

2-4 Present situation in the production

2-4-1 Mining industry position in macroeconomy

1) GDP Dynamics

The economy of Kyrgyzstan has improved when compared with 1995 when it was at its lowest level. In 1996 GDP increased by 7.1% in comparison with 1995 and in 1997 the growth of GDP increased by 9.9%. The 1996 increase was largely attributable to a 113.1% increase in the Agriculture sector. Industry situation has been improved only this year: from 99.8% in 1995 to 103.9% (in comparison with the previous year). Economic growth in 1997 was rather low in agriculture, construction and the service sectors, however, growth of industrial production was relatively high and attributable to the beginning of gold production by "Kumtor" (15.6t of its production) (Figure 2-4-1).

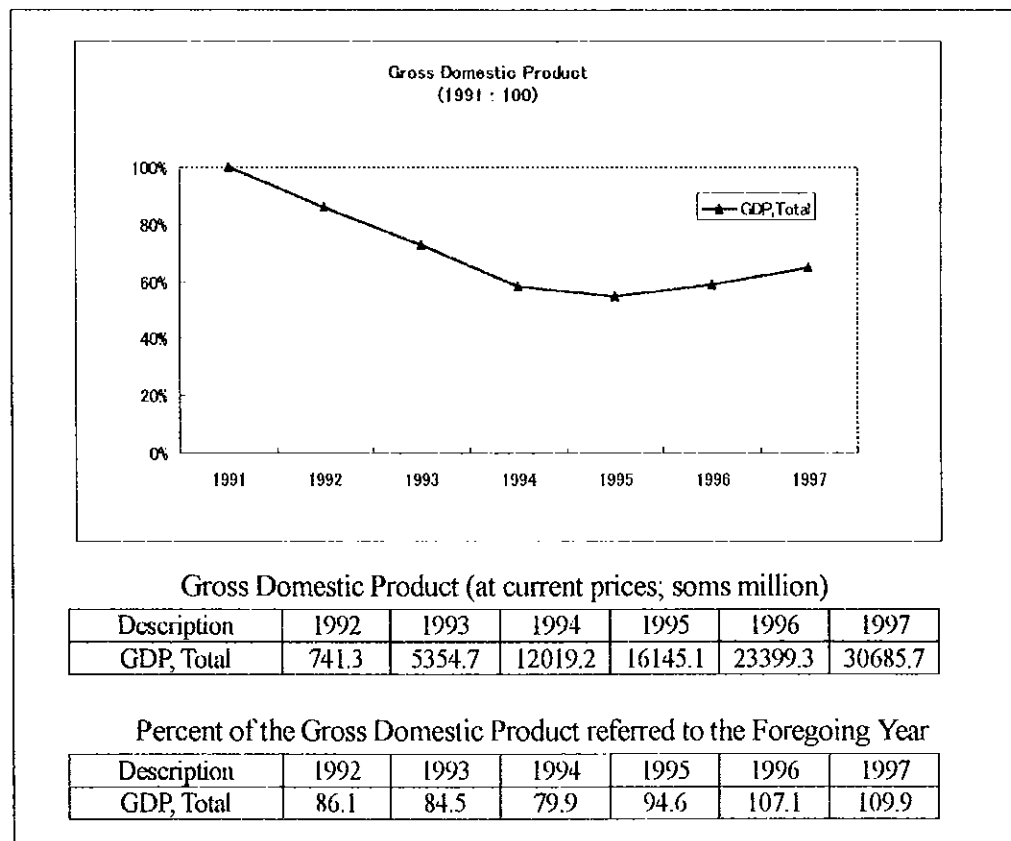


Figure 2-4-1 Changing of GDP

The national currency, prices and GDP growth are stabilizing as the chaos arising out of the disorganisation period come to an end. Previously increasing progressive unemployment rate began to decrease in 1997 (Table 2-4-1).

Table 2-4-1 Rate of Inflation and Officially Registered Unemployment

Description	1992	1993	1994	1995	1996	1997
Rate of Inflation	1358.7	1466.0	187.2	131.9	134.9	114.8
Unemployment	0.1	0.2	0.7	2.9	4.3	3.1

2) Industry structure

Initially Kyrgyzstan was a country of two key industries: agriculture and cattle breeding. In 1997, agriculture was 43.5% of GDP.

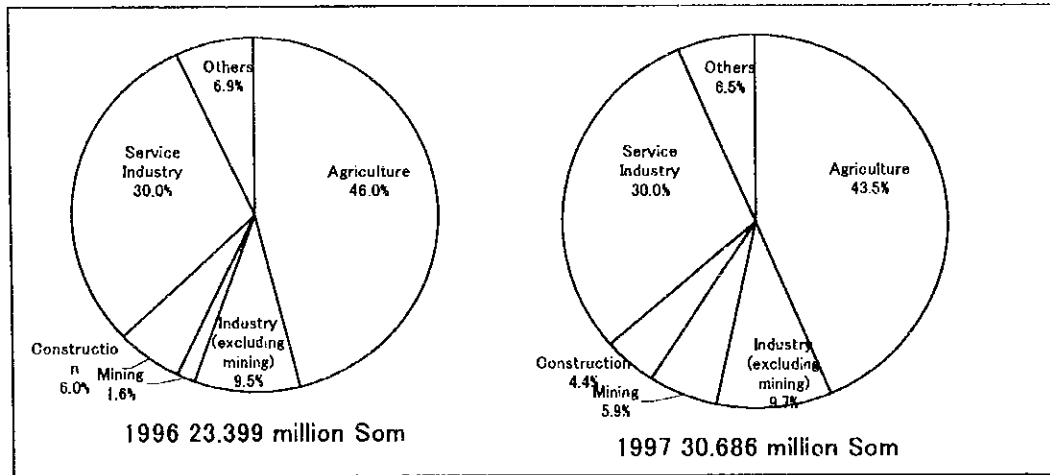


Figure 2-4-2 Composition of GDP by Industry

Later other sectors of the economy such as food industry, construction and mining industry started to develop.

In the industrial sector increases in the sectors contribution to GDP occurred in mining where the start of gold production at Kumtor increased mining's contribution from 1.6% in 1996 to 5.9% in 1997 and in petroleum processing with increased production at the Dzhalaal-Abad Oil Processing Plant. Other sectors of the industrial sector, such as: energy, food industry, light industry, mechanical engineering, metal-working industry continued their economic decline of past years.

3) Trade

The prevailing role of imports over exports is still observed in trade statistics but the level of exports has improve as compared with 1995 largely because of increased agriculture and gold exports (Figure 2-4-3). An abrupt rise of imports in 1996 is mainly assigned to increased imports of foreign construction equipment for "Kumtor".

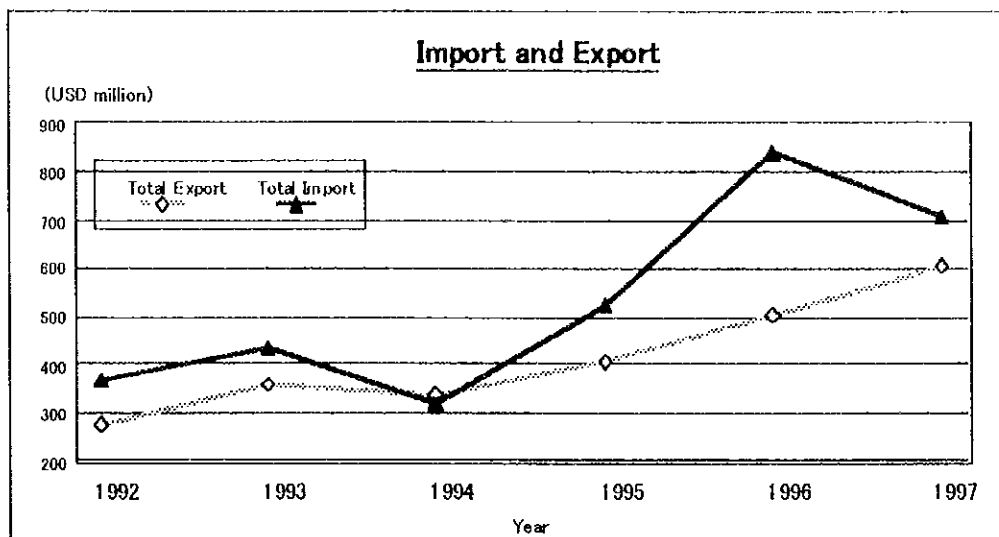


Figure 2-4-3 Imports and Exports

The role of agriculture in GDP is large compared to its share of exports. The Kyrgyz Government regards mining sector development as important for the generation of foreign currency for the Republic (Figure 2-4-2, Table 2-4-2).

Table 2-4-2 Amount of Imports and Exports for Industry & Agriculture

	1992	1993	1994	1995	1996	1997
	mill. D					
Export Total	274.1	356.3	340.1	408.9	505.4	603.8
Industry	269.1	344.9	329.4	366.0	442.1	558.6
Agriculture	4.3	11.1	10.6	42.9	63.2	45.2
Other Industries	0.6	0.3	0.1	0.0	0.1	0.0
Import Total	366.6	437.5	317.0	522.3	837.7	709.3
Industry	344.3	406.6	288.5	505.3	810.0	674.7
Agriculture	21.7	30.4	28.3	17.4	27.7	34.6
Other Industries	0.5	0.4	0.2	0.0	0.0	0.0

4) State budget

In 1995 and 1996, the Kyrgyz Government reduced budget expenditures by 28% and 22.2% of GDP, respectively. As a result, the budget deficit has been reduced by 5.4%. The Kyrgyz Government further reduced expenditures by reducing state enterprises financing and increased social payment efficiency. Social payment amounts to 60% of total state expenses but the expense in the overall is very small (2.3% of GDP) (Table 2-4-3).

Table 2-4-3 State Budget (% to Gross Domestic Product)

Description	1992	1993	1994	1995	1996	1997
Revenue	17.3	15.8	15.7	17.0	16.8	16.7
Expenses	31.2	22.9	23.4	28.6	22.2	22.0
Deficit	-13.9	-7.1	-7.7	-11.5	-5.4	-5.3

5) Mining industry:

① Situation in Mining Industry

Overall Mining Industry Production, except for gold production at the Kumtor mine has significantly decreased, in particular with regard to coal mining industry, which is absolutely noncompetitive due to extraction and transportation costs, low prices and poor product quality. Coal production amounted to 10% of total mine production during the period when the industry flourished. In this connection, in April, 1997 the Kyrgyz Government decided to render financial support to coal industry in amount of 50 million soms. Overall, the Kyrgyz mining industry is severely distressed and adversely impacts the economy of the nation. At present 50% of the nation's oil and gas must be imported, the mercury and antimony sectors have declined due to low prices and reduced demand, and tin production has been halted. No significant development has taken place with respect to copper. From the above, it must be concluded that the mining industry simply doesn't work (Table 2-4-4). Associated with the collapse of the mining industry was a significant restructuring of the industry which led to severe staff reductions (Figure 2-4-5).

Table 2-4-4 Annual Production by Mineral Commodity such as Oil, Gas, Antimony and Coal

	1992	1993	1994	1995	1996	1997
Oil thousand t	113.0	87.6	88.2	88.5	84.0	-
Natural & Liquefied Gas million m ³	72.4	41.6	39.0	35.7	25.6	-
Coal thousand t	2,151	1,721	746	463	432	-
Antimony t	13,810	9,778	9,588	7,053	6,002	4,401
Gold t	1.21	1.14	1.53	1.49	1.58	16.86

Table 2-4-5 Employment in Various Industries (people)

Description	1992	1993	1994	1995	1996	1997
Coal Industry	12425	11350	9187	5754	3729	3620
Oil Mining	1040	982	1056	1004	1068	1968
Non-Ferrous Metallurgy	20169	18822	18089	15164	12643	9223

② Mining industry as a currency-earning sector

The main export sectors are electric energy and mining production. In former times the first place belonged to energy export, but in 1997 all of a sudden the export of non-ferrous metallurgy increased abruptly to 35,8% of total export (216 million dollars) earnings, and electric power was shifted to the second place, having constituted 13% of the total export (83,2

million dollars). The major part of exported non-ferrous metals is gold, oil, antimony and mercury have either maintained their former level, or reduced. The share of these metals constitutes 1,7% and 1,5% of the total export accordingly, which is extremely low and they cannot play a serious role in export earnings (Figure 2-4-4).

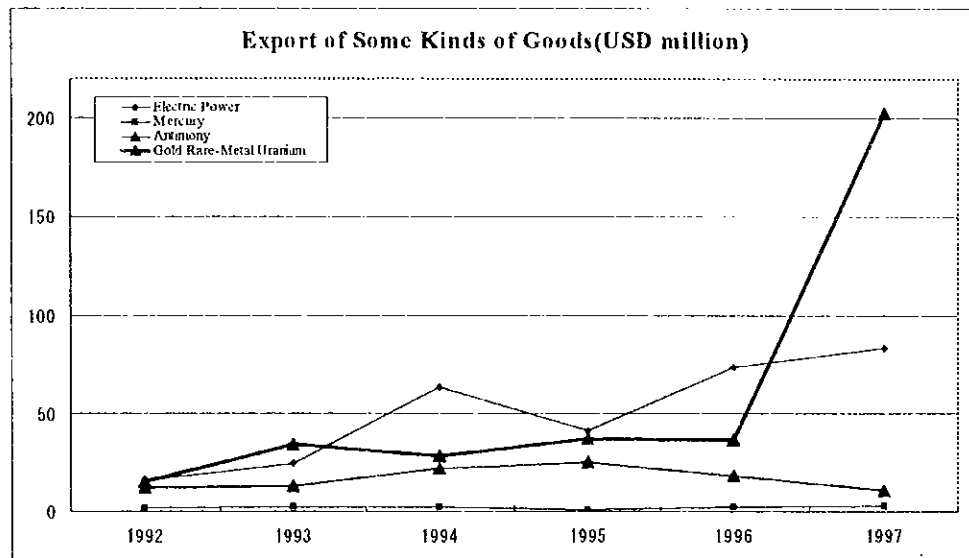


Figure 2-4-4 Export Amount of Main Export Industries

Regarding imports, the first place is taken by fuel sector - oil, natural gas, coal, etc., which constitutes 25,8% of the total import (182,9 billion dollars). Oil, including oil products, constitutes 14,4% of the total import (102 million dollars), and natural gas - 10,1% of the total import (71,9 million dollars). Next is machine industry - 21,7% of the total import (154 million dollars). After they began developing of Kara-Kiche coal basin, the import of coal reduced from 3% (25,1 million dollars) in 1996 to 1% of total imports (7 million dollars). The lack of energy products resulted in great expenditures on imports, which in its turn results in a deterioration of the balance of foreign trade (Table 2-4-6).

Table 2-4-6 Import of Some Kinds of Goods (USD million)

	1992	1993	1994	1995	1996	1997
Total:	366,6	437,5	317,0	522,3	837,7	709,3
Oil & Oil Product	78,6	124,2	43,9	100,1	109,2	102,0
Coal	11,1	15,7	30,7	17,0	25,1	7,0
Natural & Liquefied Gas	23,1	45,0	52,9	57,1	75,0	71,9

③ Banking system

At present there are 23 banks: state, commercial and banks with foreign capital, functioning in the Kyrgyz Republic. The National (Central) Bank based on the Law on the

National Bank, deals with price stabilization, works out and implements monetary-and-crediting policy for the state. At present commercial banks are being modernized and at the same time a natural selection process is underway. Many banks do not have sufficient resources to carry out account settlements, crediting and the transfer of money necessary for supporting stable economic activity. The funds of combines, for restructuring and working capital, are covered at the expense of short-term loans extended by the ERRA or commercial banks.

At present time an idea is being supported to establish a Development Bank with participation of capital from Japan, Malaysia and European banks. The government of the Kyrgyz Republic also intends to contribute 20% of its share. It is supposed that the bank will extend loans for 3-5 years, and commercial banks - from 3 months to 1 year and more. The proposed interest rate is 17%, which is lower than commercial banks rate (30%). However, the Development Bank will not provide financing as a political measure. It is considered that crediting of the mining sector by this bank would be rather difficult due to high risk.

2-4-2 Situation at combines

All mining combines, except Makmal are privatized and have been transferred into joint stock companies. The State property fund announced that all the shares that the state will be sold to strategic investors for the purpose of privatization of each combine except Kara-Balta. The real privatization of combines is in stagnation. Combines are looking for a possibility to survive by mining gold in cooperation with foreign companies, or by expansion of other types of production.

The present situation for each combine, and major issues is shown in Table 2-4-7 of end of this chapter.

1) The Kara-Balta combine

The Kara-Balta combine was established in 1951 for the production of refined uranium from ores mined at ore pits of Kyrgyzstan and Kazakhstan: the production was used to produce 25% of the enriched uranium in the Soviet Union.

In 1997 the privatization process at the combine was completed. Except the hospital, such subdivisions as the vehicle repairing workshop, the workshop of construction machinery and equipment had been transferred to the town administration of Kara-Balta town, and the TPP (thermal power plant), residential houses and other vital objects had been transferred to the state balance. The combine is divided into separate companies: based on their activities i.e. production of gold, uranium, molybdenum, tin, tungsten, the laboratory (the analytical service) and the ecological service. After the restructuring, Cooperation with foreign partners began to improve with the sales of shares.

- Since the enterprise does not have its own affiliated production, it has a clear inclination to work on orders for processing
- Its own ore pit, the Kuranjailau pit, is not operating (production has been ceased due to a reduction in the price for gold)
- Local raw materials supplied - gold (Kumtor deposit), molybdenum (intermediate raw material)
- Imported raw materials starting to be supplied - uranium (uranium concentrate from Kazakhstan), molybdenum
- The combine carries out reconstruction from proceeds of foreign investments received after the sales of shares
 - Molybdenum production - 70% of shares have been sold to English company "Mecomin" (December 1998)
 - Uranium production - an agreement has been reached to sell 65% of shares to the atomic industry of Kazakhstan
 - The laboratory (analytical sphere) - cooperation with English company "Alex Stewart", is underway and looking for ways of interaction
- Gold production - large opportunities for expansion of production. Gold affiliate is not subject to privatization
 - Present capacity is 20 tons. There is a possibility to increase production to 40 tons per year
- Tin-and-tungsten production - raw materials are not available, production process is suspended
 - Future production depends on development of the Toldoboi deposit. However, due to lack of funds the development is suspended
 - Resources of tin and tungsten are not competitive
- The sphere of environment control works by orders, as well as controls uranium tailing-pits all over the country
 - To the extent that the state budget lacks funds, real control is not performed
 - There are not enough contracts to provide for the independent existence of this sphere
- After the tailing-pit accident of the Kara-Balta combine (which had been constructed in the quarry left after extraction of uranium) underground waters were contaminated with heavy metals
 - At the expense of credits received from the EC, the French company "Sagma" is carrying out research work on radioactive waste products

The Board of Directors at the Kara-Balta combine consists of 5 people, one of them is the chairman of the State Property Fund, and the remaining 4 are elected by shareholders. The Board of Directors usually has one meeting per quarter and considers the most important issues.

The Board of Directors elects 5 people from the combine staff who are held responsible for concrete work.

2) The Makmal combine

Makmal is a large skarn deposit discovered in 1967 and is the first real gold deposit in Kyrgyzstan. At present it is managed by the State Concern "Kyrgyzaltyn". The enrichment factory and equipment for cyanide leaching have been withdrawn from the mining site and now they are located 37 km from the mining site. The ore is delivered to the enrichment factory by lorries. Subsequently crude gold is delivered to the Kara-Balta combine by helicopters where it is processed into pure gold.

- Open-pit development has been completed. There is a need to develop it by an underground method, but due to a lack of financing and technological problems, production has been postponed
- Reserves of gold ore are 12-15 tons with gold content of 4-5 gr. per ton and thus, it is a small deposit with a low gold content. The advantages for development are that the entry is already existing, and the host rocks are stable. However, low economic efficiency of present activities is a problem.
- In order to provide for quick development by foreign enterprise preferential treatment in the form of exemption of royalty payment for 5 years has been granted, however, foreign investors are not interested in this deposit
- Development of the deposit would have a significant impact on solution of employment and the economy of Kazarman town
- The combine has a gold ore-pit, recovery technologies for low gold content ore (heap leaching), but lacks equipment and machinery

3) Solton-Sary

The Solton-Sary gold deposit was discovered in 1967, however, because it is not large research on the project has been suspended. In 1994 "Kyrgyzaltyn", at utilizing funds from its Fund on Gold Mining Development, organized a small-scale open-pit development in the area of Altyntor (in the same region), which increased the volume of gold mined from 400 kg to 7 tons.

- The open-pit development method at Altyntor has been completed, now it is time for underground development, which requires money
- At present gold is extracted from tailings-pits
- Gold ore is simple (mono-metal), it is easily enriched and purified
- "Newmont" and "Kyrgyzaltyn" have established a joint venture on mining and at present the issues on joint development and mining are in the process of consideration. (Critical issues

include the establishment of economic infrastructure and careful treatment of its environment)

4) Khaidarkan

Khaidarkan was established in 1941 as a mercury combine, which provided for 70% of mercury production in the whole of the former USSR. At the present time mercury production is 610 tons per year. Additionally the combine produces fluorite and antimony concentrate. In 1996 reconstruction was undertaken under a World Bank program, but the situation has not improved due to economic insufficiency, which is characteristic of all deposits with low grades content grade, and decreasing markets.

