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Coal Plan

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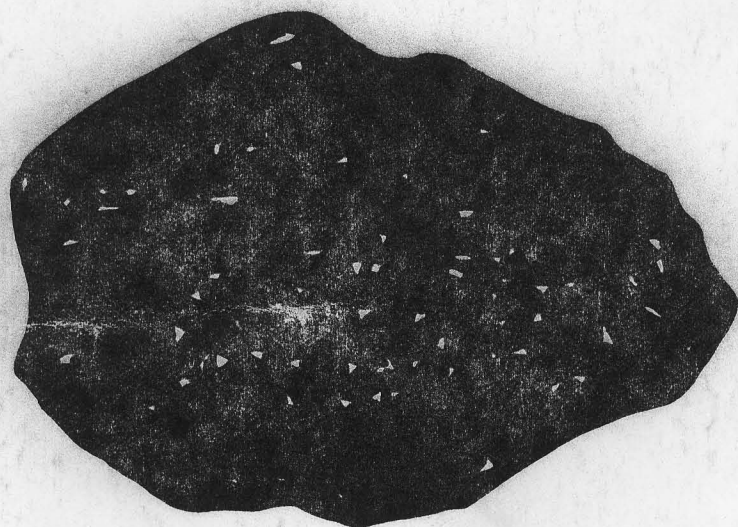
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COAL PLAN

1358 - 1362



KABUL

BY

K.L.GUPTA.

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I.T.E.C.

FEBRUARY '79

C O A L P L A N

1358-1362

By

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February, 1979

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FOREWORD

The recent hike in petroleum prices by the OPEC countries and the resultant energy crisis in the major countries of the world has emphasised once again the need to put more reliance on energy resources other than oil. The Democratic Republic of Afghanistan too has decided that coal will form a prime source of energy and oil and natural gas will be secondary.

The entire coal industry is in Government sector and it will be easy to plan out the increase in production to suit the increasing needs of the country. The coal production and sales operations can be carried out in a systematic manner in keeping with the aims and objectives of the present Government.

After the revolution of Saur 7, 1357, economic development, improvement ^{in the} /standard of living of the common man, strengthening the public sector economy with scientific planning, proving & exploiting ^{the} /reserves and natural resources of the country are few of the main aims of the present Democratic Republic of Afghanistan.

The 23 Point Domestic Policy Programme announced by the Revolutionary Council of the Democratic Republic of Afghanistan has given an impetus for drawing up a longterm

plan to cater for the proper development of the coal industry and the social requirements of its workers. Coal Department has accordingly drawn up a Five Year prospective plan to meet the above requirements.

This Plan has been prepared on realistic basis. However, the present available data, recent proclamations of the Democratic Republic of Afghanistan, the industrial needs that may arise in future have been kept in view in drawing up this Plan.

This small report gives in a nutshell the salient features of the 'Coal Plan' for the information of all who are connected with or interested in the coal industry.

Kabul
Dalva 1357


(Dr. M.M.M. Nidai)
President
North Coal Department

C O A L P L A N

1358-1362

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CHAPTER I

Coal And Energy Needs

Energy consumption is an index of any country's industrial growth. The uncertainty of energy resources due, specially, to the increase in prices of petroleum products has lead to careful advance planning and assured provisioning of energy resources available indigenously. Industrialised countries of the world have almost been doubling up their energy consumption every decade. In Afghanistan, to catch up in the field of development, energy consumption may have to go up by next decade, if possible earlier. Coal too has to play a very vital role in this process.

Developing countries, like Afghanistan, has to increase their energy consumption to catch up with the industrialised countries of the world. Mines and industries sector occupies an important place in the economic structure of Afghanistan. Raising the standard of living of the people by accelerating industrial growth and diversifying industrial activities is the main aim of the Democratic Republic of Afghanistan.

The conventional primary sources of energy are mainly coal, oil, gas, hydropower and the nuclear energy. Depending on the indigenous availability, the importance of the energy sources varies from country to country. While serious efforts and researches are going on in the non-conventional fields like solar, geo-thermal and nuclear fusion, any tangible gain cannot be expected too soon. Therefore, conventional sources and notably coal will continue to play an important role for many, many years in future.

The role of coal in Afghanistan's energy balance is quite significant. The reserves of all categories of known deposits in Afghanistan have been estimated at 100 million tonnes. Future energy programme has been evolved on this basic premise.

North Coal Department and Sabzak (Herat) should fully prepare to meet the future challenge and satisfy the country's demand for coal and also to fill energy gap in the development of this country.

A map of Democratic Republic of Afghanistan is enclosed herewith, wherein all coal deposits as well as all mines proposed to be worked in the next Plan are indicated.

CHAPTER II

Coal Requirement And Sale

Coal requirement is dependent on the demand of various other consuming industries. The growth in the demand of coal naturally rests on the growth of the consuming sector. Afghanistan is now planning on multisided development. Added to this the expanding economy and population growth poses a problem for accurate long term assessment of coal demand. The coal production of Afghanistan at present is around two hundred thousand tonnes. The country's development will necessitate increased consumption which will generate and expand market for coal.

Assessment of requirement of coal has to form the base pillar for any longterm coal plan. The production targets for the next five years are as follows:

<u>Year</u>	<u>N.C.D. Mines</u>	<u>Sabzak Mines</u>	<u>Total coal production in Tonnes</u>
1358	203,130	20,000	223,130
1359	223,440	65,000	288,440
1360	245,800	110,000	355,800
1361	270,380	120,000	390,380
1362	322,660	160,000	482,660

These targets have been fixed to meet the needs of various consuming sectors like cement, sugar, textiles, etc.

It is also likely that a coal based thermal power station will also be set up at Herat in the next Plan. In assuming the requirements of these sectors, the past trends and the future ambitions have been kept in view.

The practice of burning wood and oil for heating purposes is not a very healthy one. This practice is destroying the forests and ^{is} costly to the common man. The ecology is also getting affected in the process. Hence it is essential to popularise use of coal briquettes or coal for heating purposes. It is also stressed that coal is among the cheapest available alternatives. A dollar's worth of coal supplies more than twice the energy of a dollar's worth of oil.

The projected requirements of various industries are shown in the following pages.

2.1. Cement

The present production of cement stands at about 135,000 tonnes. Cement consumption will naturally increase in the near future due to large construction programme in the form of buildings, irrigation projects etc. The three new cement plants which are proposed to be constructed at Kandahar, Ghorī and Herat will produce about 810,000 tonnes. The total requirement of coal for cement production at the peak projected capacity will therefore be 180,000 tonnes per annum against the present demand of 63,000 tonnes per annum. In the second Five Year Plan the coal requirement is expected to be 250,000 tonnes.

2.2. Textile Industry

The present production of textiles is about 82 million meters and it is likely to be stepped up in the coming five years to 300 million meters. The capacities of existing textile factories are inadequate to meet the demand and hence new textile factories will be set up at Herat, Kandahar, Pul-i-Khumri, Charikar, Talaquan and Kirshik.

