stimulate coal demand in key industries and in households.)

1230 - 1345 LUNCH

*NB: The list of suggested speakers is necessarily incomplete at this stage

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.....START OF PARALLEL SESSIONS.....

- 1345 - 1730 SESSION 2A: COAL RESERVES OF PAKISTAN:
An Incomplete Picture
A. Overview of Present State
of Knowledge
B. GSP's Current Exploration Programme
C. New Approaches to Financing in Coal
Exploration in Pakistan on Private and
Public bases: The Brazilian Model and
other ways of boosting exploration
- Chairman: Punjmin
Panel Speaker: GSP
Panel Speaker: MCB
Panel Members: APMOA
PMDC
- 1730-1800 Session Chairman/Rapporteur's Summary
- 1345-1730 SESSION 2 B: MINE DEVELOPMENT: The
Availability of Financing and the
Investment Climate
A. National Institutions
-Acceptability of leases as collateral
-Finan. Eval. of Coal properties
-The default dilemma
-Lending criteria and facilities
-Recent practice
ii.) International Institutions: Policies for
Coal Sector Lending (IBRD, IDB, ADB, IFC)
iii.) Foreign private investors
(What they are looking for?
What they can offer?)
iv.) Mining Infrastructure
- Chairman: M.M. Qurashi,
Chief Executive RDFC
Panel Speaker: World
Bank or ADB: Panel
Speaker: Hardesty
Panel Member: APMOA
Panel Member: IDBP
Panel Speaker: NDFC
- (This session has input to 4B)
- 1730-1800 Session Chairman/Rapporteur's Summary
- 2030 Dinner for all participants hosted by USAID
Guest of Honour:
- Dr. Mahbub-ul-Haq ?
Dr. Moh. Asad Khan ?

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DAY 2

0900 - 1030 SESSION 3 A: "MODERN" MINE DEVELOPMENT:

A. The Choice of Technologies
Technologies Needed for
Pakistan's Coal Industry
High or Low Capital Paths: Does
modern mine development have to
be capital intensive?

Chairman: PCSIR
Panel Speaker:
Saeed Ahmed
Hashmi
Panel Speaker:

B. Coal Briquetting: The Technologies
and the markets

(Remarks: This session is intended to air the views of those who argue that a low capital/labour intensive approach (with modern safety standards) has higher economic efficiency in the Pakistani context and the views of those who believe that a modern coal sector is synonymous with a high degree of mechanization.)

0900 - 1230 SESSION 3 B: FUTURE MARKET MECHANISMS FOR COAL SUPPLY

A. Power Generation: The Demand of
Large Quantity/Long-term Supply
Contracts - Take-or-Pay
- Price Escalation
- Quality Control
- Default

Chairman:
Panel Speaker: WAPDA
Panel Speaker: APMOA
Panel Speaker: SCCP
Panel Member: PMDC

B. Cement and Other Industrial
Coal Users

SCCP

i.) Current Mechanisms
ii.) New Approaches

C. The Import Option: Steel, Power Generation, Blending

(Remarks: This session is intended to air the supply contract issues relating to the Lakhra and to other large-scale industrial users.)

1230 - 1345 LUNCH

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1400 - 1545 SESSION 4 A: COAL PRICING WITHIN THE
CONTEXT OF NATIONAL ENERGY PRICING

- A. Stimulating Price Competition
A role for Imports? Other approaches?

Chairman:
Panel Speaker:
Panel Member: PIDE
Panel Member:

(This session will discuss ways of lowering retail coal prices by increasing competition in the coal supply chain.)

- 1600 - 1730 SESSION 5 A: THE TRANSPORT OF COAL
Overcoming Bottlenecks and
Lowering Costs
A. Rail
B. Road
C. Water/Barge
D. Port Unloading/Handling

Chairman:
Panel Speaker:
Sadiq Swati, NTRC
Panel Member: PRR
Panel Member: NLC

1400 - 1730 SESSION 4 B: THE REGULATORY ENVIRONMENTS:

- A. Overview of Situation in
Baluchistan, Punjab, NWFP and
Sind (Remarks: Commonality in
regulations should be brought out.)
B. Modernization of Coal Leasing
Regulations: A Timetable for Action

Panel Chairman:
S.R. Poonegar?
Panel Speaker:
Director of Mining,
Sind
Panel Speaker: Nawaz
Khan
Panel Member: Punjab
Panel Member: NWFP

1730 - 1800 Chairman's Summary

1830 - 1900 Meeting of the Steering Committee

DAY 3

0830 -1000 SESSION 6: SPECIAL PRESENTATION
 ON LAKHRA PROJECT INCLUDING
 LATEST RESULTS FROM LAKHRA
 EXPLORATION WORK
 Panel Chairman:
 Panel Speaker: USAID
 Panel Speaker: PMDC
 Panel Member:
 Director of Sind Mining
 Panel Member: GSP/USGS

1030-1100 CLOSING PLENARY SESSION (Announcement of follow-on Conference)

1130 - 1200 PRESS CONFERENCE
 CHAIRMAN, STEERING COMMITTEE

(Facilities will be made available for delegates wishing to hold
bilateral discussion during the days following the conference)

1500 OPTIONAL LAKHRA TOUR DEPARTURE FOR HYDERABAD

DAY 4

0830 OPTIONAL TOUR OF LAKHRA DEPARTS HYDERABAD FOR LAKHRA, VISIT SITES,
 RETURN BY COACH TO KARACHI EVENING ARRIVAL

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Attachment 2

INDICATIVE CONFERENCE BUDGET

This section provides explanatory notes to the budget. These estimates do not reflect specific quotations from suppliers.

A discussion of the individual line-items is provided as follows:

I. Staffing of Conference Secretariat

A proposed staffing for the Conference and the costs thereof have been determined on the assumption that the positions will be filled from the market. To the extent that the Sponsor would be able to make staff available, the costs could be adjusted downwards.

II. Accommodation-Conference/Committee Rooms.

An assumption has been made that the Conference will last three days and that the delegates will arrive a day earlier and leave the day after. An office will be functional at the venue a couple of days before and after in order to facilitate arrival and the departure of the delegates.

III. Transportation.

The costing includes two cars for the staff use, two mini-buses on the days of arrival and departure for airport pick-up and drop, and the two micro-buses for inter-city transportation of delegates.

IV. (a) Invitees/Speakers/Sponsors (Pak)

The total number of 48 includes 40 Pakistani invitees/speakers and 8 from the sponsor. The cost of the officials from the sponsor is shown separately in order to facilitate budgetary cuts. If, however, the sponsors meet their costs outside the budget, the cost to AID could be reduced. The payment of local invitees/speakers' expenses is based on the prevailing practice in Pakistan for similar seminars/Conference.

IV. (b) Invitees/Speakers (U.S).

The costing includes payment of expenses of U.S. Invitees-Speakers only.

V. Equipment.

This line item has been included in order to indicate the need for the listed equipment, either by the sponsors or through rental arrangements as has been proposed herein. The Planning Ministry is likely to request the purchase of a stand-alone word processor PC and a large photocopying machine for the Conference, which they would retain at the end of the Conference.

VI. Printing/Stationary/Postage.

These line items as detailed in the budget are self-explanatory. However, printing of certain Conference material such as the papers presented by the speakers would take place after the Conference.

VII. Reception/Entertainment.

We have included one dinner/reception for all the delegates and one for the Steering Committee in the Conference budget. It will however, be the Mission and the sponsor's decision whether to keep this time in the proposed budget.

An optional line item has been included outside the Workshop budget for a visit of approximate 50 percent of the delegates (approximately 40 persons) to the Lakhra Coal field. We leave it to the Mission to decide whether or not this will provide a useful opportunity particularly to the U.S. delegates and the Pak delegates coming from the interior of the country to have a over-view of the Lakhra Area.

I. STAFFING

CONFERENCE MANAGER* 5 WEEKS x Rs.3000	15,000
SECRETARIES 2 x 6 WEEKS x Rs.1000 1/2 time	6,000
OFFICE MANAGER (CONF.) 1 WEEK x Rs.3000	3,000
RECEPTIONISTS 3 x (CONF) 1 WEEK x Rs.1500	4,500
ADMIN AIDES 2 (CONF) x 1 WEEK x 1000	2,000
TRAVEL STAFF 3 ROUND TRIPS x Rs.2300	6,900
PER :DIEM 6 DAYS x \$ 90 EQUIVALENT	<u>8,000</u>

SUB-TOTAL

Rs 45,400

* Optional if Manager is USAID or Planning Ministry

II. ACCOMMODATION - CONFERENCE/COMMITTEE ROOMS

ROOM FOR OFFICE 7 DAYS x 500	3,500
CONFERENCE HALL 3 DAYS x 2000	6,000
COMMITTEE ROOMS 3 x 2 DAYS x 1000	6,000
RECEPTION ROOM 4 DAYS x 500	<u>2,000</u>

SUB-TOTAL:

Rs 17,500**

Increases if additional meeting are provided for bilateral meetings after formal conference sessions end.

