batteries as a part of its future plant. A battery manufacturing plant is under construction. The construction should be accelerated.

2-6-3 JSC "Balkhashmed"

(1) The Present Situation

The profit-loss of the JSC "Balkhashmed" for the period between 1996 and 2010 is shown in Table 2-6-3(1) and indicates that the mining and ore-dressing operation at the Balkhash (Kounrad and Sayak Mines and Balkhash Concentrator) is economically unjustified and a large amount of losses will be accumulated in the first three years. Development of the Aktogai ore deposits is also not economically justified. Oxide ores totaling 250 million tons with an average grade of 0.25% copper and smelting slag totaling 54 million tons with an average grade of 0.69% copper are available for extraction of copper either by solvent extraction-electrowinning or by flotation.

Under the present situation of the JSC "Balkhashmed", closure of the Kounrad and Sayak Mines is inevitable from the economic point of view.

There are three options as follows;

1) To maintain the Balkhash production at the level that meets the planned raw material supplies from East Kazakhstan and foreign sources until 1999, and shift its raw material sources mainly to the Koktau and the Boshekul deposits after 1999 by accelerating exploitation of these deposits. This option requires urgent and detailed review of their feasibility for raising necessary funds in order to resume their suspended development works.

2) To cease the present smelting-refining operation and to adopt a solvent extraction-electrowinning process utilizing 250 million tons of oxide ores after 1999.

3) Scheduled termination of the entire operation by the end of 1999, if the above two options are both uneconomical.

Variations and combinations of the above three options may be sought with detailed and thorough economic assessment of the present smelting-refining operation, the solvent extraction-electrowinning process and the exploitation of new resources including the Koktau, Boshekul and other deposits.

(2) Conceptual Plan for Restructuring (as an example)

Based on the first of the above three options, a conceptual plan for restructuring the JSC "Balkhashmed" has been prepared and a rough economic estimation has been made according to the following assumptions;

1) Cease the mining operations at Kounrad and Sayak by the end of 1996.

2) Commence slag flotation at the Balkhash Concentrator from the beginning of 1997. The production plan is shown in Table 2-6-3(2)

3) Accelerate the development and construction of the Koktau-Chilisai and Boshekul mine-concentrator complexes in order that the production may commence in 1998 and 1999, respectively. The production plans have been revised from those indicated in Table 2-1-2(1) and are shown in Table 2-6-3(3) and (4).

4) Replace the Aktogai deposit, which is regarded as uneconomical, with the Samarskoe deposit as a raw material source.

5) Accelerate the exploration of the Samarskoe deposit and the development and construction of its mine-concentrator complex in order that the production may commence in 2001. The production plan and its economic performance are shown in Table 2-6-3(5).

6) Total Investment funds of US$550 million, including working capital, will be spent on;

Improvement of the sulphuric acid plant,	US$50 million
Upgrading or renewal of obsolete facilities,	US$25 million
Development-construction of the Koktau-Chilisai Complex,	US$27 million
Development-construction of the Boshekul Complex,	US$250 million
Other New Project	US$198 million

7) The Samarskoe is designated as the new project on which funds totaling US$198 million will be spent. The JSC "Balkhashmed" will be able to acquire 66.7% (or two-thirds) of the Samarskoe ownership with the following conditions;

a) Make a loan arrangement of US$154 million amounting to 70% of the total capital requirement of US$220 million.

b) Raise funds amounting to US$44 million on an equity basis.

The remaining US$22 million of the capital requirement will be raised on an equity basis by a group of private companies which is entitled to exploration and development of the Samarskoe deposit according to the license issued by the Ministry of Geology. In return, the group will be able to retain 33.3% (or one-third) of the Samarskoe ownership.

8) All the necessary finances concerned with the entire JSC "Balkhashmed" operation should be arranged by a private enterprise that intends to take over 85% ownership of the JSC "Balkhashmed". The funds will basically be raised in long term loans for the 70% portion and on an equity basis for the remaining 30%. Repayment guarantee for lenders of the long-term loans must be assured by the private enterprise.

9) Other fundamental assumptions such as metal prices, interest rates, sales terms and conditions and so forth remain the same as quoted in sections 2-1 and 2-2 of the main text.

The production plan of the Balkhash Smelter/Refinery has been revised as shown in Table 2-6-3(6). The result of the economic estimation is shown in Table 2-6-3(7).

According to the results, the consequences of the restructuring are summarized as follows;

1) The long term loans will be repaid by 2007.

2) The cumulative net cash flow to 2010 which is discounted at the rate of 10% per annum to the beginning of 1996 is estimated at US$71.388 million, far less than the discounted cumulative equity of US$130 million.

3) The Samarskoe Project appears to be potentially profitable and important for the survival of the JSC "Balkhashmed".

4) When the three deposits are exploited, the raw material supply to the Balkhash Smelter will be secured to produce around 160 thousand tons of cathode per year at least until 2010, without purchasing concentrates from remote foreign sources.

(3) Privatization Schedule

According to the recent information, negotiations between the Government of Kazakhstan and a group of private enterprises are continuing for the sale of 85% ownership of the JSC "Balkhashmed" by the Government. The conditions are;

1) Repayment of the accumulated debt amounting to US$100 million.
2) Raising US$500 million for investment
3) Securing working capital amounting to US$50 million.

The above economic estimation has taken these conditions into account except for repayment of the accumulated debt. According to the result, the repayment of the accumulated debt of US$100 million in addition

to the investment totaling US$550 million appears to be an excessive burden for the incoming party. It is desirable from the JSC "Balkhashmed" point of view that the Government arranges a special long-term loan with a low interest rate for repayment of the accumulated debt. The economic estimation has been revised, assuming that a rescue loan with an annual interest rate of 3% is extended to the JSC "Balkhashmed". The result is shown in Table 2-6-3(7), together with the privatization schedule.

Assuming that the rescue loan is repaid prior to the other loan, the repayment will be completed in 2001. The completion of repayment for the remaining loans will be prolonged by two years to 2009.

With respect to the privatization schedule, the ownership should be transferred to the incoming party of private firms in accordance with the investment funds expended by the party on an equity basis as shown in Table 2-6-3(8). Until the party acquires the majority of the ownership (50% or more), a management committee, comprising representatives of the Kazakhstan Government and the party, should be set up in order to make important decisions on the corporate management, reviewing the corporate performance. Upon the acquisition of the majority of shares, the management should be left with the corporate board comprising representatives of the share holders.

In addition, the following recommendations are made with regard to the privatization;

1) It is not advisable to transfer the majority ownership of natural resources to foreign firms from the view point of the national interest. For example, foreign ownership of any enterprise is allowed only up to 40% in the Republic of the Philippines.

2) It may be desirable to include national private firms in the party that intends to take over the ownership.

3) It is also desirable or even essential to introduce a world renowned metal producer into the group in order to raise funds on the world money markets with advantageous terms and conditions. Involvement of a major metal producer will be one of the significant conditions that international funding agencies, such as the World Bank, EBRD, OECF, and so forth, will take into account when considering loan applications.

Table 2-6-3(1) Metal Production Plan (1996-2010) and Profit-Loss Estimation

JSC "Balkhashmed"

				1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Raw Material	Balkhash	Conc. Quantity	T T	200	200	200	179	100	100	64	64	64	64	64	64	64	64	93
		Contained Cu	T T	28	28	28	25	14	14	9	9	9	9	9	9	9	9	13
		Au	kg	600	600	600	537	300	300	192	192	192	192	192	192	192	192	279
		Ag	T															
		Cost	T US$	45,961	45,961	45,961	41,013	22,980	22,980	14,721	14,721	14,721	14,721	14,721	14,721	14,721	14,724	21,331
	Kektau	Conc. Quantity	T T			14	76	76	76	76	174	174	174	174	87	87	87	87
		Contained Cu	T T			3	15	15	15	15	35	35	35	35	17	17	17	17
		Au	kg			19	103	103	103	103	235	235	235	235	117	117	117	117
		Ag	T															
		Cost	T US$			4,426	24,601	24,601	24,601	24,601	56,584	56,584	56,584	56,584	28,291	28,291	28,291	28,291
	Beshekol	Conc. Quantity	T T				93	93	186	186	186	186	186	186	130	130	130	130
		Contained Cu	T T				20	20	39	39	39	39	39	39	27	27	27	27
		Au	kg				586	586	1172	1172	1172	1172	1172	1172	819	819	819	819
		Ag	T				24	24	48	48	48	48	48	48	33	33	33	33
		Cost	T US$				42,711	42,711	83,393	83,393	83,393	83,393	83,393	83,393	57,754	57,754	57,754	57,754
	Aktogai	Conc. Quantity	T T											227	227	497	497	508
		Contained Cu	T T											34	34	75	75	76
		Au	kg											154	154	338	338	345
		Ag	T											5	5	12	12	12
		Cost	T US$											50,869	50,869	111,427	111,427	113,849
	Zhezkent	Conc. Quantity	T T	147	147	164	190	190	190	190	190	190	190	190	190	190	190	190
		Contained Cu	T T	30	30	34	41	41	41	41	41	41	41	41	41	41	41	41
		Au	kg	140	140	156	186	186	186	186	186	186	186	186	186	186	186	186
		Ag	T	14	14	15	18	18	18	18	18	18	18	18	18	18	18	18
		Cost	T US$	49,041	49,041	50,827	61,613	61,613	61,613	61,613	61,613	61,613	61,613	61,613	61,613	61,613	61,613	61,613
	EKGOK	Conc. Quantity	T T	72	80	97	118	132										
	(Ust-Talovka)	Contained Cu	T T	16	17	21	26	29										
		Au	kg	63	75	101	185	275										
		Ag	T	12	14	19	35	53										
		Cost	T US$	25,503	26,724	35,454	45,310	53,264										
	Irtysh Smelter	Blister Quantity	T T	15	18	21	16	11										
		Cu	T T	14	17	20	15	10										
		Cost	T US$	28,395	34,485	40,365	30,423	20,282										
	Erdenet	Conc. Quantity	T T	105	87	70	52											
		(28.7%) Cu	T T	30	25	20	15											
		Cost	T US$	52,447	43,746	34,965	26,263											
	Chile	Conc. Quantity	T T	55	44	44	33											
		(45.2%) Cu	T T	25	20	20	15											
		Cost	T US$	46,306	37,045	37,045	27,783											
	Others	Conc. Quantity	T T	48	72	36		104	184	204	124	124	124		108			
		(25.0%) Cu	T T	12	18	9		26	46	51	31	31	31		27			
		Cost	T US$	20,499	30,740	15,374		44,414	78,579	87,120	52,955	52,955	52,955		46,127			
	Total	Conc. Quantity	T T	627	630	625	747	701	742	726	744	744	744	847	812	974	974	1,014
		Blister Quantity		15	18	21	16	11										
		Cu	T T	155	155	155	172	155	155	155	155	155	155	158	155	169	169	174
		Au	kg	863	815	857	1,597	1,450	1,764	1,653	1,785	1,765	1,765	1,939	1,468	1,652	1,652	1,746
		Ag	T	26	28	34	77	95	66	66	66	66	66	71	56	63	61	63
		Cost	T US$	268,152	269,745	264,659	299,717	269,805	271,166	271,448	269,266	269,266	269,266	267,180	259,170	273,806	273,806	282,836
Product	Cu Cathode		T T	150	150	150	169	150	150	150	150	150	150	153	150	164	164	169
(Rec. 97%)	Au		kg	779	791	831	1,549	1,407	1,708	1,603	1,731	1,732	1,731	1,881	1,424	1,602	1,602	1,694
	Ag		T	25	27	33	75	90	64	64	64	64	64	69	54	61	61	61
Revenue	Cu Cathode		T T	330,690	330,690	330,690	372,577	330,690	330,690	330,690	330,690	330,690	330,690	337,304	330,690	361,554	361,554	372,577
	Au		12.9 US$/g	10,049	10,204	10,720	19,982	18,150	22,033	20,679	22,330	22,330	22,330	24,265	18,370	20,666	20,666	21,853
	Ag		160 US$/kg	4,000	4,320	5,280	12,000	14,400	10,240	10,240	10,240	10,240	10,240	11,040	8,640	9,760	9,760	9,760
Total				344,739	345,214	346,690	404,559	363,240	362,963	361,609	363,260	363,260	363,260	372,609	357,700	391,980	391,980	404,190
Cost (T US$)	Raw Material			268,152	269,745	264,659	299,717	269,805	271,166	271,448	269,266	269,266	269,266	267,180	259,170	273,806	273,806	282,836
	Smelting	US$60/Conc. T		37,620	37,800	37,500	44,820	42,060	44,520	43,560	44,640	44,640	44,640	50,820	48,720	58,440	58,440	60,840
	Refining	US$0.05/Cathode lb		16,535	16,535	16,535	18,629	16,535	16,535	16,535	16,535	16,535	16,535	16,865	16,535	18,076	18,076	18,629
Subtotal				322,307	324,080	318,694	363,166	328,400	332,221	331,543	330,441	330,441	330,441	334,865	324,425	350,324	350,324	362,305
Operating Profit (Before Marketing)				22,432	21,134	27,996	41,393	34,839	30,742	30,066	32,819	32,819	32,819	37,744	33,075	41,656	41,656	41,885
Mine-Concentrator																		
	Balkhash (Kounrad-Sayak)			-51,037	-59,139	-59,139	-57,283	-24,570	-29,570	-27,319	-27,319	-27,319	-27,319	-27,319	-27,319	-27,319	-27,319	-37,525
	Kektau-Chulsai					2,540	14,113	14,113	14,113	14,113	32,461	32,461	32,461	32,461	16,230	16,230	16,130	16,230
	Beshekol						33,661	33,661	45,292	45,292	45,292	45,292	45,292	45,292	31,084	31,084	31,084	31,084
	Aktogai													-27,436	-27,436	-45,360	-45,360	-45,360
	Mine-Conc.	Total		-57,037	-59,139	-56,599	-20,067	8,203	29,835	29,835	50,434	50,434	50,434	22,996	-7,263	-25,365	-25,365	-35,371
Smelter Refinery				22,432	21,134	27,996	41,393	21,075	16,977	16,301	19,054	19,054	19,054	23,979	19,310	26,607	26,607	25,925
Total Operating Profit/Loss				-34,605	-38,005	-28,599	21,386	29,278	46,812	46,136	69,488	69,488	69,488	46,975	12,047	1,242	1,242	-9,446