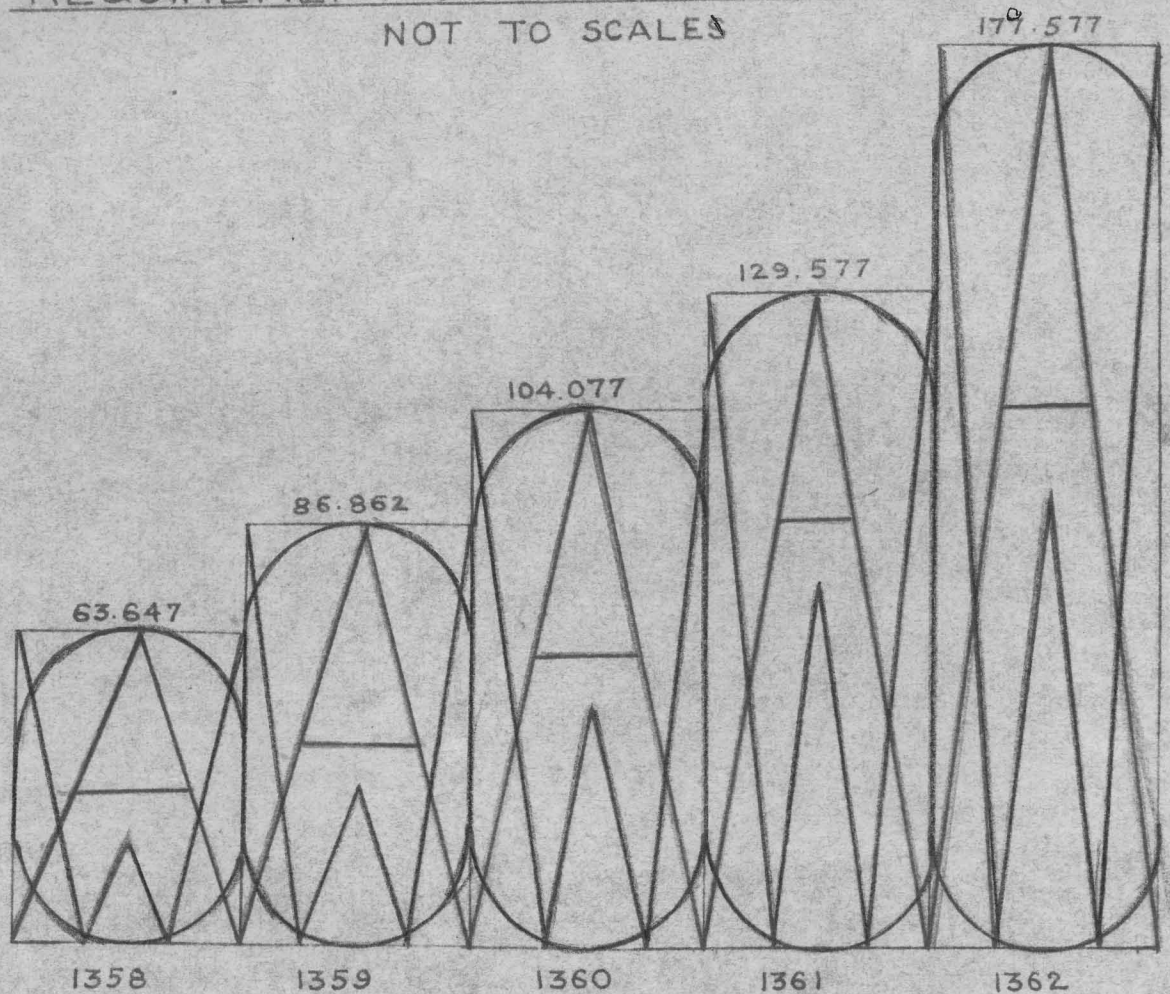
The requirement of coal for this industry will go up from the present level of 40,000 tonnes to 124,000 tonnes by the end of 1362.

In the second Five Year Plan the coal requirement is expected to be 170,000 tonnes.

CEMENT

REQUIREMENT OF RAW COAL IN '000' TONNES

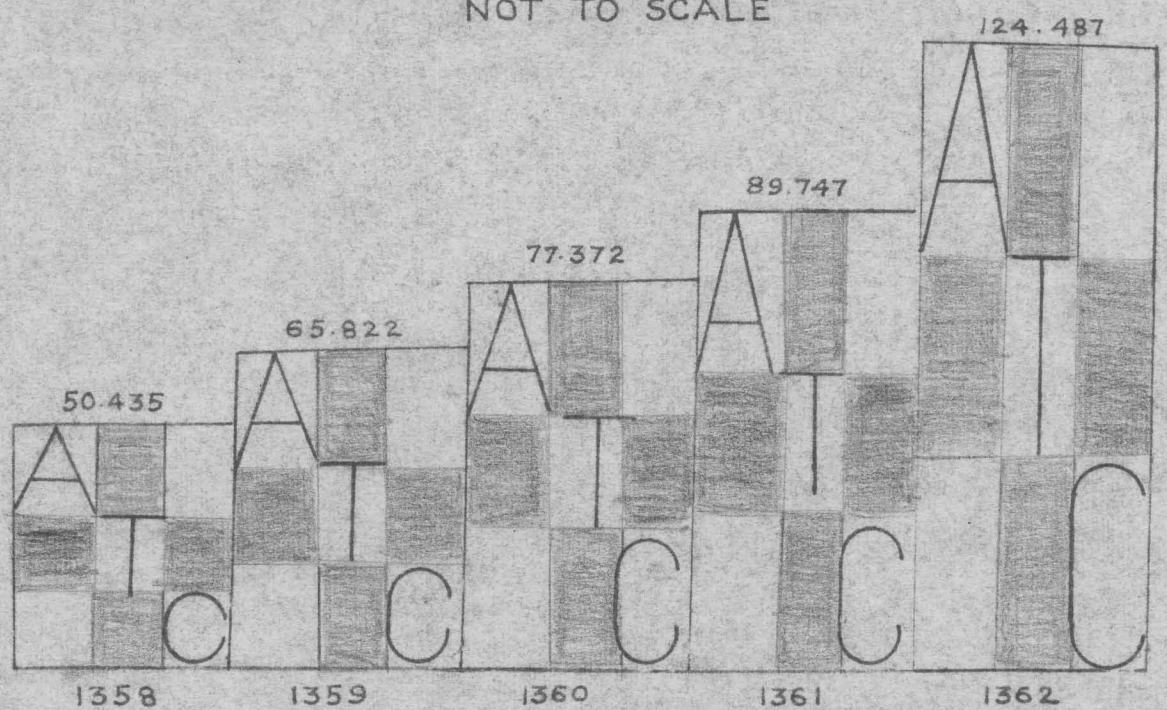
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TEXTILE