III. TRANSPORTATION

2 CARS RENTAL x 7 DAYS x 500	7,000
2 MINI BUSES (AIRPORT PICK-UP) x 2 DAYS x 1000	4,000
2 MICRO BUSES x 3 DAYS x 1000	<u>6,000</u>

SUB-TOTAL

Rs 17,000

IV. (a) SPONSORS/INVITEES/SPEAKERS (from Pakistan)*

48 SPONSORS/INVITEES ROUND TRIP TICKETS x 2000	96,000
48 SPONSORS/INVITEES PER DIEM x 4 DAYS x \$25 EQUIV	69,000
ROOMS (CONFERENCE RATES) x 500 x 4 DAYS	<u>96,000</u>

SUB-TOTAL

Rs 261,000

* To what extent should participation be subsidized?

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(b) INVITEES/SPEAKERS (U.S.)

10 INVITEES ROUND TRIP TICKET x 20,000	200,000
10 INVITEES PER DIEM (INTO) x \$200 EQUIV	30,000
10 INVITEES PER DIEM x 5 DAYS x \$25 EQUIV	18,750
10 ROOMS (CONFERENCE RATES) x 500 x 5 DAYS	<u>25,000</u>

SUB-TOTAL

Rs 273,750

V. EQUIPMENT

EQUIPMENT RENTAL	5,000
2 OVERHEAD PROJECTOR	
2 SLIDE PROJECTOR	
2 SPEAKERS	
1 PHOTO COPYING MACHINE	
2 TYPEWRITERS	
EQUIPMENT PURCHASE*	
STAND ALONE P.C. WORD PROCESSORs	150,000
PHOTOCOPYING MACHINERs	<u>45,000</u>

SUB-TOTAL

Rs 200,000

* Planning Ministry proposal

VI. PRINTING /STATIONERY/POSTAGE

PRINTING LETTER HEADS/BROCHURES/INVITATION CARDS/ AGENDA/PROGRAM MATERIAL ETC	40,000
MISC. STATIONERY AND POSTAGE ITEMS	10,000
PRINTING BANNERS, IDENTIFICATION CARDS, SIGNS ETC	10,000
PRINTING DRAFT REPORT 200 COPIES	4,000
PAKAGE BINDERS WITH INFO MATERIAL PRINTED WITH WORKSHOP EMBLEM 200 x 40	<u>8,000</u>

SUB-TOTAL

Rs 72,000

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VII. RECEPTION/ENTERTAINMENT

TEA BREAKS 2 x 3 DAYS x 500	3,000
DINNER FOR STEERING COMMITTEE 12 x 120	1,440
DINNER/RECEPTION 150 PERSONS x 120	<u>18,000</u>

SUB-TOTAL	<u>Rs 22,140</u>
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TOTAL:	<u>Rs 908,790</u>
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Contingencies (10%):	91,000
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GRAND TOTAL:	<u>Rs 999,790</u>
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OPTIONAL (Off-Budget)

I. VISIT TO LAKHRA COAL FIELD (OVERNIGHT)

2 AIRCONDITIONED BUSES x 2500	5,000
40 ROOMS AT HYDERABAD x 400	<u>16,000</u>

TOTAL	<u>Rs 21,000</u>
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Attachment 3

SCOPE OF WORK: CONFERENCE SECRETARIAT Possible Conference Secretariat Subcontractors

1. Pakistan Institute of Development Economics (Islamabad).

We met with the PIDE Director, Prof. Naqvi. PIDE has a very full schedule of its own conferences running through next April. In addition, they would not be able to assist with a conference in Karachi as they are based in Islamabad. They would be interested in providing speakers in the area of coal/energy pricing.

2. The Pakistan Institute of Management.

PIM is a public sector management training institution catering to both public and private sector organizations. A large number of private sector organizations are permanent members of PIM. The private Sector is also represented on the PIM Board of Directors. At an average PIM runs 75 seminars, workshops and other training courses in a year. These programs are keyed to executive development, managerial skills and middle level management development. PIM also organizes specialized seminars, forums on specific topics of interest to the Industry and/or International Organizations. PIM has its own facilities comprising conference halls, about a dozen class rooms and hostel accommodation for eighty participants.

3. Scope of Work of a Conference Secretariat.

The Work to be contracted to a conference secretariat includes:

a. Coordination

The secretariat will provide the services of an experienced, program coordinator supported by secretariat staff and business equipment to plan and coordinate logistic and Administrative support for the conference.

b. Logistic Support

The Logistic Support will include: a. Planning and booking adequate facility for holding the conference and working sessions; b. planning and coordinating transportation for delegates arrival/departures and participation in the workshop sessions. The arrangement will also include transport meals and accommodating for delegates interested in visiting the Lakhra Coal field; c. provision fo equipment for the Workshop sessions such as public address system, over-head projectors, video systems, photo copiers, black boards and other requisites as determined.

c. Administrative Support

- I. Administrative Support will include: a. Programatic support for Secretariat and Technical Coordinators; b. provision of staff for the Workshop secretariat, in addition to the Program Coordinator (see item 1 above); c. Provision of qualified Reporters for the Working Sessions; d. Receptionists

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and other Administrative support personnel for the duration of the Workshop.

- II. Other areas of Administrative support will include: a. Assistance in designing and printing Brouchures, printing of stationery, Registration forms etc; b. Mailing services; c. Design and preparation of Information Folders for the delegates; d. Telephone and Telex services and Answering services; Distribution and delivery services and other assistance in meeting and accommodating the delegates.

DURATION OF SERVICES

1. Secretariat services are to be estimated by the proposer (in the case of an outside firm).
2. It is estimated that the services of the Program Coordinator and the Workshop Secretariat will be required on-half time for the first six weeks and full time for the last four weeks.
3. Conference staff including rapporteurs for approximately seven days.
4. Workshop proceedings and papers compilation and any other follow-up services will be mutually determined.

Attachment 4

Coal Conference Critical Path

The events on the critical path are as follows:

- a) Fed. Ministry of Planning (ENERPLAN) agrees to Sponsor
- b) Formal GOP approval (assuming Planning Ministry needs other concurrences)
- c) Nomination of Steering Committee
- d) Selection of a Conference Manager
- e) Steering Committee holds first meeting, approves agenda, arrangements
- f) Selection of a Conference Secretariat
- g) Notification and confirmation of all panel chairmen, speakers and members
- h) mailing of brochures, announcements, invitations
- i) Conference

Events not on the critical path but crucial to the timing of the event, are as follows:

- USAID contractual approval and "contracts" to (1) fund the event, (2) hire the conference Manager (if a contractor) and (3) hire the conference secretariat. We believe this will take 4-6 weeks, minimum and tasks 4,5,7,8 and 10 can not take place until "contracts" are in place.
- Sufficient advanced notice requirements. We have assumed 6 weeks for both invitations and speakers. This may not be enough for overseas firms.

The analysis here suggests that January is out of the question for a conference of this size and complexity. March 1985 seems the earliest date possible, (NB: E.A. Naik's view that 4-5 months of preparation will be needed) and by then there should be sufficient information from the feasibility studies, the new drilling, and the coal burn and wash tests to provide a real incentive for overseas participants to attend.

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Attachment 5

PARTICIPANTS

SPONSOR

Ministry of Planning and Development

Waseem Jafri, Secretary General
Sadaqat Hasan Mir, M.D. ENERPLAN
Izharul Haq, Deputy M.D. ENERPLAN
etc. etc.