Table 2-6-3(2) Mine-Concentrator Production of JSC "Balkhashmed"

1996: Kounrad and Savak, 1997 to 2010: Slag Flotation (1800 T.T./Year, 0.67% Cu, Recovery 60%)

			1,996	1,997	1,998	1,999	2,000	2,001	2,002	2,003	2,004	2,005	2,006	2,007	2,008	2,009	2,010
Mine: Output(T.T)			9,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
	Ore Grade	Cu %	0.35	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Conc.	Cu Conc. (T. DMT)		184	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	(T. WMT, Moist. = 8%)																
	Conc. Grade	Cu %	14	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	Cont. Metals	Cu T.T	26	7	7	7	7	7	7	7	7	7	7	7	7	7	7
		Au kg	329														
Total Value	Cu US$2204.6/T		57,320	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432
(T. US$)	Au US$ 12.9/g		4,239														
	Ag US$ 161/kg																
	Total		61,559	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432	15,432
Sales Cost	Freight (US$0.01/WMT.km)																
(T. US$)	Insurance (0.08% of Total Value)																
	T.C. (US$80/DMT)		14,720	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440
	R.C. (US$176/Cu T.)		4,576	1,232	1,232	1,232	1,232	1,232	1,232	1,232	1,232	1,232	1,232	1,232	1,232	1,232	1,232
	Other Cost (Penalty etc.)																
	Total		19,296	2,672	2,672	2,672	2,672	2,672	2,672	2,672	2,672	2,672	2,672	2,672	2,672	2,672	2,672
Sales Revenue (T. US$)			42,263	12,760	12,760	12,760	12,760	12,760	12,760	12,760	12,760	12,760	12,760	12,760	12,760	12,760	12,760
Operating Cost	Mine		73,794														
(T. US$)	Concentrator	3.70/T	18,130	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660
	Overhead	1.70/T	16,660	3,060	3,060	3,060	3,060	3,060	3,060	3,060	3,060	3,060	3,060	3,060	3,060	3,060	3,060
	Total		108,584	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720
Operating Profit(T. US$)			-66,321	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040
Tax: (T. US$)	Depreciation																
	Deferred Loss (Cum)																
	Taxable Income																
	Income Tax																
	Other Taxes and Levies																
	Total Taxes and Levies																
Net Profit (T. US$)																	
Capital Expenditure (T. US$)																	
Cumulative Capital Expenditure																	
Finance	Equity																
(T. US$)	Loan (10%/Annum)																
	Loan Repayment																
	Cumulative Loan																
Net Cash Flow																	
Cumulative																	
Discounted Values	Capital Expenditure																
to Year 0 at																	
a Discount Rate of	Equity																
11% Per Annum																	
	Loan																
	Loan and Equity																
	Loan Repayment Incl. Interest																
	Net Cash Flow																
	Loan Repayment and Cash Flow																

Table 2-6-3(3) Mine-Concentrator Production of Koktau-Chilisay

Mining Reserves 40.5 million T, 1.82% Cu, 3.57 g/t Ag, 0.21 g/t Au

				1,996	1,997	1,998	1,999	2,000	2,001	2,002	2,003	2,004	2,005	2,006	2,007	2,008	2,009	2,010
Mine Output(T, T)						1,500	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
	Ore Grade	Cu %	1.82															
Method (Open Pit)		Au g/t	0.21															
(Extraction 80%)		Ag g/t	3.57															
(Dilution 20%)																		
Conc :	Cu Conc. (T, DMT)					113	174	174	174	174	174	174	174	174	174	174	174	174
	(T, WMT, Moist. = 8%)					122	188	188	188	188	188	188	188	188	188	188	188	188
	Conc. Grade	Cu %	20															
		Au g/t	1.35															
		Ag g/t	23.7															
	Cont. Metals Recovery	Cu T T	83%			23	35	35	35	35	35	35	35	35	35	35	35	35
		Au kg	50%			153	235	235	235	235	235	235	235	235	235	235	235	235
		Ag T	50%			3	4	41	4	4	4	4	4	4	4	4	4	4
Total Value	Cu US$2204.6/T					50,706	77,161	77,161	77,161	77,161	77,161	77,161	77,161	77,161	77,161	77,161	77,161	77,161
(T, US$)	Au US$ 12.9/g					298	452	452	452	452	452	452	452	452	452	452	452	452
	Ag US$ 161/kg																	
	Total					51,004	77,613	77,613	77,613	77,613	77,613	77,613	77,613	77,613	77,613	77,613	77,613	77,613
Sales Cost:	Freight (US$0.01/WMT.km)					3,050	4,350	4,350	4,350	4,350	4,350	4,350	4,350	4,350	4,350	4,350	4,350	4,350
(T, US$)	Insurance (0.08% of Total Value)					41	62	62	62	62	62	62	62	62	62	62	62	62
2,500 km	T.C. (US$80/DMT)					9,040	13,920	13,920	13,920	13,920	13,920	13,920	13,920	13,920	13,920	13,920	13,920	13,920
to Balkhash	R.C. (US$176/Cu T.)					4,048	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160
	Other Cost (Penalty etc.)					1,458	2,245	2,245	2,245	2,245	2,245	2,245	2,245	2,245	2,245	2,245	2,245	2,245
	Total					17,637	26,737	26,737	26,737	26,737	26,737	26,737	26,737	26,737	26,737	26,737	26,737	26,737
Sales Revenue (T, US$)						33,367	50,424	50,424	50,424	50,424	50,424	50,424	50,424	50,424	50,424	50,424	50,424	50,424
Operating Cost:	Mine		5.50/T			8,250	12,650	12,650	12,650	12,650	12,650	12,650	12,650	12,650	12,650	12,650	12,650	12,650
(T, US$)	Concentrator		3.70/T			5,550	8,510	8,510	8,510	8,510	8,510	8,510	8,510	8,510	8,510	8,510	8,510	8,510
	Overhead		1.20/T			1,800	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760
	Interest on Loan		10%/An															
	Total					15,600	23,920	23,920	23,920	23,920	23,920	23,920	23,920	23,920	23,920	23,920	23,920	23,920
Operating Profit (T, US$)						17,767	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504
Tax: (T, US$)	Depreciation																	
	Deferred Loss (Cum)																	
	Taxable Income																	
	Income Tax																	
	Other Taxes and Levies																	
	Total Taxes and Levies																	
Net Profit (T, US$)																		
Capital Expenditure (T, US$)																		
Cumulative Capital Expenditure																		
Finance	Equity																	
(T, US$)	Loan (10%/Annum)																	
	Loan Repayment																	
	Cumulative Loan																	
Net Cash Flow																		
Cumulative																		
Discounted Values	Capital Expenditure																	
to Year 0 at:																		
a Discount Rate of	Equity																	
11% Per Annum																		
	Loan																	
	Loan and Equity																	
	Loan Repayment Incl. Interest																	
	Net Cash Flow																	
	Loan Repayment and Cash Flow																	

Table 2-6-3(4) Mine-Concentrator Production of Boshekul

Mining Reserves 176 million T 0.65% Cu, 7.18 g/t Ag, 0.22 g/t Au

				1,996	1,997	1,998	1,999	2,000	2,001	2,002	2,003	2,004	2,005	2,006	2,007	2,008	2,009	2,010
Mine: Output(T,T)							3,500	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
	Ore Grade	Cu %	0.65															
Method (Open Pit)		Au g/t	0.22															
(Extraction 80%)		Ag g/t	1.18															
(Dilution 20%)																		
Conc.:	Cu Conc. (T, DMT)						93	186	186	186	186	186	186	186	186	186	186	186
	(T, WMT, Moist. = 8%)						100	201	201	201	201	201	201	201	201	201	201	201
	Conc. Grade	Cu %	23															
		Au g/t	6.3															
		Ag g/t	195.0															
	Cont. Metals Recovery	Cu T,T	86%				20	39	39	39	39	39	39	39	39	39	39	39
		Au kg	76%				586	1,172	1,172	1,172	1,172	1,172	1,172	1,172	1,172	1,172	1,172	1,172
		Ag T	76%				18	36	36	36	36	36	36	36	36	36	36	36
Total Value:	Cu US$2204.6/T						44,092	85,979	85,979	85,979	85,979	85,979	85,979	85,979	85,979	85,979	85,979	85,979
(T, US$)	Au US$ 12.9/g						7,559	15,119	15,119	15,119	15,119	15,119	15,119	15,119	15,119	15,119	15,119	15,119
	Ag US$ 161/kg						2,898	5,796	5,796	5,796	5,796	5,796	5,796	5,796	5,796	5,796	5,796	5,796
	Total						54,549	106,894	106,894	106,894	106,894	106,894	106,894	106,894	106,894	106,894	106,894	106,894
Sales Cost:	Freight (US$0.01/WMT km)						800	1,608	1,608	1,608	1,608	1,608	1,608	1,608	1,608	1,608	1,608	1,608
(T, US$)	Insurance (0.08% of Total Value)						44	86	86	86	86	86	86	86	86	86	86	86
800 km	T.C. (US$80/DMT)						7,440	14,880	14,880	14,880	14,880	14,880	14,880	14,880	14,880	14,880	14,880	14,880
to Balkhash	R.C. (US$176/Cu T.)						3,520	6,864	6,864	6,864	6,864	6,864	6,864	6,864	6,864	6,864	6,864	6,864
	Other Cost (Penalty etc.)						1,717	3,432	3,432	3,432	3,432	3,432	3,432	3,432	3,432	3,432	3,432	3,432
	Total						13,521	26,870	26,870	26,870	26,870	26,870	26,870	26,870	26,870	26,870	26,870	26,870
Sales Revenue (T, US$)							41,028	80,024	80,024	80,024	80,024	80,024	80,024	80,024	80,024	80,024	80,024	80,024
Operating Cost:	Mine		4.00/T				14,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000
(T, US$)	Concentrator		3.70/T				12,950	25,900	25,900	25,900	25,900	25,900	25,900	25,900	25,900	25,900	25,900	25,900
	Overhead		1.20/T				4,200	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400
	Interest on Loan		10%/An															
	Total						31,150	62,300	62,300	62,300	62,300	62,300	62,300	62,300	62,300	62,300	62,300	62,300
Operating Profit (T, US$)							9,878	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724
Tax: (T, US$)	Depreciation																	
	Deferred Loss (Cum)																	
	Taxable Income																	
	Income Tax																	
	Other Taxes and Levies																	
	Total Taxes and Levies																	
Net Profit (T, US$)																		
Capital Expenditure (T, US$)																		
Cumulative Capital Expenditure																		
Finance	Equity																	
(T, US$)	Loan (10%/Annum)																	
	Loan Repayment																	
	Cumulative Loan																	
Net Cash Flow																		
Cumulative																		
Discounted Values	Capital Expenditure																	
to Year 0 at																		
a Discount Rate of	Equity																	
11% Per Annum																		
	Loan																	
	Loan and Equity																	
	Loan Repayment Incl. Interests																	
	Net Cash Flow																	
	Loan Repayment and Cash Flow																	

Table 2-6-3(5) Mine-Concentrator Production of Samarskoe

Ore Reserves: 114.4 million T, 1.28% Cu, 2.46 g/t Ag, 0.48 g/t Au → Mining Reserves 109.8 million T, 1.07% Cu, 2.05 g/t Ag, 0.40 g/t Au