REQUIREMENT OF RAW COAL IN '000' TONNES

NOT TO SCALE



2.3. Sugar

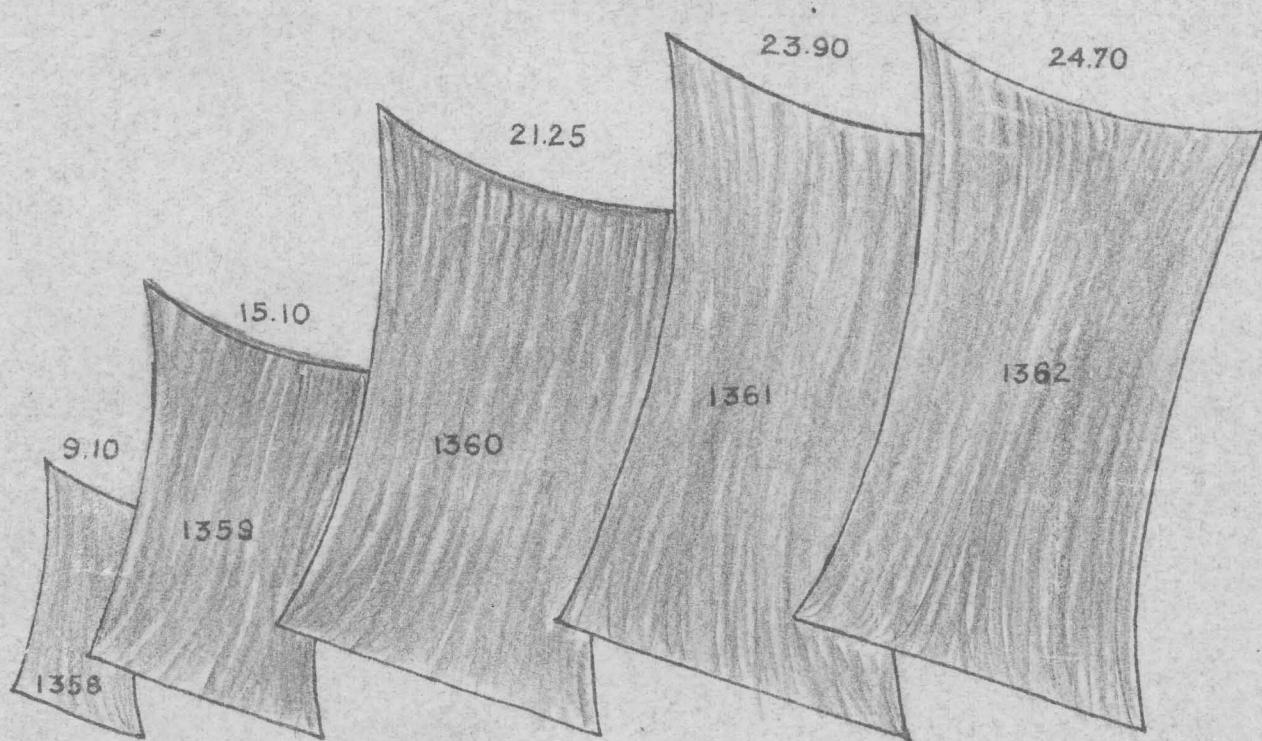
Sugar is one of the most essential consumer goods. The present production is about 10,000 tonnes per annum. The annual requirement of sugar is about 57,000 tonnes. To meet these needs, new factory will be set up at Baghlan (additional). With the completion of the above project, the sugar producing capacity will increase to 37,000 tonnes.

The coal requirement for this industry will go up from the present level of 9,000 tonnes to 25,000 tonnes. Coal consumption for this industry in the second Five Year Plan period will rise to 27,000 tonnes.

SUGAR

REQUIREMENT OF RAW COAL IN '000' TONNES

NOT TO SCALE



2.5. Power

Electric power plays a significant role in the socio-economic development and is essential for industrialisation. Cheap and assured power supply will definitely help in developing basic industries such as chemical fertilisers, metal smelting, petro-chemical and agro-industries as well as in raising the standard of living of the people. At present Afghanistan produces about 340 MW of electricity. Out of this 74% is generated by hydel power stations. It is proposed to increase the present level of power production by installing thermal power station at Herat. The coal requirements for power production is likely to be about 32,000 tonnes in the year 1362. This plant, will consume 66,000 tonnes of coal at its peak capacity.

2.6. Miscellaneous Industries

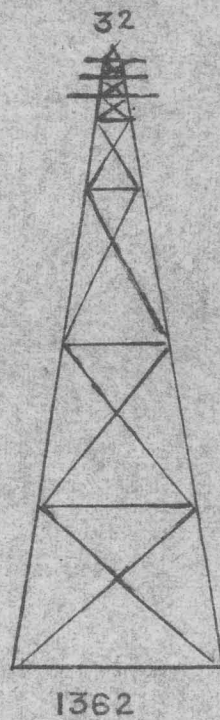
The coal consumption for various miscellaneous industries such as paper, ginning, distillery, oil and others is about 11,000 tonnes. It is likely to go up to 33,000 tonnes by the end of 1362.

However, it is expected that various small industries will come up during the Plan period. The requirement of raw coal for all such industries has also been taken into consideration in preparing this plan.

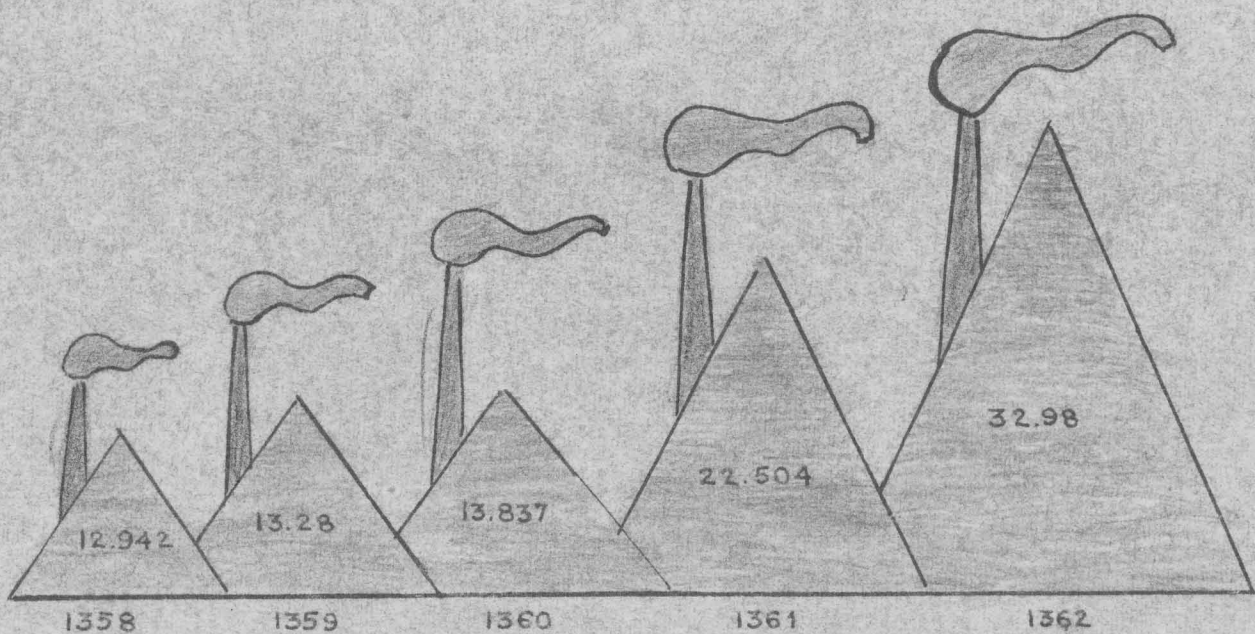
The detailed requirement of coal for all industries is shown in the annexure enclosed with this report.