POSSIBLE INVITEES/SPEAKERS (Public Sector)

1. M. Akram Khan, M/o Water & Power, Adl. Secy
2. K. Idrees, Adl. Secy, M/o Production
3. M. Masihuddin, M/o Science & Tech Secretary
4. Mukhtar Masood, Secretary, M/o Pet. & Nat. Resources
5. Moinuddin Baqai, Princ. Econ., M/o Finance
6. Samdani, Jt. Secretary, M/o Industries
7. A.A. Malick, Chairman, PMDC
8. K. Asifullah, Director(Technical), PMDC
9. M. Nawaz Khan, Secy. MCB, M/o Pet & Nat.
10. Tajammul Hussain, M/o Planning & Development
11. A. Gafoor, Jt. Secretary, M/o Production
12. Jawed Talat, Jt. Secretary, M/o Finance
13. Secretary Industries, Punjab
14. Raja Sultan, Chief Inspector Mines Punjab
15. Bashir Gill, Gen Manager PUNJMIN
16. Tasneem Durrani, Dir.Planning Cement Corp
17. Aslam Hussain, Ch. Engineer Plan Railways
18. Baluchis Mineral Dev. Corp, Aziz Cuni
19. Chief Secretary, Baluchistan
20. M.A. Mirza, Dir Plan., GSP
21. Lt. Gen. Safdar Butt, Chairman, WAPDA
22. A. Sadozai, Member, Power, WAPDA
23. G. M. Ilias, Chief Engineer, Coal Power Projects, WAPDA
24. Ibrahim Memon, Geologist, WAPDA
25. Chief Engineer, Lakhra, Jamshoro, WAPDA

POSSIBLE INVITEES/SPEAKERS (Private Sector)

ISLAMABAD

1. Shaikh Ishrat Ali, Advisor on Trade and Industries

LAHORE

2. Chairman Punjab Mine Owner Association (Farooq Hayat)
3. Secretary General Punjab Association
4. Mian Rafiq Ahmad, Ex-Chairman, All Pak. Mine Owner Association
5. President, Lahore Chamber of Commerce

QUETTA

6. Chairman All Pak. Mine Owner's Assoc. (APMOA) (Ibrahim Baluch)
7. General Secretary, APMOA, (Saeed Ahmad Hashmi)
8. Chairman, Baluchistan Mine Owner Association
9. Major Distributor/Agent
10. Progressive Mine Owner (Osman Jomezai)
11. Progressive Transporter

HYDERABAD

12. Chairman Sind Mine Owner Association (H.M. Tahrani)
13. General Secretary Sind Mine Owner Association (Shahid Ali Beg)
14. Director Indus Mines
15. Director Him Iqbal Mines
16. Director Faiz Mines
17. Director Mehran Mines
18. Manager PMDC Mines
19. President Hyd. Chamber of Commerce
20. Progressive Transporter

POSSIBLE INVITEES FROM KARACHI AREA
(NO COST BASIS)

PUBLIC SECTOR

1. Secretary Industries Sind, Tasneem A. Siddiqui
2. Dr. Mineral and Industries, Rasul Baksh
3. Addl. Dir Minerals, N. Afghau
4. Chief Inspector Mines Sind, B. Ansari
5. Director Industries Dev Bank, Aftab Zaidi
6. Economist, PICIC, M. Nasir Khan
7. Waheeduddin Ahmad, Dir. Gen., GSP
8. Zainul Abedin, D.G. Investment Promotion Bureau
9. President, FPCCI, Pakistan Federastion of Chamber and Industries
10. Chairman, KESC
11. Director, KESC Iftikhasr Soonro
12. Ahmad Dawood, Chairman Dowood Corporation
13. D.M. Qureshi, Bankers Equity
14. Director Planning Port Trust
15. State Bank, Sk Khalid, Director
16. General Manager Bank of America
17. General Manager City Bank
18. President Habib Bank, A. Bajjar Khan
19. Mian Abdul Khaliq, Director Amin Brothers

POSSIBLE GUEST SPEAKERS

1. Dr. Ghulam Ishaq Khan, Minister of Finance
2. Dr. Mahbub ul Haq, Fed. Minister of Planning and Development
3. Lt. Gen. Janhandad Khan, Governor Sind
4. Allahi Bakhsh Soomro, Federal Minister of Industries
5. Dr. Moh. Asad Khan, Minister Incharge, Pet. and Nat. Resources
6. Sind Minister of Industries
7. Shaikh Ishrat Ali, Presidential Advisor on Trade and Industries
8. E. A. Naik, Secretary General, EAD
9. Sami Qureshi, Chief Secretary Sind

WORLD BANK

12. Resident Representative

ASIAN DEVELOPMENT BANK

13. Resident Representative

UNDP

14. Himalya Rana, UNDP Representative

INTERESTED OECD-MEMBER COUNTRY DIPLOMATIC MISSIONS

- 15.-25. Donor Agency Representatives/Economic Counsellors

POSSIBLE GENERAL PARTICIPANTS (SELF FINANCED)

PUBLIC SECTOR

1. N.A. Qureshi, D.G., M/o Pat. & Nat. Resources
2. Sohail Qureshi, DGER M/o Pat. & Nat. Resources
3. Naeem Ahmad Khan, PCSIR Chairman
4. Nasar Ahmad, PCSIR
5. Asif Ali Shaikh, ATDO
6. Fasihuddin Qureshi, A.G. Development Bank
7. Jt. Secy, Urban Affairs Division(Environment)
8. Divisional Superintendent Rlys, Hyd
9. Commissioner Hyderabad Division
10. Dy. Commissioner DADU Dist (Lakhra)
11. Director Mineral Punjab
12. Farhat Hussain, GSP
13. General Manager RLYS.
14. Chairman Cement Corporation
15. Pmdc Manager Mines (Quetta)
16. Abdul Farah, GSP (Quetta)
17. Ch. Engineer WAPDA Thermal Plant Quetta
18. GSP Incharge Bukki Quetta
19. Manager Coal Briquetting Plant Quetta

PRIVATE SECTOR

20. Hussain Dawood, Director Dawoods
21. Secretary General EPCCI, Karachi

OVERSEAS PRIVATE SECTOR

- 1.-30. Various U.S., European, Japanese, Korean firms.

APPENDIX D

PREFACE

This Appendix contains statistical data on (coal) prospecting licenses and mining leases. These data were extracted from lease and license records provided by the "Directorate of Industrial and Mineral Development" in each Province. We understand that since this data was gathered new leases have been granted in one or more of the provinces. We also understand that some, if not many, of the prospecting licenses have either lapsed or been converted to leases without being removed from the license records. Further, the data presented here were recorded so as to enable analysis, not specific identification.

Table Appendix C.1A:
Size Ranking of Leaseholdings in Sind, Punjab and Baluchistan

size rank of leases	number of leases	total acreage	average acreage	owners % of total	acreage % of total
0-500	130	33967.00	261.28	54.4	21.1
501-1000	63	45778.00	726.63	26.4	28.4
1001-1500	22	27735.00	1260.68	9.2	17.2
1501-2000	11	18816.00	1710.73	4.6	11.7
2001-2500	7	15194.00	2170.57	2.9	9.4
2501-3000					
3001-3500	5	15704.00	3140.80	2.1	9.8
3501-4000	1	3783.00	3783.00	0.4	2.3
4001-4500					
4501-5000	2	9471	4735.50	0.8	5.9
>5001	1	14981	14981.00	0.4	9.3
TOTAL	239	160979.00	673.55	100	100

Table Appendix C.1B
Size Ranking of License Holdings in Sind, Punjab and Baluchistan

size rank of licenses	number of licenses	total acreage	average acreage	owners % of total	acreage % of total
0-500	208	29332.0	141.0	41.5	2.9
501-1000	156	188814.0	1210.3	31.1	18.7
1001-1500	62	284308.0	4585.6	12.4	28.1
1501-2000	40	69566.0	1739.2	8.0	6.9
2001-2500	6	13172.0	2195.3	1.2	1.3
2501-3000	7	19152.0	2736.0	1.4	1.9
3001-3500	9	28885.0	3209.4	1.8	2.9
3501-4000	5	19078.0	3815.6	1.0	1.9
4001-4500	1	4140.0	4140.0	0.2	0.4
4501-5000	1	4549.0	4549.0	0.2	0.4
5001-5500	2	10443.0	5221.5	0.4	1.0
				0.0	0.0
	1	6267.0	6267.0	0.2	0.6
	1	13440.0	13440.0	0.2	1.3
	1	38707.0	38707.0	0.2	3.8
	1	282327.0	282327.0	0.2	27.9
TOTAL	501	1012180	374284.0	100	100