			Construction			Production																		
			-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Mine Output (T, t)						2,500	5,000	5,000	5,000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
	Ore Grade	Cu % 1.07																						
Method (Block Caving)		Au g/t 0.40																						
(Extraction 80%)		Ag g/t 2.05																						
(Dilution 20%)																								
Conc.	Cu Conc. (T, DMT)					91	182	182	182	182	182	182	182	182	182	182	182	182	182	182	182	182	182	182
	(T, WMT, Moist. = 8%)					98	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186
	Conc. Grade	Cu % 25																						
		Au g/t 6.59																						
		Ag g/t 33.6																						
	Cont. Metals Recovery	Cu T, T 85%				23	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
		Au kg 60%				600	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
		Ag T 60%				1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Total Value	Cu US$2204 t/T					50,706	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207	99,207
(T, US$)	Au US$ 12,9 /g					7,740	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480
	Ag US$ 161 /kg					483	966	966	966	966	966	966	966	966	966	966	966	966	966	966	966	966	966	966
	Total					58,929	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653	115,653
Sales Cost	Freight (US$0,9 t/WMT.km)					490	980	980	980	980	980	980	980	980	980	980	980	980	980	980	980	980	980	980
(T, US$)	Insurance (0,08% of Total Value)					47	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
500 km	T.C. (US$40/DMT)					7,280	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560	14,560
to Balkhash	R.C. (US$176/Cu T.)					4,048	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920
	Other Cost (Penalty etc.)					1,440	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871	2,871
	Total					13,305	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424	26,424
Sales Revenue (T, US$)						45,624	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229	89,229
Operating Cost	Mine	5,20/T				13,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
(T, US$)	Concentrator	3,70/T				9,250	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500
	Overhead	1,20/T				3,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
	Interest on Loan 7% /annum		3,430	7,100	11,027	12,289	11,793	9,978	8,035	6029	4076	2028												
	Total		3,430	7,100	11,027	37,539	62,293	60,478	58,535	56,529	54,576	52,528	50,500	50,500	50,500	50,500	50,500	50,500	50,500	50,500	50,500	50,500	50,500	50,500
Operating Profit (T, US$)			-3,430	-7,100	-11,027	8,085	26,936	28,751	30,694	32,700	34,653	36,701	38,729	38,729	38,729	38,729	38,729	38,729	38,729	38,729	38,729	38,729	38,729	38,729
Tax (T, US$)	Depreciation					20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
	Deferred Loss (Cum)			-10,530	-21,557	-33,472	-26,536	-14,355																
	Taxable Income		-3,430	-10,530	-21,557	-33,472	-26,536	-14,355	-3,439	12,700	14,653	16,701	18,729	18,729	18,729	18,729	18,729	18,729	18,729	18,729	18,729	18,729	18,729	18,729
	Income Tax								1,032	3,810	4,396	5,010	5,619	5,619	5,619	5,619	5,619	5,619	5,619	5,619	5,619	5,619	5,619	5,619
	Other Taxes and Levies					1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	Total Taxes and Levies					1,000	1,000	1,000	2,032	4,810	5,396	6,010	6,619	6,619	6,619	6,619	6,619	6,619	6,619	6,619	6,619	6,619	6,619	6,619
Net Profit (T, US$)			-3,430	-7,100	-11,027	-12,915	5,936	7,751	8,662	7,890	9,257	10,691	12,110	12,110	12,110	12,110	12,110	12,110	12,110	12,110	12,110	12,110	12,110	12,110
Capital Expenditure (T, US$)			70,000	70,000	70,000	10,000																		
Cumulative Capital Expenditure				140,000	210,000	220,000																		
Finance (T, US$)	Equity		21,000	21,000	21,000	3,000																		
	Loan (Investment)		49,000	49,000	49,000	7,000																		
	(Supplement)		3,430	7,100	11,027																			
	Loan Repayment					7,085	25,936	27,751	29,662	27,890	29,257	28,996												
	Cumulative Loan		52,430	10,850	108,557	168,472	142,536	114,785	86,123	58,233	28,996													
Net Cash Flow												1,695	32,110	32,110	32,110									
Cumulative													33,805	65,915	98,025	124,135	140,245	176,355	202,465	228,575	254,685	280,795	306,905	333,015	359,126
Discounted Values to Year 0	Capital Expenditure		95,734	86,247	77,700	10,000																		
at a Discount Rate of				(181,981)	(259,681)	(269,681)																		
10% Per Annum	Equity		28,720	25,874	23,310	3,000																		
				(54,594)	(77,904)	(80,904)																		
	Loan		73,715	73,051	72,393	7,000																		
				(146,766)	(219,159)	(226,159)																		
	Loan and Equity		102,435	98,925	95,703	10,000																		
				(201,360)	(297,063)	(307,063)																		
	Loan Repayment Including Interest					17,454	30,622	27,587	24,173	20,129	17,821	15,437												
							(48,076)	(75,663)	(99,836)	(119,965)	(137,786)	(153,223)												
	Net Cash Flow											819	13,933	12,553	11,309	8,284	7,403	6,724	6,057	5,457	4,916	4,429	3,990	3,595	3,239
													(14,752)	(27,305)	(38,614)	(46,898)	(54,301)	(61,025)	(67,142)	(72,599)	(77,515)	(81,944)	(85,934)	(89,529)	(92,768)
	Loan Repayment and Cash Flow					17,484	30,622	27,587	24,173	20,129	17,821	15,253	13,933	12,553	11,309	8,284	7,403	6,724	6,057	5,457	4,916	4,429	3,990	3,595	3,239
							(48,076)	(75,663)	(99,836)	(119,965)	(137,786)	(153,039)	(166,972)	(179,525)	(190,834)	(199,118)	(206,581)	(213,305)	(219,362)	(224,819)	(229,735)	(234,164)	(238,159)	(241,759)	(244,988)

Table 2-6-3(6) Revised Metal Production Plan and Profit-Loss Estimation of Balkhash Smelter/Refinery

Balkhash Smelter/Refinery

					1,996	1,997	1,998	1,999	2,000	2,001	2,002	2,003	2,004	2,005	2,006	2,007	2,008	2,009	2,010
Raw Material	Balkhash	Conc. Quantity		T.T.	184	18	18	18	18	18	18	18	18	18	18	18	18	18	18
		Contained	Cu	T.T.	26	7	7	7	7	7	7	7	7	7	7	7	7	7	7
				Au kg.															
				Ag T.															
		Cost		T.US$	42,263	12,757	12,757	12,757	12,757	12,757	12,757	12,757	12,757	12,757	12,757	12,757	12,757	12,757	12,757
	Kokpai	Conc. Quantity		T.T.			313	174	174	174	174	174	174	174	174	174	174	174	174
		Contained	Cu	T.T.			63	35	35	35	35	35	35	35	35	35	35	35	35
				Au kg.			153	225	225	225	225	225	225	225	225	225	225	225	225
				Ag T.			3	4	4	4	4	4	4	4	4	4	4	4	4
		Cost		T.US$			56,485	54,836	54,836	54,836	54,836	54,836	54,836	54,836	54,836	54,836	54,836	54,836	54,836
	Beschekul	Conc. Quantity		T.T.				93	93	186	186	186	186	186	186	186	186	186	186
		Contained	Cu	T.T.				20	20	39	39	39	39	39	39	39	39	39	39
				Au kg.				386	1,172	1,172	1,172	1,172	1,172	1,172	1,172	1,172	1,172	1,172	1,172
				Ag T.				18	36	36	36	36	36	36	36	36	36	36	36
		Cost		T.US$				41,872	81,718	81,718	81,718	81,718	81,718	81,718	81,718	81,718	81,718	81,718	81,718
	Samarkan	Conc. Quantity		T.T.						91	182	182	182	182	182	182	182	182	182
		Contained	Cu	T.T.						23	45	45	45	45	45	45	45	45	45
				Au kg.						600	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
				Ag T.						3	6	6	6	6	6	6	6	6	6
		Cost		T.US$						46,161	90,302	90,302	90,302	90,302	90,302	90,302	90,302	90,302	90,302
	Zhezkent	Conc. Quantity		T.T.	147	147	164	196	196	196	196	196	196	196	196	196	196	196	196
		Contained	Cu	T.T.	30	30	34	41	41	41	41	41	41	41	41	41	41	41	41
				Au kg.	140	140	156	186	186	186	186	186	186	186	186	186	186	186	186
				Ag T.	14	14	15	18	18	18	18	18	18	18	18	18	18	18	18
		Cost		T.US$	49,041	49,041	50,827	61,613	61,613	61,613	61,613	61,613	61,613	61,613	61,613	61,613	61,613	61,613	61,613
	EKCOhC	Conc. Quantity		T.T.	72	80	92	118	132										
	(Ust-Tarovska)	Contained	Cu	T.T.	16	17	21	26	29										
				Au kg.	62	75	101	185	275										
				Ag T.	12	14	19	35	53										
		Cost		T.US$	25,503	28,724	35,494	45,310	53,204										
	Irtysh Smelter	Blister Quantity		T.T.	15	18	21	16	11										
				Cu T.T.	14	17	20	15	10										
		Cost		T.US$	28,295	34,480	40,565	39,623	20,282										
	Erdenet	Conc. Quantity		T.T.	105	87	70	52											
			(28.7%)	Cu T.T.	30	25	20	15											
		Cost		T.US$	52,447	43,746	34,965	26,262											
	Chile	Conc. Quantity		T.T.	55	44	44	33											
			(45.2%)	Cu T.T.	25	20	20	15											
		Cost		T.US$	46,206	37,045	37,045	27,783											
	Others	Conc. Quantity		T.T.	48	72	36												
			(25.0%)	Cu T.T.	12	18	9												
				Au kg.															
				Ag T.															
		Cost		T.US$	20,499	30,748	15,374												
	Total	Conc. Quantity		T.T.	611	448	542	684	706	665	756	756	756	756	756	756	756	756	756
		Blister Quantity			15	18	21	16	11										
				Cu T.T.	152	134	154	174	161	145	167	167	167	167	167	167	167	167	167
				Au kg.	203	215	410	1,192	1,868	2,193	2,793	2,793	2,793	2,793	2,793	2,793	2,793	2,793	2,793
				Ag T.	26	28	37	75	111	61	66	66	66	66	66	66	66	66	66
		Cost		T.US$	266,454	236,541	262,485	300,857	284,410	257,185	301,253	301,253	301,253	301,253	301,253	301,253	301,253	301,253	301,253
Product	Cu Cathode			T.T.	148	120	149	169	156	141	162	162	162	162	162	162	162	162	162
(Rec. 97%)	Au			kg.	197	209	398	1,156	1,812	2,127	2,709	2,709	2,709	2,709	2,709	2,709	2,709	2,709	2,709
	Ag			T.	25	27	36	73	108	59	62	62	62	62	62	62	62	62	62
Value	Cu Cathode		US$2246/T		326,281	286,998	328,485	372,577	343,918	310,849	357,145	357,145	357,145	357,145	357,145	357,145	357,145	357,145	357,145
	Au		12.9	US$/g	2,541	2,696	5,134	14,912	23,375	27,428	34,966	34,966	34,966	34,966	34,966	34,966	34,966	34,966	34,966
	Ag		161	US$/kg	4,022	4,347	5,796	11,753	17,388	9,499	9,982	9,982	9,982	9,982	9,982	9,982	9,982	9,982	9,982
	Total				332,847	293,641	339,415	399,242	384,681	347,786	402,073	402,073	402,073	402,073	402,073	402,073	402,073	402,073	402,073
Smelting/Refining C.	Raw Material			(T.US$)	266,454	236,541	262,485	300,857	284,410	257,185	301,253	301,253	301,253	301,253	301,253	301,253	301,253	301,253	301,253
	Smelting	US$60/Conc.T.			36,660	26,880	32,520	41,040	42,360	39,900	45,360	45,360	45,360	45,360	45,360	45,360	45,360	45,360	45,360
	Refining	US$110/Cathode T.			26,280	14,300	16,390	16,390	17,160	15,510	17,820	17,820	17,820	17,820	17,820	17,820	17,820	17,820	17,820
	Freight (CIF, St. Petersburg)		US$100/T.		13,220	11,790	13,410	15,210	14,040	12,690	14,580	14,580	14,580	14,580	14,580	14,580	14,580	14,580	14,580
	Insurance	0.08%/Total Value			261	229	262	298	275	249	286	286	286	286	286	286	286	286	286
	Total				340,875	289,640	325,068	373,995	358,245	325,534	379,299	379,299	379,299	379,299	379,299	379,299	379,299	379,299	379,299
Smelting/Refining Profit					1,972	3,991	13,347	25,247	26,436	22,252	22,774	22,774	22,774	22,774	22,774	22,774	22,774	22,774	22,774

Table 2-6-3(7) Economic Estimation of JSC "Balkhashmed"