Chapter 2-7 "Present situation at the model combine" gives a detailed description of Khaidarkan.

At the present time 97% of the combine shares belong to the Ministry of Foreign Trade and Industry and 3% to the working collective. In 1998 the government established a Board of Directors which included 5 people: two from the State Property Fund (central fund - 1 person, rayon fund - 1 person), a representative from the Ministry of Foreign Trade and Industry, a rayon representative, and a representative from the working collective. This Board is not functioning.

In the process of restructuring the auxiliary sphere has been separated from the combine. Electric power supply to residential areas, running water supply, sewerage, and heating have been transferred to Khaidarkan settlement management. But the subordination of the worker's settlement to Khaidarkan has not been legalized yet.

5) Kadamzhay

The Kadamzhay combine was established in 1936 and it was the only combine for the production of antimony in the former Union - which satisfied 100% the Union's demand. The combine includes: the Kadamzhay mine, its Tereksai mine and the Kadamzhay smelting factory which produces metallic antimony and antimony trioxide are produced from antimony concentrate. The Tereksai mine is located in remote Tereksai rayon (Northwestern Kyrgyzstan).

- The Kadamzhay mine is a deposit with sufficient resources to operate for 30 more years, but its has weak competitiveness due to low grade of the deposit. The Tereksai mine will be operated for 2 more years
- The combine is very much dependent on the import of raw materials from foreign countries. After Kyrgyzstan became an independent state, the number of suppliers declined adversely influencing the combine's output

- During Soviet times 90% of raw materials were imported from other republics (Russia, Tajikistan, Kazakhstan) Kyrgyzstan's raw materials constituted 10%
- At present time its supply is 62% of foreign raw materials and 38% local raw materials (as the volume of foreign raw materials was reduced, the per cent of local raw materials increased accordingly).
- Smelting production has two systems - pyro-metallurgy and hydro-metallurgy (Scheme 2-4-5). Production has decreased significantly due to a lack of proper equipment (Scheme 2-4-6)
 - The cost of raw materials transportation from Russia is a heavy burden
 - The main ore body of the Tereksai mine (Terekan) is being exhausted and presently consideration is being given to the issue of the development of a gold deposit, which belongs to the combine
 - They lack funds for mining the deep layers of the Kadamzhay deposit or the development of a new mine
- Technical equipment of the mine and for smelting have not been updated for many years and are very much worn. The remaining storage capacity within the tailing-pit of the Tereksai mine is very limited
- Due to a decline in production and a reduction in the prices of antimony the enterprise is in crisis. Due to this it is planned to reduce production cost by 30% through restructuring
 - Separation of construction and agricultural spheres as independent enterprises
 - Transfer of social sphere to be managed by rayon administration and trade unions
 - Personnel reduction (from 3000 to 2100 people)
- At the present time privatization is underway and denationalization of the combine is being completed (70% of shares belong to "Kyrgyzaltyn", 30% - to the working collective, etc.) Now they plan to move further and sell a controlling set of shares (51%) to a strong investor, but for a time being there are no concrete results
- The combine has a license for the following sources of ore and a license on a gold deposit (mining and development). They are looking to establish a joint venture for mining and development.
 - Gold deposits are concentrated in the area of Terek rayon in the vicinity of the Tereksai mine (Terekan, Terek, Perevalnoe deposits)
 - Development of the Savoyardy gold deposit (Au 8 gr/t, As 3-4%) and antimony deposit (Sb 3.3%, Au 1 gr/t) has not been started yet
 - The Apsher mine (Sb 45000 t, Sb 2-3%) is being developed. In Nichkesul (the area of Sb, Sn, Au deposits) they are developing a gold mineralization zone

The business situation at the combine has not improved yet, however, the meeting of its Board of Directors in July 1998 solved the main measures on the enterprise restructuring:

- To produce not only antimony but to diversify into other production activities the produce (processing of lead scrap)
- Settlement of the problem on arrears and rationalization of the operation by the means of personnel reduction
- Develop stable supplies of raw materials from Tajikistan
- Reforming of the production management structure by liquidation and merging of subdivisions

In order from a typically cumbersome soviet enterprise to become a flexible functioning company, vital under the conditions of a market economy, the combinat will have to face a great number of tasks. These include radical change of the enterprise's scale, restructuring (rationalisation), stabilisation of raw materials supply, etc. The enterprise has possibilities, though limited, to implement restructuring by its own financial means.

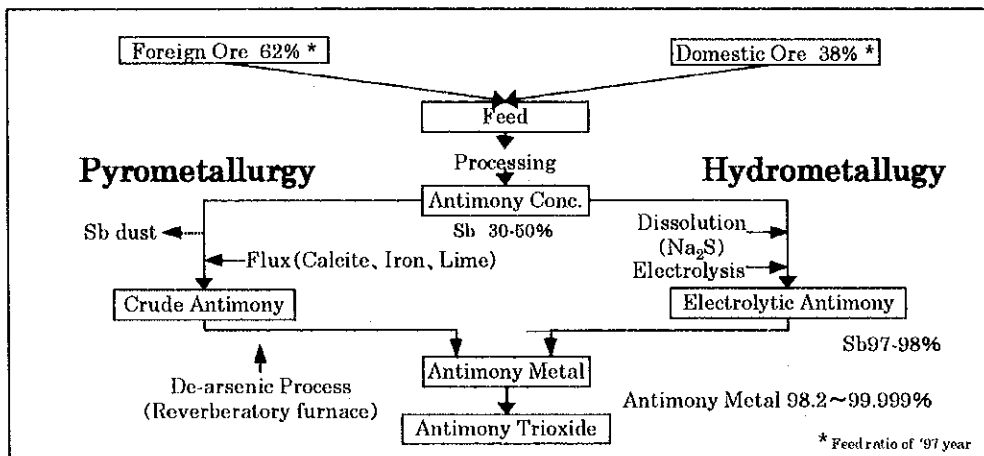


Figure 2-4-5 Flow of Antimony Production of Kadamjaj Combinat

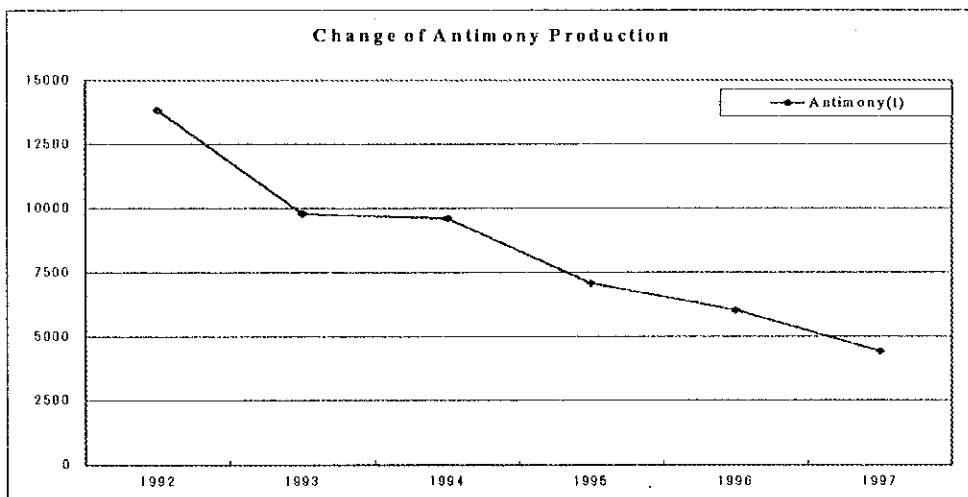


Figure 2-4-6 Change of Antimony Production

6) Kumtor

The development of Kumtor was started in 1995. In May 1997 this big gold mine, occupying the seventh place in the world, started real production.

The State concern "Kyrgyzaltyn" and Canadian company "Cameco" created an investment company "Kumtor Gold Company" (financing in the proportion 2:1) and "Kumtor Operating Company" dealing with mining.

In 1997 15.6 tons of gold were extracted at the Kumtor mine. There is a perspective in 1998 to exceed the planned figure 18 tons. Kumtor produces a gold-silver alloy and Karabalta Combinat refines it.

The characteristics of Kumtor mine which are most modern are given below;

- The most modern equipment and technologies are used
 - extraction by open method (100), stripping coefficient (1:4.7), the volume of ore output 15 000 - 18 000 t/day, the content of Au - 5 g/t;
 - processing plant - 14 000 t/day, cyanide leaching, CIP extraction method (extraction method with the help of carbon in pulp)
- Reserves, according to soviet estimations, are 750 tons (at average Au 3.6 tons, cut of grade 1.7 g/t)
 - Not long ago ore prospecting in the vicinity, delineated an additional new figure of were obtained (20t)
 - Movable ore reserves by open pit mining method - 288 t, underground mining method - 266 t.
- Mine personnel work in shifts, changing every two weeks
 - Total number of staff - 1400 people (90% Kyrgyz) - these are the workers of the ore mine itself, Bishkek, Karakol training centre, etc
- Aiming at personnel preparation, a personnel training program is implemented
 - Training is organised in either the training centre in America or Canada
 - In order to replenish personnel with qualified specialists, training materials are provided by Kyrgyz University of Mines

Table 2-4-7 Present Situation of Mining Combine's Ownership and Issues

Combine	Revenue '97 (Mil. Som)	Production	Market	Raw Materials (own mine)	Share and Foreign Investment	Issues
1. Kalabala Au (metal) Gold mine	168 (Total) (40% of Revenue)	Au 17 t metal Suspended	—	Kumtor, Makmal, etc. Kuranjayilau 150 thous t / yr (plan)	Kalabala Combinat JV Andrei (Swiss)	<ul style="list-style-type: none"> Out of object for privatization Unstable investment supply from Andrei Company High cost of transportation of ore Countermeasure of environmental protection
Uranium	(20% of Revenue)	Utilization 50%	—	Kazakhstan	JV Kazakh shareholder 65% under negotiation	<ul style="list-style-type: none"> Introduction of treatment technology
Molybdenum	(10% of Revenue)	Utilization 40%	—	Under investigation	JV Mekomin (UK) 70% under negotiation	<ul style="list-style-type: none"> Under construction 80% suspended Necessary investment \$14 million.
Tin	—	—	—	Sary-Jaz (Tordovoy)	No foreign investor	<ul style="list-style-type: none"> Aged equipment especially analysis equipment
Laboratory	—	—	Domestic	Central Laboratory	JV Alex Stewart (UK)	<ul style="list-style-type: none"> Open pit reserves exhausted (mine life 2 years) Delay of underground development (low efficiency and technical level) Reconstruction depends on exemption of gold royalty (1998-2002) Establish heap leach technology for low grade ore Comprehensive mine re-evaluation. (F/S)
2. Makmal	230.4	Au 1.2 t metal	—	Makmal 375 thous t / yr (plan)	KYRGYZALYN	<ul style="list-style-type: none"> Completion of Ailyn-for open pit mine Comprehensive development examination needed (F/S)
3. Soltor-Sary	—	—	—	Ailyn-for (Kyrgyzalyn) Buchuck (Newmont)	JV Newmont (USA)	<ul style="list-style-type: none"> Sharp decrease of ore reserve due to increase of mercury cut-off grade Need economic evaluation on mix ore Settle mercury royalty change 12% → 2% Lack working capital (stockpile increase) Management on break-even line No hope for work for new comers Need to examine countermeasures of energy loss Lack of geologists Pre-payment system (common in barter system) Environmental countermeasure, etc. Shift to gold mine development
4. Khaidarkan	54	Mercury 610 t Fluorite 5750 t	Outside (90%) Competitor China under negotiation CIS	Own supply (UG 2 mines) Mercury mine (200 thous t / yr) Complex ore mine (100 thous t / yr) Own supply (complex ore mine)	Government share (MTI) 97% Employees (3%)	<ul style="list-style-type: none"> Decrease of income due to decline of antimony metal price Unstable raw material supply from Tajikistan and Russia Increase of self-sufficiency rate (due to development of Appshell and Tereksai deposit) Re-evaluation of Kadamjai deposit Development of gold bearing antimony deposit (Savoialdy) Rationalization limit of own reconstruction of combinat Reduce exemption of antimony royalty for one year Diversity of products (promote gold, silver, tin etc.)
5. Kadamjai	—	Sb 440 t	Competitor China	% own supply 38.2% Russia (saha) Tajikistan Chimkent Kadamjai mine (life 20 yr, low grade, Sb 1% more, simple ore) Appshell (open pit under development, Sb 4%, simple ore) Tereksai (Sb 2%, complex ore)	Government share (Kyrgyzalyn) 70%, now State Property Fund Pension fund 6% Social insurance fund 8% Coupur 11% Employees 5%	<ul style="list-style-type: none"> Ore reserve of gold metal 750t. New obtained ore reserve by around exploration 20t Inducing up-dated maintenance technology (large scale open pit mine, CIP method) Minable ore reserve of gold metal: O.P 288t, U.G 266t Employees 1400 (Kyrgyz 90% of them) Having own training program for employees Supply teaching staff to Mining metallurgical university
6. Kumtor	150.4 mil. \$	Au 15.1t metal	—	Kumtor	JV Cameco (CA) 1/3 Kyrgyzalyn 2/3	<ul style="list-style-type: none"> Ore reserve of gold metal 750t. New obtained ore reserve by around exploration 20t Inducing up-dated maintenance technology (large scale open pit mine, CIP method) Minable ore reserve of gold metal: O.P 288t, U.G 266t Employees 1400 (Kyrgyz 90% of them) Having own training program for employees Supply teaching staff to Mining metallurgical university

Note: 30% of rest of revenue at Kalabala combinat is occupied with sale of dust mask etc. and other parts

2-5 Mining industry organization and present situation of privatization

2-5-1 Mining industry organization and function

Figure(1) "System of governmental bodies on management of mining industry" of opening page is showing structure and function of mining industry organization in the time of implementation of investigation, and this report is described based on this figure. It is noted that structure and system of mining industry organization in August 1999 is shown in Figure(2) "System of governmental bodies on management of mining industry"

1) Administration Department

In the central administration organizations related to the mining industry, the presentation of the policy framework is from the Prime Minister's Office. The long-term economic analysis adjusts the last plan by checking the administrative measures. The Department of the Treasury makes the draft budget. The Ministry of International Trade and Industry analyzes the combinat production activity. The State Agency on Geology and Mineral Resources implements the issue of the mining industry license and geologic and natural resource surveys. The Environmental Protection Ministry supervises the environmental control of the mining industry.

Table 2-5-1 Role of Organizations in the Mining Field

	Organization Name	Main Role
Prod Policy Plan, Adj	Dept of Economic Policy	Direct Policy Plan
	Dept of Ec. Dev. & Finance	Finalize Admin Measures
Budget Formation	Budget Dept	Make Intermediate Budget
	MOF Macroeconomic Dept	Rec Budget Request → Make Budget
Administration	Center fo Soc & Ec Reforms	Check Gov Admin Organization
Rationalize, Privatize	State Property Fund	Promote Privatization
	St Com Foreign Inv & Ec Aid	Introduce Foreign Inv
	Ent-s Restructuring Dept	Promote Bus. Reorg By Intl Fin Inst
Mining Adm & Control	Industrial Policy Dept	Industrial Production Cond Survey
	St Com Control Use of Min Res	Safety Supervision of Mine Site
	St Ag of Geo & Min Res	Distribution of Mining License
	Min of Environment	Control & Supervision of Mining Env
Survey, Production	St Com Control Use of Min Res	Survey to Grasp Resource Pot.
	St Concern 'Krygyhzaltyn'	Min Comb Mgmt, Promote J/V Foreign Inv
	St Com on Statistics	Production Statistics Survey
Resource Management	Commission on Reserves	Effect. Dev Super. St Min Res
Land Resource Mgmt	St Ag Use of Land	Adjust Mining Ind on Ag Site
Intro to Foreign Inv	St Com Control Use of Min Res	Promote Foreign Capital Inv
	Ag on Foreign Investment	"
Research Org	St Com Control Use of Min Res	R & D of Exploration Survey
	Min of Sc, Ed and Culture	Material Laboratory
	Academy of Science	Seismic Res Inst, Rock Mec Lab
Industry Assoc	Krygyz Mining Association	Info Service to Member & Propose to Gov
	Assoc of Miners & Geologist	"

The Labor Social Protection Ministry secures the working condition and safety of the mining industry. There is the Civil Defense Emergency Ministry and others.

Each is responsible for their fields. They process the work related to the mining industry but there is not one organization that controls the whole mining industry.

Kyrgyzaltyn (the mining industry public corporation), all ministries and state committees are equal, but Kyrgyzaltyn manages the mining industry complex and main work. The mining industry administrative system is difficult (refer to Table 2-5-1 "The role of various structures in mining sector").

2) Present Mining and Research Departments

Refer to the present condition of 2-5-2 1) State Agency on Geology and Mineral Resources and 2-5-2 4) Research Organizations.

3) Functions

The functions of each mining industry organization (only those related to the mining industry) are compiled in the table that follows (Table 2-5-2).

Table 2-5-2 Functions of Organizations on the Mining Sector

Organization \ Function	Policy		Administration		Operation		Research	
	Plan	Adjustment	Survey	Control	Survey, Explor	Prod	Policy	Tech
Presidential Admin	○	○					○	
Apparatus of PM	○	○						
Min of Ind & Trade			○	○				
Min of Sci, Ed & Cul								○
Min of Env Prot.			○	○				
Min Emerg & Civ Def				○				
Min Labor Soc Protect			○	○				
Min of Fin	○	○	○				○	
St Property Fund			○					
St Ag Geo & Min Res				○	○			○
St Ag Land Use				○				
'Kyrgyzaltyn'						○		
Academy of Sei								○

4) Flow of Making the Budget and policy

① Budget

The work of making the budget begins with the presentation to the budget committee of an intermediate budget in the Department of the Treasury and ends with the approval by the national assembly and the signature of the president. This flow of the business is shown (Figure 2-5-1).

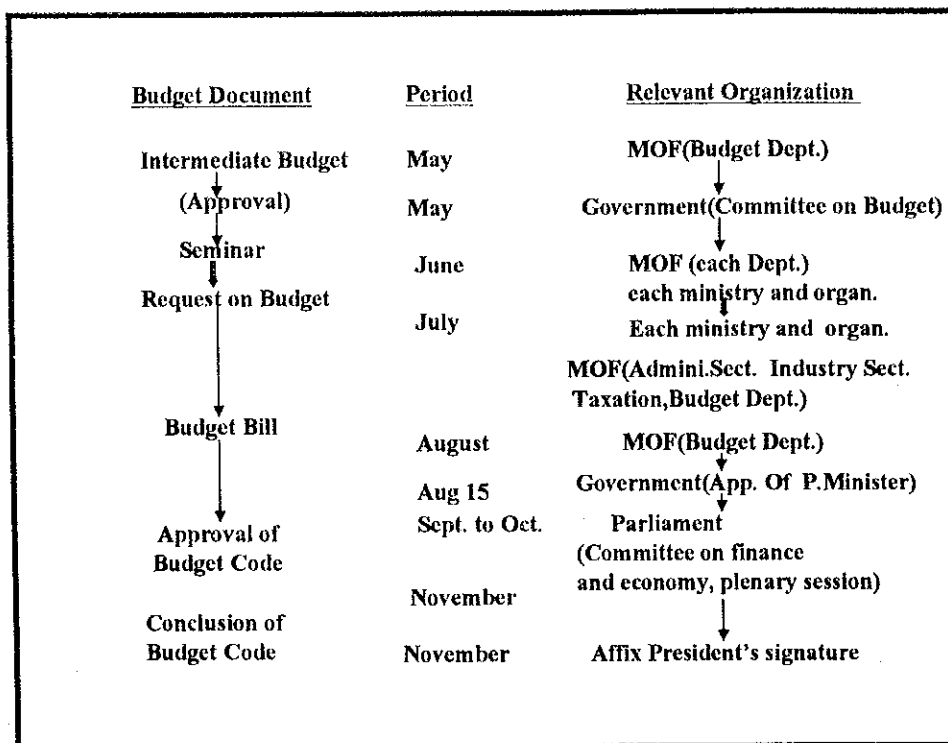


Figure 2-5-1 Flow of Making Budget

② Policy

The main purpose of the policy is to settle business in the Department of the Treasury as required in Order No.29 (January 1997). The formation and promotion of the macroeconomy, finance and taxation systems policy are prescribed, with the Department of the Treasury, as the organization responsible for drafting the policy plan.

However, the Department of the Treasury makes the economic development strategy and Kyrgyz economic development forecast (1998-2000). This department comprehensively describes the industry and economic indicators, but does not settle on a plan that is based on an aggressive industrial policy.

In reality, it seems the President (or the Prime Minister) instructs the Prime Minister (or Vice-Prime Minister) to do a new policy. In a special mission, each department minister (the commissioner) states the actual state.

In the past, the national economy reform committee deliberated various policy items, but it was abolished and a new committee carries the deliberation properly forward for the new policy item.

5) Government Mining Industry Perspective Index

Inside of the Kyrgyz economic development estimate for 1998-2000 by the Department of the Treasury, the government estimates the growth index for each sector. It estimates the

growth index of the industrial field during 1998-2000 to be 121% and estimates that for the mining industry (the nonferrous metallurgy) to be 142%. In 2000, it expects GDP to be 116.3% compared to 1996. It is the gold mining industry (Kumtor gold mine) that drives this economic growth. It estimates there will be no growth that exceeds 3% by 2000 in the agricultural field.