POWER

REQUIREMENT OF RAW COAL IN '000' TONNES
NOT TO SCALE



MISCELLANEOUS INDUSTRIES
REQUIREMENT OF RAW COAL IN '000' TONNES
NOT TO SCALE



CHAPTER III

Capacity Building & Production Programme

It is very essential to limit investment for creating new capacity. Hence it is wise to maximise the production from the existing mines. It is a moot point whether the production capacity should be created first or the demand/market for it. Over provisioning is as bad as under-provisioning. They reflect an additional cost to the nation. The production plan has, therefore, to be a flexible one and, as far as possible, be capable of absorbing short term and long term fluctuations in demand.

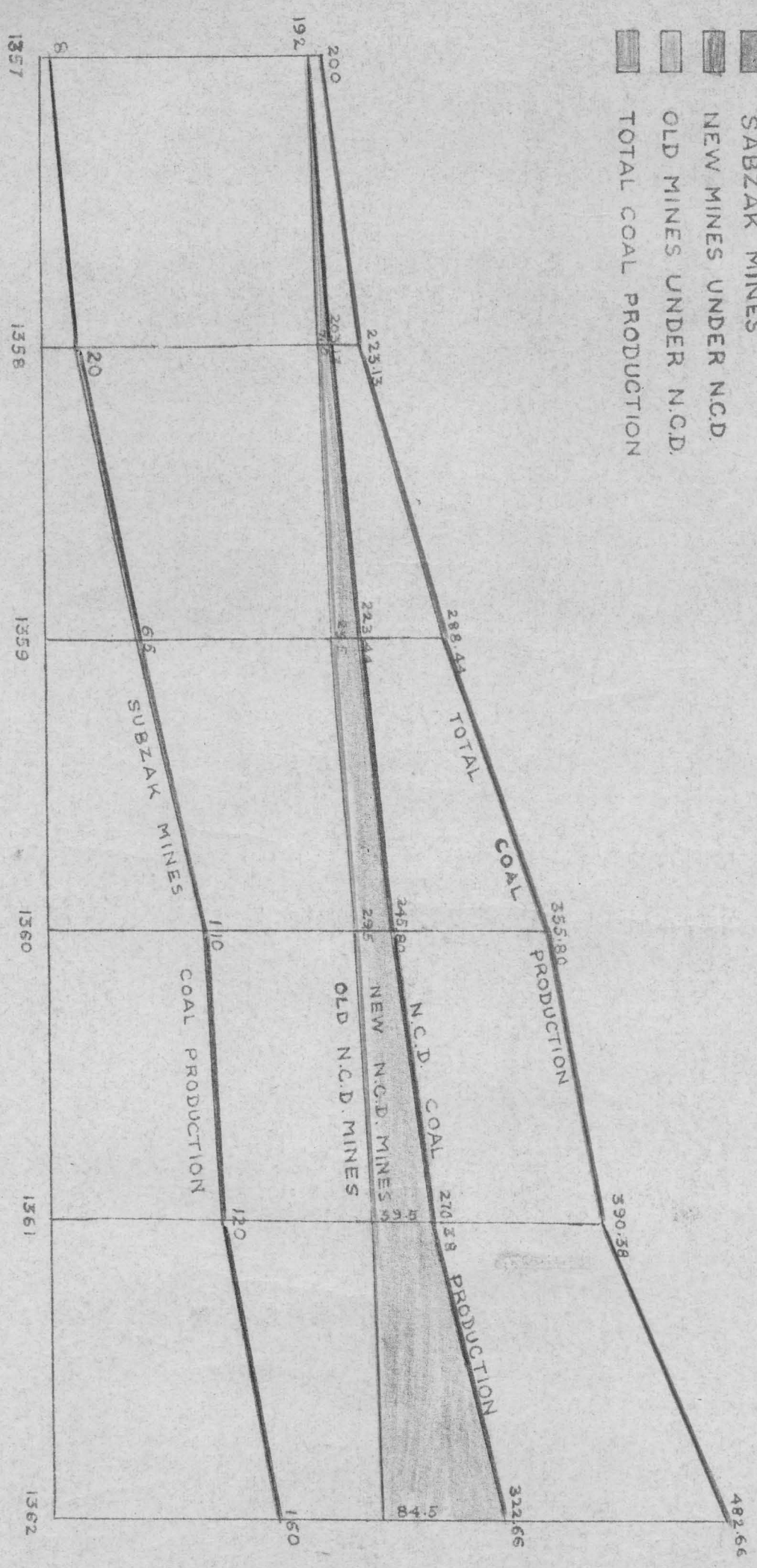
Coal production programme and capacity buildup during the next five years can be seen from the following table. The planned capacity has to be about 15% more than the actual production needed. The production figures do not take into account the coal demand for steel industry which may come up in future.

Sr. No.	Name of Coal Mine	Annual Coal Production In '000' T				
		1358	1359	1360	1361	1362
I. <u>N.C.D. Mines</u>						
A. <u>Existing Mines</u>						
1.	Karkar	110	110	110	110	110
2.	Ishpushta	40	40	44	44	44
3.	Darra-i-Suf	46.13	51.94	63.3	77.88	85.16
B. <u>New Mines</u>						
1.	Clitch Mine	7.0	23.5	29.5	39.5	49.5
2.	Shah Bashak	-	-	-	-	35.0
Total of NCD Mines:		203.13	223.44	245.80	270.38	322.66
II. <u>Sabzak Mines (Herat)</u>						
		20.00	65.00	110.00	120.00	160.00
Total coal production in Afghanistan:		223.13	288.44	355.80	390.38	482.66

PRODUCTION BUILD UP IN '000 TONNES

NOT TO SCALE

- SABZAK MINES
- NEW MINES UNDER N.C.D.
- OLD MINES UNDER N.C.D.
- TOTAL COAL PRODUCTION



CHAPTER IV

Manpower And Productivity

Mining is labour intensive industry. In spite of great strides achieved in mining technology even in developed countries mining will remain an art associated with men. Hence productivity will always remain a function of cooperative efforts of all concerned.

If we review the past history of coal in Afghanistan the output per man shift (O.M.S.) has not risen much. The present overall O.M.S. is less than 0.20 tonnes.

It is necessary for efficient running of coal industry to increase this low level of O.M.S. Proved technology and established systems must be introduced with suitable modifications to suit the needs of this country. It is not necessary to copy the method/systems existing in developed countries. Mechanisation and rationalisation has to be based on scientific considerations to suit the requirements and conditions existing in this country. Mechanisation should lead to increased productivity, lower cost of production, better safety and efficiency. Development of coal industry will create large employment potential in the associated industries. The desire to increase productivity in coal mines, to reduce human drudgery and hazards to human life has to be balanced with the availability of resources and human skill. With the new mines coming up in a planned way, the O.M.S. is expected to rise

from the present level of 0.18 to 0.25 tonnes. The employment strength will also increase from the present level of 4000 to 6350 persons.