1987

Table C.2A: Leasing Pattern by Region and Owner Class

By Region	Sind	Punjab	Baluchistan
num. of leases	3	93	146
total acreage	8296.00	110587.00	66548.00
average size	2765.33	1189.11	455.81
By Lease Class	private and public	private only	public only
num. of leases	242	232	10
total acreage	185431.0	149921.0	35510.0
average size	766.2	646.2	3551.0
Minimum Size	8.0	8.0	62.0
Maximum Size	14981.0	3783.0	14981.0

Table Appendix C.2B
Nominal Ranking of the Largest License and Lease Holders

Size Rank	License Holder	Acres Under License	Lease Holder	Acres Under Lease
1	PMDC	330930	PMDC	35510
2	Tahrani, GM	42679	Habibullah	10421
3	Amin, MB	23204	Katha, C	6351
4	National, CM	7494	Mir, CC	3783
5	Punjab, MDC	6210	Fazal, MHC	3452
6	Ibrahim, B	5985	Ali, C	3263
7	Qazi, MC	5320	Dumer, CC	2828
8	United, MRC	3974	Sher, GK	2788
9	Baluchistan, M	3966	Gulzar, M	2667
10	Sukkur, MC	3720	Nazar, C	2485
11	Haroon, JD	3702	Coal, MCL	2445
12	Hashim, MB	3343	National, M	2323
13	Amin, A	3198	Khyber, CC	2304
14	Jehanzeb, J	3099	Malik, KBC	2217
15	Mohammed, NK	3000	Jaffari, IM	2133
Total		449824		84970
Percent of Total Under License or Lease		44.44		49.99

NOTE: Holdings were established through reference to Provincial license and Lease records. Individual holdings were accumulated only when the "names" of record matched exactly. It is, thus, likely that the list would change if a more explicit account were taken (for example, holdings under distinct but wholly owned companies). Also, the acreage accumulated under "Licenses" includes all licenses of record: some of these have no doubt lapsed.

Table Appendix C.1C: Leaseholdings by Size Rank

PMDC	14981	PMDC	936	Issa KSMS	455	Mughal CC	262
PMDC	4775	Raja FDK	911	Sultan "	449	Almadan	260
PMDC	4692	Katha C	911	Nasir CC	448	Mohammad A	257
Mir CC	3763	Shafique C	871	Nusrat CC	447	Zaphyr MTC	256
Habibullah	3200	New Age CC	869	Gillani C	447	Haideria M	256
Habibullah	3200	Punjab CC	855	Abdul CGS	430	Aftab CC	253
PMDC	3120	Raza MC	838	Iqbal HC	430	Fazal H	251
Katha C	3115	Pir CC	831	Gulzar C	426	Gulzar C	250
PMDC	3069	Malik DMS	827	Sulzar C	426	Mohammad A	248
Khyber CC	2304	Aziz CC	825	Raja NA	416	Malik WHS	245
Habibullah	2303	Sikki MC	771	Raja FDK	415	Syed GHS	240
Malik KBC	2217	Majeed AC	752	Ahmed MCC	400	Super PCC	238
Jaffar IM	2133	Issa KSMS	750	Malik MC	358	Maosood CA	234
Chitti DC	2109	Khan CM	722	Mughal C	395	United M	230
Sher GK	2068	Malik MSIH	721	Malik MRC	387	Malik DMC	215
Gulzar M	2060	Sher GK	720	Ittefaq CC	387	Kamyab CC	212
Chaudhry M	1896	Malik DMS	714	Commercial	383	Malik WHS	212
Malik M	1827	Kurd MC	701	Khan CC	382	Wazir KS	207
Fazal MHC	1821	Riaz NC	698	Ubaicur MG	375	Chaudhry M	202
Wah SLD	1798	Khusni MC	693	Mohammad R	373	Malik WHS	198
Mining IP	1728	Walayat C	685	Sayan MB	369	Chaudhry S	196
Ali C	1679	Fazal MHC	682	Haideria C	364	Ali SC	192
PMDC	1674	Riaz NC	675	Malik FMC	362	Salam MS	182
Iqbal MC	1557	Majid C	662	Chaudhry S	360	Malik WHS	170
Malik DMC	1500	Mattan CC	561	Malik MH	359	Ismailjee	165
Ali C	1584	Allied MC	656	Fazal DC	356	Abdul CGS	164
Dumar CC	1554	Sardar ML	646	Rehman C	354	Sorabjee S	160
Coal MCL	1491	Baluchista	643	Indus CC	348	Malik WHS	160
Zaphyr MTC	1457	Malik MAK	642	Abdul S	347	Malik WHS	160
Nazar C	1416	Hafazyan C	625	Naer LCM	343	Mir JK	160
Pakistan I	1368	Malik M	625	Riaz NC	341	Kalat ICC	147
Katha C	1351	Coal MCL	624	Habibullah	339	Haji TMTCC	146
Malik KBC	1351	Super PCC	622	Hamid AK	333	Coal MC	135
Syed MH	1280	Behar K	620	Ashiq	330	Pakistan M	134
Aziz CC	1277	United MC	620	Modern EC	328	Aziz BMC	130
Dumer DL	1274	Mir QBB	620	Majeed AC	327	Commercial	128
Chaffar AC	1256	Mir QBB	619	Taric C	326	WPIDC Kara	120
Jalim MCC	1249	Gulzar M	607	Raja GH	325	Malik MK	115
Yarni CC	1243	Washoo BMC	568	Coal MCL	320	Siddiqui M	100
PMDC	1242	Sardar GK	567	Malik AS	315	Syed MB	90
Habibullah	1240	Khan WC	560	Shiaikh IM	315	Majeed AC	81
National M	1239	Wazir KS	558	Malik IH	315	Islam CC	80
Kakar CC	1239	Khawaj MC	551	Haideria C	313	Malik WHS	80
Pak IM	1170	Indus MC	532	Chaudhry N	310	Eastern BC	80
Aliani CI	1167	Punjab MDC	531	Malik DMC	310	Malik WHS	80
Sherani CC	1136	Sudepar ML	530	Salt RMC	305	Wazir KS	80
Gillani CC	1136	Mohammad U	530	Atta MK	301	Malik TKB	77
National M	1084	Kathwai CC	529	Munawwar C	292	Ahmed MC	75
Nazar C	1069	Samad MAY	527	Kalat CC	288	Sher MKT	73
Rehman MA	1000	Haideria C	526	Boaln CC	281	Sorabjee S	66
Aftab C	984	Siddiqui M	515	Punjab MDC	280	PMDC	62
Katha C	974	Modern EC	500	Muzzaffar	280	Mohammad S	57
Shiaikh MS	970	Pir GNS	496	Malik MAFD	280	Khan CC	57
Mohammed A	960	Sardar SC	494	Kurd C	279	Ijaz MS	53
Mecca CM	960	Popular MC	493	Fassar SC	278	Shiaikh IM	51
Mohammed A	960	Internatio	492	Pakistan C	278	Malik TKB	50
Dost SL	959	Fazal DC	484	Jhanbar CC	270	Baluchista	20
PMDC	955	Anwar MCC	483	Waheed C	265	Baluchista	16
Fazal MHC	949	Habibullah	478	Kalat ICC	265	Sardar SC	15
Mecca CM	945	Malik AB	456	Malik MC	264	Malik WHS	8