In this report, the government gives the following points as the issues of the mining industry in 1998-2000.

- ① It uses the maximum equipment capacity of the complex at the present situation.
- ② It takes measures for the development of a stable mining industry field with domestic mineral development of raw materials.

A description of each combinat's development is as follows.

- Due to the reduction of antimony concentrate (Sb 3,000t) supplement from Yakutia Sarylakha (Russia), production of Kadamzhai combine has been suspended at the level of 6,000 t/y. Kadamzhai's problem is the self-sufficiency for the domestic raw materials up to 45-50% must be raised. It does a survey on the development of the Apshel, Nichkesyl, Savoialdy and doesn't depend on the raw materials of Sarylakha, Andzob (Tajikistan)
- Khaidarkan maintains mercury production of 600 t. The market reduction and competitiveness (cost, quality) are a problem. It examines mercury recovery from the mercury-bearing sludge
- Kara-Balta is developed and used as the domestic raw material base. It operates the Kuranjailau and Karabulak mines. The production increase to the planned scale of production at Kuranjailau is especially important. It realizes the development of Taldybulak-leftybank in 2001 (500,000-600,000 t/y)
- Makmal's reserves are decreased to maintain the present situation

After understanding the actual production conditions at the combinats, it is difficult to think that the development will occur at these combinats as described in the Kyrgyz economic development forecast of 1998-2000 by the Department of the Treasury.

6) Mining Industry Budget

The State Agency on Geology and Mineral Resources budget only appropriates operating expenses with no personnel expenses. State concern "Kyrgyzaltyn" is independently managed but has no national budget. Only minimum personnel expenses are appropriated by the budget for the Geology Research Institute and the Institute of Rock physics and Mechanics.

2-5-2 The Structure and role of the most important bodies of mining industry

1) Agency on Geology and Mineral Resources

① Present situation on structure

The structure of Agency on the Geology and Mineral Resources has remained the same since soviet times (Figure 2-5-2). However, there have been a number of personnel reductions (1991-7743 people, 1997-2844 people), structural reorganisation (the uniting of a part of expeditions) and other types of structural reforms.

As the structures of the Agency combine administrative, control, co-ordinating, geological prospecting and research functions, the reduction of budget (Figure 2-2-1) and transition to market economy revealed their strength. In the soviet times, up to 500 thousand meters of geological prospecting by drilling and 30 km of drifting per year were performed. Nowadays such works are not performed at all on budget funds (on geological prospecting).

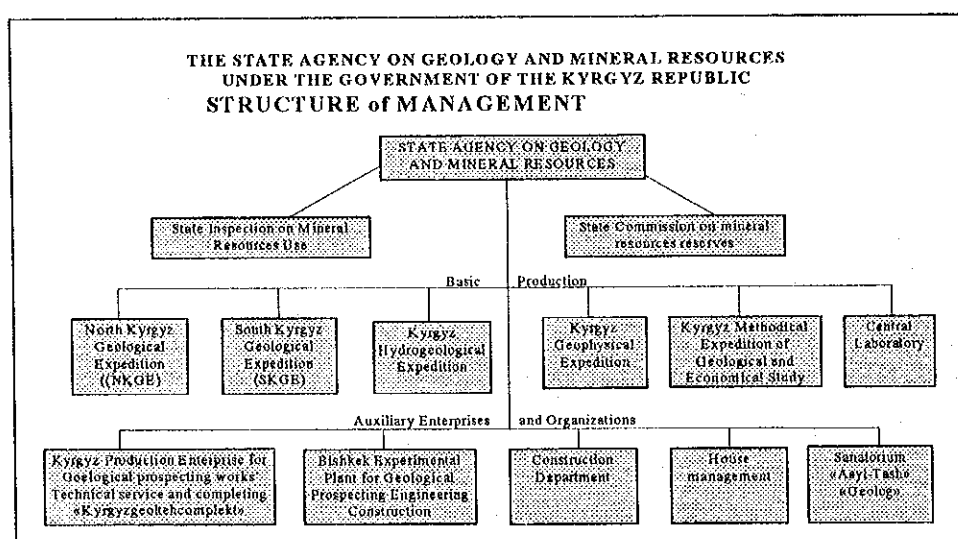


Figure 2-5-2 Structure of State Agency on Geology and Mineral Resources

Table 2-5-3 Role of State Agency on Geology and Mineral Resources

	Personnel as of 1/1/98	Content of Work
Central Organization	38	Planning, management & Supervision
State Inspector on Mineral Resources	6*	Licensing of right
State Commission on Mineral Resources	1*	Approval of geological Resources
Northern Kyrgyz Geological Expedition (GE)	820, 7 parties	Conduct geological exploration (GEX) for various mineral Resources
Southern Kyrgyz GE	832, 8 parties	
Kyrgyz Hydro GE	341, 2 parties	Conduct GEX for water Resources
Kyrgyz Geophysical Expedition	174, 3 parties	Geophysical research
Kyrgyz Methodic Expedition on Geo-economic Research	91, 7 parties	Thematic & scientific Research
Central Laboratory	43	Chemical & technical Study

* Not including people holding two positions

② National Committee on Reserves

Calculation method of ore reserves is the same as to that of the soviet times e.g. by type of ore deposit and mainly by the cross section method. Like in the soviet times, the Committee checks the calculation method, approves reserves and makes assessments of the Feasibility Study (F/S). Almost all the members of the commission have another job and activities of the commission are getting smaller. Without approval of ore reserves, a foreign investor can not implement exploitation. As for F/S, assessment is obliged in case of exploration based on National budget.

③ Commission on Natural Resources Use

This commission was established as a secretariat which issued licenses for exploration and exploitation. A tender is declared (via newspapers), the tender commission considers documents, then a license is given out. Additionally, the Commission checks the plan implementations in terms of mineral wealth usage (methods of extracting, losses, recovery ratio of processing test, etc.). As for the check of the plan on geological prospecting, there is no system of control (Commission is only informed about these matters) relative to implementation of exploration and financing in accordance with plan.

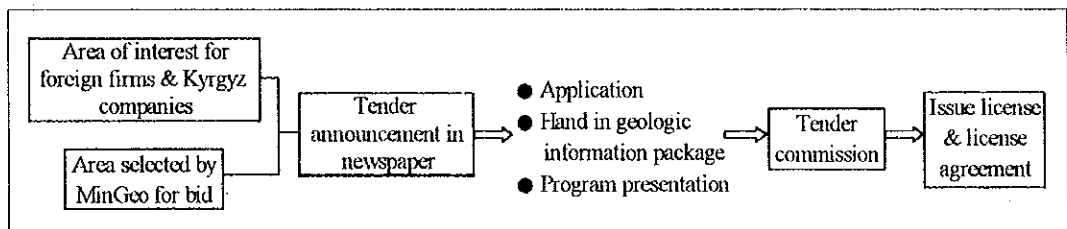


Figure 2-5-3 Flow of License Acquisition

④ Geological prospecting expedition

Prospecting expeditions are formed by district and function principles. At present there are the North Kyrgyz Geological prospecting expedition (Northeast Kyrgyz / Northern part of Tien Shan), and the Southern Geological prospecting expedition (Southwest Kyrgyz / Central and southern part of Tien Shan). These expeditions are formed by district principle and deal with geological research and prospecting for fuel and mineral resources. Geological prospecting, performed by the state, is virtually non-existent. The equipment for prospecting, cars, lorries and other vehicles were made in Russia in the 80^s that is why there are many problems with spare parts, etc.

Geophysical expedition deals with the investigations of magnetic attraction, electricity and gravitation survey.

Hydrogeological expedition, besides the prospecting for the sources of underground waters, deals with underground waters monitoring (water level and quality). Besides there

exists a methodical expedition of geological and economic investigations, which deals with tectonic research and gold prospecting methods. The funds, which all these expeditions get from the state budget are extremely low, and as a result the expeditions try to undertake work with joint foreign ventures with foreign capital. The hydrogeological expedition lives on contracts from private companies, as the money earned by the expeditions is not sufficient to give them the possibility to exist independently.

Table 2-5-4 Role of Exploration Expedition

Direction of work		Subject of work	Organization	
Fundamental Study		- Matters of regional geology - Tectonics - Metallogeny	Institute of Geology of National Academy of Sciences of Kyrgyz Republic	
Geological exploration	Scientific and research works of applied use	- Methods of geological exploration - Directions of geological exploration - Prospecting	Methodical Expedition of geological-economic investigations	
	Geological Exploration proper	- Making a Budget - Approval of the Projects and Work Plans of regional expeditions - Controlling functions	State Agency of Geology and Mineral Resources under the Government of Kyrgyz Republic	
		Regional Study of territories	- Geological Study - Geophysical Study - Geochemical Study - Grasping mineralization process - Selection and rejection of potential areas	Geophysical expedition Regional geological exploration expeditions
		Geological Study	- Prospecting - Prospecting and evaluation works	Regional geological exploration expeditions
		Detailed Study of deposits	- Detailed exploration - Evaluation of deposits - Re-confirmation of reserves and grade - Confirmation of economic necessity of development	Regional geological exploration expeditions
		Evaluation	Confirmation of reserves, evaluation of F/S	State Commission on Reserves

⑤ Restructuring

Some simplification of structure has been accomplished (for instance Issyk-Kul geological prospecting expedition merged with Northern Kyrgyz expedition, Chatkal expedition merged with Southern Kyrgyz expedition) and the number of staff has been reduced. However these are only reductions in scale and size, whereas, the overall structure has remained unchanged from the times of the USSR.

For instance, in the Commission on Reserves and the Commission on Mineral Wealth Usage not only the permanent staff work, but also part time employees except secretariat. If we make a comparison with the second half of the 80's, less than 1/3 of the total number of personnel works now. This was achieved by dismissing part time (not permanent) employees, those with low qualifications or liquidating supplementary services.

⑥ Storage of documentation and level of information accessibility

All data of geological prospecting of previous years are stored in the archives of the Agency on Geology (the archives is subordinate to the geology division).

In compliance with the decree of the Government of 1997, all documents relative to

geological prospecting have become open to the public. However, in fact it is required to get the permission of the head of geological division to obtain the documents. For some documents it is required to get the permission of the Agency Director. Copying and giving out of documents are possible if permission is granted. In the archives there is no copy machine and, the procedures for getting access to documents has not been simplified (Figure 2-5-4).

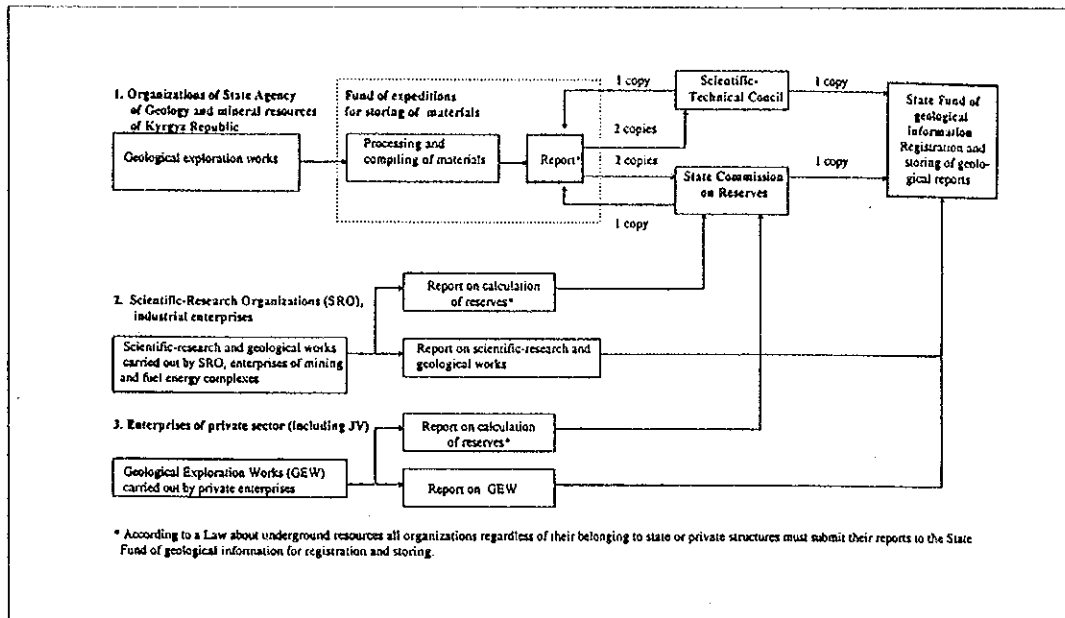


Figure 2-5-4 Flow of Data Management

⑦ Structure of joint ventures

It is general that Foreign companies, after they get a license, sign license agreement with Agency on Geology and establish geological prospecting joint ventures with geological expedition or relevant mining enterprises. After a foreign company makes a contribution in the joint venture, Agency on Geology submits it detailed data. Committee on Management manages joint ventures; the number of members corresponds to the share of

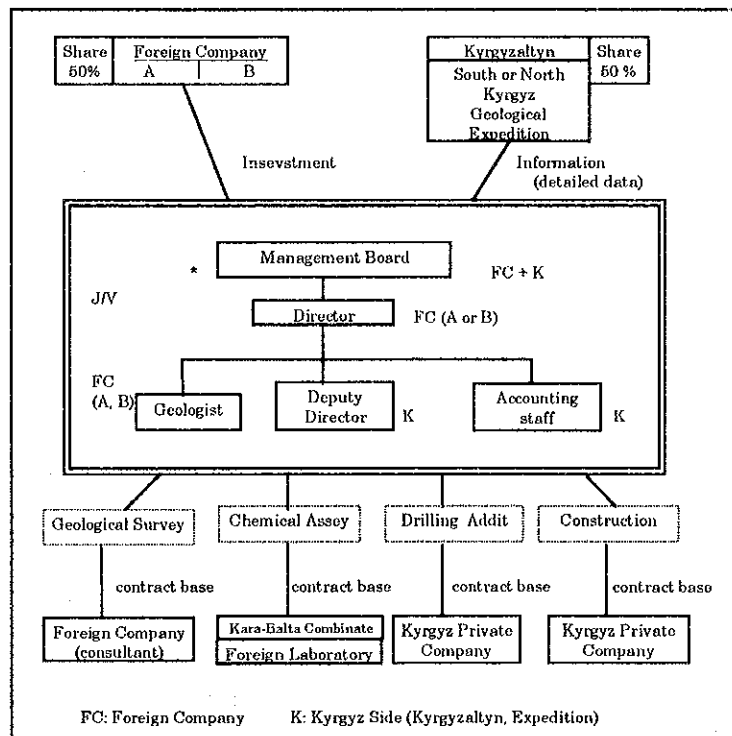


Figure 2-5-5 J/V Structure

participation of each party. Orders for geological prospecting works are given to foreign consultants, Kyrgyz private companies or geological expeditions (Figure 2-5-5).

2) "Kyrgyzaltyn"

① Structure • Role

The State concern "Kyrgyzaltyn" was founded in 1992 as a trust dealing with gold, uranium, antimony, mercury, rare earth metals extraction, processing and production as well as production of semiconductors. In 1993 it separated from the state financially and became a concern. The Prime Minister appoints the president of the concern.

The personnel of "Kyrgyzaltyn" as of today are 59 people consisting of those in Management: President, vice President (1 person), President's Adviser and then follows the administrative division, division on joint ventures activity, finance division, production and planning division, economic analysis division, personnel division and some others. The "Kyrgyzaltyn" concern includes Makmal, Solton-Sary, Taras-Altyn. Besides, it includes joint ventures "Kumtor Gold Company", "Tien Shan mineral", "Tien Shan Gold", "Solton Sary" (Figure 2-5-6).

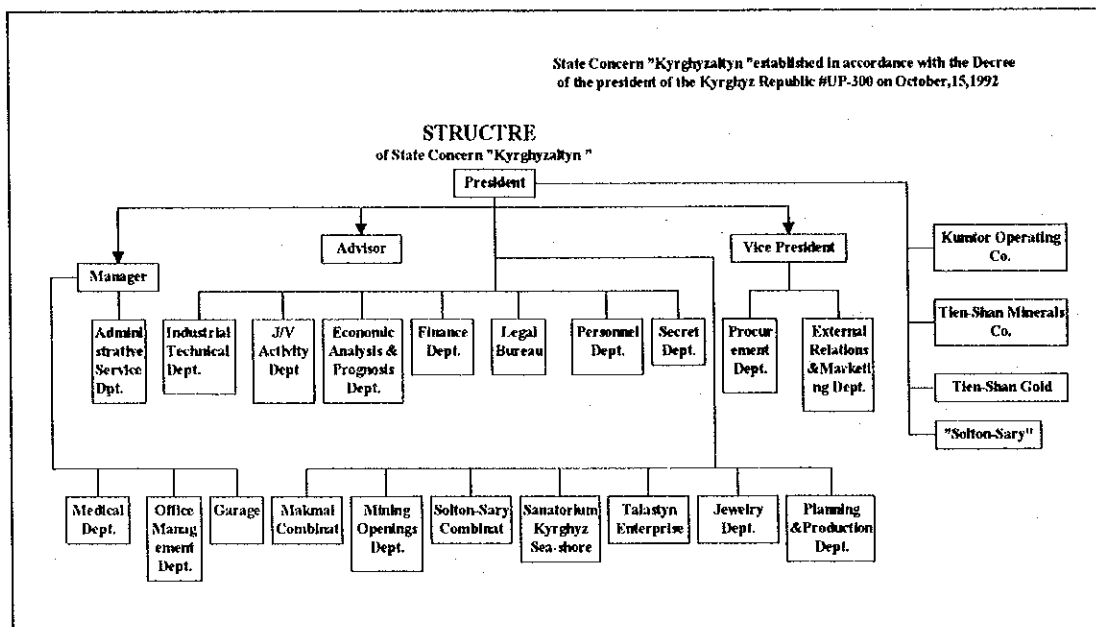


Figure 2-5-6 Kyrgyzaltyn Structure

② The role of "Kyrgyzaltyn" towards combinats, directly subordinate :

The role of "Kyrgyzaltyn" towards combinats, directly subordinate to it consists of:

- Budget preparation, including production plan
- financing and procurement for technical equipment and materials
- promotion of development by introduction of foreign capital

③ The role of joint ventures at the pits

“Kumtor” is a joint venture pit managed by the Kumtor Operating Company. This indicates that the share of participation of the parties evidently determines the composition of the management, however details are not known yet.

④ Restructuring

Overall the structure of “Kyrghyzaltyn” remained the same as when it was created. However, with the merger of the industrial and technical division, one vice president position was removed. Additionally in 1997, 30% of personnel was reduced.

The staffs of the auxiliary subdivisions are reduced mainly through attrition.

3) Economic Policy and Central Administration bodies

There are a lot of government bodies and structures related to the mining industry in Kyrgyz Republic, but there is no centralised establishment that is responsible for overall economic policy and management of mining.

The relevant mining establishments for mining are described below.

① President Administration

The President possesses the extended authority in governing three branches of power in the State: legislative (Parliament), executive (Government), and juridical (Law Enforcement, and the Supreme Court which through the secretariat lends assistance in all matters). Officially, the President Administration does not take part in making Government level decisions, however, it has the authority to govern the executive bodies, such as Ministers Cabinet, various ministries and affiliations, following the will of President.

The agency of economic policy of the President Administration designs the projects for economic development and controls their fulfilment. It also co-ordinates the actions of Ministry of Finance and Central Bank, and controls the Government's foreign policies. And this agency proposes the perspectives of budget, and co-ordinates budget of field of natural resources before submitting to the parliament as well as controls process of draft budget of the government.

In 1994 the President proclaimed the gold mining and power industry to be first priorities of State development. In gold mining the great amount of foreign investors relieved the National budget in funding operations.

② Prime Minister Quarters

This governing body existed before, when it was called “The Government Quarters”, but, according to amendments to the Constitution made in December 1997, it now reports directly to

the Prime Minister, and the name has been changed to Prime Minister Quarters. In reality, it is just the staff of Prime Minister secretaries working as his assistants.

The Prime Minister Quarters directs and controls the actions of ministries and affiliations following the orders of Prime Minister. Its major influence is on the Ministry of Finance, in budget and some other economic matters.

At the Prime Minister's Quarter, the mining industry is under the supervision of the Economic Development Department as well as the Finance and Economy Development Department. And they introduce the proposals and ideas on industrial development and provide the co-ordination of plans from the Ministry of Finance, the State Agency of Geology and Mineral Resources, and the Ministry of Industry and Foreign Trade. They also deal with adjustments and co-ordination for the above-mentioned establishments.

③ The Ministry of Finance

In March 1996, the old Ministry of Finance was merged with the old Ministry of Economy and the new Kyrgyz Republic Ministry of Finance was established. It has become a large control body for the management of economic matters, after the economic course work has been taken over.

The Ministry of Finance is in control of the State Treasury that deals with the State income and expenses, the State budget development, and the designing of economic policies and plans which serve as a basis for the budget. The President Administration and the Prime Minister Quarters supervise this ministry. The Ministry of Finance is responsible for comparing the clauses of Draft State budget with the demand of each ministry and affiliation for presenting Draft State budget (which has to get approval from the Parliament and be enforced as a law after getting signed by the President).

④ The Ministry of Industry and Foreign Trade

The main core of the Ministry of Industry and Foreign Trade is the Department of Industrial Policy, which monitors the status of 180 enterprises of different trades (including the mining industry), studies the possible opportunities for the industrial economy development, and submits proposals on these matters to the Prime Minister Quarters.