The projected manpower deployment as well as expected O.M.S. of the coal industry is given below:

Manpower Deployment In Coal Industry

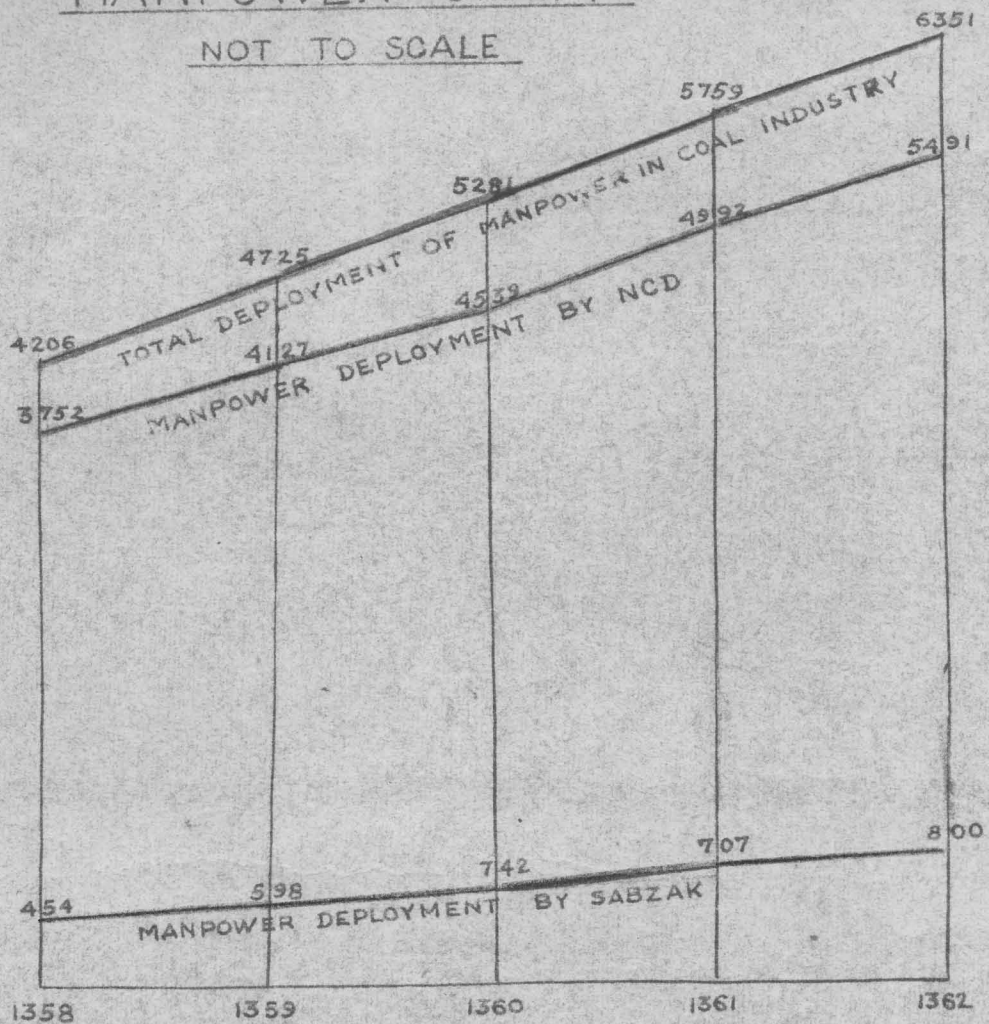
Year	N.C.D. Mines	Sabzak Mines	Total deployment of manpower in coal industry of Afghanistan
1358	3,752	454	4,206
1359	4,127	598	4,725
1360	4,539	742	5,281
1361	4,992	767	5,759
1362	5,491	860	6,351

Yearwise O.M.S. Expected To Be Achieved

Year	N.C.D. Mines	Sabzak Mines	Overall O.M.S. of Coal Industry
1358	0.18	0.147	0.177
1359	0.18	0.362	0.203
1360	0.181	0.494	0.225
1361	0.181	0.522	0.226
1362	0.196	0.620	0.253