JSC "Balkhashmed"		1,996	1,997	1,998	1,999	2,000	2,001	2,002	2,003	2,004	2,005	2,006	2,007	2,008	2,009	2,010
Operating Profit	Balkhash	-66,321	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040
	Koktau-Chilisai			17,670	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504
	Boschekul				9,878	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724
	Smelting/Refining	1,872	3,991	13,347	23,247	26,336	22,252	22,774								
	* Return from New Projects						19,374	37,729	37,729	36,697	33,919	33,333	31,568	21,407	21,407	214,407
	Sub total	-64,449	7,031	34,154	62,669	73,604	88,894	107,771	107,771	106,739	103,961	103,375	101,610	91,449	91,449	91,449
	Interest on Loan (7%/Annum)	6,370	18,180	26,206	29,464	27,280	27,852	24,966	20,818	16,522	11,717	6,814	1,698			
	Profit after Interest	-70,819	-11,149	7,948	33,205	46,324	61,042	76,805	86,953	90,217	92,244	96,534	99,912	91,449	91,449	91,449
Taxes and Levies	Depreciation			5,000	10,000	10,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
	Deferred Loss (Cum.)	70,819	81,968	79,020	55,815	19,491	0									
	Taxable Income	-70,819	-81,968	-79,020	-55,815	-19,491	36,042	51,805	61,953	65,217	67,244	71,534	74,912	66,449	66,449	66,449
	Income Tax (30%)						10,813	15,541	18,586	19,565	20,173	21,460	22,474	19,935	19,935	19,935
	Other Taxes and Levies	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	Total Tax and Levies	2,000	2,000	2,000	2,000	2,000	12,813	17,541	20,586	21,565	22,173	23,460	24,474	21,935	21,935	21,935
Net Profit after Tax		-72,819	-13,149	948	21,205	34,324	23,229	34,264	41,367	43,652	45,071	48,074	50,438	44,514	44,514	44,514
Capital Expenditure	Sulphuric Acid Plant	10,000	20,000	20,000												
	Other Facilities	5,000	5,000	5,000	5,000	5,000										
	Kokutau-Chilisai	15,000	12,000													
	Boschekul	100,000	100,000	50,000												
	Other New Projects			63,000	63,000	63,000	9,000									
	Total	130,000	137,000	138,000	68,000	68,000	9,000									
	Cumulative		267,000	405,000	473,000	541,000	550,000									
Finance	Equity	39,000	41,100	36,500	15,500	15,500	2,000									
	Cumulative Equity		80,100	116,600	132,000	147,600	149,600									
	Loan (Investment)	91,000	95,900	101,500	52,500	52,500	7,000									
	(Supplement)	72,819	13,149													
	Total Loan	163,819	109,049	101,500	52,500	52,500	7,000									
	Loan Repayment			5,948	31,205	44,324	48,229	59,264	61,367	68,652	70,041	73,074	24,264			
	Cumulative Loan		272,868	368,420	389,715	397,891	356,662	297,398	236,031	167,379	97,338	24,264	0			
Net Cash Flow													51,174	69,514	69,514	69,514
Cumulative														120,688	190,202	259,716
Discounted Values	Equity	39,000	37,364	30,165	11,645	10,587	1,242									
to 1996 at Discounted			(76,364)	(106,529)	(118,174)	(128,761)	(130,003)									
Rate of 10% Per Annum																
	Net Cash Flow												16,306	20,136	18,305	16,641
	Net Cash Flow													36,442	54,747	71,388

Table 2-6-3(8) Revised Economic Estimation of JSC "Balkhashmed"

Unit US$1,000

JSC "Balkhashmed"		1,996	1,997	1,998	1,999	2,000	2,001	2,002	2,003	2,004	2,005	2,006	2,007	2,008	2,009	2,010
Operating Profit	Balkhash	-66,321	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040	3,040
	Koktau-Chilisai			17,670	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504	26,504
	Boschekul				9,878	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724	17,724
	Smelting/Refining	1,872	3,991	13,347	23,247	26,336	22,252	22,774	22,774	22,774	22,774	22,774	22,774	22,774	22,774	22,774
	* Return from New Projects						19,374	37,729	37,729	36,697	33,919	33,333	31,568	21,407	21,407	214,407
	Sub total	-64,449	7,031	34,154	62,669	73,604	88,894	107,771	107,771	106,739	103,961	103,375	101,610	91,449	91,449	91,449
	Interest on Loan A (7%/Annum)	6,370	18,390	26,640	30,315	33,990	34,480	33,135	29,092	24,852	20,455	15,978	11,310	6,501	1,953	
	Interest on Loan B (3%/Annum)	3,000	3,000	3,000	2,835	2,009	941									
	Interest Total	9,370	21,390	29,640	33,150	35,999	35,421	33,135	29,092	24,852	20,455	15,978	11,310	6,501	1,953	
	Profit after Interest	-73,819	14,359	7,514	29,519	37,605	54,414	74,636	78,679	81,887	83,506	87,397	90,300	84,948	89,496	91,449
Taxes and Levies	Depreciation				5,000	10,000	10,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
	Deferred Loss (Cum)	73,819	88,178	85,664	66,415	32,810										
	Taxable Income	-73,819	-88,178	-85,664	-66,415	-32,810	29,414	49,636	53,679	56,887	58,506	62,397	65,300	59,948	644,496	66,449
	Income Tax (30%)						8,824	14,891	16,104	17,067	17,552	18,719	19,590	17,984	19,349	19,935
	Other Taxes and Levies	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	Total Taxes and Levies	2,000	2,000	2,000	2,000	2,000	10,824	16,891	18,104	19,067	19,552	20,719	21,590	19,984	21,349	21,935
Net profit after Tax		-75,819	-16,359	514	17,519	25,605	18,590	32,745	35,575	37,820	38,954	41,678	43,710	39,964	43,147	44,514
	Profit after Interest	-70,819	-11,149	7,948	33,205	46,324	61,042	76,805	86,953	90,217	92,244	96,534	99,912	91,449	91,449	91,449
Capital Expenditure	Sulphuric Acid Plant	10,000	20,000	20,000												
	Other Facilities	5,000	5,000	5,000	5,000	5,000										
	Koktau-Chilisai	15,000	12,000													
	Boshekul	100,000	100,000	50,000												
	Other New Projects			63,000	63,000	63,000	9,000									
	Total	130,000	137,000	138,000	68,000	68,000	9,000									
	Cumulative		267,000	405,000	473,000	541,000	550,000									
Finance	Equity	39,000	41,100	36,500	15,500	15,500	2,000									
	Cumulative Equity		80,100	116,600	132,000	147,600	149,600									
	Loan (Investment)	91,000	95,900	101,500	52,500	52,500	7,000									
	(Supplement)	75,819	16,359													
	Total Loan (7%/annum)	166,819	112,259	101,500	52,500	52,500	7,000									
	Rescue Loan (3%/annum)	100,000														
	Repayment Loan						12,228	57,745	60,575	62,820	63,954	66,678	68,710	64,964	27,904	
	Rescue Loan			5,514	27,519	35,605	31,362									
	Cumulative Loan	166,819	279,078	380,578	433,078	485,578	473,350	415,605	355,030	292,210	228,256	161,578	92,868	27,904	0	
	Rescue Loan	100,000	100,000	94,486	66,967	31,362	0									
Net Cash Flow															40,243	69,514
																(109,937)
Discounted to1996															17,066	26,801
at 10%/Annum																(43866)
Privatization Schedule																
Ownership Kazak. Government		65	45	25	15	0										
(%)	Private Firms	20	40	60	70	85										
	Others	15	15	15	15	15										
Management		Management Committee Board Meeting														

2-6-4 Promotion of Metal Processing Industry

(1) Semi-manufactured Copper and Copper alloys

The market for semi-manufactured copper and copper alloys is dependent on new development or recovery of such industries as automobiles, electronics, electrical appliances and so forth in the CIS countries. Specification of semi-manufactured copper and copper alloys are considerably variable from one customer to another. Therefore, precise quality control is required for specific products to meet customer's needs. An elaborate quality control system has to be established on the basis of extensive market research. The present quality of products in Kazakhstan with few exceptions is too far insufficient to meet specifications required in the international market.

At the present time, factories producing wire rods, sheets, strips, wires and enamel wires are attached to the JSC "Balkhashmed" and a factory producing wire rods to the JSC "Zhezkazgantsvetmet". Essential problems of these factories are mostly centered on quality control and unstable raw material supplies. Facilities and equipment are generally obsolete and superannuated except for the enamel wire factory at the JSC "Balkhashmed" and the wire rod factory at the JSC "Zhezkazgantsvetmet". Both factories, built within the past couple of years, are equipped with modern, efficient facilities and machines which have been imported from West European countries. The wide scale modernization of rolling facilities was started at Balkhash plant on non-ferrous metals processing in 1990, but it has not been completed at the present time.

There appears to be no coherent system for controlling the quality of products, except for the enamel wire factory at the JSC "Balkhashmed", the operations of which are supervised by an Austrian company, the supplier of facilities and machines and buyer of the products. With respect to quality control, the following documents should be prepared daily or at appropriate intervals;

1) Quality control standards
2) Process control flows
3) Operation instruction sheets
4) Engineering standards
5) Operation standards
6) Daily operation logs

The major problem at the Zhezkazgan wire rod factory, that is being managed under the separate organization from the JSC "Zhezkazgantsvetmet", is the lack of raw materials. The reason may be that the foreign company that has taken over the management of the combine since mid 1995 is reluctant to supply raw materials (copper cathode) to the factory. Therefore, the problem is associated with the Government policy for privatization of enterprises and intervention of the Government will be required to solve the problem.

The whole foundation of the metal fabrication industry in Kazakhstan is extremely weak without sound

downstream industries, such as automobiles, electronics, electrical appliances and so forth, that use the industry's products. For promoting the metal fabrication industry, it is necessary to develop new industries which produce consumer's goods.

(2) Lead Battery

The domestic demand for lead batteries in Kazakhstan is not large, taking account of relatively small number of running motor vehicles and the absence of a motor vehicle manufacturing industry. The current investigation has estimated the demand ranging from 2 million to 2.5 million units per annum for the immediate future. The Ministry of Industry and Trade has a plan to construct new battery factories associated with the JSC "Shymkent Lead Plant", JSC "UK Pb-Zn Combine" and JSC "Leninogorsk PC" with the total production capacity of approximately 2.4 million units per annum. The present production of the existing factory at the Taldy Kulgan is 1.5 million units annually. Once this plan is accomplished, it will cause oversupply of lead batteries in the domestic market. The plan should be reviewed on the basis of the market research including the neighboring countries.

(3) Zinc Products

It has been reported that zinc pellets for dry cell batteries are manufactured in Leninogorsk and a galvanizing alloy, in Ust-Kamenogorsk. However, the zinc consumption in these plants is reportedly limited to less than 20,000 tons a year at the present time. The 1994 demand of zinc in Japan was as following;

1) Galvanized sheet for automobiles	48.3%
2) Galvanized sheet for construction materials	14.4%
3) Die Cast	13.0%
4) Copper alloys	14.4%
5) Chemical Products	5.1%
6) Zinc alloys	1.1%
7) Others	3.7%

Galvanized sheet manufacturers are the main consumers of zinc. Since the automobile manufacturing industry is unlikely to be constructed in Kazakhstan in near future, the consumption of galvanized sheets is dependent on growth of the construction industry.

3. Support for Implementation of Industrial Plans

3. Support for Implementation of Industrial Plans

3-1 Role of Government

3-1-1 Government's Policy for Promoting the Non-ferrous Metals Industry

Firm determination and strong leadership by the State Government are essential in order to promote the non-ferrous metals industry in the Republic of Kazakhstan. The Government should place this industry as one of the most important industries contributing to development of the nation's economy and should commit a great deal of its resources for growth of this industry.

3-1-2 Government Related Organizations

(1) Related Organizations

Ministry of Geology and Mineral Resources and Conservation manages the licensing of investigation and exploration of mineral resources but the Ministry of Industry and Trade manages the metal industry for the exploration of ore and the whole metal industry. There are many ministries and related organizations that manage the Kazakhstan non-ferrous metal industry policy. From the company viewpoint, many laws and modifications are made so it seems the administration structure is very complicated especially in economics. There are many kinds of committees established so companies are confused about the relationship between the committee and the ministry. This fact has prevented the smooth introduction of capital.

Recently, the reorganization of regulations is progressing for the market economy system. Each related organizations fully understood the laws, arranged the structure mutually and clarified the responsibility of work and management of each organization. Depending on these implementations, the supporting structure for the non-ferrous metal industry is organized and able to implement the reasonable countermeasures.

(2) Enhancement of political function

The establishment of new organizations are for the support the promotion of the non-ferrous metal industry in Kazakhstan. Here are mentioned the necessary new organizations adding to the existing government organizations.

- Ministry of Industry and Trade (MIT)-

① Nonferrous Metal Industry Promotion Fund

This organization is established for the non-ferrous metal industry to escape from the economic crisis it now faces and the self-reconstruction using urgent financial support in 2000.

The main object of the finance is the active investment for the build up of the enterprises. (Refer to Note).

The government capital and working capital are supplied by the government budget (government guarantee) and international finance organization capital.

(Main Functions)

i) Loans for the improvement of the production systems in the non-ferrous metal industry.

ii) Loans for the improvement of management in the non-ferrous metal industry.

iii) Loans for the structural improvement of the non-ferrous metal industry.

iv) Loans for the reorganization of enterprises in non-ferrous metal industry.

② Non-ferrous Metal Industry Promotion Agency

This agency will support stable management using a long-term view for the non-ferrous metal industry related mineral resources.

It will establish the special agency using funds from the government capital and working capital which depends on the government budget. It is possible to receive government revenues from the non-ferrous metal industry (profit tax, royalty, customs, duty, etc.).

(Main Functions)

i) Give support to pollution control and conservation of the environment.

ii) Low-interest loans for the promotion of non-ferrous metal industry.

iii) Guarantee of debt for the promotion of non-ferrous metal industry.

iv) Collect and disclose information on the non-ferrous metal industry.

③ Trade Promotion Agency

The promotion of trade especially exports is the objective of this agency. The effective implementation is related to the promotion of trade especially all exports. Capital is dependent on the government.

(Main Functions)

i) Investigation of the supply, demand and market conditions of goods and promote the import and export markets.

ii) Implementation of advertisement of industry and goods of Kazakhstan.

iii) Assistance of trade.

iv) Sponsor or assist convention.

v) Treatment of disputes involving trade by foreign country.