The reconstruction of industry has been performed in accordance with PESAC (Privatisation and Enterprise Sector Adjustment Credit) Program by World Bank and reconstruction plans for 28 plants and factories provided by the State Assets Fund. This work is practically complete now. Besides the fulfilled program, the Department is looking at reconstruction of 130 more enterprises not included in the PESAC Program, and at the same time monitors the status of the above-mentioned plants and factories.

⑤ Institute of Strategic Studies

The Institute of Strategic Studies was established 4 years ago as a research facility reporting directly to the President and dealing with the long term State economic development prognoses.

Initially, the Institute was introduced as a President's "thinking machine", with the objective of designing the long term economic and political development measures. They say, however, that now it deals mainly with consulting with the President on Foreign Policy.

The Institute staff consists mostly of specialists in culture and philosophy. The word is that there are no economists, or technologists involved in this Institute, therefore, the economic course proposed by its specialists is not sufficient. For example, the mining industry is not listed as the most important branch of industry and its role in the Total State economy is not defined. Nevertheless, the supreme governmental structures deem the small and medium deposits operations very important, for it will encourage the infrastructures development in distant regions.

4) Research Facilities status

① Institute of Rock Physics and Mechanics

The Institute was established in 1960 as a research base for mining and metallurgical transformations. It consists of 5 departments including 20 laboratories and a Research Centre established in 1992. The departments are: Rock Physics and Mechanics Department; Mine Operations and Design Department; Mining Machinery Department; Mathematical Modelling Department, and Bed Rock Research Department. The staff consists of 123 employees. The main research objective is fundamental and inter-discipline studies in the sphere of rock and tectonic physics and mechanics, design and modelling for mining, and also developing feasibility studies. The main projects of the Institute during the last few years were: the feasibility studies and operations design for Kumtor gold deposit, and incline stabilising of the remaining face in the Makmal open pit. Besides these projects, the Institute is conducting the joined-force research with other CIS countries. The technical level of research is very high.

② Geology Research Institute

The Geology Research Institute is purely a research facility in the system of National Academy of Science Research Institutes. Scientists evacuated from Moscow and Leningrad established it in 1943. Since then, the Institute has acquired many connections with the various scientists and research groups, and the potential of research is very high. Before, this Institute was a part of research group consisting of Geology, Seismology, and Rock Physics and Mechanics research institutes. The Geology Research Institute is not reporting to the Agency of Geology and Mineral Resources, however, it is performing certain research tasks by request of the Agency.

5) Ministry of Environment Protection and related affiliations

① Structure • Role

The Ministry of Environment Protection performs the management of protecting the environment. It was officially established in 1991, based on the Environment Law. The current structure of the Ministry has existed since 1996 when it was introduced by the President's order. Its objectives are environment protection, rational use of mineral resources, and also management and control of nature-protection legislation. Functionally, it consists of five affiliations: State Environment Strategies Centre, Environment Control and Inspection Department, National Parks and Reserves Department, Environment Protection Fund, and the Central Environment Protection Department (Figure 2-5-7). Since its formation, the budget of the Ministry of Environment Protection has been sufficient only for wages and doesn't provide for special ordinance and laboratory equipment expenses.

The main priorities and objectives of the Ministry of Environment Protection are as following:

- Designing the course of environment protection and rational use of mineral resources, based upon all the legislative documents of Kyrgyz Republic and the Code of Environment Laws.
- Self-sustained legislative actions on environment protection and rational use of mineral resources. All the developed legislation is submitted to the Government.
- Control of following up the environment protection procedures by various ministries and affiliations.

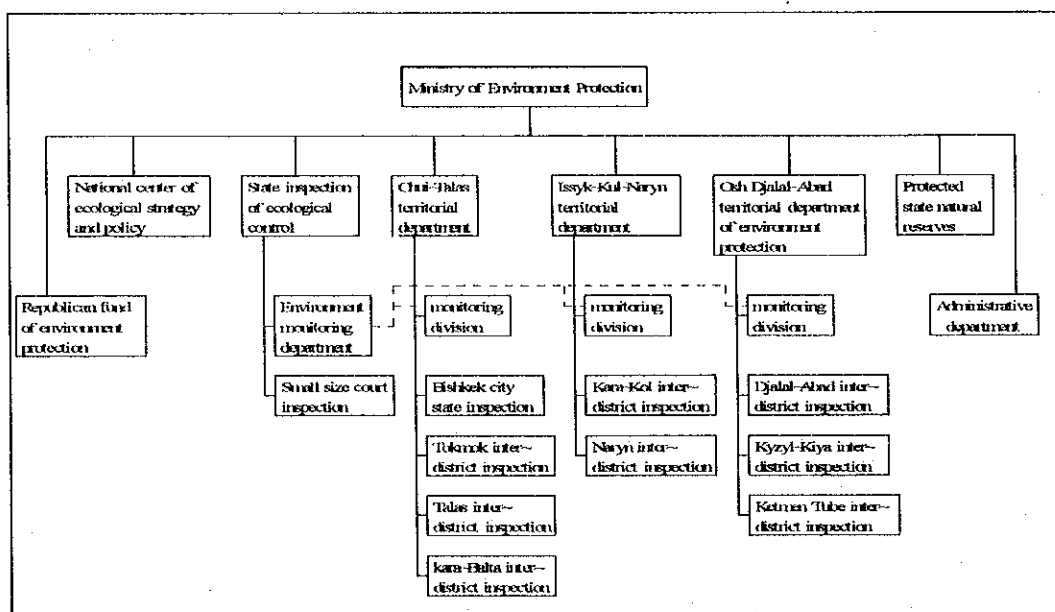


Figure 2-5-7 Organization of Ministries of Environment and Protection

Besides the Ministry of Environment Protection, there are some other affiliations working within the same range of authority. The name and role of each organization is shown above (Figure 2-5-7). All these organizations have regional representatives responsible for environment protection activity in all the regions. In addition, a new organization whose main objective is controlling waste dumps and tailings storage of the suspended or ceased mining operation has been created in the Kara-Balta Plant. Information notes that recently its control has been transferred to rehabilitation centre belonging to Ministry on Emergency Situation Civil Defence.

Tab.2-5-5 The government organization in related to the environment and their role

Organization	related with Mining development	Role
The Ministry of environment protection	○	It is the integrating organization for the environment protection. There are mainly 8 departments. It collects various monitoring data from the other organization and also it directly monitor the exhaust gas and the drainage. Then it does the environmental control. It has the independent organization to analysis in the monitoring division. It has the authority to inspect the environmental assessment which is mentioned in application form of the plan of deposit investigation and mine development.
The Ministry of health		It's Inspection Bureau of Sanitary & Epidemiology monitor and inspect air, water and soil, based on the Law of the Health, to watch over the environmental material (harmful material and microorganism) which has a heavy influence on the human health of habitant. Also, the central laboratory of the poison and the science laboratory of environment and industrial hygiene, the attached organization, research an influence for the health of heavy metal and etc.
The Ministry of agriculture and water resource	○	There are three bureaus related environment, the bureau of the chemical and protection of the plant, the bureau of the water facility and the fisheries bureau. The bureau of the chemical and protection of the plant monitor water and soil of the agricultural land and the pasture, and irrigation water. The fisheries bureau monitor water of the lake and pond. The bureau of the water facility has the authority of the permission for the right of using all type of water (the water quantity of appropriation and the discharge) and of the water distribution for various use.
The State Agency on Geology and Mineral Resource	○	It examines a necessary item of the environment protection for the application form of an investigation and a development of the deposit. Also, it monitors and inspects for the protection of underground mineral and water resources, and the covering after operation. The underground water corps under the Agency has 700 observing wells over the whole country, and monitors them regularly. Also, it has many various service of the underground water such as the investigation of the water quality and the pollution source, the decision of the water quantity to pump up, the permit for the right of using, and the inspection of well facilities.
The State Agency on Use of Land	○	This organization has lastly the approval right of using on land. It inspects to confirm the appropriate land use. Also, it advices appropriately to the rehabilitation plan on the land. In addition, it can actually construct with the commission of the rehabilitation business.
The State Agency on Forestry	○	This organization has 36 branch office in the whole country and protects the forest based on the Law of the Forest. It implements a various monitoring (mainly for water) and inspects, from the viewpoint of the forest preservation. It is obligated to preserve and rehabilitate the forest for the road construction and the mine development and so on.
The State Agency on Meteorology		Before establishment of the Ministry of environmental protection, this organization had observed the atmosphere, water and soil, too. At present, it observe only the wide area pollution. It has total 14 observation points of the air contamination in 4 cities and 91 observation points of the surface water qualities on the chui river mainly. These observation results are notified to the Ministry of environment protection.
The Ministry on Emergency Situations and civil defense	○	The Ministry protects the citizen from the accidental emergency such as the disaster and so on. It manages the environmental protection in this case. It does the urgent counterplan such as the prevention construction against the erosion of the tailing dam and waste strage. The Department of State Technical Supervision permits the producing system and facilities (containing pollution control facilities) on the mining development. Also, the Ministry integrate the labor safety and sanitation.
Kara-Balta Combine	○	This combine must be obligated to manage the suspending and/or abolished mine by the Edict of the president. The combine makes Chu environment laboratory, subsidiary organization to do a technical support and an environment monitoring. Especially, this laboratory does the monitoring for the radioactive substances pollution.

As it was shown, there are many affiliations related to Environment Protection. Having various central and regional representation, these institutions constitute complex multi-level system, and one of the major objectives of the Ministry of Environment Protection is to coordinate actions of all the above mentioned groups. Although the functions are distributed between them, the authority boundaries are too narrow, and some ministries and other affiliations sometimes have departments with exactly same duties. This brings about the problem of duplicated inspections. It is extremely difficult to find any kind of solution, and any co-ordination actions are ineffective. It is especially hard for the foreign citizens to realize the situation.

② Environment Protection control

The Environment Protection control exists, in reality, at each of the plants. The central institutions of Environment Protection and its regional representatives conduct inspections for each enterprise. The enterprises are obliged to submit quarterly, semi-annual and annual reports to the Ministry of Environment Protection; besides, the Ministry keeps the right to conduct the inspections outside the plan. Each nature protection organization has its own control and research bodies, which often have similar functions. Then it is a problem of duplicated activity.

③ Environment monitoring status

Environment monitoring is conducted by the Central Laboratory of the Ministry of Environment Protection, and by each monitoring section of the three Regional Environment Laboratories. Besides the preceding, there is a Radiation Monitoring Service at Kara-Balta plant.

The laboratory equipment and sampling devices used by the subdivisions of the Ministry of Environment are out-dated, deteriorated and by no means appropriate for the monitoring and environment control. Some enterprises have a limited amount of modern laboratory equipment.

④ Environmental problems relevant to the mining industry

There are many environmental problems related to suspended and ceased coal mining operations, uranium mines, rare-earth mines, as well as waste rock dumps and tailing pond, and operating combines.

The Kara-Balta plant is currently involved in controlling stopped and suspended mining operations tailings storage. The controls include rendering technical assistance, and monitoring of the tailing facilities. However, due to the budget shortages, the real work on monitoring and maintenance of the tailing dump is not performed.

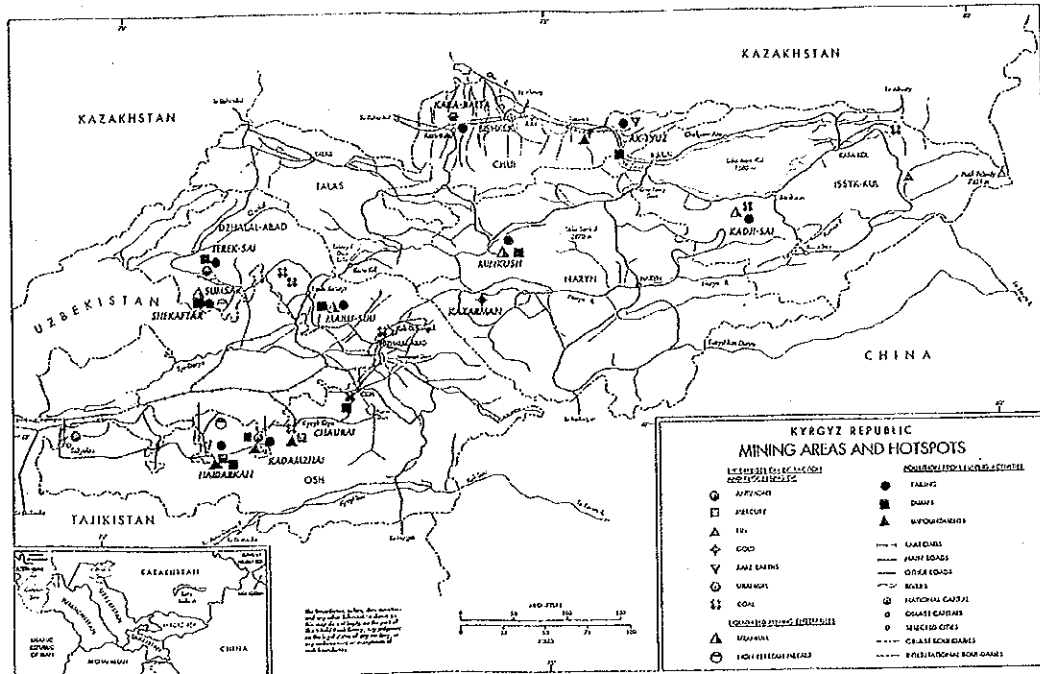


Figure 2-5-8 Area Where the Mining Industry Environment is a Problem

Since the mining industry in Kyrgyz Republic is in decline, there are not many troubles with the mining waste polluting the environment, with the exception of uranium problems.

* Information notes that recently its control has been transferred to rehabilitation centre belonging to Ministry on Emergency Situation Civil Defence.

⑤ International co-operation

The projects for international co-operation are listed in the Table 2-5-6. The research of uranium mine waste rock and tailings facilities control and maintenance has received support from the European Community. The Ministry of Environment Protection, with the support from Finland and the Asian Development Bank, plans to introduce a new regional monitoring system in Chui Valley.

Tab. 2-5-6 International Cooperated Project of Mining Industry

No.	Project Name	Donator	type	approval	situation	Amount
1	Development of Kumtor Deposit	EBRD	Loan	28/06/95	operation	\$40,000,000
2	Support for Small-Middle Mining Sector	EBRD	Grant	14/03/94	completed	\$157,000
3	Training of Economical evaluation specialist for Mining Sector	Germany	Grant	04/11/93	operation	\$260,000
4	Treatment Project of Uranium Waste at Mauli-Sun Area	Germany	Grant	14/07/96	operation	\$26,000
5	Study on Mineral Resource at Talas Area	Japan	Grant	11/08/94	completed	\$1,200,000
6	Consulting Service for State Agency on Geology & Mineral Resources	Japan	Grant	08/12/94	completed	\$400,000
7	Safety Program for treatment Uranium waste	EBRD		01/10/95	operation	
8	Study for Rehabilitation Possibility of Uranium Waste dam	EC		04/01/97	planning	\$500,000
9	Reconstruction Plan of Waste dam in Turyuk-Suu	EC		01/06/94	completed	\$200,000

6) Non-government organisations

① Kyrgyz Mining Association

Kyrgyz and foreign mining organisations (corporate bodies) and natural persons involved in the mining industry constitute the Kyrgyz Mining Association. Voluntary donations and membership fees fund this self-sustained organisation. It is not connected with any of the political organisations and does not involve any political activity.

Currently, all the major mining enterprises, both State and Joint-Venture type, the mining industry consulting companies, and also ten individuals (represented by famous geology scientists, mining businessmen, and economists,) belong to the Association.

The purpose of creating such a non-government organisation is to provide assistance to the businesses of its members, to co-ordinate their activities and to publish information about the mining industry. In the following the business point for mining industry matters is explained.

- The Revision committee is created within the Association. It includes the higher Government officials from the Ministers Cabinet, both Chairs of Parliament, also Governors and scientists. Its purpose is to both get advice and expertise about the mining industry's ways of development, and to co-ordinate and mutually adjust mining industry matters at a

highest level, between the business people and the Government, through the constructive dialogue.

- The Association Council distributes the legislative projects, governmental directives and standards among the members of Association. The documents, after getting amended and/or corrected by the points, are then submitted to the Government bodies for the final approval. Also, the International seminars are conducted, and since 1996 they have become annual.

② Mining Producers and Geologists Association

The Mining Producers and Geologists Association involves 10 corporate bodies including Kara-Balta plant, Kyzyl-Kia Coal Mining Enterprise, etc. and 150 natural person members.

The Association of Mining Producers and Geologists was established with a purpose of increasing the intellectual potential in mining industry and geology and currently unites the scientific and mining practices. The Ministry of Justice registered the Association in September 1996.

In 1997 the Association conducted the general council meeting on which the current mining industry status was analysed, and the declaration was put together. It is now being prepared for presentation to the Government agencies related to the mining industry.

The contents of the declaration are as follows:

- There is no Government Policy that would regulate operating of the mineral resources. The necessity of State budgeting for the industry is stressed. It is stated that the balance in the sphere of geology and mining is altered due to the reforming course.
- The request to the President is formulated to create the unified system of management for the mining industry.
- The Association is going to advise the Government and mass media of the current critical condition of geology and mining industry, to study the situation further and submit proposals on its improvement.

2-5-3 Privatisation

The privatisation of the state enterprises started just after the Kyrgyz Republic became independent in 1991. At the first stage (1991-1993), part of the state property was distributed among the nation by the way of state coupons. The small state enterprises were privatised by means of cash auction sales. At the second stage (1994-1995), dwelling facilities were also privatised by means of privatisation coupons or cash auction sales. The privatisation of medium and large state enterprises has started (see Table 2-5-7).

Table 2-5-7 Number of Privatized Enterprises and Facilities

Description	1992	1993	1994	1995	1996	1997
Privatized enterprises	2358*	4428*	702	703	327	177

* Up to the year 1994 data are presented as an increasing total from the beginning of the process of privatization (1991).

At the second stage of privatisation the PESAC (Privatisation and Enterprise Sector Adjustment Credit) Program sponsored by the World Bank was introduced to 28 state enterprises having great debts, such as the Khaidarkan Metallurgical plant through ERRA for re-organising and restructuring.

The third stage of privatisation (1996--) involves the strategic branches of industry, such as mining, infrastructure and military industry. The sections of these industries are planned to be sold to long-term investors.

- The Kara-Balta plant was re-organised in 1997 into several companies and at the present time it is profitable. Actions are taken towards selling the stock to the foreign corporations.
- The privatisation of Khaidarkan Plant was planned to take place after settling the credits, but currently it is not in place.
- The Kadamzhay Plant became the shareholders' property in 1997 and rationalisation has been performed in the production sector and, the domestic and auxiliary sectors were separated from the mass production. There are still no obvious improvements in the business and the Government continues to plan the privatisation, but the progress is slow.

The current situation with the plants is very hard: the markets are reduced, the metal prices have dropped, deposit grades are declining, and the power supply tariffs are increasing. Over-production forms dead stock, and the current assets are not sufficient to operate the activities efficiently. Those are some of the reasons of privatisation having slow progress.

For the progress of privatisation it is necessary that enterprises are profitable, however, enterprises don't even have medium and long-term perspective plans.

2-6 The present situation in the sphere of legislation and taxation system

2-6-1 The most important laws related to mining sector

In order to carry out mining activity, it is necessary to fulfill various formalities, which exist in the relationship between mining entrepreneurs and the state: registration, filing of applications, obtaining of permissions, etc. Of course, relevant laws regulate the necessity of these procedures; the forms of fulfillment of these formalities have been also established.

Among these laws the main one is the Law on Mining Activity. Additionally, the Law on Public Safety, the Law on Environment Protection, the Law on Enterprises, the Law on Foreign Investments, the Law on Labor, etc. are also related to the mining sphere. Interactions of all these laws and an entrepreneur are shown in Figure 2-6-1.

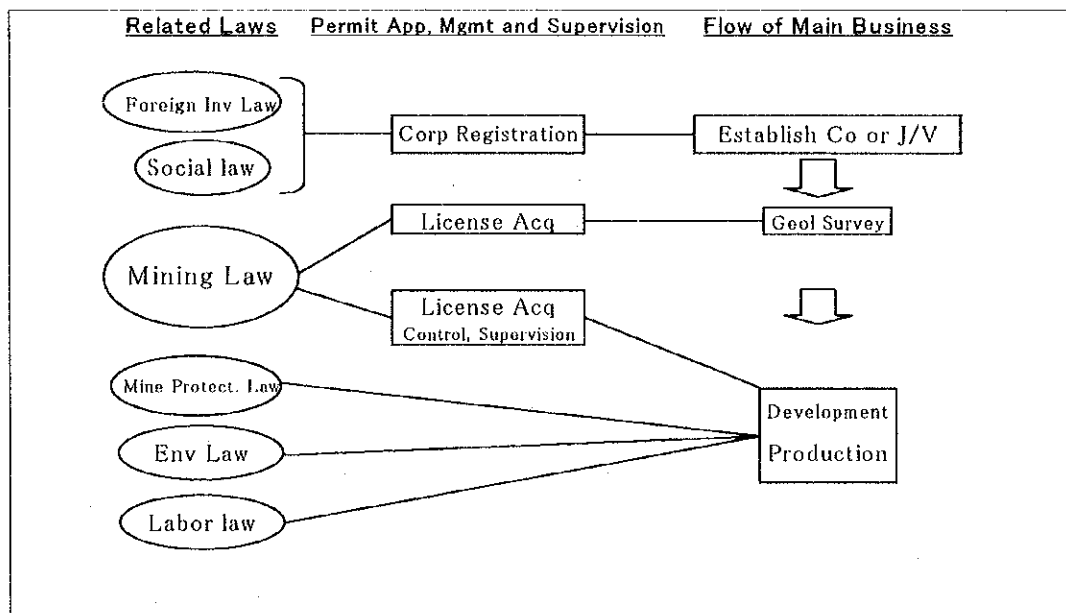


Figure 2-6-1 Position of Mining Relevant Law for Legislation

1) The essence of the Law on mining activity (the Law on Entrails)

The Law on mining activity of the Kyrgyz Republic has been published and came into effect immediately after the announcement of its independence in December 1992 replacing the annulled Law on Entrails of the Kyrgyz Soviet Socialist Republic within the composition of the USSR. This law is in force nowadays with amendments introduced in December 1995, July 1997 and 1999.