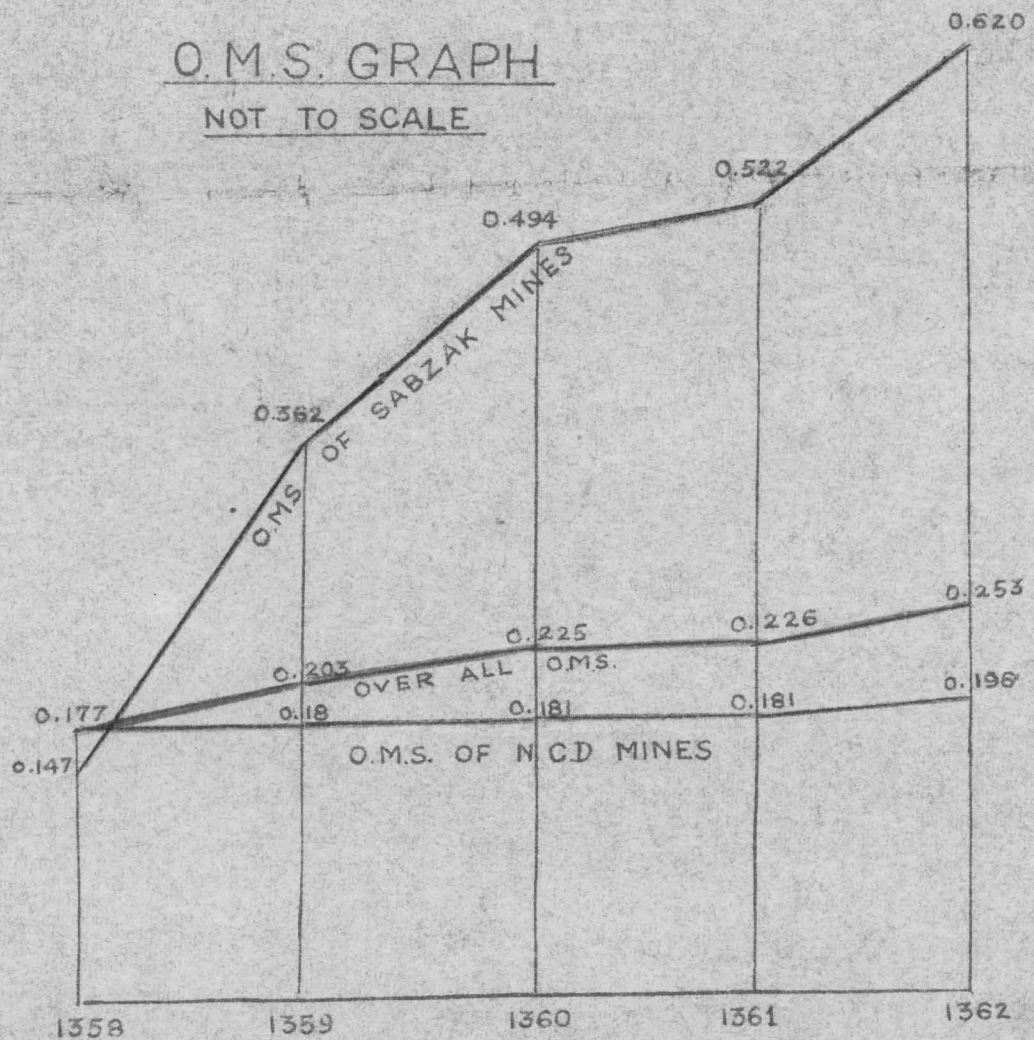
MANPOWER GRAPH

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O.M.S. GRAPH

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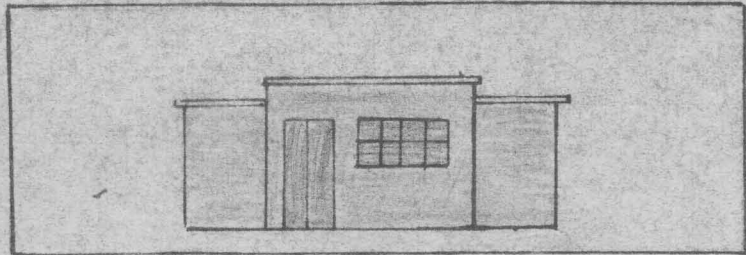
CHAPTER V

Welfare Activities

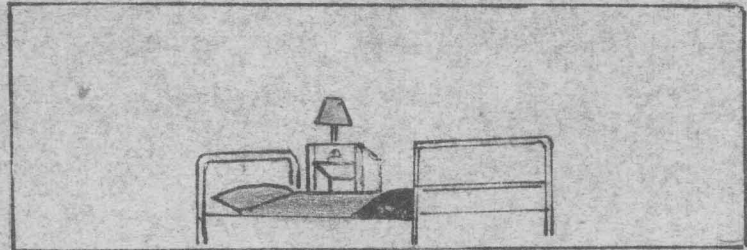
Coal mining being one of the hazardous industries and also labour intensive, welfare measures must be planned to alleviate the drudgery of the mine workers. No future coal plan can fully succeed without taking care of welfare activities. Medical facilities in the majority of the existing mines are inadequate. This means that the coal industry should plan for basic medical facilities in all mining areas.

The present approach of the Democratic Republic of Afghanistan and the North Coal Department towards welfare activities is one of great enthusiasm. The welfare activities should include provision of housing, water supply, roads, hospitals, schools, fair price shops and recreation facilities.

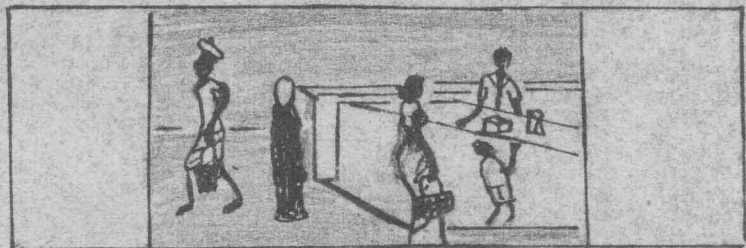
WELFARE ACTIVITIES



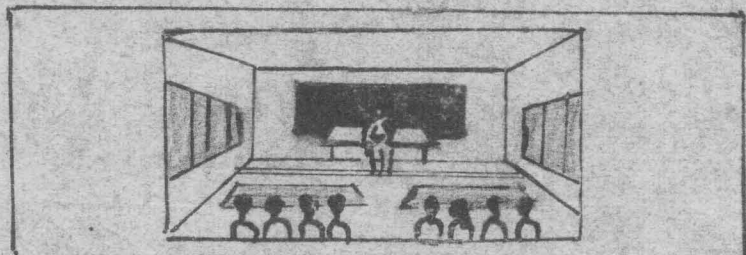
HOUSES



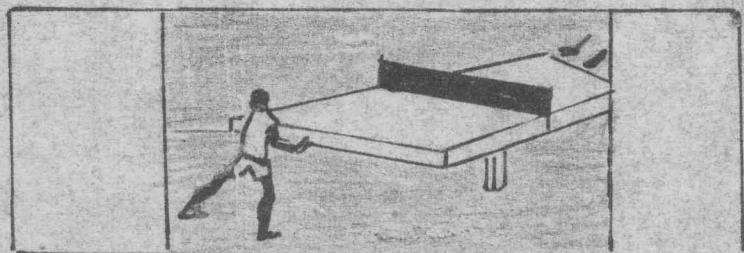
HOSPITAL BEDS



FAIR PRICE SHOPS



SCHOOLS



RECREATION CENTRE



CANTEENS

CHAPTER VI

Inputs And Infrastructure

The projected coal production enumerated in this plan will necessitate increased investment in inputs and creation of infrastructural facilities. Inputs like plant and equipment, weigh bridges, technological inputs, both of methods and skill, training of personnel and organisational development are a few of these.

Industrial facilities available in various coalfields are low. Material inputs like plant and equipment are to be supplemented. The lorry loading facilities are confined to manual system. Bunkering facilities are almost nil. Against this background the coal plan has not only to contend with provision of infrastructural facilities in new mines, but also to cover the backlog in the existing mines.

Better means of communication between the coal face and the pit top of the mines wherever necessary has to be planned.

For starting new mines in Sabzak and Shabashak detailed geological prospecting should be undertaken without losing further time.

Roads are required for bringing in the drilling equipment for transporting stores and machinery to the mines and later for transporting coal to consumption areas. Without the provision of good roads, coal supplies may neither be possible nor economical. This aspect, therefore, is a decisive factor in opening and operating coal mines in the virgin coal fields and also in Darra-i-Suf.

The major roads to be surveyed and executed by the Public Works Ministry are:-

- (a) From Samangaon city to Darra-i-Suf town.
- (b) From Mazare Sharif city to Darra-i-Suf town; and
- (c) Darra-i-Suf town to Shahbashak coal mine.

Important associated projects such as micro-hydel plants and an explosive factory should also be completed with the assistance of other Ministries. The benefits arising out of these projects will be shared by other sectors of the country's economy. The important micro-hydel power plants to be constructed are in Darra-i-Suf and Ishpushta coal fields.