④ Non-ferrous Metal Industry Council

Establish as a subsidiary organization of MIT. Investigate and discuss about the basic policy and technical matters for basic problem and exploitation, development, concentration and smelting. It will submit its opinion to MIT.

The council is organized by the people with knowledge and experience, depending on scientific and objective analysis make the recommendation.

(Main Functions)

i) Examination of non-ferrous metal industry promotion plan.

A discussion of the basic problems and its countermeasures of the non-ferrous metal industry by the rationalization of the industry, customs, duty, financing and taxation systems, which the non-ferrous metal industry will confront in the transition to the market economy system.

⑤ Non-ferrous Metal Industry Association

The members are composed of the non-ferrous metals industry enterprises. The members implement the information, cooperation, friendship mutually and promote the sound development of the non-ferrous metal industry.

(Main Functions)

i) Investigate and research areas related to the non-ferrous metal industry.

ii) Advertise and announce all information about the non-ferrous metals industry.

iii) Recommendations about the non-ferrous metals industry.

Ministry of Geological and Mineral Resources and Conservation

① Exploration Agency

It is necessary for a long lead time for mine development and depletion of the resource. In the case of the non-ferrous metals industry, its resources are depleted so it is necessary to explore continuously to discover new deposits. The exploration agency must secure the long-term stable supply of resources. The non-ferrous metals industry must be able to manage it continuously for the future.

In the present crisis caused by the transition to a market economy system, it is difficult for a single enterprise to invest for exploration so government support is necessary at each stage of exploration. The exploration agency is fully funded by the government.

(Main Functions)

i) Wide area geological survey (funded by the government).

ii) Detailed geological survey (with partially funded by the enterprise and the remainder provided by the government).

iii) Aid to the enterprise exploration (financed by borrowing or half of the aid provided by the government).

This function is the responsibility of the non-ferrous metals industry promotion agency or MIT or the management of MIT and the Ministry of Geological and Mineral Resources and Conservation.

-Ministry of Environment-

① Environment Control Technology Center

A part of the environment administration, a bureau guides the environmental monitoring periodically and guides the environment conservation by inspection.

(Main Functions)

i) Implementation and analysis of environmental monitoring.

ii) Guide and manage environmental conservation. Optionally, this section is responsible to the non-ferrous metals industry and managed by the MIT as a subsidiary organization of MIT. In this case, the scope of work is not only environmental conservation but also to guide and manage for the prevention of industrial accidents.

-Ministry of Finance-

① Non-ferrous Metal Industry Promotion Fund (in cooperation with MIT). Please refer to the MIT table.

-Ministry of Economy-

① Industrial Structure Council

This council is established as an official organization of the Ministry of Economy. It investigates and discusses the basic policy of the domestic industry and submits recommendations to the Ministry of Economy.

The members are composed of people having knowledge and experience in various fields and designated by the Minister of Economy.

(Main functions)

i) Proposal of industry structure from a long-term viewpoint (long-term trend of the main industries, production amount, the number of employees, profit, etc.)

ii) Necessary countermeasures.

-Research Organization-

Related organizations of the institute, local institutes and local offices are managed by the central government budget so until recently these organizations had many employees. However, lately the budget has been reduced and they are trying to make a contract between enterprises and become profitable. When considering the present situation of the industry, there is a limit for these functions so the employee who expects to be laid off should be laid off. However, this manpower and technology is very important for the future

development of the non-ferrous metals industry. It is necessary to examine the long-term strategy of the government considering the exploration survey and development of mining technology.

3-1-3 Legislative Measures

(1) Taxation

The present tax law has been in effect since mid-1995 and has been appreciably simplified in comparison with the previous law. However, it is desirable to introduce the following tax exemptions or allowances in favor of the promotion of the non-ferrous metals industry.

1) 3 to 5 years' tax holiday for newly developed mines and plants.
2) accelerated depreciation for large investments
3) depletion allowance for exploration costs.
4) export tax exemption for metals and processed metals.
5) import tax exemption for machines, spare parts and consumables necessary to operate mines, concentrators, smelters and refineries.

(2) Foreign Investment Law

The previous foreign investment law has been withdrawn. There is at the present time little incentive for foreign investors to put their capital in Kazakhstan, particularly in the non-ferrous metals industry. Review of the present foreign investment law is necessary particularly with respect to incentives for foreign investors.

3-1-4 Administration for Environmental Protection

The Ministry of Ecology and Bioresources is responsible for nationwide environmental issues and formulates national policy and standards for environmental protection. Meanwhile, most non-ferrous metals combines have historically played significant roles as the center of local cities whose prosperity is highly dependent on the consequence of their performances. Therefore, cooperation between local governments and the MIT is indispensable to solve environmental problems associated with these combines. Environmental problems directly concerned with their operations are the responsibility of the MIT who should take the necessary measures for environmental protection in accordance with the national policy and standards set by the Ministry of Ecology and Bioresources.

The cost of environmental protection is expensive and growing in accordance with international requirements. The cost is too much for individual combines to bear by themselves, particularly under their present financial states. Although various environmental hazards are created by operations of non-ferrous metals combines, excessive financial burden on the combines will force them to cease their operations leading to social unrest in local communities. The environmental problems are not only local or industrial issues but are also national concerns. Therefore, the cost should be shared by the industries, the local communities and governments,

and the State Government. A regulation for defining the shares of environmental protection costs should be formulated at the earliest possible time.

Engineering for environmental protection includes various fields of science and technology. It is important to educate engineers specialized in environmental protection. An education system for this purpose should be established. An international technical cooperation may be sought in this regard.

3-1-5 Establishment of Financial Background

The Rehabilitation Bank has been established in order to rescue troubled enterprises of various industries. However, its performance has not necessarily been satisfactory to date due to limited funds. It is desirable to establish some funding agencies specially designated for promoting the non-ferrous metals industry. These funding agencies will provide short and long term loans with low interest rates to supplement working capital and major investment funds for plant construction and mine development and other requirements. Qualification standards of borrowers must be strictly defined with respect to borrower's repayment ability, economic feasibility of operation or investment plans, management structures and their capability, and so forth. It may be worth noting that these funding agencies, upon guarantee by the State Government, will be able to arrange financing for specific loan projects from international funding agencies.

3-1-6 Industrial Information System

(1) Data Base

A data base is defined as a file comprising a group of data that are arranged so it can be utilized for particular purposes such as production control, quality control, cost control and so forth. A schematic corporate information system is illustrated in Fig.3-1-6(1). Each section in a corporation holds its own data base. All the data should be accessible by all sections of the corporation, ideally connected on line for real time access to this information system. Every section will be able to react to any changes in all parameters occurring within or outside of the corporation. For example, if the sales department (product marketing information systems) receives orders (quality or quantity) from a customer, they will be transmitted to the sections concerned through the information system. According to the information, the engineering department (engineering information system) will provide the production line with necessary operating parameters for the required specifications. On the basis of the provided parameters, the production line will be able to produce the necessary amount of products with the required specifications. The production control department will be able to monitor performance of the production line daily or monthly based on the production control data base and to provide the production line with necessary instructions. Based on the integrated data base, the corporate management will be able to monitor the whole corporate performance. It can amend or adjust its strategy or long term plans responding to changes in circumstances outside of the corporation, for example in product markets.

(2) Data Publication

The Min-Geo publishes information with respect to minerals resources, including ore reserves of various categories, their distribution, geological characteristics and so forth. The data base in the Ministry also contains economic parameters of some ore deposits for which feasibility studies have been completed. As aforementioned (2-1-4), a large amount of past exploration data are stored in the Min-Geo archive. Since exploration and development of mineral resources have been completely privatized, these data should be publicly available with other data in order to stimulate investment by private firms.

The information that is reported to the MIT by operating combines is utilized by the Ministry for surveillance of these combines. For the purpose of advancing the privatization of the combines in Kazakhstan, it is necessary to make a stock offering. Therefore, some basic financial data should also be made available to the public for statistical purposes. In general, public circulation of information is still stagnant in Kazakhstan and should be improved for promoting business activities.

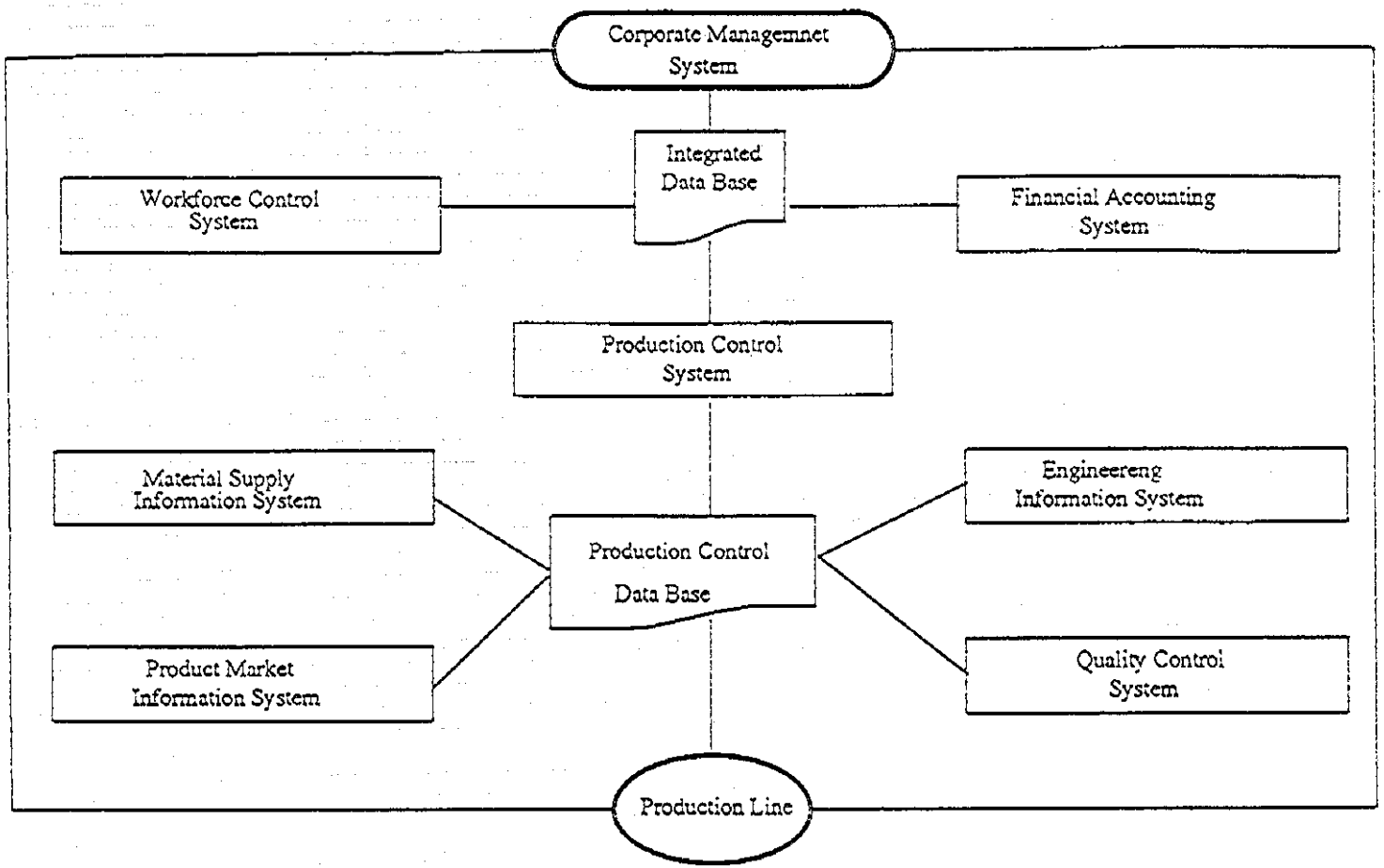

Fig.3-1-6(1) Corporate Information System

3-2 Foreign Aid

3-2-1 International Funding Agencies

Multilateral agencies and export agencies have taken an important role in the recovery of the Kazakh economy. These agencies include organizations such as the World Bank, the International Monetary Fund, the International Finance Corporation, the European Reconstruction and Development Bank, the Asian Development Bank and the Export and Import Bank of various countries. Usually one of the requirements to raise funds from these institutions is to provide a governmental guarantee. However, the International Finance Corporation, the European Reconstruction and Development Bank, the Asian Development Bank can lend without any direct guarantee from the public sector. Such loans are commonly called "Project Finance" and are often utilized in various mining projects throughout the world.

In Kazakhstan, to date, there has been no project that utilized the "Project Finance" method. One reason behind this is that the relevant Kazakhstan parties are not fully accustomed to the international practice of arranging such financing. In that sense, it is important to pursue further personnel training and additional support from the international community, including private entities, is essential.

3-2-2 Technical Cooperation

(1) Exploration

Technical cooperation for mineral exploration is available from various official development aid institutions, such as UNDP, JICA, USAID and so forth. An exploration project on a JICA scheme for example, has been implemented by MMAJ and is continuing in the Zhezkazgan Region. The Ministry of Geology and Underground Resources Conservation must take its part in technical cooperation projects of this type. The UNDP's Mineral Exploration Revolving Fund is also available for the Ministry's own projects.