Table Appendix C.3
Coal Licenses by Province and Year

Owner	region	acreage	year	Owner	region	acreage	year
Kharan CC	s	618	1984	Pawdi MCC	s	413	1982
Haji MS	p	1000	1984	Muhammed	p	373	1982
National	s	1446	1984	Mohammed	s	170	1982
Malik M-K	b	1645	1984	Malik SKC	p	348	1982
Gul ML	s	217	1984	Abid CM	s	620	1982
PMDC	b	282327	1984	Zameer AM	p	422	1982
National	s	826	1984	Sahib JSM	b	619	1982
Feroz CC	b	1094	1984	Abbas APM	b	48	1982
Saleem K	p	605	1983	Mohammed	p	413	1982
Mohammed	b	404	1983	Handani M	p	450	1982
Macboob E	p	347	1983	Pervez P	s	500	1982
Shah NK	p	603	1983	Ealistan	b	643	1982
Ammars CL	p	624	1983	Mohammed	b	1239	1982
Naveed Ba	p	776	1983	Naveed CC	s	826	1982
Malik MA	p	956	1983	Muhammed	p	837	1982
Ansar AK	p	890	1983	Mohammed	s	520	1981
Pakistan	p	250	1983	Mohammed	b	92	1981
Subedar M	p	271	1983	Ahmed AJ	s	1240	1981
Majeed C	p	500	1983	Ionahir B	s	2000	1981
Malik MA	p	413	1983	Bir AH	s	750	1981
Sarwar CC	s	630	1983	Salman T	p	376	1981
Dawood ZC	b	1911	1983	Juma KCC	b	337	1981
Malik ZKL	b	540	1983	Shahabudd	s	1240	1981
Chaudhry	p	766	1983	Gazi MC	b	1920	1981
Sher KCC	p	295	1983	Haji ARCC	b	562	1981
Abdul WK	p	543	1983	Abdul KR	p	121	1981
PMDC	p	842	1983	Aftab CM	s	1240	1981
Malik C	b	749	1982	Zafar A	s	892	1981
Mazhar CM	s	1240	1983	Internati	p	522	1981
Mukhtar B	p	443	1983	Mohammed	p	650	1981
Khurshid	s	1570	1983	Raja GK	s	619	1981
S. Shadat	s	124	1983	Abid HM	p	745	1981
PMDC	p	2624	1983	Awan, M.B	s	1379	1981
Dawood L	p	1579	1983	Ali C	p	633	1981
Mengal CC	b	472	1982	Kaka MJ	s	2000	1981
Iqbal A	p	954	1982	Firdous C	p	326	1981
Barkatuli	s	826	1982	Saqib, M	s	620	1981
Behar K	p	413	1982	Mohammed	p	416	1981
Alabbas M	b	7	1982	Intizar A	s	2000	1981
Mohammed	p	291	1982	Shameem C	s	1446	1981
Greenlanc	s	1240	1982	Akbar CM	s	1900	1981
Sikandar	p	495	1982	Nawabzada	b	1881	1981
Sacib CC	s	1046	1982	Salman T	p	322	1981
Shah RA	s	1240	1982	Shakeel A	s	833	1981
Pawdi MCC	s	479	1982	PMDC	s	2066	1981
Malik WH	p	735	1982	Zafar T	p	430	1981
Nazeer A	p	418	1982	Zaka C	s	866	1981
Imam MC	b	768	1982	Shahbaz C	s	826	1981
Nawaz MR	p	853	1982	Begum K	s	2000	1981
Internati	p	578	1982	Hasan MC	b	1920	1981

(Table Appendix C.3 cont)

Owner	region	acreage	year	Owner	region	acreage	year
Jehanzeb	s	1859	1981	Mushtaq A	o	676	1981
Najib H	s	1240	1981	Syed MC	p	938	1980
Ashfaq, M	s	1446	1981	Subedar M	p	1000	1980
Masood KL	b	791	1981	Gul M	b	500	1980
Mansoor A	s	825	1981	Ibrahim B	s	2722	1980
Mazar K	b	1346	1981	Malik MC	o	1859	1980
Mansoor A	s	620	1981	Awan EC	p	815	1980
Noora KL	b	969	1981	Tabrani,	s	3871	1980
Jehanzeb	s	1240	1981	Muhammad	p	267	1980
United MR	o	907	1981	Malik GR	o	328	1980
Faridulla	s	1290	1981	Mirza CC	p	315	1980
Azeem CC	b	883	1981	Industria	o	645	1980
Saima B	s	1240	1981	Deluxe T	s	620	1980
Ansar AK	s	620	1981	Subedar M	o	392	1980
Attaullah	b	1190	1981	Mukhtar B	p	443	1980
Khirana C	b	1694	1981	Malik M	b	508	1980
Aftab CM	s	620	1981	Sardar MR	b	1028	1980
Syed KH	s	619	1981	Mohammed	p	852	1980
Asma K	s	1653	1981	Amin, MB	s	13440	1980
Sanzerkha	b	826	1981	Haji MY	b	1760	1980
Mohammed	b	1881	1981	Ali MT	b	702	1980
Hashim, M	s	3343	1981	Abaid uRM	p	904	1980
PMDC	s	3818	1981	Malik GAC	p	377	1980
Falk SL	b	751	1981	Industria	p	522	1980
Gaiser KL	b	1095	1981	Annis CL	o	578	1980
Nauroze C	s	1859	1981	Mushtaq A	p	275	1980
Sultan AH	p	310	1981	Faiz C	b	348	1980
Pervez A	s	381	1981	Friend C	o	310	1980
Harooni M	o	980	1981	Haji MDKM	b	1587	1980
Mumtaz A	s	1157	1981	Deluxe T	s	620	1980
Hidayatui	b	243	1981	Haji MZ	o	468	1980
Haji IA	b	640	1981	Malik SK	p	264	1980
Falk SL	b	253	1981	Kingri MC	b	1239	1980
Gul ML	s	1240	1981	Shafat AT	o	384	1980
Shazad E	s	1380	1981	Mohammed	p	307	1980
Pir SHS	s	1653	1981	Sardar zad	b	1549	1980
Sajid YK	s	823	1981	Nail C	o	452	1980
Jalil A	s	2000	1981	Malik GR	p	407	1980
Punjab MD	p	252	1981	Syed SHB	p	466	1980
Yawar AS	s	1653	1981	Ghulam A	o	371	1980
Pervez A	s	826	1981	Chaudhry	o	285	1980
Shariff A	s	2000	1981	Mumtaz AK	o	281	1980
Miss Uzma	s	1477	1981	Noor S	s	2066	1980
Internati	o	992	1981	Ambar M	p	995	1980
Laiq A	s	1653	1981	Majeed C	o	500	1980
Agha CC	b	1057	1981	Shaheen C	p	664	1980
Musa K	b	1239	1981	Akbar H	p	976	1980
Begum SL	o	924	1981	Malik AK	p	424	1980
Ehsan MC	o	516	1981	Malik AK	p	415	1980
Ali, M.	s	826	1981	Malik MC	p	1701	1980
Ghazala F	p	494	1981	Punjab MD	o	3225	1980

(Table Apperfix C.3 con't)

Owner	region	acreage	year	Owner	region	acreage	year
Sardar AS	a	520	1980	Muzzafar	p	1025	1979
Golden E	s	295	1980	Malik GAC	o	452	1979
Punjab MD	p	2733	1980	Khurshheed	o	810	1979
United MR	o	1415	1980	Aman CC	b	343	1979
Mohammed	p	719	1980	Haji MAM	p	619	1979
Malik MBA	p	894	1980	Malik AB	o	434	1979
Ghulam H	p	1000	1980	Habib K	p	921	1979
PMDC	s	1278	1980	Muhammad	o	1000	1979
Mohammed	o	300	1980	Zafar CC	b	262	1978
Tahrani,	s	38708	1980	Chaudhry	o	100	1978
Sardar SN	b	1253	1980	Subedar F	p	418	1978
United MR	o	1652	1980	Khemra MC	o	345	1978
Malik MY	o	515	1980	Akbar CI	p	876	1978
Jan LCA	o	843	1980	Abdul KR	b	350	1978
Ibrahim B	s	1263	1980	Umar C	o	270	1978
Mushtaq A	o	250	1980	Hafiz AK	p	470	1978
Yumtaz AK	p	684	1980	Malik IH	p	446	1978
Yohammed	o	427	1980	Tribal CC	b	401	1978
Abdul RB	p	1490	1980	DGKhan MC	p	810	1978
Ramzai CC	b	1283	1979	Rose C	o	334	1978
Haji AAK	o	1064	1979	Malik SM	o	5	1978
Lanore MC	o	562	1979	Haji MAK	p	289	1978
PMDC	p	2023	1979	Abdul FHG	b	503	1978
Dazi S	o	785	1979	Nasir H	o	527	1978
Rasool ER	s	506	1979	Malik SM	p	430	1978
Ittehad C	b	1136	1979	Khatwai C	o	250	1978
Muhammed	p	1000	1979	Pir BSC	b	367	1978
Shahzada	s	332	1979	Malik MA	o	874	1978
Malik IA	o	374	1979	Zafir AK	p	688	1978
Sukkur MC	s	3720	1979	Musharara	p	580	1978
Malik SA	o	929	1979	Ghaffar,	s	2851	1978
Saddullah	b	291	1979	Malik FH	p	692	1978
Nasir H	o	365	1979	Zafir AK	p	390	1978
Shah CC	o	580	1979	Malik MK	p	318	1978
Malik EKT	b	615	1979	Isdin GCC	b	1090	1978
Mohammed	o	458	1979	Zafir AK	o	364	1978
Hamalia M	o	575	1979	Gazi MC	o	3400	1978
Mohammed	o	268	1979	Shafat AT	o	620	1978
PMDC	p	300	1979	Pervaiz C	o	1160	1978
Sittara B	p	1090	1979	Amjad T	o	415	1978
Azhar MAB	b	1063	1979	Haji IA	b	418	1978
Shah CC	o	389	1979	Akhtar H	o	1250	1978
Haji AK	b	336	1979	Malik SKP	b	96	1978
Sardarzad	b	56	1979	Star I	s	1112	1978
Haji AAK	o	959	1979	New KCC	b	809	1978
Salahaah	o	621	1979	Inter C	s	956	1978
Niamat CC	b	72	1979	Syed AAS	p	272	1978
M/S	o	255	1979	Mirza MA	o	320	1978
Raja KH	o	1000	1979	Asghar RC	o	460	1978
Hafiz AK	o	701	1979	Chaudhry	o	393	1978
Hamalia M	p	274	1979	Mohammed	b	1142	1978