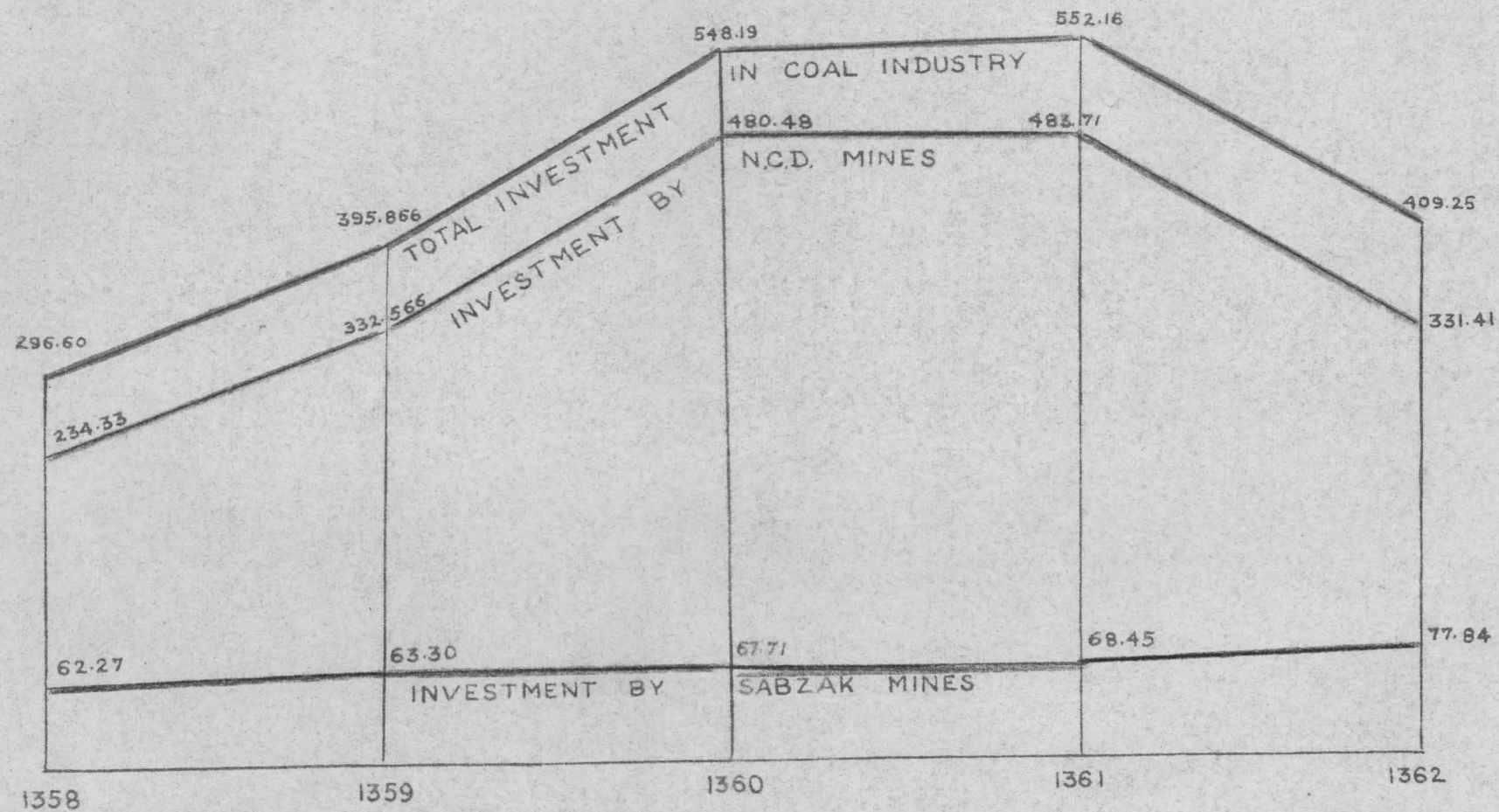
For technological aid, help from friendly countries like India, Czechoslovakia and Russia is being solicited.

All these measures to improve infrastructural facilities are likely to cost about 2200 million Afghanis. Yearwise investment for the next five years is shown below:

(In Million Afs.)			
Year	Investment for N.C.D. Mines	Investment for Sabzak Mines	Total Investment In Coal Industry Of Afghanistan
1358	234.33	62.27	296.60
1359	332.566	63.30	395.866
1360	480.48	67.71	548.19
1361	483.71	68.45	552.16
1362	331.41	77.84	409.25
Total	1862.496	339.57	2202.066

GRAPH SHOWING CAPITAL INVESTMENT IN MILLIONS OF AFGHANIES

- SABZAK MINES (339.57)
- N.C.D. MINES (1862.496)
- TOTAL INVESTMENT (2202.066)



CHAPTER VII

Research, Development & Engineering

In a fast changing society, as ours, research and development in any field of activity has become essential for survival. This has been supported by our experience in the past. Necessity has all along been the mother of invention and this has to guide our research programme. Research and development programme cannot be copied from elsewhere, rather it has to start from the technological levels reached in the industry and the contemporary needs. It is in national interest that as much importance should be attached to the field of mining as to the coal utilisation as it leads to energy conservation by efficient utilisation. It has to be an allround attack. Research and development programme should cover the following major areas: (1) Exploration; (2) Mining technology; (3) Engineering and equipment development; (4) Beneficiation; and (5) Coal utilisation.

(1) Exploration

This aspect is very important and no detailed feasibility report of any mining project can be undertaken without fully exploring and proving the coal resources geologically. Coal Department should itself have a Geology Cell. This Cell can assist in the existing mining projects in determining the extent of coal seams, presence of geological disturbances, thus helping the mines to plan in a systematic and efficient manner. It is needless to say that the Geological Survey Department will be the sole organisation for carrying out all geological prospecting in general.

(2) Mining Technology

A separate cell under the Coal Department should be created to undertake time and motion study right from the coal face to the despatch point. This will help

eliminate slack and bottlenecks. This will also guide us to efficiently plan deployment of manpower.

Research should be undertaken in other fields of activities like roadway driveage, underground transport, ventilation, strata control, use of explosives etc.

(3) Engineering and Equipment Development

The indigenous availability of plant and equipment for the use of mining industry is almost nill at the present moment. Serious attempt should be made for manufacturing at least the basic equipment.

(4) Beneficiation

Research on pilot scale should be undertaken to study the schemes of beneficiation of run of mine coal. This is essential to improve the quality of coal and find its suitability for the use of the future steel industry.

(5) Coal Utilisation

Coal at present is being used in the form of dust, lump coal, bricks and briquettes. Efforts should be made to improve the quality of coal at the source as well by picking shale/stone pieces. Brick making should be mechanised on a pilot scale. If this proves a success, a major plant for brick making can be set up in all major consuming points as the demand for bricks is considerable.

CHAPTER VIII

Safety And Health

Mining is a hazardous industry. While digging out the riches of mother earth (coal), man disturbs the natural equilibrium of the strata. The forces thus disturbed require constant watch and monitoring. In addition to this, coal dust and gas make the mining venture more hazardous. Coal Department should approach the problem of safety and occupational health in a scientific manner. It involves training and education of workers, individually on the job he is expected to be on and organisationally into the management of mine as a system.

Safety and production has to go hand in hand. Production must be planned as a process with safety as a built-in component. Adoption of scientific methods with full knowledge of nature's forces at work in a mine should improve overall safety. Launching of vigorous and systematic vocational training of different categories of workers is a must. Each mine should have a safety organisation exclusively charged with safety matters and independent of production wings. Occasional safety competition between different units should be held to improve safety consciousness amongst mine workers.