(2) Environmental Control

It is proposed in this report to establish a comprehensive research institution for environmental control by restructuring the present Kazme Hanobre Institution together with local institutions or enhancing their capacities. Such a research institution will become an appropriate counterpart to accept foreign aids for various technical cooperation projects concerned with environmental protection. The following subjects may be suitable for technical cooperation projects;

1) Preparation of Environmental Standards
2) Preparation of Environmental Monitoring Systems
3) Preparation of Waste Management Standards and Systems
4) Preparation of Education Systems for Environmental Engineers
5) Study of Environmental Protection Technology for Waste Dumps, Tailings and Abandoned Mines
6) Study of Environmental Protection Technology for Gaseous, Liquid and Dust Emissions.

(3) Production Lines

Technical cooperation may be desired for the following subjects;

1) Review of feasibility studies for development projects
2) Engineering study of mechanization, computerization, energy conservation and other rationalization of production lines
3) Engineering study of quality control systems.

(4) Corporate Management

The following technical cooperation may be effective for familiarization of management practices in the free market economy.

1) Study of management practices in the free market economy.
2) Study of industrial information systems and data bases.
3) Study of preparation of business plans to standards acceptable in the free market economy.
4) Study of economic assessment of non-ferrous metals industry.

3-3 The JICA Survey Team's View on the Kazakhstan Plans

3-3-1 Management Contract

Corporate shares possessed by the nation will be deposited to domestic and foreign private companies for the period of 5 to 10 years, and their management should be entrusted with them.

The companies entrusted with such management in accordance with a contract will invest reconstruction funds, reconstruct the enterprises based on prompt production recovery and build up the base for autonomous development of the enterprises.

In order that the entrusted companies may recover the funds invested and obtain business profits for the long-term stable development of the enterprises, it is essential that the government provide.

① legal preparation of its policy/measures which have been decided for the time being.

② clear specification in contracts for the rights and obligations of the nation as the owner and the entrustees allowing mutual generation of reasonable and fair profits.

③ regular audit of operational conditions of the enterprises and support for the smooth execution of their business duties

(1) Management transfer enforced in 1995 as a preliminary stage of privatization in accordance with the National Enterprises Privatization Law.

The entrustees are all foreign enterprises. The privatization is in progress since a part of shares possessed by the nation have already been transferred to the entrustees.

(2) Management trust enforced in 1996 for prevention of bankruptcy and reconstruction of enterprises in accordance with the Bankruptcy Law for the "enterprises classified into the above (B)".

In the relevant agreement, the debts of the relevant enterprise shall be frozen for a certain period. If the debts of "X Company" are frozen, its customer "Y Company" shall be unable to collect debts payable from X Company. Many problems are involved with regard to the kinds of frozen debts, the terms of freezing and repayment methods when the period of freezing expires.

Lack of legal background is the fundamental problem of the 'management contract scheme'. Among others, the following problems should be noted;

(1) It will be very difficult, if not impossible, to settle the total amount of the accumulated debt that is credited to each combine according to the guarantee issued by the Central Government of the former USSR in the period when credit transactions were not legally established such as in the western countries.

(2) The management contract will include the right for sales of products. Manager companies will be able to sell products at any price as far as combines can make marginal profits. Where manager companies sell

products through their subsidiary trading companies, they may be able to enjoy larger profits by sales of products than those obtained from management of combines.

(3) The duty of reporting to the Kazakhstan Government by manager companies does not appear to be included in the contract agreements. No record of costs and sales (customers, amounts, prices etc.) has been found in the MIT offices.

(4) There appears to be no official meetings, such as a management committee, between the Kazakhstan Government and manager companies to periodically review performance of the management.

(5) Among manager companies, there are no major metal producers in the western countries. They are mostly metal traders that tend to be more interested in the low prices of the products than in reformation of combines.

Therefore, it is advisable that the contract agreement should include;

(1) reporting duty to the Kazakhstan Government by manager companies.

(2) foundation of a management committee comprising representatives of the Kazakhstan Government and manager companies.

(3) presentation of reformation programmes with their economic assessment.

3-3-2 Company Ownership Form

(1) Corporate management

Currently, the privatization is in progress as stock of the State-owned corporations have successively been sold or transferred to the private companies.

The privatization has been advancing in all the industrial sectors, of which the non-ferrous metal industry is no exception. The only exceptions are major infrastructure industries such as railways, electric power and telecommunications.

The current management structure of the respective non-ferrous metal companies are indicated in Table 3-3-2(1), which indicates the percentage ownership. Usually, influence on the corporate management varies depending on the ownership percentage. Corporate management is executed by the directors elected by the shareholders whose voting right is proportional to their ownership percentage. Shown below is schematic relationship of the ownership percentage to the influence over corporate management, in case of Japan:

Ownership percentage	Influence over corporate management
① More than 50%	A shareholder has the complete control over the corporate management.

②5% - 50%	A shareholder may elect (a) director(s) thereby taking part in the corporate management to an extent.
③Less than 5%	A shareholder can speak at the General Assembly meeting (usually, once a year) but can rarely elect a director.

In Japan, the number of corporate directors shall be three(3) or more, in accordance with the Corporation Law. Apart from the directors, auditors are appointed. In some countries, one or more outsiders unrelated to the shareholders are obligatorily appointed as director(s), with a view to preventing the corporate management from antisocial acts.

As regards the form of ownership of stock in a privatized company, a variety of alternatives are conceivable, which include a company partially owned by the government, a private company with the domestic capital, a joint-venture company with the domestic and foreign capitals, a foreign company's subsidiary, etc.

From the current state of things, the future ownership of companies in Kazakhstan may be forecasted as follows:

It is generally considered as a desirable case of privatization that the entire stock in a state corporation are eventually transferred to the private sector. There is also an argument that, in case of a basic industry, the government should retain some portion of stock in order to hold certain influence over companies. In view of the current situations in Kazakhstan, this argument cannot necessarily be ignored. We also find it advisable that, around 2000, the government holds some shares in certain basic industries.

Regarding utilization of the stock exchange, it should be avoided that the corporate value is determined hastily without legitimate valuation of corporate assets and the stock are put on sale in an immature stock market.

In case of the nonferrous metal industry, it seems to be all it could do to go ahead with restructuring of the industry by 2000; therefore, we can only suggest that the introduction of non-ferrous metal stocks in the market should be made with utmost care, in compliance with coming circumstantial changes.

(2) Privatization procedures

The privatization process based on the management contract scheme has some unclear factors accompanied by certain risks. To make a contract while avoiding such risks, it would be necessary to seek Western experts' advice.

The following procedures for a private company to obtain state-owned stocks, for which some Western cases were referred to, may serve as an alternative:

① A private company shoulders a combine's accumulated debts as converted into the US dollars at the time of contract, payment of which, including interest, is made in a 3- to 5-year deferment. All the amounts of debts and interest are counted in the future payment for acquisition of the corporate equity.

② A reconstruction program for a combine is drawn up. In accordance with an investment schedule based upon the reconstruction program, the funds are raised.

③ As the investment effected and the revaluation surpluses of fixed assets are successively capitalized, the private company's percentage ownership is also raised.

④ During the term of management contract, the private company shall consult with a Management Council presided by MIT. After the management contract comes to termination, MIT's power is confined only to the exercise of its right at the General Assembly whilst the private company undertakes the overall corporate management. The Management Council shall meet quarterly for administrative reporting.

(3) Privatization by spin-off and fostering of small-medium enterprises

A combine has various divisions for auxiliary services to sustain its production activities. Mines and refineries constructed in remote areas are fully equipped with the city functions. Such auxiliary divisions can be separated from the main body of a combine to be transformed into an independent stock corporation. Following are such auxiliary divisions of a combine to be separated in anticipation of further development as an independent company.

① Repair shop and parts-manufacturing division:

These divisions can be transformed into an independent machinery manufacturing company, which undertakes repair work and manufacturing of living necessities, in compliance with orders/ demand not only of the combine but also of other clients.

The Hitachi Co., Ltd. in Japan, which today is one of the world's leading manufacturers of general electric machinery, used to be a repair division of the Hitachi copper mine. The Kazakh combines such as JSC "UK Pb-Zn Combine", JSC "Zhezkazgantsvetmet", etc. have excellent repair shops.

② Food product preparation division (including agricultural farms):

The food product preparation for the consumption of combine's personnel, such as beer, ham and sausages, and agricultural products can be sold to outsiders, as well. Under the market economy, the public taste is diversified into a wide variety of individual taste. If an independent food product company can supply products fit for a market, it may be able to support itself and grow further, as exemplified by the beer industry in JSC "Irtysh PC".

③ Consumer products division:

The supply systems of daily living necessities also may be able to spin off as an independent retail (and wholesale) company, utilizing its knowledge and expertise of the local distribution systems accumulated since the Soviet era.

④ Construction division

The division(including production of construction materials), separated together with its construction machinery and technology, can be transformed into an independent plant- and house-builder. Its construction/erection teams can participate in overseas construction projects to earn foreign exchange, as in the cases of the Irtysh brick plant and the construction division of JSC "UK Pb-Zn Combine".

⑤ Transportation division (trucks, railways, etc.):

The division can spin off to become an independent transportation company to undertake materials handling and transportation within and between mines and factories of the combine and processing of industrial wastes.

In order to efficiently utilize the transportation facilities at Kazakhstan's combines, it should make a plan to increase the availability of vehicles in their possession and maintenance system for outside work.

It is necessary to make sure and consider whether the vehicle and railroad departments should be spun off independently or merged with another company to realize efficiency and reduce costs.

The new company should adopt a favorable rate to its former combine to assure work stability.

A subject for further consideration is that new transportation companies should mutually cooperate and exchange loads with existing transportation companies in Kazakhstan.

In case Yubileyno-Snegirihinskoye Mine is developed, for example, the existing housing and infrastructure facilities at Irtysh can be utilized if the employees are periodically transported by the transportation company to the mine site. This would dispense with construction of welfare facilities at the mine site, reducing the initial investment expenditure.

⑥ Design division:

The division can be an independent consulting-engineering firm to undertake domestic and international businesses.

For separation of a division, the division personnel and assets have to be transferred by the combine. A separated division is transformed into an independent private company of a small-medium size, whose corporate organization must be simple enough to ensure its mobility and flexibility. Such a company can act as a task force to effectively support the main body of the combine, as well. A private company has full freedom to determine salaries and wages; for example, if a "payment by results" system is adopted, it is likely to activate the company. Not only the Hitachi Co. as previously referred to, but many of today's first-rate companies in Japan were divisions of mining companies.

⑦ Secondary processing division:

This division may spin off with its machinery and equipment transferred from the combine. For the division to survive as an independent company, it has to grow out of the conventional concept that the processing division is a value-adding downstream of a refinery and change itself into a market-oriented company which can flexibly accommodate itself to users' needs. To satisfy users' needs for quality, it will possibly have to process imported raw materials, scraps, etc.

⑧ Welfare facilities:

In Kazakhstan, transfer of welfare facilities of combines to provincial governments seems to be effected, currently. In this connection, it is advisable that sport and culture facilities are operated in the form of a quasi-public enterprise, in which both the provincial government and the private sector participate.

Table 3-3-2(1) Current situation and evaluation of management transfer

Each Kazakhstan Enterprise, Management Enterprise, Percentage of Ownership, Present Condition July 1996 Kazakhstan MIT
Note: (number) is Confirmed in Present Plans

MIT-Ministry of Industry & Trade
Note: Management Form Classificat on
MC-Management Contract

RB-Rehabilitation Bank
Public Enterprise
SPC-Private and Public Enterprise

Semi-government Enterprise-DPC
Domestic-Foreign Joint Enterprise-JVC
Foreign Enterprise-FPC