The peculiarity of this law is in the fact that many Articles and the terminology of the Law still preserve the Soviet concept and system e.g. notions of state control and state production.

- The Law on Entrails announces mineral resources to be an indispensable part of state property

- Obtaining of a license (for geological prospecting and development) is done according to the principles: participation in a tender (bidding), auction and direct negotiations
- The validity period of the license for geological prospecting is 2 years. In a case if the license agreement concluded with the governmental body is strictly observed, then the longest period is 10 years, besides the right to development is acquired
- A consent of the governmental body should be obtained in order to use the license as a collateral or to transfer it to the third person, approval of the appropriate governmental organization is needed
- The user of entrails is obliged to submit different reports (on prospecting, on remaining reserves, on extracted reserves)
- The National Bank and governmental bodies (the state) have the priority right when purchasing gold and mineral resources. The entrails users are obliged to notify governmental bodies of supposed sales in advance
- The entrails user is obliged to pay royalty (payments to the fund on entrails development) and a bonus for the right of usage (Table 2-6-3)

2) Comparative analysis of the Law on mining activity (the Law on Entrails) of the Kyrgyz Republic with similar laws of other countries

Table 2-6-1 gives a comparison of the Law on mining activity of the Kyrgyz Republic with the laws of other countries, mainly by the Article on the right to mining. Comparing the Law on mining activity of the Kyrgyz Republic to other countries, it is clear that there are differences in several areas including: how are to be obtained, determination of land allotment, the order of reporting during the period of usage, in obligations to be undertaken and in the issues of the priority right of the state when purchasing gold and mineral resources these are but a few of the issues. There are several hindering factors that impede development of free mining activity.

- Conclusion of a licensing agreement with a governmental body after the license is obtained (the plan of geological prospecting, the plan for development)
- When obtaining a license for geological prospecting they mainly use the principle of a tender, but not the principle "first come, first served"
- When obtaining the license for development, it is necessary to submit a feasibility report and to go through the procedures of the Commission decision on reserves, as well as the feasibility report approval. This requires that long before a license is obtained, it is necessary to perform a lot of work on prospecting and evaluation to obtain high precision data on reserves.
- It is supposed that the government has a priority right when purchasing minerals raw materials

- Royalty, when compared to other countries, is very high
- In regards to other aspects: the obligation to report on quite different aspects, the obligation to comply with diverse laws, the interference of the state, particularly with respect to the issue of reserves is very great

It is worth noting that the conditions for observation of the Law on mining activity have not been created: there is no control system, which could consider the reports submitted by license owners. Besides, there are many cases when the priority right of the state to purchase mineral raw materials is simply ignored.

Table 2-6-1 Comparison of Mining Legislation

Item	Kyrgyz	Japan	Argentina	Philippines
1. Legal Basis latest revision	Underground Resource Law 1998	Mining Law 1998	Mining Law 1995	Mining Law 1995
2. Legal supervisory organization	State Agency on Geology & Mineral Resources	MITI	Agency on Mining Industry	Ministry of Env & Natural Resources
3. Mineral resource owner	Country	Person owning mineral right	Country	Country
4. Prospecting right				
Maximum period	10 years	6 years	3 years	8 years (FTAA)
Maximum area	No limit	350 ha/right unlimited number	10,000 ha/right 20 rights/state	32,400 ha (FTAA)
Licensed area	Not fixed Rectangle	1 ha Polygon	500 ha Rectangle	About 81 ha Square
License Acquisition	Tender	Notify, Authorize	Notify, Authorize	Contract (FTAA)
Survey Implementation	Plan approval	Certified operation plan	Plan approval	\$4 mln bond
Notification obligation	None	None	50%/year	Above 25%/ 2 year
5. Mining Right				
Maximum period	20 years, extend until resource exhausted	No limit	No limit	50 years (FTAA)
Maximum area	No limit	350 ha/right unlimited number	420 ha	16,200 ha (FTAA)
Licensed area	Not fixed Rectangle	1 ha Polygon	500 ha Rectangle	About 81 ha Square
License Acquisition	Member meeting decide ore reserve after present F/S	Notify, Authorize	Notify, Authorize Min. investment \$240,000/5 years	Contract (FTAA)
Dev. implementation	Plan approval	Certified operation	Plan approval	\$25 mln bond (FTAA)
Royalty (mineral tax)	5% (Au, Ag) 12% (Sb, Hg) (sales)	0.7-1.0% (sales)	below 3% (base price)	2% (sales)
6. Gov right to buy ore	Au, mineral material	No limitations	No limitations	Au only

3) The Law on Foreign Investments

The first Law on Foreign Investments of the Kyrgyz Republic was adopted in June 1991 and subsequently modified in May 1993 and September 1995. This law stipulates quite concretely and in detail preference measures in regards to foreign investors in relation to exemption or reduction of such taxes and duties as income tax, tax on profit repatriation, customs fees. However, in September 1997 the law was again revised and a new Law on Foreign Investments was passed, as the state began to prepare for its acceding to the World

Trade Organization (WTO). Thus, all preference for foreign investors has been annulled. Conversely, as the new law was modeled after laws on foreign investments of participant countries of the Organization for Economic Cooperation and Development (OECD) and the CIS, the essence of this new law is to provide more protection for foreign investors.

- Foreigners may be legal entities and as real persons, foreigners are equal to Kyrgyzstan entities without any discrimination
- The law provides for personal guarantees for foreigners and guarantees on invested capital
- Allows registration of profits and transactions with foreign currency

4) Environment Protection Laws

There is a system of legal regulations on environment protection in the Kyrgyz Republic. The number of regulations on environmental protection is extremely large. Some of them are also promulgated in Japan. The Action Plan on environment protection is under the alteration. There is also a system of environment protection duties (fees). But in contrast to the taxes these payments are made to the Environment Protection Fund, for payment of its necessary expenses, and the remaining part is paid to maintain the natural parks and to achieve other similar environment protection goals. All the regulations on environment protection are related to the mining industry activity (Table 2-6-2).

Tab. 2-6-2 The Law and Regulation in related to Environment

Basic Environment Law	<ul style="list-style-type: none"> • The law of KR on nature protection
For Nature Protection	<ul style="list-style-type: none"> • The law of KR on nature protection • The law of KR on specially protected nature territories • Edict of the President of the KR on local and republican funds of nature protection in the KR • Regulations on establishment and utilization of local and republican funds of nature protection in the KR • Regulations on protection and utilization of fish reserves and water organisms in the KR • Edict of the State agency on forestry under the government of the KR on adjustment of inventory for calculation of compensation amounts for damages caused to forest economy
For Water	<ul style="list-style-type: none"> • The law of the KR on Water • The law of the KR on introduction of amendment and additions into the law of the KR "On Water" • Regulations on state control and accounting of water utilization in the KR • On water protecting areas and zones of water objects in the KR • Regulations on the order and amounts of compensation for damages due to violations of the law on water
For Environmental Pollutant	<ul style="list-style-type: none"> • Order of imposing of fees for discharge of contaminating substances and placement of waste in the KR • Rules of operation of dust-and-gas-cleaning installations • Resolution of the government of the KR on material responsibility for damage caused by soil spoiling

2-6-2 Tax code in the part of mining activity

1) Tax Law regulating mining activity

The Tax Code of Kyrgyz Republic was adopted and put in force in January of 1992, after that a number of different partial alterations have been made to this Code. Existing taxes are divided into the national and regional ones. In addition to these taxes, entrepreneur must pay social insurance tax, tax to the Employment Fund and the Emergency Fund. An approach based on international standards was introduced on 1st of July of 1996. As result of it the present Tax Code has been established, where evident privileges are given to the entrepreneurs including the following.

- Transition from the soviet depreciation system of fixed straight line method to the system of accelerated depreciation by which expenditures may be amortized in the short time
- Tax on profit is fixed at 30% for all activities, whereas, previously tax on profit varied depending on the kind of enterprise between 15 and 55%
- VAT on exports abroad, excepting CIS countries, is equal to zero
- Carrying forward losses for 5 years is foreseen

It is noted that heavy burdens on the entrepreneur are the road tax (0.8%) and payments to the Emergency Fund (1.5%) as their share in total amount of payments, is quite high.

2) Expenses of mining enterprises

Table 2-6-3 shows the range of expenses and additional taxes that must be paid by a mining enterprise.

Among these expenses - royalty is an ad valorem duty linked to gross revenue, for example: for gold and silver - 5%, mercury, rare earth metals and antimony - 12%, tin and tungsten - 15% which depends on the kind of ore. This duty is very high and constitutes a major economic burden and is, therefore, a hindering factor in the development of new deposits.

Table 2-6-3 Mining Industry Related Expense Burden (Tax, Commission, User Fee)

Name of Fee	Payment, Share of Ownership
License declaration fee	35-50% of license issue fee
License issue fee	10 months of minimum monthly wages (1,140 som: 1999)
Land use fee for survey & exploitation	Local government calculates, obligation
Payment for right of utilization of mineral reserve(bonus)	Temporary payment for license acquisition
Payment for utilization of underground mineral resource(royalty)	2-15% of proceeds can be imposed every year with the percentage depending on the mineral Gold 5%, Silver 5% Mercury 12%, Rare earth 12%, Antimony 12% Tin 15%, Tungsten 15%
Concession fee	No results

Because the road tax and payments to the Emergency Fund are calculated on gross sales volume, they became an extremely heavy burden to the entrepreneur. Tax revenues from the mining industry in 1997 are shown below (Table 2-6-4).

Table 2-6-4 Mining Related Tax Revenue (1997)

(1 0 0 0 som)

Combinat	Type	VAT	Income Tax	Profit Tax	Excise	Road	Emergency Tax	Land	Other
Makmal	Gold		5,351.6	16,806.3		1,826.5	2,567.3		403.8
Kumtor - ope	Gold		14,961.6						
Kumtor Gold	Gold		3,422.3						
Kumtor Ope	Gold	1,463.2	-46.6						
Jerui	Gold								
Kadamzhai	Antimony	17.2	1,634.1	3,526.7		2,129.8	4,212.4	0.56	822.7
Khiadarkan	Mercury		566.2	1,326.7		442.0	1,241.3	87.00	471.2
Tashukumir	Polyery Silicea	2,727.3	183.5			5.4	296.0		72.6
Srukchanskaya	Antimony	1,481.0		32.5		150.0	320.0		53.0
Kyzylkol	Coal	1,529.3	168.1			95.0	238.2		36.0
Akehuz	Coal		-255.0					0.77	
Kokyangak	Coal	1,285.9				38.1	204.4		15.8
Akchutuz	Rare earth	20.0	16.0	10.0		1.3			
Karabalta	Au,U, etc	-5,052.3	3,479.3	-5,291.2		727.6	2,301.3		803.0

Further, payments to the Emergency Fund and tax imposed upon the user of automobile roads introduced some time ago as a temporary measure have been increased so, that make up 2% and 4% of state budget (revenue part) respectively. At present time they are one of the most important revenue sources of budget.

3) Comparative analysis of tax system of other countries (mining industry)

Comparative analysis of tax system (in mining industry) of Kyrgyz Republic and other countries is attached to the Report. Tax rates on legal entity, on dividends etc. correspond to the international standards, as for royalty which varies between 2% and 15% of gross revenue, it is extremely high comparing to the other foreign countries (1,0% - 2,0%).

In order to make clear the problem points of taxation in Kyrgyz Republic, we used a book of professor of Colorado School of Mines Dr. James Otto et al, "Structure of tax system in mining industry of countries with rich mineral resources: a comparative analysis by countries." And made comparison of Kyrgyzstan system with systems of Argentina and Philippines (see attached materials) using available data on the Makmal and Solton-Sary deposits.

The analysis of the Makmal and Solton-Sary deposits, under the various regimes show that royalty rates are the greatest difference between the regimes, has been chosen as a study's goals. Taxes on profit and dividends, depreciation, losses carrying forward, terms of tax holidays were also compared.

According to this comparative estimation, following the norms of taxation in Kyrgyzstan, the economic evaluation of Makmal and Solton-Sary deposits will be estimated lowest, but according to the norms of Argentina and Philippines its level will be estimated higher. The

NPV and IRR are factors that increase as they are based on industry profitability.

From the Figure 2-6-2, it can be said that the relative rate of increase is higher for Makmal than for Solton-Sary.

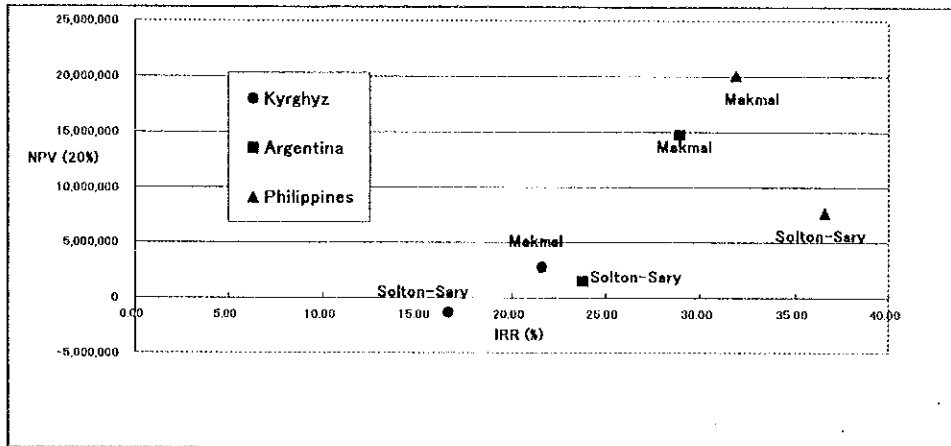


Figure 2-6-2 Tax Regime Comparison (After Tax)

4) Taxes related to the environment protection

In Kyrgyz Republic there is a system of collection of duties (taxes) for environment protection. This system existed in Kyrgyzstan since the soviet period, and is based of the kinds of polluting materials and volume of wastes. Since 1998 payment of this duty has been 1% of profit remaining after all taxes have been paid.

Funds from collection go first to the regional branch of Environment Protection Fund, and then 25 - 30% of these funds go to the Republican Environment Protection Fund. The Republican Environment Protection Fund spends approximately 30% of the money for administrative and management goals, and the remaining 70% for measures on environment protection.

The largest portion of the money for environment protection goes to maintain natural parks and their control: the Fund is not engaged in the financing or introduction of equipment preventing environment pollution.

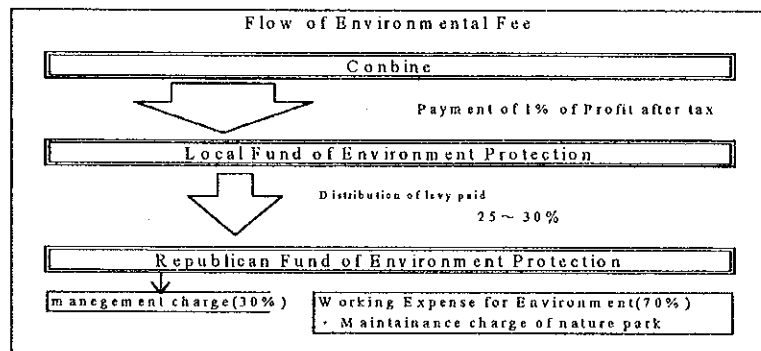


Figure 2-6-3 Flow of Levy Fee on Environment

The creation of incentives like low interest financing and accelerated depreciation for the equipment preventing environment pollution in the environment protection policy is necessary to be undertaken. At present the Kyrgyz Republic has no any incentives for the environment and no efforts are being made to decrease the amount of polluting waste materials. This accounts for the country's failure to be equipped with environment pollution preventing facilities.

2-7 Current situation at the model (Khaidarkan) combinat

The Khaidarkan Combinat is a Mercury Processing Plant that was established in 1941; it is differentiated from foreign counterparts by the fact that it is processing extremely low-grade mercury ores. Over a long period of time (until 1992) the Combinat was capable of processing some 650 000 of mercury ore/yr (Hg grade – 0.10-0.20%) and produced 650-850 tons of final product (approximately 70% of the total Hg commodity in the Soviet Union). To maintain a large-scale Hg production the Soviet government established a separate budget account for the Plant to cover geological exploration expenses i.e. the Plant was in fact unprofitable.

In 1996 the Plant was accepted by the ERRA Reform (Enterprise Reform and Resolution Agency). The reform introduced rationalization and intensification in the mine, they achieved a royalty reduction from 12% to 2%. Nevertheless at the same time the plant is still suffering because of high energy costs and from the storage of fluorite.

In this investigation, the Khaidarkan Combine, which is facing financial difficulties, was visited and to make detailed on-site survey (including financial issues), was conducted. This Combine was selected as a model for the development of concrete countermeasure.

In 1996 the reserves of the Mine #1 were re-calculated, SAGMR is still doing the feasibility study report. But as for the Mine #2 where they face fluorite over storage such re-calculation has not been made.

2-7-1 Report of the ERRA research mission

Among the indications recommendations made by its IEEC Group to the ERRA (International Economic and Energy Consultants) were the following that required special attention:

- The cut-off grade content should be in proportion to the cost of production
- The Plant itself, by being also a producer, will independently identify industrially feasible grade content by performing its economic evaluations
- They should provide a transition from mono-skilled personnel specialisation to multi-skilled system of employment
- A bonus system has to be introduced to encourage best performance
- A responsibility-conscious psychology shall be present on all levels of management and operation by means of re-allocation and re-assignment of duties
- Some practical steps have to be taken towards the industry modernisation and operation cost reduction
- It is advised to introduce new international standards of accounting (ISA)
- It is necessary to fully consider the influence of mercury production wastes to the environment and residential areas

- It is necessary to provide a good maintenance practice in regard of water consumption mode especially around Hg treatment shops and units

Following are additional issues defined appeared during the present research program from the point of view of present situation of resources and the economy in Khaidarkan:

- Mine #1- annual production increase up to 200 000 tons of crude ore; Mine #2 - annual production increase up to 100 000 tons of crude ore
- Annual production capacity of refinery to be 200 000 tons , Processing plant to be 100 000tons
- Extraction of antimony containing ores from the lower horizons in the mine #2

2-7-2 Mineral resources in Khaidarkan

1) Geological Structure

Geological structure in Khaidarkan is made of Mid Palaeozoic sedimentary rocks (limestone, dolomites, conglomerates, sandstone, and schist) covered by sediments of the Quaternary period. From the bottom below and upwards there are interbeds of Kaldavansky and Peshtausky formations with foliated limestone mainly (thickness 700-900m); Tuyak-Danginsky and Palavsky formations (60-130m) with limestone containing lamina; Tolbai formation (150-400m) with sandy shale. In general, they form up an anticline (width 3-km) with the axis oriented east-west parallel to the axis of folding which is truncated by a north-south thrust system.

2) Mineralization

Mercury and antimony precipitates (width up to 40m, normally – 20-25m) are hosted by the Peshtausky formation where it contacts with massive limestone, by the Tuyak-Danginsky formation with foliated limestone containing lamina and the Tolbai formation with sandy shale. East-west fault divides the anticline structure into northern and southern belts. The minerals mode of occurrence is in beds and lenses and mainly in complex folds and developed fractures. The bedrock is represented by limestone and hornfels replaced by jasperoids and silica resulting from hydrothermal activity. It is conceivable that during the Permian period hot water, with mercury and antimony, came up the fractures and the solution spread horizontally to form the present metallisation zone. The northern structural belt hosts widely spread mercury-antimony and fluorite precipitates, while the southern belt is principally mercury. The major minerals are cinnabar, antimony, and fluorite.

3) Reserves of Ore Deposit

- The forms and shapes or ore bodies are different: lenses, veins, plates, stockworks etc.

Volume is changeable 500,000m³ to 600,000m³.

- Reserves calculations: geological block (mineralization zone) × ore content ratio; Hg cut-off grade – 0.15% (Soviet period – 0.08%)
- Ores: monometallic mercury, complex mercury-antimony and fluorite.
The southern structural belts (Mine #1): deposits Glavnoe, Promezhutochnoe, Southwest, Lower Sulzhun-Kur.
The northern structural belts (Mine #2): deposits Kara-Archa, Copper Mountain, Northern Fluorite Mountain, New.
- Degree of exploration: up to the mineral category C1 – C2, grid 40-60 m × 60-80 m to grid 60-80 m × 120-180 m, Level of the category B – grid 7 × 7 m

4) Cut-off Grade

Mercury deposits in the mineralization zone are normally found in layers though single ore bodies retain a complex shape; the Hg content varies greatly and thus no consistent pattern can be established, this is all due to the fact that mercury occurrences as mainly along fractures.