The ultimate goal is to make safety requirement a part and parcel of operational routine, practice and habit.

CHAPTER IX

SUMMING UP

The five year perspective coal plan gives an outline for the fast development of the coal industry to meet the increasing energy demand of the country. Investment for planned production along with the investment on infrastructure have been dealt with only for five years. Summarising, some of the key statistics of the plan can be enumerated as below:-

- Production level of 482,660 tonnes by 1362 is proposed to be achieved.
- Total investment proposed for the objectives set out in the coal plan has been worked to 2202.066 million Afs. for the entire five year period.
- Safety should be made an inseparable part and parcel of production activity.
- Improved welfare should receive particular attention. Reasonable housing facilities and other health and medical services have to be provided.

-
Thus given the timely and necessary inputs, Coal Department can fully gear up to satisfy the coal requirement of the industry.

A N N E X U R E

Requirement Of Raw Coal In '000' Tonnes For Various Consuming Industries

Sr. No.	Consumers	1356	1357	1358	1359	1360	1361	1362	In 2nd Five Year Plan	% Growth in 1st Plan Period	% Growth In 2Nd Plan Period
<u>CEMENT</u>											
1.	Jabalseraj Cement (capacity: 31,632 T/annum)	13.126	12.000	12.000	12.000	12.000	12.000	12.000	12.000	100	100
2.	Chori Cement (capacity: 120,000T/annum)	43.552	36.908	36.647	39.862	42.077	42.077	42.077	42.077	114	100
*3.	Herat Cement (capacity: 210,000 T/annum)	.007	0.021	15.00 (73500)	35.00 (126000)	50.00 (210000)	50.00 (210000)	50.00 (210000)	50.00 (210000)	238095	100
*4.	Kandahar Cement (capacity: 300,000 T/annum)	-	-	-	-	-	25-50 (105000)	50.00 (180000)	73.00	---	146
*5.	Chori Cement (Capacity: 300 300,000 T/annum)	-	-	-	-	-	-	25.50 (105000)	73.00	---	286.2
Total require- ment of coal for Cement Industry:		<u>56.685</u>	<u>48.929</u>	<u>63.647</u>	<u>86.862</u>	<u>104.077</u>	<u>129.577</u>	<u>179.577</u>	<u>250.077</u>		

* Figures in bracket indicate annual production of cement.

Sr. Consumers 13.	1356	1357	1358	1359	1360	1361	13 62	In 2nd Five Year Plan	Grow- th in 1st Plan period	% Grow- th in 2nd Plan period
<u>THE TILL</u>										
1. Afghan Textiles (Cap.62 million meters)	23.399	21.00	21.90	22.787	23.285	23.660	23.900	24.40	113.8	102.1
2. Bagrami Textile (Cap.20 million meters)	16.057	16.50	16.50	16.50	16.500	16.500	16.500	16.50	100.0	100.0
3. Kardahar Textile (cap.40 million meters)	-	.030	9.00	20.00	26.552	26.552	26.552	26.552	85546.7	100.0
4. Horat Textile (Cap.12 million meters)	.006	.028	.035	2.035	5.035	5.035	5.035	5.035	17982.2	100.0
5. Kandahar Woollen Textile (Cap.: 60,000 to 1000,000 meters)	-	1.50	3.00	4.50	6.000	6.000	6.000	6.000	400.0	100.0
6. Puli-Khumri New Textile	-	-	-	-	-	6.000	13.000	16.50	-	127.0
7. Charikar Textile (Cap.20 million meters)	-	-	-	-	-	6.000	13.000	16.50	-	127.0
8. Taloquan Textile (Cap.30 million meters)	-	-	-	-	-	-	9.00	25.00	-	277.8
9. Kirshik Textile (Cap.40 Mil.Mts.)	-	-	-	-	-	-	11.50	33.00	-	287.0
Total requirement of coal for Text- ile Industry:	<u>39.462</u>	<u>39.058</u>	<u>50.435</u>	<u>65.822</u>	<u>77.372</u>	<u>89.747</u>	<u>124.487</u>	<u>169.487</u>		

Sr. Consumers No.	1356	1357	1358	1359	1360	1361	1362	In 2nd Five Year Plan	% Growth in 1st Plan Period	% Growth in 2nd Plan period
<u>SUGAR</u>										
1. Baghlan Sugar (Cap. 27,000 tonnes/ annum):	-	-	-	6.00	12.15	14.80	15.60	17.50	-	112.2
2. Baghlan existing sugar (Cap.10,000 tonnes/annum)	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	100	100
Total requirement of coal for sugar industry:	9.10	9.10	9.10	15.10	21.25	23.90	24.70	26.60		
<u>POWER</u>										
1. Herat Thermal Power Station:	-	-	-	-	-	-	32.00	66.00		
<u>MISCELLANEOUS INDUSTRIES</u>										
1. Oil and Gas	0.880	.95	1.04	1.170	1.3	1.96	2.06	2.57	216.9	124.8
2. Geological Survey	0.650	0.674	0.680	0.680	0.690	0.690	0.70	0.77	103.9	110.00
3. Jangalak Factory	0.970	1.014	1.068	1.101	1.134	1.175	1.20	1.5	118.4	125.0
4. Baghlan Ginning Press	-	-	-	-	-	-	-	0.037	-	-
5. Taloquan Ginning Press	-	-	-	-	0.2	0.37	0.37	0.37	-	100.0
6. Balkh Ginning Press	0.499	0.5	1.5	1.575	1.659	1.737	1.824	2.28	364.8	125.0
7. Kabul Brewery (Cap.10 Mill.Lts.)	-	-	-	-	-	6.3	14.40	18.00	-	125.0
8. Kabul Distillery	-	-	-	-	-	0.818	1.872	2.34	-	125.0
9. Kabul Paper (Ca.2700 to 3000 tonns/annum)	-	-	-	-	-	0.5	1.50	2.5	-	166.7

Sr. Consumers No.	1356	1357	1358	1359	1360	1361	1362	In 2nd Five Year Plan	% Growth in 1st Plan period	% Growth in 2nd Plan period
10. Kunduz Spinzar Factory	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000	100.0	100.0
11. Mineral Exploitation	0.044	0.044	0.554	0.554	0.554	0.554	0.554	0.904	1259.1	163.2
12. North Coal Department	3.900	4.000	4.1	4.2	4.3	4.4	4.5	8.000	112.5	177.8
13. Baghdad Fluoride	-	-	-	-	-	-	-	5.5	-	-
Total for Misce- llaneous Industries:	10.943	11.182	12.942	13.280	13.837	22.504	32.980	40.77		
Ministries and Domestic Con- sumption: (subject to variation):			87.006	107.376	139.264	124.652	88.916			
Grand Total:			223.13	288.44	355.800	390.380	482.66			

MISSION

THE MISSION OF COAL DEPARTMENT SHOULD BE TO PRODUCE
THE PLANNED QUANTITY OF COAL EFFICIENTLY AND ECONOMICALLY,
WITH DUE REGARD TO SAFETY AND CONSERVATION.