JSC Name (Potential)	Management Company	Percentage of Ownership: Management Company	State	Labor Union	Partner & Related Company	Private Investment	Total	1996 Evaluation	Change of Management Form: Now→Intermediate / Final	2000 Forecas	Subjects related to Ownership Form	Notes
DZHEZKAZGANSTVETMET (A)	Samsung Deutschland	40	45	10	–	5	100	A	MC→SPC / FPC	A	Treatment of added debt. Guidance to operating secondary processing plant.	State stock
EKCCHC (A)	Datex Trading Ltd.,	(60)	30	10	–	–	100	A	MC→SPC / FPC	A	Change concentrate sales from foreign to domestic	Until Artemyevskoye is developed, state stock ownership is over 5%, state stock and labor stock ownership is 15%
ZHEZKENT MCC (A)	Nova Resources AG (Swiss)	*(60)	30	10	–	–	100	A	MC→SPC / FPC	A	Do cooperative study with research institute on recovery of valuable metals from waste. Sales of copper concentrate to domestic smelters.	State stock
KARAGAILINSKI MCC (?)	Alexy Postovalov	(39)	51	10	–	–	100	–	MC		–	–
ZYRYANOVSK LEAD COMBINE (B)	Ridder Invest U.S.A. capital-Kazakhstan capital (bank)	–	85	10	5	–	100	B	MC→JVC / JVC	A	Separate Kareevskoye Mine.	Change the group of enterprises or the percentage of stock ownership.
LENINOGORSK PC (B)		–	69	10	21	–	100	B	MC→JVC / JVC	B	Secure own mines.	State government send executive to enterprise.
UK PB-ZN COMBINE (B)		–	53	47	–	–	100	B	MC→JVC / JVC	B	Seperate and privatize subsidiary industries. (especially the mechanical shop)	
IRTYSH PC (C)	* State	–	90	10	–	–	100	C	MIT→MIT / MIT	B	Make drastic reductions, treatment of debt, separate infrastructure. Transfer to non-ferrous metal industry promotion group.	Separate and privatize subsidiary businesses
BALKHASHMED (B)	Ridder Invest	–	61	10	*29	–	100	B	MC→JVC / JVC	B	Treatment of debt. Improve environment. Separate the secondary processing plant and change to semi-private company.	State stock
SHYMKENT LEAD PLANT (B)	R. R. Kazu Austria-Kazakhstan joint company	–	29	10	61	–	100	B	MC→JVC / JVC	B	Custom smelter, change the group of enterprises in Tajikistan and Uzbekistan as the raw material base for the processed goods.	State stock
AKSHATAU-KEN-BAIYTU COMBINATY (?)	Nova Trading Commerce	–	85	10	–	5	100		(MC→FPC) / FPC		–	Majority share of tungsten mine.
SARY-ARKAPOLYMETAL (C)	Nacosta (Swiss) Kazgiprotsvetmet conducting feasibility study to reconstruct the combine.	–	39	10	–	51	100	C	MC→MIT		Non-ferrous metal industry promotion group management.	Sale to foreign enterprise.
ACHPOLYMETAL (?)	River International (Swiss) $14 million investment Barite production	(60)	30	10	–	–	100	?	MC→FPC	B	–	Share stock of oil business. Lead and zinc by-products.
TEKELI PB-ZN COMBINE (C)	*State. Borrowed $3.5 million production will restart.	–	90	10	–	–	100	C	MIT→MIT	C	Separate subsidiary divisions and make it independent for employment countermeasure, privatization.	State stock
SHALKIYA MINE MANAGEMENT (C)	* State. Treatment at Kentau concentrator.	–	90	10	–	–	100	C	MIT→MIT / DPC	B	–	Build concentrator

3-3-3 Treatment of Debt

For treatment of a Combine's debt, the following three alternatives are conceivable:

(1) Debts of a combine is set apart and taken over by a liquidator organization which can either be left with the combine or incorporated as a separate entity. The combine's business is taken over and managed by a company to be newly established.

(2) All the enterprises belonging to a combine, together with debts, are sold in the form of net assets after revaluation of stock..

(3) An amount of debts, for which the State is responsible, are fixed as of January, 1997(tentative), on the basis of which a liquidation plan is drawn up. Substantial involvement of the State, including takeover of the debts, will be inevitable since, in Kazakhstan, all the enterprises were State-run and the State is therefore held responsible for their accumulated debts.

Conceivable financial resources for setting off the debt may be:

① Revenues by sale of enterprises (assets and rights), which are not to be incorporated in the government's General Account.

② Funds of the government's Special Account set up with the revenues from the non-ferrous metal industry-related taxes and impositions, such as the export- import duties, mineral production tax, mining claim tax and windfall profit tax.

③ Funds from the government's General Account budget or the treasury investment and loan.

④ Loans or aid from the international financing agencies such as EBRD and IBRD, or from foreign governments.

⑤ Borrowings from private banks on the security of mining foundations and or products.

Our proposed treatment of the respective combines' debts, as demonstrated in Table 3-3-3(2), is elaborated in the paragraphs below. The amounts of the debts are assumed to be 1.5 times of those as of January 1, 1996.

・The A-rated group : JSC "Zhezkazgantsvetmet", JSC "EKCChC" and JSC "Zhezkazgantsvetmet"

These combines dispose of their debts through their own managerial resources.

・The B-rated group : JSC "Zyryanovsk Pb-Zn Combine", JSC "Leninogorsk PC", JSC "UK Pb-Zn Combine", JSC "Shymkent Lead Plant" and JSC "Balkhashmed"

For this group of combines, three types of debt disposal are conceived:

①The JSC "Balkhashmed"

The total debts of the combine amounts to approx. US$100 million.

- Sell the entire combine including the debts.

- A purchaser of the combine repays a part of the debts by borrowing from the government a low-interest, two-step loan, which is repayable with earnings from the combine's enterprises.

②The JSC "Zyryanovsk Pb-Zn Combine", JSC "Leninogorsk PC", JSC "UK Pb-Zn Combine" and JSC "Shymkent Lead Plant"

The debts of these combines add up to US$270 million, of which US$180 million representing the labor expenses, etc. -- hereafter called "Debt (a)" -- is immediately repayable, whereas US$90 million representing the electric power charges, etc. -- hereafter called "Debt (b)" -- are repayable in installment with unspecified time limit.

The group of combines borrow a US$240 million two-step loan at an interest rate of 2% p.a., to cover the Debt (a) of US$180 million plus rationalization expenses for reduction of personnel amounting to US$60 million, thereby making repayments to the creditors.

The government grants an annual US$4.8-million interest subsidy, disbursed from the general account, called the "National Economic Budget"(US$916 million in 1996).

The 45% of the aggregate annual profit of the group of combines estimated at US$37 million is appropriated for annual repayment so that the loan may be fully repaid in 15 years.

Besides, the government must make special legislation allowing a pre-tax deduction of the repayments and also allowing the Debt (b) to be repayable only when the funds are made available by sale of idle assets.

③The debts of the four combines -- The JSC "Zyryanovsk Pb-Zn Combine", JSC "Leninogorsk PC", JSC "UK Pb-Zn Combine" and JSC "Shymkent Lead Plant" -- are packaged and taken over by a liquidator organization. The liquidator organization holds a 49% share in the four combines, while the respective combines, holding a 51% share, take over the assets and personnel necessary for continued operation of their enterprises.

To refinance the Debt (a), the liquidator organization borrows a two-step loan repayable in some 10 years. The source of funds for the repayment is dividends receivable by the combines.

The organization provide a three-year wage guarantee in compensation for the rationalization of personnel. To cover the personnel expenses plus the loan interest, some US$96 million has to be raised. For the repayment, a necessary amount is to be annually transferred from the national economic budget to the special account called the 'Infrastructure Fund' (Budget Part II; US$64.5 million in 1996) and applied for the repayment in installment over certain years. The Debt (b) is treated in the same manner as above 2).

・The C-rated Group : JSC" Irtysh PC", JSC "Sary-Arkapolymertal", JSC "Tekeli Pb-Zn Combine"and JSC "Shalkiya Mine Management".

The debts of these combines add up to US$33 million, of which US$24 million represents the Debt (a), while the Debt (b) is US$9 million. The debts are to be paid off by the State.

Repayment of the Debt (a) is made by means of issuance of external bonds, whereas that for the Debt (b) by disbursement from the infrastructure fund.

The personnel expenses for rationalization (severance pay) amounts to US$54 million, which is equivalent to the three-year wages, is paid from the infrastructure fund over three years.

Sales proceeds of combines' assets are to be received by the infrastructure fund.

The total expenditures and revenues of the 1996 government budget is US$4,608 million and 3,900 million, respectively, leaving a deficit of US$708 million. For the debt disposal, foreign financial assistance will be needed.

Table 3-3-3(1) Concrete Plan for Treatment of Enterprise's Debt

Name of JSC	Outstanding Debt (Million US$)	Accounts Receivable (Million US$)	Total Evaluation of Management	Treatment of Debt	Note
Zhezkazgantsvetmet	222.8	39.8	A	(2)	Privatization by selling its stocks
EKCEC			A	(2)	Privatization by selling its stocks
Zhezkent MCC	1.3	0.3	A	(2)	Privatization by selling its stocks
Karagailinski MCC					Privatization
Zyryanovsk Lead Combine	25.1	4.2	B	Combination of (1) and (2)	Debt frozen
Leningorsk PC	52.3	8.6	B	Combination of (1) and (2)	Debt frozen
UK Pb-Zn Combine	80.7	25.5	B		Debt frozen
Irtysh PC	4.6	3.2	C	(1) or (3)	Early change of the ownership form is necessary
Balkhashmed	26.3	6.6	B	(2)	Privatization
Shymkent Lead Plant	21.9	5.8	B	(1)	Debt frozen
Akshatau Ken-Baityu Combinaty	7.3	4.8		(1) or (2)	Management transfer contract
Sary-Arkapolymetal	6.7	6.0	C	(1) or (2)	Management transfer contract
Achpolymetal	18.2	1.9		(1) or (3)	Management transfer contract (To concentrate on barite production)
Tekeli Pb-Zn Combine	9.5	0.4	C	(1) or (3)	Cessation of polymetallic mine operation Under government management
Shalkiya Mine Management	1.2	0.4	C	(1) or (3)	Under government management
Sum	477.9	107.5			
			A:Good B:Average C:Necessity of Countermeasure	(1) Treatment by Liquidation Body of Non-Ferrous Metal Promotion Agency (2) Disposal by Sale and Privatization (3) Payment by Government	

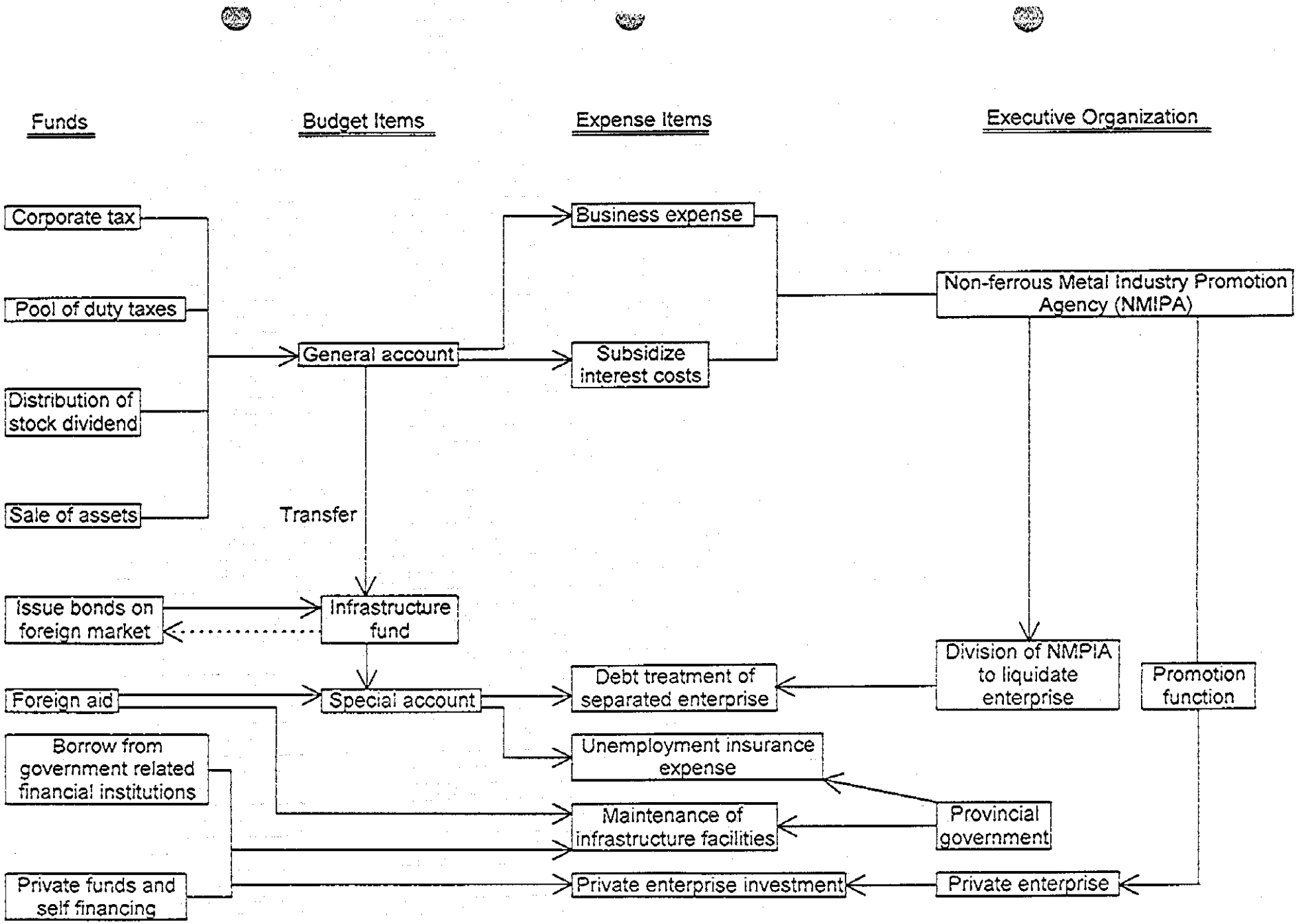

Fig.3-3-3(1) Money Flow of Non-ferrous Metal Industry Plan

3-3-4 Main Project for Industry Reconstruction

There are many projects based on the promotion of industry by the MIT.

For the implementation of these projects, capital investment will be supplied from foreign countries (including international organizations). Foreign capital will be mainly in the from of aid and finance. To receive capital from foreign countries for these projects, the items listed below are needed.

① Clarify the significance, specifications and financial situation of the project.

② Clarify the responsible person who will manage the project both during and after reconstruction.