(Table Appendix C.3 con't)

Owner	region	acreage	year	Owner	region	acreage	year
Amer S.	s	1550	1978	Daudot MC	p	298	1975
Mazhar CC	p	408	1978	PMDC	s	5228	1975
Badar S	p	454	1978	PMDC	s	3967	1975
Shahiwal	p	464	1978	Wattan CC	b	1133	1975
Malik KH	p	210	1978	Abdul NCC	b	773	1974
Miras DC	p	497	1978	Murad KMC	b	61	1974
Haroon JQ	s	3702	1978	Mohistan	p	352	1974
Malik AK	p	600	1978	Khan M	b	670	1974
Qalander	s	200	1977	Wahid CC	b	1653	1974
Mohammed	s	1560	1977	Mohammed	b	1859	1974
Shahbozai	b	252	1977	Mohammad	p	1512	1974
Mohammed	p	3000	1977	Mir HT	b	1253	1974
Niamat CC	p	275	1977	Malik HK	p	940	1974
Life FC	p	290	1977	Khanan KT	b	735	1974
Biboojee E	p	619	1977	Coai MC	b	907	1974
Shulam SK	p	250	1977	Jamil MCC	p	250	1974
Mohammad	p	270	1977	PMDC	s	3099	1974
Khair MMC	b	541	1975	Iqbal MC	p	372	1974
PMDC	s	4140	1976	Mirza CC	p	722	1974
Malik HK	p	1500	1976	Raktas MC	p	333	1974
Malik SMC	b	1244	1976	Khan M	b	1240	1974
PMDC	s	3035	1975	Khost MI	b	253	1974
Haji MCC	b	488	1976	Tribal MC	b	685	1974
Malik SKD	p	484	1976	Sind CM	s	2479	1974
Noor CM	s	445	1976	Mohammed	b	123	1974
Feeroz AD	b	324	1975	Malik AK	p	430	1974
Sahib JCC	b	516	1976	Mir SMK	b	125	1974
Amanullah	b	300	1976	Malik UGM	b	980	1974
Malik KH	p	622	1976	Modern EC	p	972	1974
Daudot MC	p	253	1975	New NMC	b	244	1974
Gulbaran	b	413	1975	Khair JS	b	315	1974
Itfaq MC	p	362	1975	Sandar MU	b	29	1974
Fazal AC	p	681	1975	Shulam NC	b	237	1973
PMDC	s	3427	1975	Shaikh MS	b	867	1973
Malazai C	b	1414	1975	Jana NH	p	51	1973
Jalat KMC	b	604	1975	National	s	2560	1972
Malik MS	p	358	1975	Israr A	p	578	1972
PMDC	s	720	1975	Zaheer KC	b	582	1972
Issa KMMC	b	209	1975	Malik SKD	b	1550	1972
PMDC	p	6267	1975	Commercial	b	80	1972
Malik KH	p	510	1975	Akhar KT	b	505	1972
Abdool GC	b	1084	1975	Wazir CC	p	250	1972
PMDC	s	3059	1975	Zargham M	b	1653	1972
Amar CC	p	340	1975	Kazi FCY	s	1079	1972
PMDC	s	2119	1975	Kala KT	b	380	1972
Tariq HD	b	290	1975	Mir KT	b	1280	1972
Karam SL	p	630	1975	Khair MCC	b	265	1971
Khewra MC	p	265	1975	Machkan P	b	345	1971
Ali MSC	b	838	1975	Haider CC	b	410	1971
Abdul GCC	p	298	1975	Wah SLQ	p	185	1971

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(Table Appendix C.3 cont)

Owner	region	acreage	year	Owner	region	acreage	year
Hirrock C	b	923	1971	Sardar GK	b	326	1962
Nazar C	o	299	1970	Commercia	b	805	1961
Shirkat M	b	593	1969	Malik RAC	o	232	1961
Amin A	s	3198	1969	Zubair C	o	2419	1961
Gisntri M	b	944	1969	Chaudhry	o	1131	1961
Gisntri M	b	617	1968	National	s	2662	1961
Coal Mini	b	159	1968	Sarda MJK	b	220	1961
Feroze CC	o	438	1968	Salt RMC	o	232	1961
Mining IP	b	31	1968	Amin, MB	s	4549	1961
Sardar MU	b	448	1968	Chaudhry	b	23	1961
Habibulla	b	412	1968	Mohammad	p	259	1961
Universal	b	134	1968	Amin, MB	s	5215	1961
Walayat I	o	721	1968	Chaudhry	b	609	1961
Mohammed	o	1652	1967	Ejaz MS	p	807	1961
Baluchist	b	310	1967	Raja GM	o	441	1961
Haji SMH	b	1054	1967	Nakhshban	b	306	1961
Raja MC	b	464	1967	Eastern B	b	275	1961
Punjab CC	o	324	1967	Nasir C	o	796	1961
Kanyab CC	b	1365	1967	Ashraf MC	p	772	1960
Bargal CC	b	432	1967	Commercia	b	8	1960
Universal	b	358	1967	Chaudhry	p	350	1960
Universal	b	80	1967	Chaudhry	b	156	1960
Gulzar AM	o	275	1966	Prizada M	o	640	1960
Yehran CM	s	359	1966	Sardar MI	b	740	1960
Jaudot MC	o	198	1966	Malik LK	p	492	1960
Chaudhry	o	1481	1966	United MC	b	398	1960
Khattak C	b	454	1966	Chaudhry	b	280	1960
Sharif C	o	391	1966	Mushtaq	b	1024	1960
Anwar MA	o	447	1966	Baluchist	b	445	1960
Malik LK	o	469	1965	Prizada M	o	674	1960
Syed MH	b	745	1965	Mohammad	o	560	1960
Internati	b	295	1965	Mali WH &	b	302	1960
Shafiq C	o	690	1965	Nakhshban	b	501	1960
National	b	85	1965	Shaikh MH	b	1860	1960
Sharif C	p	393	1965	Chaudhry	b	253	1960
Mir IB &	b	796	1965	Nusrat CC	b	994	1960
Brotheran	b	335	1965	National	b	1182	1960
Shirki CC	b	886	1965	Allah DC	p	207	1960
New QMC	b	921	1965	Shafai MC	b	1686	1960
Ghausia T	o	410	1964	Baluchist	b	112	1960
Sardar S	p	423	1964	Salt RT	o	864	1960
Sardar S	o	132	1964	Ashsan SC	b	400	1960
Raja GM	p	23	1964	Indus CM	s	1750	1959
Mohammad	o	281	1963	Gilani AK	o	1680	1959
Commercia	b	1172	1963	Haji MDK	b	240	1959
Nazar C	o	495	1963	Jhelum VC	o	630	1959
Jhelum VC	o	1222	1963	Prizada M	o	1090	1959
Habib MC	b	657	1962				
Baluchist	s	3099	1962				
Sardar MI	b	309	1962				