Beginning in 1996 in the

framework of the PESAC Program (World Bank) the reserves were to be re-calculated per cut-off grades which are different from the Soviet approach (0.08%). The re-calculation are to be made with a cut-off grade of 0.15%, 0.2%, 0.3%, 0.4%, 0.6%. When the reserves are calculated anew the results will allow for the management of the industry but a free market response level. At the cut-off grade 0.3% to 0.08% the ore bodies are significantly decreased and are scattered. (Figure 2-7-1).

Table 2-7-1 Khaidarkan Deposit Reserve & Grade

Classification	Ore	Total Balance	Category	
	Metal Grade		A+B+C ₁	C ₂
Khaidarkan Deposit Total	(1,000 t)	8212	2780	696
	(t)	12984	3253	1208
	(%)	0.16	0.12	0.17
Mercury Ore	(1,000 t)	3890	681	3209
	(t)	8344	1316	7028
	(%)	0.21	0.19	0.22
Mercury-Antimony-Fluorite Ore	(1,000 t)	4322	2099	2223
	(t)	4640	1937	2703
	(%)	0.11	0.09	0.12

Reserves as of 1/1/98

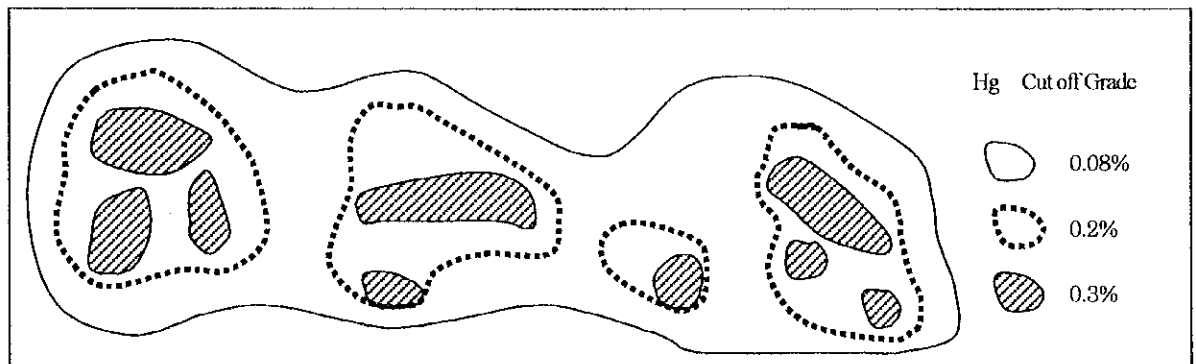


Figure 2-7-1 Model Area of Deposit According to Cut-off Grade

2-7-3 Production

1) Dynamics of production

Bulk production dynamics by mine in 1995-1998 (first half) is as follows:

Table 2-7-2 Annual Production by Mine

No.1 mine	1995	1996	1997	1998
Ore (t)	77,442	149,269	140,596	*69,830
Mercury (t)	360.0	540.5	572.2	302.5

No.2 mine	1995	1996	1997	1998
Ore (t)	52,920	86,826	71,393	*39,899
Mercury (t)	10.0	14.2	10.1	
Antimony (t)			63.9	147
Fluorite (t)	555	2,767	4,176	3,005

Bond material of Hg(t)		29.4	28.5	
------------------------	--	------	------	--

* first half year result

2) Marketing

In 1997 the Plant managed to sell some 627 tons of mercury, 90% was sold abroad and 10% - to the CIS countries. The main Hg customers were China, USA, Netherlands, Russia, Kazakhstan, and Azerbaijan. Kyrgyzstan itself has no internal Hg market. Fluorite clients are: Russia, Kazakhstan, Tajikistan, and Uzbekistan while antimony concentrate was supplied to Kadamzhai Combinat. Quality of mercury is high - 99,999%. Also Hg 99,99% and Hg 99,9997% is produced. 90-95% fluorite is partially consumed by industries involved in welding rods manufacture.

Mercury metal is regarded as one of the eight most hazardous substances and this is one of the reasons for its reduced demand. It was mainly used as a catalyst in caustic soda production; the forecast for its further consumption in developed countries is not encouraging. At the same time Hg demand within the CIS countries is still stable. The prime competitor in Hg production is Spain while China enjoys the position of just an importer. Despite the fact that there is a printed "Metal Bulletin: Price and Data" the Plant management prefers to send an agent to Rotterdam to collect data. Change on domestic demand of mercury in Japan is shown in Figure 2-7-2.

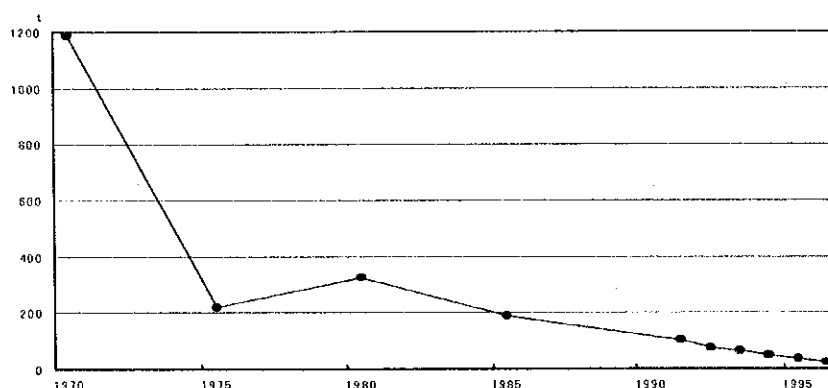


Figure 2-7-2 Change on domestic demands of mercury in Japan

3) Personnel and Organisational Chart.

As per January 1, 1998 the Khaidarkan Mercury Plant employed some 1098 people (engineers – 159, workers – 939 including 220 women). The retirement age is 50 years for men and 45 years for women; the average age of workers is 40 years old. There is a vocational school attached to the Plant, but they do not train drivers there. But since the graduates can not be employed afterwards only old and experienced workers are still working and there is no new personnel in-flow.

The Plant organisational chart after the reformation and reorganisation for mines # 1 and 2, the smelting plant, the fluorite, mercury and antimony dressing plant, the maintenance shop, transportation service and management as shown in Figure 2-7-3.

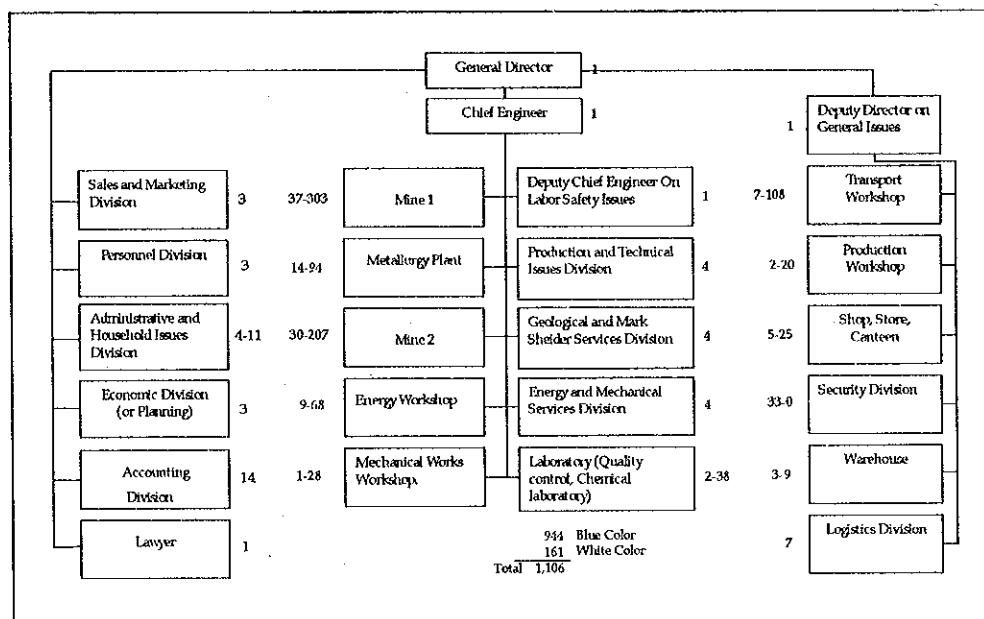


Figure 2-7-3 Structure of Khaidarkan Combine

4) Situation in Production Department

① Mining Department

Main components of mines are shafts and horizontal adits. The horizontal spacing of main level @ 40 meters. Mined ore is put by rail loader onto cars, and then they are transferred by trolley car to the shaft. The cars are rolled into the car cage and conveyed to the surface. Mine water is collected in the lowest (8th) level at the depth of 400 meters of the Mine #2 (elder name) and is pumped up. Ventilation is forced, natural ventilation is not used. Despite the lack of finance the principal mine equipment - winding machine, pumps, fan and others - are well maintained and in good working condition.

The mining method: open stoping, sub-level stoping, room and pillar and shrinkage etc. adopted mining equipment: hand drilling drifter, scraper, and rail loader. Deposit is found in sloping foliated layers with extensive content variations. The implemented today system of development requires a big number of sub-level adits and shafts, moreover, temporal handling, in result dilution ratio increases, and the ore quality control becomes harder. To decrease the mining cost long borehole blasting method applying to the fragile ore body is discussed, and it is also required to replace original blasting fuses by electric detonators and to use cheaper explosives.

The plan for exploration and stripping to provide further ore extraction is not fulfilled. By August 1997 only 700 m of horizontal adit for development (against 4200 m of plan) and 100 m of horizontal adit toward vertical shaft (against 600 m of plan) have been made at Mine #2. When carrying out new mine workings it is necessary to pay a special attention to safety measures since the prime bed is limestone which is extremely saturated with ground waters coming out of stalactite caves.

● Mine #1

Employees - 335 people; 6 days working week, 6 hours working shift and 3 shifts.

The mine has seen extraction and excavations since the Soviet period, upper horizons are 70-80% depleted. Now the works are done in three horizons. With re-calculation of the cut-off grade the Hg content is maintained on the level of 0.4%.

Mine #1 is dry while Mine #2 experiences mine water flow (1500 m³/hr) and is pumped up from the lowest 8th horizon. Mine #1 hosts major Hg ores below the natural ground water level so one may predict a reasonable increase of ground water in-flow when developing lower horizons. The FSR made by SAGMR in 1996 expects the doubled volume of ground water in-flow if compared to the present level going down to the 1000 m level above sea level.

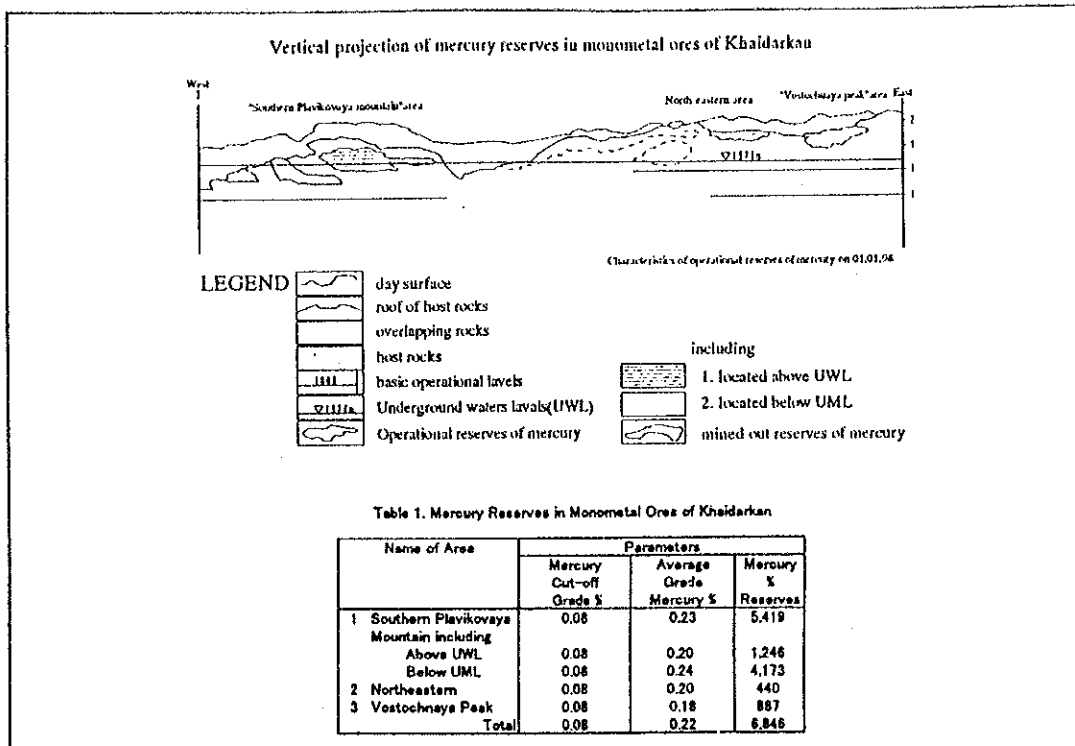


Figure 2-7-4 Prospective Cross-section and Possession of Ore Reserve at the No.1 Mine

● Mine #2

Became active in 1989 to develop a new ore body with an expected production of some 300,000 tons of ore each year, however at present only the first stage of construction has been completed so the Mine produces only 100 000 tons of ore. The new ore body is a complex ore body that has fluorite as a main component associated with mercury and antimony. The upper part of the ore body consists of low grade oxidised antimonite ores (antimony - 0.5%, mercury - 0.05%), whereas, the lower part consists of sulphide antimony ores with higher mercury grades than the upper part. The Kyrgyz government anticipates the development of the lower part would provide the Plant sufficient antimony ores.

The Mine #2 employs some 228 people with 72 of them working in the Processing Plant. Today the Plant is not fully used, due to fluorite overstorage, and as a result the whole of the Mine #2 lack stability in its performance.

The major part of the ore body is below the natural ground water table. Now the ground water in-flow is not high but one may expect an increase when developing the lower horizons.

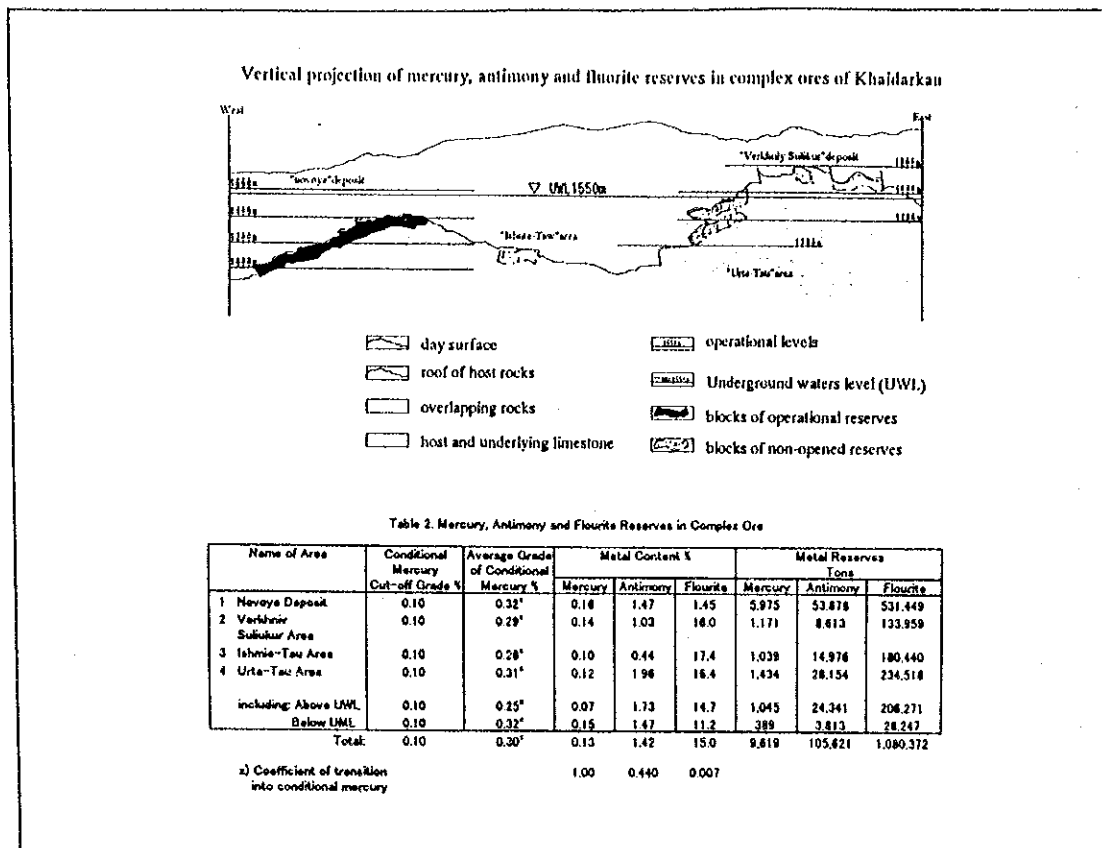


Figure 2-7-5 Prospective Cross-section and Possession of Ore Reserve at the No.2 Mine

② Mercury Metal Production and Processing

The Metallurgical Plant and Concentration Plant have even more orthodox technology. At the present level of production the existing capacities are excessive, outdated and extremely worn out; control and measuring devices are scarce; exhaust gas sources (furnaces) do not have dust collectors and the transportation and feeder mechanisms retain escaped products in large quantities. The general level of qualified workforce employed at the Processing Plant is dropping due to the staff reductions.

● Mercury Refinery Plant

Mercury containing ores from the Mine #1 are processed in the Metallurgical Plant. The main equipment are crushers, furnaces and steam condensers. Each of the systems is designed to treat a particular kind of ore. There also exist a technology to treat rich and poor Hg containing ores from the Mine #1, another one to treat complex concentrate from the Mine #2, and a third one treats imported Tajikistan concentrate. Because of a lack of crude ore some systems ore suspended wastes are dumped into open stockpile. The Plant employs 108 people: 4 shift 6 hours each.