Table Appendix C.4: Coal License by Size

Owner	region	acreage	year	Owner	region	acreage	year
PMDC	b	282327	1984	Nauroze C	s	1859	1981
Tahrani,	s	38708	1980	Malik MC	p	1859	1980
Amin, MB	s	13440	1980	Jehanzeb	s	1859	1981
PMDC	p	6267	1975	Haji MY	b	1760	1980
PMDC	s	5228	1975	Indus CM	s	1750	1959
Amir, MB	s	5215	1961	Malik MC	p	1701	1980
Amir, MB	s	4549	1961	Khirana C	b	1694	1981
PMDC	s	4140	1976	Shafai MC	b	1686	1960
PMDC	s	3967	1975	Gilani AK	p	1680	1959
Tabrani,	s	3871	1980	Dawood L	p	1679	1983
PMDC	s	3818	1981	Wahid CC	b	1653	1974
Sukkur MC	s	3720	1979	Asna K	s	1653	1981
Faroon JQ	s	3702	1978	Zargham M	b	1653	1972
PMDC	s	3427	1975	Laiq A	s	1653	1981
Qazi MC	p	3400	1978	Yawar AS	s	1653	1981
Hashim, M	s	3343	1981	Pir SHS	s	1653	1981
Punjab MD	p	3225	1980	United MR	p	1652	1980
Amir A	s	3198	1969	Mohammed	b	1652	1967
PMDC	s	3099	1974	Malik MFK	b	1645	1984
Baluchist	s	3099	1962	Haji MDKM	b	1587	1980
PMDC	s	3059	1975	Mohammed	s	1560	1977
PMDC	s	3035	1976	Malik SKD	b	1550	1972
Mohammed	p	3000	1977	Amer S.	s	1550	1978
Ghaffar,	s	2851	1978	Sardarzac	b	1549	1980
Punjab MD	p	2733	1980	Mohammad	p	1512	1974
Ibrahim B	s	2722	1980	Malik HK	p	1500	1976
National	s	2662	1961	Abdul RB	p	1490	1980
PMDC	p	2624	1983	Chaudhry	b	1481	1966
National	s	2560	1972	Miss Uzma	s	1477	1981
Sind CM	s	2479	1974	Shameem C	s	1446	1981
Zubair C	p	2419	1961	Ashfaq, M	s	1446	1981
PMDC	s	2119	1975	National	s	1446	1984
Noor S	s	2066	1980	United MR	p	1415	1980
PMDC	s	2066	1981	Malazai C	b	1414	1975
PMDC	p	2023	1979	Shazad E	s	1380	1981
Begum K	s	2000	1981	Awan, M.B	s	1379	1981
Ibrahim B	s	2000	1981	Kamyab CC	b	1365	1967
Kaka MJ	s	2000	1981	Mazar K	b	1346	1981
Shariff A	s	2000	1981	Faridulla	s	1290	1981
Intizar A	s	2000	1981	Ranzai CC	b	1283	1979
Jalil A	s	2000	1981	Mir KT	b	1280	1972
Hasan MC	b	1920	1981	PMDC	s	1278	1980
Qazi MC	b	1920	1981	Ibrahim B	s	1263	1980
Dawood ZC	b	1911	1983	Mir HT	b	1253	1974
Akbar CM	s	1900	1981	Sardar SN	b	1253	1980
Nawabzada	b	1881	1981	Akhtar H	p	1250	1978
Mohammed	b	1881	1981	Malik GML	b	1244	1976
Khurshid	s	1870	1983	Najib H	s	1240	1981
Shaikh MH	b	1860	1960	Khan M	b	1240	1974
Mohammed	b	1859	1974	Jehanzeb	s	1240	1981

(Table Appendix C.2 Cont'd)

Owner	region	acreage	year	Owner	region	acreage	year
Greenland	s	1240	1982	Noora KL	b	969	1981
Ahmed AJ	s	1240	1981	Haji AAK	p	959	1979
Gul ML	s	1240	1981	Inter C	s	956	1978
Saima B	s	1240	1981	Malik MA	p	956	1983
Mazhar CM	s	1240	1983	Iqbal A	p	954	1982
Shahabudd	s	1240	1981	Gishtri M	b	944	1969
Shah RA	s	1240	1982	Malik HK	p	940	1974
Aftab CM	s	1240	1981	Syed MC	p	938	1980
Mohammed	b	1239	1982	Malik SK	p	929	1979
Musa K	p	1239	1981	Begum SL	p	924	1981
Kingra MC	p	1239	1980	Hinrock C	b	923	1971
Chelum VC	p	1222	1963	New GMC	b	921	1965
Attaullah	b	1190	1981	Habib K	p	921	1979
National	b	1182	1960	United MR	p	907	1981
Commercial	b	1172	1963	Coal MC	b	907	1974
Pervaiz C	p	1160	1978	Abaid UR	p	904	1980
Murtaz A	s	1157	1981	Malik MBA	p	894	1980
Mohammed	p	1142	1978	Zafar A	s	892	1981
Ittehad C	b	1136	1979	Ansar AK	p	890	1983
Mattar CC	b	1133	1975	Shirki CC	b	886	1965
Chaudhry	p	1131	1961	Azeem CC	b	883	1981
Star I	s	1112	1978	Akbar CI	p	876	1978
Gaiser KL	p	1095	1981	Malik MA	p	874	1978
Feroz CC	b	1094	1984	Shaikh MS	b	867	1973
Israr GCC	b	1090	1978	Zaka C	s	866	1981
Prizaca M	p	1090	1959	Salt RT	p	864	1960
Sittara B	p	1090	1979	Nawaz MR	p	853	1982
Abdool GC	p	1084	1975	Mohammed	p	852	1980
Kazi FCM	s	1079	1972	Jan LCA	p	843	1980
Haji AAK	p	1064	1979	CMDC	p	842	1983
Azhar MAB	b	1063	1979	Ali MSMC	b	838	1975
Agha CC	b	1057	1981	Muhammed	p	837	1982
Haji SMH	b	1054	1967	Shakeel A	s	833	1981
Sacib CC	s	1046	1982	Shanbaz C	s	826	1981
Sardar MH	b	1028	1980	Pervez A	s	826	1981
Muzzafar	p	1025	1979	Ali, M.	s	826	1981
Mushtaq	b	1024	1960	Barkatull	s	826	1982
Muhammad	p	1000	1979	Mansoor A	s	826	1981
Subedar M	p	1000	1980	National	s	826	1984
Raja KH	p	1000	1979	Yaveed CC	s	826	1982
Haji MS	p	1000	1984	Sanzerkha	b	826	1981
Muhammed	p	1000	1979	Sajid YK	s	823	1981
Ghulam H	p	1000	1980	Awan EC	p	815	1980
Ambar M	p	995	1980	Knursheed	p	810	1979
Nusrat CC	b	994	1960	DGKhan MC	p	810	1978
Internati	p	992	1981	New KCC	b	809	
Malik USM	b	980	1974	Ejaz MS	p	807	1961
Harooni M	p	980	1981	Commercial	p	805	1961
Akbar H	p	976	1980	Nasir C	p	796	1961
Moderr EC	p	972	1974	Mir IB &	p	796	1965

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(Table Appendix C.2 Cont'd)

Owner	region	acreage	year	Owner	region	acreage	year
Masood KL	b	791	1981	Mansoor A	s	620	1981
Dazi S	p	785	1979	Ansar AK	s	620	1981
Naveed Ba	p	778	1983	Mohammed	s	620	1981
Abdul MCC	b	773	1974	Deluxe T	s	620	1980
Ashraf MC	p	772	1960	Sahib JSM	b	619	1982
Imam MC	p	768	1982	Haji MAM	p	619	1979
Chaudhry	p	766	1983	Syed KH	s	619	1981
Pir R-	s	760	1981	Ribojee E	p	619	1977
Fala SL	b	751	1981	Raja BK	s	619	1981
Malik C	b	749	1983	Kharan CC	s	618	1984
Abid CM	p	746	1981	Gishtri M	b	617	1968
Syed MH	b	745	1955	Malik BKT	p	615	1979
Sardar MI	b	740	1960	Chaudhry	b	609	1961
Malik KH	p	735	1982	Saleem K	p	605	1983
Khanar KT	b	735	1974	Jalat KMC	b	604	1975
Malayat I	p	731	1968	Shah NK	p	603	1983
Yarza CC	p	722	1974	Malik AK	p	600	1978
SMDC	s	720	1975	Shirkat M	b	593	1969
Yonahmed	p	719	1980	Zaheer KC	b	582	1972
Ali MT	b	702	1980	Shah CC	b	580	1979
Hafiz AK	p	701	1979	Annis CL	p	578	1980
Malik FH	p	692	1978	Israr A	p	578	1972
Shafiq C	p	690	1965	Internati	p	578	1982
Zafar AK	p	688	1978	Hamalia M	p	575	1979
Tripai MC	b	685	1974	Haji ARCC	b	562	1981
Murtaz AK	p	684	1980	Lanora MC	p	562	1979
Fazal AD	b	681	1975	Mohammad	p	560	1960
Musharafa	p	680	1978	Abdul WK	p	543	1983
Mushtaq A	p	676	1981	Khair MMC	b	541	1976
Prizada M	p	674	1960	Malik ZKL	b	540	1983
Khan M	b	670	1974	Nasir H	p	527	1978
Shameer C	p	664	1980	Internati	p	522	1981
Habib MC	p	657	1962	Industria	p	522	1980
Yonahmed	p	650	1981	Sardar AG	p	520	1980
Industria	p	645	1980	Ehsan MC	p	516	1981
Balistan	b	643	1982	Sanib JCC	b	516	1976
Prizada M	p	640	1960	Malik NM	p	515	1980
Haji IA	b	640	1981	Malik KH	p	510	1975
Ali C	p	633	1981	Malik M	b	508	1980
Karam SL	p	630	1975	Rasool BR	s	506	1979
Jhelum VC	p	620	1959	Akhar KT	b	505	1972
Sarwar CC	s	630	1983	Abdul FHG	p	503	1978
Amirs CL	p	624	1982	Nakhshbar	b	501	1960
Malik KH	p	622	1976	Majeed C	p	500	1983
Salahah	p	621	1979	Gul M	b	500	1980
Saqib, Y	s	620	1981	Majeed C	p	500	1980
Shafiq AT	p	620	1978	Pervez A	s	500	1982
Deluxe T	s	620	1980	Mines DC	p	497	1978
Aftab CM	s	620	1981	Nazar C	p	496	1963
Abid CM	s	620	1982	Sikandar	p	495	1982