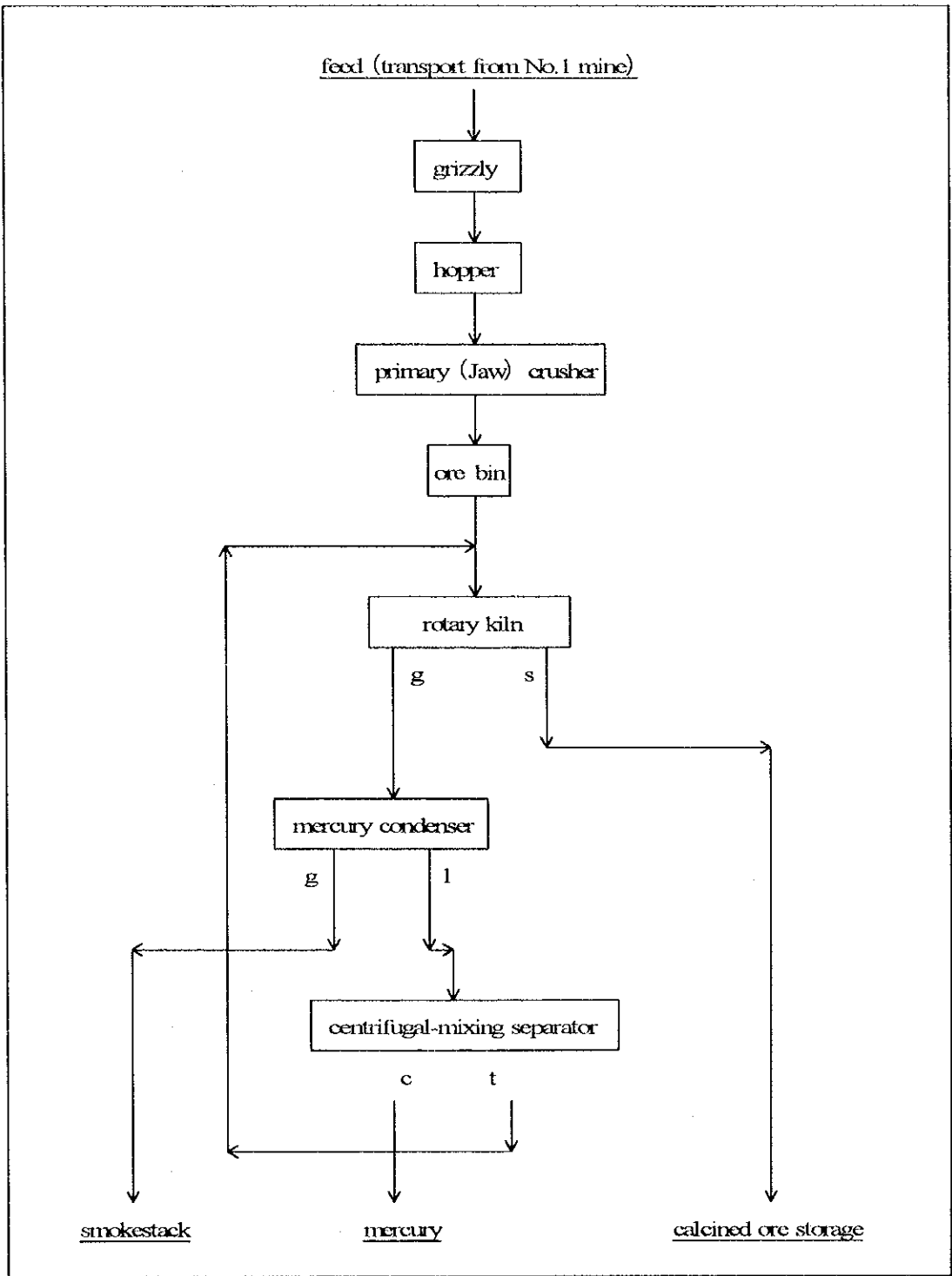


Fig. 2-7-6 Flow diagram of the mercury metallurgy plant of Khaidarkan

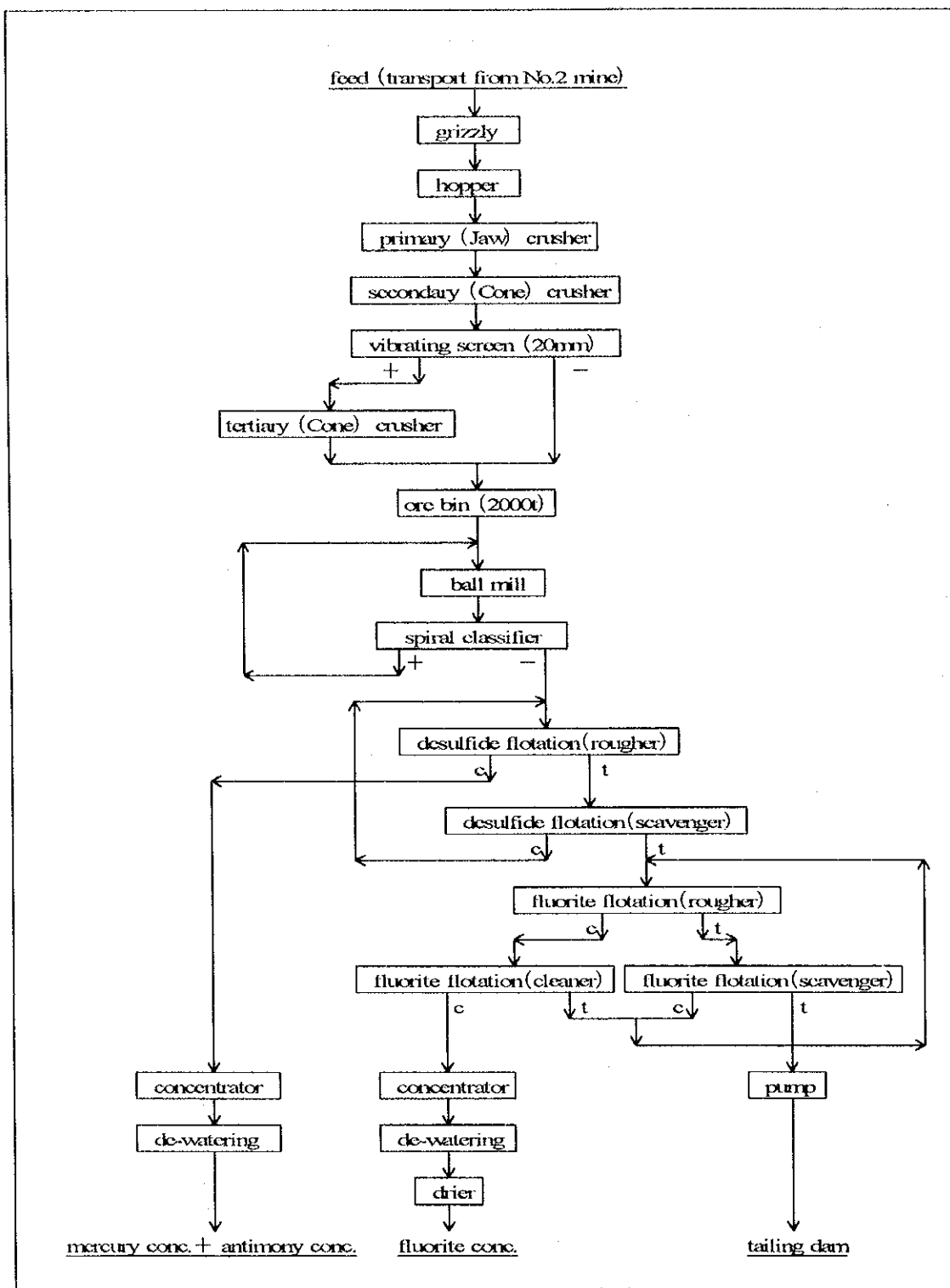


Fig 2-7-7 Flow diagram of the concentrator of Khaidarkan

- Processing Plant

The plant processes the complex ore from Pit #2, initially to extract fluorite. In general the plant utilizes a desulphidizing flotation array for recovering mercury and antimony, and a flotation array for fluorite. Mercury-antimony concentrate is transported to the metallurgical plant where the mercury is recovered using the same process as for the material from Mine#1. Fluorite recovery depends on the efficiency removal of sulphide minerals, however, the tendency is towards a lowering of recovery rate of fluorite. The ground water pumped out of the Mine is used for circuits, but since there is excessive amounts of water, it is no longer used in closed circuits, and the tails are pumped to the tailings pond.

5) Infrastructure

The required uninterrupted power supply is acquired from the Tajik (110 kV) and Uzbek (35 kV) grids. The power supply is distributed by three 6 kV electrical sub-stations. Living and industrial water supply as well as water for the compressor station, is taken from Galuyan river. The natural gas line from Uzbekistan provides gas for the processing plant and refinery.

6) Environment control

The Environment Control department has been simplified in structure due to rationalization. The monitoring is performed once every 2 weeks for exhausted gas and effluent water. The results are reported to the directors of the processing plant and refinery, and also to department heads. If the approved standards are exceeded, Environment Control takes the appropriate measures forward. The Environment Control department collects the results of work performed, and report to the Regional Environment Protection Committee on a regular basis. The Plant has reduced staff for the Environment Control department, without renewing the array of measuring and sampling devices. The monitoring of environment has been simplified, thus decreasing the operational abilities of Environment Control.

The Plant pays regular fees to the Environment Protection Fund for abusing the environment with charring waste materials. In 1997 the accounted fee was 310 thousand soms. The Plant's prevailing interest is towards production. It pays less attention to effluent treatment facility installation, and to decreasing the amounts of pollutant discharge. Currently, the situation with exhausted gas and effluent water is not bad enough as to bring damage to the regional people. The metallurgical plant's charring waste, however, is piled high in an open dump situated up-stream from the plant premises, and there are no obvious measures taken towards preventing the water from seeping through the ground. Moreover, the tails are discharged into the tailings pond located down-stream that is not equipped with an impermeable liner, thus, it is supposed, allowing the water to escape downstream.

2-7-4 Economic state of the combine

In 1995 a rationalization was made by of the Khaydarkan combine based on PESAC program of the World Bank which provided a grant of 24 mln soms. The newly restored Khaydarkan combine had started a new life by taking from ERRA a credit in amount of 4 mln. soms to be used as working capital. However, the combine has gotten into a difficult economic situation as a result of the huge overstock of fluorite, non-payment of wages, interests and deductions for the Social Fund and a shortage of working capital.

Material and technical supplies for the combine are mostly imported requiring the combine to make 100% advance payment for import from the CIS countries, 80% of which is remitted through the bank and remaining 20% is paid based on the barter system. Settlement of transactions with Uzbekistan is implemented partially in foreign currency and partially through barter system with Russia payment is in Rubles linked to US dollars.

The Combine intends to sell out stored fluorite on barter and after that to make necessary payments, however, because of the discounted fluorite price and low demand, prospects are problematic.

1) Accounting standards in Kyrgyzstan

The basic differences between the accounting standards existing in Kyrgyzstan and International Standards of Accounting (ISA) are as follows:

- ① In contrast to the ISA which is based on charges, the cash principle of accounting used in Kyrgyzstan. It causes the following problems in its implementation of accounting practices at combines.
 - Even when the goods are sold, the sum of sales can not be counted until the cash money for the goods are received; charges can not be estimated while there are no expenses in cash and barter transactions accounts payable, which have arisen as a result of sales, are not accounted.
 - Production cost varies depending on when the payment of expenses is made actually.
 - Unpaid interest is not recorded in the account book. As such this interest is not brought into account in terms of profits and losses.
- ② According to the International Standards of Accounting (ISA) unused assets can not be credited as profit, so the calculation (estimation) of asset reduction is required. In accordance with Kyrgyz norms such an estimation of assets is not carried out.
 - Dead (inactive) assets are recorded, but if they are not deducted from the estimated assets, profit is increased.
- ③ In international practice of accounting the calculation of reserve money funds, with the account of forecast expenses and losses, is beforehand conducted.

- As the charges for creation of reserve fund are not initially provided, the profit is overestimated.

2) Financial accounts related to the Combine

Khaydarkan Combine draws up the following financial documents and tables:

- profit-and-loss account
- balance sheet
- cash flow account
- asset and debit statement

The Combine meets the requirements of the International Standards of Accounting (ISA) on types of financial documents required. But nevertheless, the accounting system of combines as a whole remains old and based on the standards of Soviet times. The problem is compounded because of barter transactions which make it difficult to properly understand a combine's financial situation correctly.

In order to take the proper decisions on combines' management, the Kyrgyz Republic must accept the International Standards of Accounting (ISA) and promote improvement of its accounting system in the following way.

- Sale proceeds are calculated during the shipment or at the moment of receipt (in such cases it is necessary to create a system of sale deals control).
- Interests on loan should be estimated for the term of debit.
- Proper estimation of fixed asset needs to be conducted based on established estimation criteria.
- It is necessary beforehand to make a calculation of reserve money fund for the sum representing excess of estimated cost of commodity stock above sales value.

① Profit- and-loss account

Table 2-7-3 shows profit-and-loss account of Khaydarkan combine in 1996-1997.

Table 2-7-3 Profit-and-loss account of Khaydarkan Combine

(thousand soms)

	1996	1997
Amount of sale	38,888	59,809
Cost of products sold	38,319 (98.5%)	54,371 (90.9%)
Gross profit on sales	569	5,438
Others (income)	1,610	12,325
Income from operations	305	13,417
Income from business	1,874	4,346
Income from auxiliary activity	8	42
Non-operational income	-	710
Before-tax profit	1,882	3,678
Taxes	565 (30.02%)	1,103 (30%)
After tax profit	1,317	2,575

In 1997 sales amount in profit-and-loss account of the Combine amounted to 59.8 mln. soms, costs amounted to 54.37 mln. soms, and profit before tax amounted to 3.68 mln. soms. 30% of indicated amount of profit was paid as an enterprise income tax. After tax profit amounted to 2.58 mln. soms. Some part of this amount has been spent for upkeep of cultural center, hotel, procurement fund for workers, and also for material incentive.

② Balance sheet of the enterprise

Balance sheet of Khaydarkan Combine in 1996-1997 is presented in the Table 2-7-4.

Table 2-7-4 Balance sheet of Khaydarkan Combine

(thousand soms)

	31.12.1996	31.12.1997
Permanent tangible assets	81,587	75,882
Capital account	19	24
Provisional account of construction	1,426	1,726
Others	853	738
Permanent assets, total	83,885	78,370
Current assets	23,916	34,166
Accounts payable connected with sale	4,365	8,960
Lodgment	310	22
Circulating assets, total	28,591	43,148
Assets, total	112,476	121,518
Money capital	1	1
Reserve funds	100,222	106,104
Carry-over losses	-1,295	-2,550
Current income	1,317	2,575
Capital, total	100,245	106,130
Loan	4,000	5,300
Debts connected with purchase	4,481	3,494
Unpaid debts	788	2,032
Unpaid insurance premium	1,285	1,795
Other debts	1,677	2,767
Debts, total	12,231	15,388
Capital and debts in total	112,476	121,518

It follows from the table that the assets of the Combine, permanent tangible assets and current assets, are large, and reserve capital value is very high. Similarly, current assets have increased and accounts payable connected with sale, have almost doubled. In the row of debts, Conversely borrowing has increased, although a sum of debts connected with purchase are reduced and unpaid salary is much increased.

Furthermore, we would like to elucidate the principle positions of balance sheet of the enterprise, their content and important items of amendments.

Tangible fixed assets

Tangible fixed assets of Khaydarkan Combine are presented in the Table 2-7-5. Final figures of table 2-7-5 and same figures of table 2-7-4 do not coincide. The reasons for this discrepancy are not clear.

Table 2-7-5 Permanent tangible assets in details (Data are given as of December 31, 1997)
(thousand soms)

Types of permanent tangible assets	Original value	Residual value	Depreciable value
Buildings	27,568	18,834	8,734
Construction	48,198	37,091	11,107
Electric equipment	7,299	1,748	5,551
Machines and units	52,654	11,676	40,978
Transport	4,873	448	4,425
Inventory	908	391	517
Others	916	311	605
Total	142,416	70,499	71,917
Public objects	599	322	277
Social and cultural welfare	9,278	5,362	3,916
Total	152,293	76,183	76,110

Transport, machines, units and electric equipment amongst the permanent tangible assets are subject to depreciation at a fixed rate. Their residual cost is not high. As for construction, its depreciation is not duly performed. Most likely it is connected with that a tailing dump. The adits and other facilities are depreciated in proportion to an output volume which depends on the minable ore reserves. It is expected that minable ore reserves of the Combine will be reduced as a result of their revaluation under market economy conditions. If minable ore reserves are reduced the residual cost of construction facilities will be overestimated.

Annually in October the Combine performs an inventory of fixed assets and current assets, but revaluation of property of hotel (built in 1976, cost – 858,854 soms) and culture center with club and hall (built in 1985, cost – 5,607,770 soms) which are not directly connected with production is not absolutely done. Now it is necessary to reduce their residual cost in accordance with the standards of International Accounting System. Transport, machines and units, electric equipment incurred to depreciation are worn-out.

Their actual assessed cost is approximately half of the residual cost (calculated summarily – 13,872 thousand soms). Moreover, the largest part of the buildings, constructions, machines and units has become idle but are also considered as the objects of assessed cost reduction, thus, probably, it is required to decrease by 10% the assessed cost of permanent tangible assets.

Inventory

Table 2-7-6 shows dynamics of output volumes, shipments and remained reserves.

Table 2-7-6 Dynamics of output volumes, shipments and remained reserves

	Mercury, t	Antimony, t	Fluospar, t
Remainder as of 31.12. 1996	91.1	2.0	*874.7
Output volume in 1997	610.9	63.9	4,176.0
Volume of shipments in 1997	627.4	61.7	4,073.0
Remainder as of 31.12. 1997	74.6	4.2	1,812.4
(Terms of turnover)	(1.43)	(0.82)	(6.72)
Output volume in 1998	629.0	147.0	3,005.0
Volume of shipments in 1998	617.5	95.6	1,357.0
Remainder as of 31.12. 1998	86.1	55.6	3,460.4
(Terms of turnover)	(1.67)	(6.98)	(30.6)

The terms of turnover are given by a number of months (in brackets)

*Data on remainder as of end of 1996 were given verbally.

Since the Combine sells out fluorite by barter, it is necessary to have some stock of its reserves, but in 1998 the reserves have grown significantly.

Fluorite is exported to China in exchange for aluminum wire (price – 59.1 soms/kg). Received aluminum wire is transmitted to Uzbekistan as barter for electric power supply (price – 48.33 soms/kg). In such deal the price of aluminum wire differs from the cost of delivery ($59.10 - 48.33 = 10.77$, i.e. the difference is 18.22%), that means that in barter the cost of fluorite is lowered.

As a result in 1998 the combine has become worse due to the overstock of fluorite.

Capital reserve

In 1993 when Kyrgyzstan introduced its own local currency the Khaydarkan Combine had carried out a revaluation of its property on a som basis.

But revaluation has been made not on the basis of profits and losses account but on the basis of the operating amount of the reserve fund of the balance sheet of the enterprise. The increase of the reserve fund in 1997 (approximately by 6,000 thousand soms) was caused by the free transferring of assets of closed mines to the Combine. The re-evaluated cost of these assets has been included into the fixed assets, as a reserve capital of debit

account. As a result of the introduction of an inflation account the assessed cost of fixed assets is far different from its actual size.

Loan payable and accrued expenses

The Khaydarkan Combine has received from ERRA a loan of 4 mln. soms (interest at 12% per annum), in addition, it takes loans from commercial banks.

The loan from ERRA is a state credit with a specific debt service – without interest payment. Because of interest non-payment a fine has been imposed. The debt is indicated in balance sheet of the enterprise, but interest has not been paid and amount of a fine is brought out of balance. Unpaid interest as of May 1998 has amounted to some 2.5 mln. soms, and penalty – 3.8 mln.soms.

The credits from commercial banks are used to repay a debt on salary and for fuel, including gasoline, this payment has been made. The July 1998 estimate shows that balance of debt on bank credits has amounted to 2 mln.soms including debt on credit from the “Maksat” Bank – 1.5 mln. soms (interest at 65% per annum), debt on credit from “Kurulush” Bank – 500,000 soms (interest at 50% per annum).

Table 2-7-7 shows data (1997 year) on credits, interest and penalties of Khaydarkan Combine.

Table 2-7-7 Credits, interest and penalty

	(thousand soms)				
	Debt at par	Interest	Penalty	Total	Creditor
Non-payment at the beginning of 1997	(4,000)	1,144	163	1,307	ERRA
Amount of liabilities appeared in 1997	(1,300)	1,517	3,656	5,173	Commercial Banks
Amount of repayment in 1997		424		424	
Unpaid amount in 1997	(5,300)	2,237	3,819	6,056	

Interest amount of corresponding term (in 1997 interest has amounted to 1,517 thousand soms) has not been included in profit and loss account of the Combine in 1997. If interest payable to ERRA amounts to 480 thousand soms, then the remaining amount has been introduced as an interest to the Commercial Banks.

Unpaid interest in amount of 2,237 thousand soms and penalty in amount of 3,819 thousand soms have been brought out of balance sheet of the enterprise in the end of 1997.

③ Amendment into the profit and loss account and balance sheet of the enterprise

In Table 2-7-8 profit and loss account of 1997 is presented after introduction of amendments including evaluated losses of permanent tangible assets, assessed losses connected with a warehousing of fluorite and aluminum wire, unpaid interest at the beginning and during the year and size of the penalties.

Table 2-7-8 Amendments into profit and loss account of 1997

(thousand soms)

	Before amendment	After amendment
Amount of production sales	59,809	59,809
Prime cost of production sold	54,371	54,371
Gross profit from sales	5,438	5,438
Other income	12,325	12,325
Income from operations	13,417	13,417
Income from business	4,346	4,346
Income from auxiliary activity	42	42
(1) Non-operational income	710	710
(2) Interest non-payment for a year	-	1,093
(3) Assessed losses connected with fluorite	-	1,283
(4) Assessed losses connected with aluminum wire	-	198
(5) Assessed losses connected with a fixed capital	-	7,588
(6) Unpaid interest at the beginning of the year	-	1,144
(7) Penalty	-	3,819
Before tax profit	3,678	-11,447
Taxes	1,103	0
Before taxation profit	2,575	-11,447

Before tax profit, after amendment has become negative by a significant amount of ▲ 11,447 thousand soms against 3,678 thousand soms before amendments. If non-operational expenses in positions (5), (6) and (7) were brought to the account of only 1997 it would be difficult to process the data. Therefore, we calculate before tax profit without indicated positions, however, even such a calculation will show significant decrease of profit – for 1,104 thousand soms. It's become obviously that Combine could not ensure its profitable operation.

Table 2-7-9 shows balance sheet of the enterprise as of 31 December 1997 after amendments with account of reduction of assessed cost of permanent tangible assets by 10%, losses connected with creation of fluorite and aluminum wire reserves, non-payment of interest and penalty.

Table 2-7-9 Balance sheet before and after amendment (Data are as of December 31, 1997)
(thousand soms)

	Before amendment	After amendment
Permanent tangible assets	75,882	68,294
Capital account	24	24
Provisional account of construction	1,726	1,726
Others	738	738
Fixed assets, total	78,370	70,782
Current assets	34,166	32,685
Credit debt connected with sale	8,960	8,960
Lodgment	22	22
Circulating capital, total	43,148	41,667
Assets, total	121,518	112,449
Money capital	1	1
Reserve capital	106,104	106,104
Carry-over losses	-2,550	-2,550
Before-tax profit	2,575	-11,447
Capital, total	106,130	92,108
Loan	5,300	5,300
Debt connected with purchasing	3,494	3,494
Unpaid salary	2,032	2,032
Premium unpaid	1,795	1,795
Unpaid interest	-	2,237
Penalty	-	3,819
Others	2,767	1,664
Debt, total	15,388	20,341
Capital and debt, total	121,158	112,449

④ Cash flow account

Cash flow account of Khaydarkan Combine as of end of 1997 is given in Table 2-7-10.

Table 2-7-10 Cash flow account (as of December 31, 1997)
(thousand soms)

Brought from the previous year	310
Incomings	50,856
Income from business activity	39,316
Loan	4,200
Short-term loan	7,247
Other income	93
Expenditures	51,144
Expenses for material and technical supply	26,711
Wages	10,737
Social insurance	5,240
Advance payment	3,785
Tax payment	3,250
Interest payment	458
Repayment a debt on credits	789
Other expenses	174
Residual amount in cash at the end of year	22

It follows from cash flow account of Khaydarkan Combine in 1997 that such basic production expenses as payment for material and technical supply and wages, including social insurance (in sum – 42,688 thousand soms), essentially exceed the income from business (39,316 thousand soms) which is a major shortcoming. It is obviously that attraction of large loans is necessary. Although the creation of fluoride reserves has a negative effect upon the incomings the fact remains that without loans the Combine would have a large deficit – this is present-day situation.