(Table Appendix C.2 Cont'd)

Owner	region	acreage	year	Owner	region	acreage	year
Ghazala F	p	494	1981	Ghausia T	p	410	1964
Yalick LK	p	492	1960	Haider CC	b	410	1971
Harooni M	p	490	1982	Mazhar CC	p	408	1978
Haji MCC	b	488	1975	Yalick GR	p	407	1980
Malik SKP	b	484	1976	Mohammed	b	404	1983
Pawdi MCC	s	479	1982	Tribal CC	b	401	1978
Mengal CC	b	472	1962	United MC	b	398	1960
Hafiz AK	p	470	1978	Chaudhry	p	393	1978
Yalick LK	p	469	1965	Sharif C	p	393	1965
Haji MZ	p	468	1980	Subedar M	p	392	1980
Syed SHB	p	466	1980	Sharif C	p	391	1966
Raja MC	b	464	1967	Zafir AK	p	390	1978
Shahiwal	p	464	1978	Shah CC	b	389	1979
Ashsan SC	b	460	1960	Shafat AT	p	384	1980
Asghar RC	p	460	1978	Pervez A	s	381	1981
Mohammed	p	458	1979	Kala KT	b	380	1972
Khattak C	b	454	1966	Malik BAC	p	377	1980
Badar S	p	454	1978	Salman T	p	376	1981
Malik BAC	p	452	1979	Malik IA	p	374	1979
Nail C	p	452	1980	Muhammed	p	373	1982
Sardar MU	p	448	1968	Iqbal HC	p	372	1974
Arwan MA	p	447	1966	Ghulam A	p	371	1980
Malik IH	p	446	1978	Pir BSC	b	367	1978
Noor CM	s	446	1975	Nasir H	p	365	1979
Baluchist	b	445	1960	Zafir AK	p	364	1978
Mukhtar B	p	443	1980	Itfaq MC	b	362	1975
Mukhtar B	p	442	1983	Mehran CM	s	359	1966
Raja GY	p	441	1961	Universal	b	358	1967
Feroze CC	p	438	1968	Malik MS	p	358	1975
Malik AB	p	434	1979	Mohistan	p	352	1974
Bangal CC	b	432	1967	Abdul KR	b	350	1978
Zafar T	p	430	1981	Chauchry	p	350	1960
Malik SM	p	430	1978	Malik SKC	p	348	1982
Malik AK	p	430	1974	Faiz C	b	348	1980
Mohammed	p	427	1980	Masood E	p	347	1993
Malik AK	p	424	1980	Machkan P	b	345	1971
Sardar S	p	423	1964	Khewra MC	p	345	1978
Zaheer AM	p	422	1982	Aman CC	b	343	1979
Nazeer A	p	418	1982	Amar CC	p	340	1975
Subedar F	p	418	1978	Juma KCC	b	337	1981
Haji IA	b	418	1976	Haji AK	b	336	1979
Mohammed	p	415	1981	Brotheran	b	335	1965
Anjad T	p	415	1978	Rose C	p	334	1978
Malik AK	p	415	1980	Roktas MC	p	333	1974
Behar K	b	413	1982	Shahzada	s	332	1979
Gulnaran	b	413	1975	Malik GR	p	328	1980
Mohammed	p	413	1982	Sardar GK	b	326	1962
Malik MA	p	413	1983	Firdous C	b	326	1981
Pawdi MCC	s	413	1982	Feeroz KU	b	324	1976
Habibulla	b	412	1968	Punjab CC	b	324	1967

(Table Appendix C.2 Cont'd)

Owner	region	acreage	year	Owner	region	acreage	year
Salman T	p	322	1981	Falk SL	b	253	1981
Mirza MA	p	320	1978	Punjab MD	p	252	1981
Malik MK	p	318	1978	Shahbozai	b	252	1977
Khair JS	b	315	1974	Mushtaq A	p	250	1980
Mirza CC	p	315	1980	Jamil MCC	p	250	1974
Friend C	p	310	1980	Wazir CC	b	250	1972
Sultan AH	p	310	1981	Pakistan	p	250	1983
Baluchist	b	310	1967	Ghulam SK	p	250	1977
Sardar MI	b	309	1962	Khatwai C	p	250	1978
Mohammed	p	307	1980	New MMC	b	244	1974
Nakhshban	b	306	1961	Hidayatul	b	243	1981
Mali WH &	b	302	1960	Haji MDK	b	240	1959
PMDC	p	300	1979	Ghulam NC	b	237	1973
Amanullah	b	300	1976	Malik RAC	p	232	1961
Mohammed	p	300	1980	Salt RMC	p	232	1961
Nazar C	p	299	1970	Sarda MUK	b	220	1961
Abdul GCC	p	298	1975	Gul ML	s	217	1984
Daudot MC	p	298	1975	Malik KH	p	210	1978
Sher KCC	p	295	1983	Issa KMMC	b	209	1975
Internati	b	295	1965	Allah DC	p	207	1960
Golden E	s	295	1980	Balander	s	200	1977
Saddullah	b	291	1979	Daudot MC	p	198	1966
Mohammed	p	291	1982	Wah SLQ	p	185	1971
Tariq HD	b	290	1975	Mohammed	s	170	1982
Life FC	p	290	1977	Coal Mini	b	159	1968
Haji MAK	p	289	1978	Chaudhry	b	156	1960
Chaudhry	p	285	1980	Universal	b	134	1968
Mumtaz AK	p	281	1980	Sardar S	p	132	1964
Mohammad	p	281	1963	Mir SNK	b	125	1974
Chaudhry	b	280	1960	S. Shadat	s	124	1983
Mushtaq A	p	275	1980	Mohammed	b	123	1974
Niamat CC	b	275	1977	Abdul KR	p	121	1981
Gulzar AM	p	275	1966	Baluchist	b	112	1960
Eastern B	b	275	1961	Chaudhry	p	100	1978
Hamalia M	p	274	1979	Malik SKP	b	96	1978
Syed AAS	p	272		Mohammed	b	92	1981
Subedar M	p	271	1983	National	b	85	1965
Umar C	p	270	1978	Universal	b	80	1967
Mohammad	p	270	1977	Commercia	b	80	1972
Mohammed	p	268	1979	Niamat CC	b	72	1979
Muhammad	p	267	1980	Murad KMC	b	61	1974
Khair MCC	b	265	1971	Sardar zad	b	56	1979
Khewra MC	p	265	1975	Jara NH	p	51	1973
Malik SK	p	264	1980	Abbas APM	b	48	1982
Zafar CC	b	262	1978	Mining IP	b	31	1968
Mohammad	p	259	1961	Sardar MU	b	29	1974
M/S	p	255	1979	Raja GM	p	23	1964
Chaudhry	p	253	1960	Chaudhry	b	23	1961
Daudot MC	p	253	1975	Commercia	b	8	1960
Khost MI	b	253	1974	Alabbas M	b	7	1982
				Malik SM	p	5	1978