Results of funds calculation on the basis of balance sheet of enterprise are given below. Necessity of funds became much more urgent in 1997.

- Delay in salary payment – 2,032 thousand soms
- Non-payment of insurance premium – 1,795 thousand soms
- Paid interest – 2,237 thousand soms
- Penalty – 3,819 thousand soms

2-7-5 Analysis of management of the combine

1) Profitability of production subdivisions

Along with re-evaluation of asset volume and a worsening of the situation with incomings due to overstock of products the Khaydarkan Combine has a serious problem in ensuring profitability of production. In order to clearly understand the problem of profitability, we should consider this matter by individual subdivisions: e.g. on mercury production (mine #1 + metallurgical plant) and fluorite (mine #2 + processing plant). The problem of profitability can be studied by calculating the cost volume of production, assuming that the basic year is 1997 when production scale was set up at the fixed level, the prime cost of production, operation costs, non-operation expenses and other costs distributed by subdivisions.

① Calculation conditions of gross revenue

- An average price of production sale of the Combine in 1997 is given below. We take a unit price as a basis for calculation of production volume in value terms.
mercury : 75,000, antimony : 13,400, fluorite : 3,886 (som/t)
- We represent a physical volume of production on Khaydarkan Combine in 1997 year in following manner. We use data of this volume for calculation of cost volume of production by subdivisions (Table 2-7-11).

Table 2-7-11 Volume of production by subdivisions

	Mine#1	Mine #2	Purchased raw materials	Volume of production, total (t/y)
Mercury	572.2	10.1	28.5	610.8
Antimony	-	61.7	-	61.7
Fluorite	-	4,176	-	4,176

② Calculation conditions of prime cost of production

- Table of prime cost of production by subdivisions is as follows. Based on this table we will calculate prime cost of production. Amendment connected with ore processing on mine #2 of Metallurgical plant is not included in this table.

Table 2-7-12 Costs by subdivisions in 1997

(thousand soms)

	Mine#1	Metallurgical plant	Mine #2	Concentrating mill
Expenses for material and technical supply	5,600	9,531	2,124	4,783
Wages	4,492	1,607	1,379	366
Social insurance	1,559	558	483	128
Amortization deductions	1,417	1,328	1,187	809
Repair costs	1,969	1,238	1,163	1,587
Expenses of water pumping out	2,456	0	454	0
Management costs	3,816	5,533	1,337	2,129
Total	21,309	19,795	8,127	9,802

- Expenses for ore processing on Mine #2 of Metallurgical Plant are given below in Table 2-7-13. Let's make correction of production prime cost based on this table. Mercury production prime cost minus expenses for ore processing on Mine #2, and fluorite - to add cost of processing of 10.1 t of mercury and 61.7 t of antimony, which were received in 1997.

Table 2-7-13 Costs of ore processing on Mine #2 in 1997 (conditions of calculation)

	Volume of processing (t)	Prime cost of processing (t/som)	Expenses of processing (t/som)
Mercury	12.3	13,125	161
Antimony	122.5	8,917	1,092

- We distribute charges for payment of unpaid interest in 1997 (1,517 thousand soms) by production subdivisions. Liability of interest payment in the amount of 480 thousand soms, for credit of ERRA, will be divided equally between mercury and fluorite production; the remaining part, in amount of 1,037 thousand soms, is referred to fluospar production. The reason is that in 1997 mercury stock was reduced, whereas, fluorite and antimony being production of the fluorite subdivisions were increased.

③ Trial calculation of income in 1997 by subdivisions

Results of calculation of cost volume, production expenses by subdivisions and distribution of liabilities between subdivisions on interest payment for the credit are given below.

Table 2-7-14 Results of trial calculation of income in 1997 by subdivisions

(thousand soms)

		Mine #1	Mine #2	Purchased raw materials	Total
Cost volume of production	Mercury	42,915	758	(374)	43,673
	Antimony	0	827		827
	Fluorite	0	16,228		16,228
Total (A)		42,915	17,813	(374)	60,728
Operating costs	In mining	21,189	7,489		28,678
	In dressing	0	9,164		9,164
	In metallurgical processing	18,421	683		19,104
Total (B)		39,610	17,336		56,946
Profit (A - B = C)		3,305	477		3,782
Distribution of interest for payment (D)		240	1,277		1,517
Recalculation (C - D)		3,065	-800		2,265

It follows from Table 2-7-14 that mine #2 is unprofitable, and mine #1 is characterized by low profitability. At calculation of cost volume of fluorite production the lowering of assessed cost at barter transaction has not been taken into account.

2) Comparison with ERRA program

The results of trial income calculation by subdivisions vary from the ERRA program. In order to clarify the problem, results of Combine's operation in 1997 have been compared with ERRA program.

① Gross revenue, factors and costs of production

It follows from the tables 2-7-15 and 2-7-16 that in 1997 mercury production figures have been approximately conformable to ERRA program, antimony production has been different, fluorite production has been considerably less than was envisaged by the program. This resulted because the volume of mercury production at Mine #1 amounted to around 70 % and mercury grade was higher than the planned figures in ERRA program. On mine #2, as well as on mine #1, ore extraction was at level of 70% but ore grade was lower than envisaged in the program. In particular the actual grade of antimony ore was 0.5% that much more lower than the figure of the program (1.8 %). Additionally, since ore has been oxide, the percentage of recovery during concentration was low.

In 1997 amount of sales was approximately at the level of ERRA program, owing to an increase of prices of goods, and production costs were not essentially different from control figure of the program.

Thus, the sale and production of mercury were implemented more or less normally. However, in the subdivision of fluorite there is a problem of reserves, as the ore grade is not

conformable with the program indicators. In this connection the problem of ensuring profitability has arisen, as it appears that at present-day mercury production is supporting fluorite production.

Table 2-7-15 ERRA program on marketing and comparison of this program with actual results

	Actual results in 1997			ERRA program		
	Sales volume (t)	Unit price (\$)	Sales amount (\$ thousand)	Sales volume (t)	Unit price (\$)	Sales amount (\$ thousand)
Mercury	627.4	4,167	2,614	*669.3	3,478	2,328
Antimony	61.7	744	46	993.6	400	397
Fluorite	4,073.0	216	879	6,400.0	137	877
Total			3,539			3,062

* Amount of sales on mine #1 has amounted to 552 t, mine#2 -117.3t.

Table 2-7-16 Factors and costs of production according to ERRA program and their comparison with actual results

	Actual results in 1997	ERRA Program
Volume of ore production, t		
Mine#1	140,596	200,000
Mine#2	71,393	100,000
Content in ore, %		
Mercury	*0.35	0.30
Antimony	*0.50	1.80
Fluorite	*13	16
Volume of production, t		
Mercury	610.9	669.3
Antimony	63.9	993.6
Fluorite	4,176	6,400
Costs of production, thousand \$		
Full prime cost	3,279	3,278
Wages	587	662
Management costs	711	307

* Estimated content in 1997.

② Production costs by subdivisions

A detailed comparison of actual production costs by subdivisions with control figures of ERRA program is given below. To simplify cost comparison, the indicators are given in USD.

Table 2-7-17 Comparison of factors of mercury production with the indicators of ERRA program
(thousand \$)

	Mine#1		Metallurgical plant		Total	
	Actual result in 1997	ERRA program	Actual result in 1997	ERRA program	Actual result in 1997	ERRA program
Expenditures for material and technical supply	311	120	530	510	841	630
Expenses for personnel*	337	398	120	42	457	440
Amortization	79	6	74	4	153	10
Repair costs	109	193	69	105	178	298
Expenditures for water pumping out	136	334	0	0	136	334
Management costs	212	175	307	22	519	197
Total	1,184	1,226	1,100	683	2,284	1,909

* Exchange rate for re-calculation of actual results in 1997 is USD 1 =18 soms, for the indicators of ERRA program - USD 1=11 soms.

* Expenses for personnel in 1997 include social insurance premium.

Table 2-7-18 Comparison of factors of fluorite production with the indicators of ERRA program
(thousand \$)

	Mine#2		Concentrating mill		Total	
	Actual result in 1997	ERRA program	Actual result in 1997	ERRA program	Actual result in 1997	ERRA program
Expenditures for material and technical supply	118	39	266	640	384	679
Expenses for personnel*	103	199	27	23	130	222
Amortization	66	7	45	0	111	7
Repair costs	65	201	88	105	153	306
Expenditures for water pumping out	25	45	0	0	25	45
Management costs	74	88	118	22	192	110
Total	451	579	544	790	995	1,369

* Expenses for personnel include social insurance premium.

It follows from comparison tables that production costs in mercury subdivision are higher than the indicators of the ERRA program, and in fluorite subdivision – lower than the indicators of the ERRA program, because in mercury production the actual management expenses are higher and in fluorite production expenses for material and technical supply are lower than the program indicators.

Some points on production costs are given below.

- In spite of the fact that the volume of production is lower by approximately 30%, expenses for material and technical supply are much far above the control figure of ERRA program. This can be explained by the following: firstly, the ERRA program has been designed based on the precondition that the reserves of the cheapest material and

technical means and spare parts would be used, secondly, after finishing these reserves prices for spare parts, materials and equipment have sharply increased.

- The production volume on mine #2 fluorite subdivision has been reduced by a half which probably was the cause of a decreasing use of reagents whose which amounts made up a major part of material and technical supply costs.
- When considering production costs on competing positions, we may note that the actual depreciation account is higher, but expenses for repair are lower, than envisaged in the ERRA program. Since it is possible to suppose that there are different approaches to limiting positions, we consider depreciation and expenses for repair as a single position. In this case it turns out that for mines the actual data of these indicators is normally lower, but on metallurgical plant and concentrating mill they are higher than in ERRA program; this leads us to conclude that the metallurgical plant and processing plant have had priority in equipment.
- Notwithstanding the fact that tariff for electricity has being increased, expenses for mine water pumping are lower than envisaged in the ERRA program. We suppose that it is connected with intensity of working face, improvements on the control and usage of pumps and their maintenance. It is expected that tariffs for electricity and the volume of pumped water will increase in the future. Due to this reason further improvement of control system is required.
- Overall management costs are far above the ERRA program level. Probably, the reason is that implementation of personnel rationalization is not conformable to the ERRA program. Details are not and that's why this process is currently under consideration.

3) Problems of management

A summary of the management problems of the Khaydarkan Combine is given below:

- Financial documents are not made up in accordance with the standards of International Accounting System therefore, the financial documents are not sufficient for financial analysis or study of profitability problems by subdivisions.
- In cases where profit-and-loss accounts are amended, in accordance with the rules of International Accounting System, the Combine actually would have an unfavorable balance.
- Accrual of credit, unpaid interest on loans, unpaid salary and accumulation of stock reserves have occurred and as a result, the receipt of financial funds is encumbered.
- Equipment and machines are worn-out and there is a large quantity of dead assets which result in an overstated notion of the amount of permanent assets.

- Barter transactions are carried out without cash that leads to the limitation of such transactions; in particular that costs do not reflect market prices as shown by barter transactions with fluorite, in which the Combine loses a part of its cost.
- Operation of mine #2 and processing plant mill is unstable due to overstock of fluorite.
- The production volume on mines has not reached the level planned by the ERRA program. The mine #2 ore grade is lower than indicated by the ERRA program.
- Among material and technical means there are a lot of imported ones and prices for them are increasing.
- Tariff for electricity are increasing which is an important factor in production costs growth.
- When considering profitability of subdivision, fluorite production also could be unprofitable. The mercury subdivision serves as support for fluorite subdivision.

2-7-6 Summary on Khaydarkan Combine

The Khaydarkan Combine is now in an extremely difficult situation associated with management and support of its activity, a decline in the mercury market and an increase of fluorite stock reserves. Currently the structure of fluorite subdivision is supported by the mercury subdivision and it is very difficult to depict the perspectives of it.

Summing-up Combine's problems is as follows.

1) Raw material resources of the Combine

- In the bedded deposits, with a gentle slope, the grade of both mercury and fluorite is low.
- If the cut-off grade is increased to 0.3% becomes small and rambling.
- The major parts of upper horizons of mercury deposit (mine #1) has been mined out. In developing lower horizons the costs of water pumping will be increased.
- Upper horizons of the fluorite deposit (mine #2) include oxidized antimony ore, with a low recovery ratio, on lower horizons the ore is a sulfide –antimony one located below the underground water level.

2) Mines

- The production volume of mines have not reached the level envisaged in ERRA program (it is lower by 30%).
- The planned development for increased ore extraction has essentially fallen behind.
- At the development of lower horizons of mine #1 (1000 m above sea level) and on lower horizons of mine #2 the volume of underground water will increase.
- The method of development, by making shafts and adits (rail method), restricts the development flexibility. With such method a lot of shafts are used, opening of the deposit is complicated and the handling and transportation are increased.
- The room and pillar method is used as a basic method of extraction in parallel shrinkage is used, waste rock is hauled outside.
- Mining machines (hand drilling drifter and scraper) are not suitable for work on ore bodies of special shape with the resulting of high dilution.
- Work is unstable on mine #2 due to an overstock of fluorite.
- Prices for imported spare parts, materials and reagents are rising sharply.

3) Metallurgical plant

- Equipment of the plant has excess capacity not corresponding with its current production, moreover it is worn-out.
- There is no equipment for exhaust gas cleaning in furnaces.

- Waste rock is simply thrown in a field dump, which is probably not constructed against waste water infiltration.

4) Processing

- Equipment of the processing plant has excess capacity not corresponding with its present production, moreover it is obsolete.
- Technical maintenance of the processing plant is becoming difficult because of a manpower drain.
- The tailing dump is not provided with watertight seal as a result water leaks underground.
- Work on concentration is unstable due to the fluorite overstock .

5) Environmental control

- Renewal of measurement instruments and analyzers has not been carried out for a long time.
- Personnel rationalization is carried out, but present monitoring facilities are insufficient.

6) Sales market

- It is possible to support a present level of mercury market, but mercury products market with high added value is limited.
- Prices for antimony have greatly decreased resulting in a difficult situation on Khaydarkan Combine.
- Fluorite loses its assessed value at barter transaction.
- Channels of marketing are not established (functions of trade companies are underdeveloped).

7) Organization aspects

- As a result of rationalization under the ERRA program the organization has been simplified, but delegation of authority has not been carried out.
- There is a lack of personnel capable to adequately understand management information and to make forceful decisions.

8) Management

- The current financial situation is not sufficiently clear.
- Profitability by subdivisions is not considered.
- There are problems of fixed and current assets evaluation, and interest non-payment for loan.

- Due to products overstock a big amount of borrowed credits is attracted.
- Increases in prices for material and technical means and tariff increasing for electricity became a heavy burden upon the economy (Table 2-7-19).
- There is no clear strategy of fluorite and mercury production promotion.
- A tendency of favoring production over ecology is evident.
- Control and maintenance of health service objects depend on Combine's finance.

Table 2-7-19 Electric power consumption on Khaydarkan Combine

Years	Electric power consumption (kWh)	Tariff for electric power (som)	Cost (kWh/som)
1992	53,376,044	2,204,825	0.041
1993	55,309,585	5,582,806	0.101
1994	48,149,604	5,297,156	0.110
1995	41,917,845	6,178,466	0.147
1996	39,838,286	5,832,692	0.146
1997	27,827,486	6,076,847	0.218

2-8 Current status of basic economy spheres relevant for mining industry

2-8-1 Current infrastructure status

1) Traffic Transportation

The scope of transportation by the transport type in the Kyrgyz Republic is shown in Figure 2-8-1 and the distribution of transport infrastructure is Figure 2-8-2.

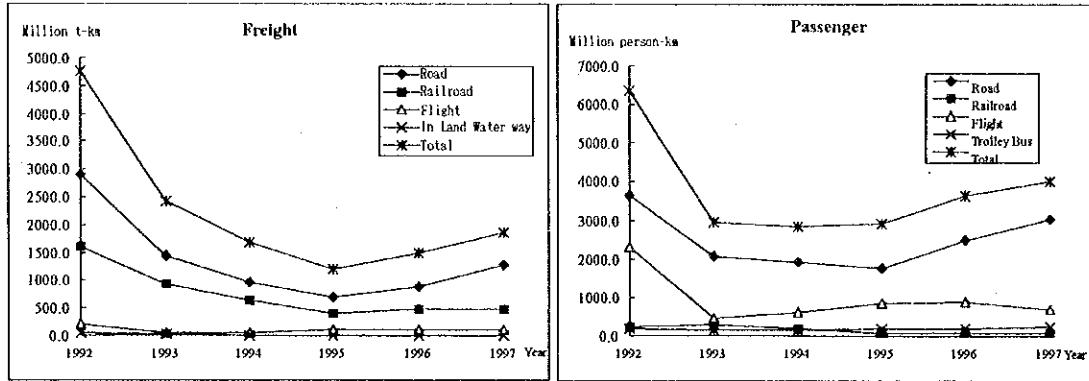


Figure 2-8-1 Transportation Means of Freight and People

Automobile transport plays the most important role among all other types of transport with railroad of considerably less importance.

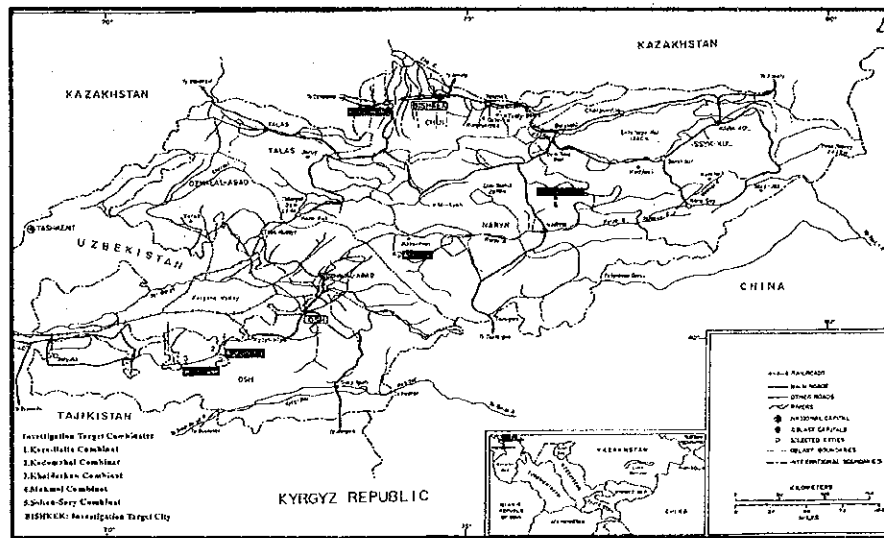


Figure 2-8-2 Railroad and Road Map

In the State development strategy, emphasis is placed on improving the connection between the two major economical and cultural centres: Bishkek, in the North, and Osh, in the South. Currently, there is no railroad communications between those two cities and ground transport by a single automobile road that is often blocked in winter.

① Automobile roads sector

The automobile roads grid is well developed, and connects all major Kyrgyz cities. Currently, the capacity of the existing road grid does, generally, meet the requirements of the nation. However, the roads and road structures are old, heavily used, generally worn out and most of them are in poor condition. There is insufficient funding provided for their maintenance and control all because of the poor economy of the nation. Moreover, the roads in mountainous regions are often exposed to rains, rock falls, and avalanches. All together, the road sector does not foster the development of National economy.

Table 2-8-1 gives a general idea of the "Program for Rehabilitation and Development of All-Republican Automobile Highways" which was put together by the Ministry of Transport and Communication of Kyrgyz Republic, and of the ways it is implemented. The Bishkek-Osh highway rehabilitation has a first priority, and the first stage is on-going. Funding is provided by the ADB (Asian Development Bank) and OECF (Overseas Economic Co-operation Fund).

Table 2-8-1 Outline of Rehabilitation Scheme of Main Roads and Present Situation

Section	Progress	Cost (miln\$)	Remarks
Bishkek-Osh	Package i: 138km. Cost: \$93 million. Under construction, Duration: 1996-1998 Package ii: 208km. Cost: \$104 million Construction Duration: 1998-2000 Package iii: 280km. Cost: \$60 million Construction Duration: 1999-2000	250	Connects the capital and regional center
Bishkek-Torugart	F/S completed in 1996	189	Extend to Kashgar, China
Issyk Kul Lake Ring Road			Support tourism and agriculture development in Issyk-Kul region
Taraz (Janbyl)-Talas-Sausantuy	F/S scheduled to be completed in 1998	14	Improving Bishkek-Talas segment
Osh-Isfana			Development area of west part of Osh State
Chaldybar-Urinskoe			One segment of Taraz-kara Balta-Bishkek-Abkaty
Sary Tasy-Karamyk			Extend to Jergetal (Tajikistan)
Osh-Sary Tash-Irkestarn			Plan to extend to Kashgar, China

② Railroad transport sector

In Soviet times the Kyrgyz railroads were part of the Central Asia railroad grid. Even now, there is no independent railroad system in the Kyrgyz Republic. The Government is developing a program for railroad construction which will provide a grid from North to South, and from West to East. The objective is to create a self-sustained railroad system.

- The North-South railroad will connect Balykchy and Jalal-Abad. It will also improve the transport connection between Bishkek and Osh, and provide for the exploration and mining of the Kara-Keche coal deposit situated near a proposed railroad. The Kyrgyz Republic