Now in Kazakhstan, there are many types of companies.

- private company
- private company whose management right is transferred to another company under privatization
- management transfer to another company but the assets are owned by the government
- national company.

Now the management system is changing so it is necessary that the ministry and the related organizations give suitable support for each project. The main organizations for the implementation of the projects are the following.

① Manager companies, based on management contract agreement arrange all the necessary finances for implementation of projects.

② In case of national enterprises, a manager company, a financier and/or a government institution (e.g. an agency for promoting the non-ferrous metals industry) formulate a partnership or an unincorporated joint venture as a project implementation organization.

③ A group of investor and financiers formulates an incorporated joint venture as a project implementation organization

④ A department of MIT directly implements the project, as temporary measure, with finances extended from foreign funding sources under the government guarantee and transfers its ownership to private firms in a later stage.

(3) Government Support for Project Implementation

① Direct or indirect involvement in various styles of partnership for project implementation

② Support for financial arrangement from foreign monetary sources

③ Protect foreign funds against country risks

④ Guarantee for project implementation or offer of national assets as security when necessary

⑤ Direct or indirect contribution to project implementation

⑥ Support for settlement of local disputes

⑦ Simplification of processes for necessary legal requirements for profit implementation

3-3-5 Unification of Non-ferrous Metals Enterprises in the CIS

Non-ferrous metals products are sold in the mature international market. It will be one of strategic options in marketing non-ferrous metals product to unify relevant enterprises in the CIS in order to maximize their whole performance. It requires, however, that each enterprise within the partnership is self-supporting and independently managed. In reality, the majority of non-ferrous metals combines are in a critically troubled state and in the process of recovery with their great effort. Therefore, the fundamentals appear to be still premature for putting forward a plan to unify the CIS enterprises.

Never-the-less, it would be ideal for raw material suppliers, metal producers and product users in the CIS to closely cooperate each other for their benefits, because they shared their roles and heavily relied on each other under the former USSR economic system. For example, the JSC "Shymkent Lead Plant" cannot survive without raw materials from Uzbekstan and Tajikistan. Most metal producers that supplied their products to the industries in Russia, are forced to sell their products to western countries with a costly transportation disadvantage. At the present stage, however, a study should be made for integration of some groups of combines in Kazakhstan, taking account of their geographical locations, kinds and markets of their products, required raw materials in kinds and amounts and so forth.

An example of non-ferrous metals industry union is shown in Fig 3-3-5(1).

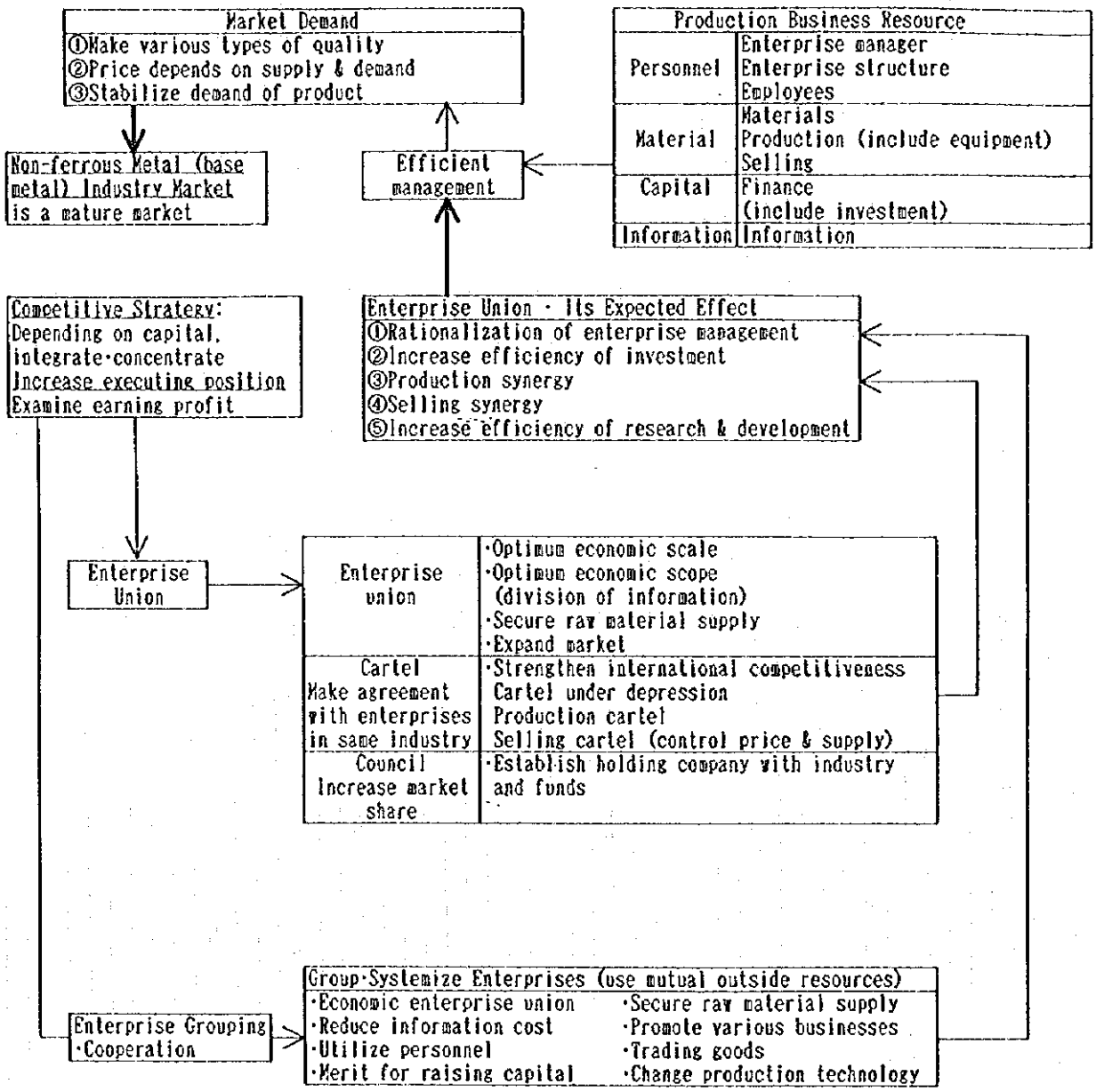

Fig.3-3-5(1) Non-ferrous Metals Industry Union (Cooperation)

3-3-6 Role of MIT and Min Geo

The administration directly concerned with the non-ferrous metals industry is conducted by the Ministry of Geology and Underground Resources Preservation (Min Geo) and Ministry of Industry and Trade (MIT). Issue of licenses for exploration, development and utilization (exploitation) of underground resources is the responsibility of Min Geo, although utilization of underground resources requires authorization by the State Committee for Asset Management.

Traditionally, the results of exploration of mineral resource prospects by Min Geo must be assessed and authorized by the State Committee for Evaluation of Mineral Resources in the Min Geo, before the prospects are transferred to MIT for exploitation. This tradition still survives although it appears to be irrational at the present time when exploration and development of mineral resources are completely left to private firms.

According to Presidential Decree No.2828 issued on January 27, 1996, it is necessary for a private firm to enter into a contract agreement with the MIT for utilization of mineral resources. Two inter-ministerial committees are founded according to Order No.147-P issued on August 9, 1996. The role of the committees is to authorize the contract between the MIT and private firms for utilization of mineral resources. One committee is responsible for mineral resources used for production of food and chemicals, the other for ferrous, non-ferrous, precious metals and jewelry resources. These committees, chaired by the Acting Minister of the MIT, Mr. Multazaev, comprise a number of representatives from the MIT, other ministries and governmental institutions. In addition, the authorized contract has to be registered at the Min Geo. The above procedure to obtain authorization for exploitation of mineral resources is very complicated and will require lengthy processing before issuing permission. Since financial risks of exploitation of mineral resources are principally left with private firms, this procedure will be unnecessary as far as the contracts satisfy all the requirements under the present laws and regulations. Simplification of the procedure is desirable.

The MIT has been traditionally responsible for complete surveillance of combines. As privatization progresses, however, management of combines is being transferred to private firms and the MIT's role will be limited to areas clearly defined in the laws and regulations. Never-the-less, it is important to legally regulate activities of private firms in exploration, development, production, marketing of products, and environmental protection from the national interest point of view. Appropriate laws regulations should be prepared for regulating activities of private firms. The transition from exploration to development stage is continuous and hence the roles of the MIT and the Min Geo are closely inter-related. Therefore, unified policy and strategy should be developed by the two ministries and close communication with each other will be indispensable.

4. Items of Promotion Plan

4. Items of Promotion Plan

4-1 Implementation Plan of Production

(1) Production plan and its predicted effects

The long-term supply, demand and prices of non-ferrous metals in the world market is as follows:

① Demand for copper, lead and zinc will slowly increase with time. Its supply shall be balanced with the addition of newly developed mines and newly established refineries.

② Supply and demand of lead shall be balanced with the utilization of recycled lead even if there is a shortage of production of new lead.

③ It is unlikely that prices will increase during 1995-2000, but rather decline. However, prices of all metals will recover and are expected to increase around 2000.

④ Thereafter, prices shall probably follow the growth of the world economy despite the effects of changes in the social and economic environments and environmental preservation restrictions.

The following changes are expected by the implementation of the promotion plan.

- 1996 ~ 2000

The non-ferrous metals industry shall escape from its crisis and the build the foundation of the industry. Enterprises may have to be maintained at a reduced level if unprofitable businesses are withdrawn due to the profitability of the business and the limited underground resources, but the government and enterprises shall aim at the continuation of reliable enterprises. For that purpose, it is necessary to make aggressive investment including foreign aid. Supporting policy urgently applied for a limited time shall be gradually discontinued whenever its role has been finished.

- 2001 ~ 2005

Reform and establish the system and structure of the industry. Since market prices of non-ferrous metals are expected to increase during this period, sufficient production should be secured to take advantage of this opportunity. The Kazakhstan brand name shall be widely known in the global market as a result of the market development efforts during this period. The efforts should be continued in order to prepare for the next five years. This period should be recognized as the critical years.

-2006 ~ 2010

Activation of the industry and upgrading of the structure shall be achieved. Substantial rise in productivity, products of high added value and repayment of borrowed funds shall be possible with the expectation that production activities are in harmony with the environment.

(2) Value of products

Sales amount has been estimated on the basis of the 1996-2000 production plan. Since the data for gold and silver was not submitted, the calculation was made with an assumption of the grade of each concentrate.

① According to the draft, investment over the 15-year period is forecast at US $19.692 billion or an annual average of US $1.313 billion. This figure represents 16.7% of the total income in the non-ferrous metals industry, and is also the criterion used to determine the annual investment level.

② Sales during the period from 2000 to 2005 will be 10% higher compared to that in the preceding years of 1996 to 2000. The sales revenue may exceed the estimate if the prices increase at the same time, creating the environment to make investment easier with more margin for repayment of the borrowing.

4-2 Implementation Schedule of Project

(1) Schedule for development and facility investment

The implementation plans of the major projects are shown in Table 4-2 (1).

It is desirable, in principle, to procure the funds from their own funds on hand or by their own financing.

For foreign aid, there is grant aid from the government and international financial institutions and low-interest loan system such as the Japanese OECF (two-step loans). The possibility of using these funds are shown as an assumption.

The aid for a project related to environmental preservation has recently attracted worldwide attention. It is additionally indicated that the feasibility study should be reviewed to make a detailed feasibility study in accordance with the present condition and the research plan should be clearly feasible after it has been technologically secured.

- Priority

High 1: ·····An urgent and prompt start and implementation is necessary.

Medium 2: ·····Implementation is necessary, but its timing needs to be considered

Low 3: ·····Implemented is desirable, but timing, scale, investment amount, effects, etc., needs to be examined

- Research and establishment of technology is necessary.

Table 4-2(1) Implementation Schedule for Promotion Plan

Notes :1. ··>▒▒▒ —> Prepare→build plant→test operation→full operation/finish building
2. ··>▭ Prepare→stop operation
3. Capital Resource ◎Major resource ○Minor resource
4. Priority 1-High 2-Medium 3-Low
5. Re-examine Feasibility study Need to investigate & study
6. ( ) Reference

(1)

	Metal	Product \ Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total (1,000 t)	1,000 t/year	Note
Production Plan	Copper	Copper Refinery Domestic Production	265	273	306	352	349	341	347	348	353	353	397	362	418	392	397	5,253	350.2	Sales (except analysis of processed goods)
		Copper Refinery Imported	67	63	49	39	26	46	51	31	31	31	-	27	-	-	-	461	30.7	Concentrate grade 30% Cu, Au 10 g/t, Ag 100 g/t, concentrate recovery rate=90%
																				Gold Sales 5.714 million tons÷0.3 X 10 g/t X 0.90 X $400/oz÷31.1= $2.204 million
		Copper Cathode Production Amount	321	325	343	367	363	375	385	367	372	372	385	377	406	380	385	5,527	368	Silver Sales 5.714 million tons÷0.3 X 10 g/t X 0.90 X $5/oz÷31.1= $0.276 million
																				Copper Sales 5.527 million tons X $2,205/ton= $12.187 million
	Lead	Lead Refinery Domestic Production	18	22	19	23	31	39	44	46	48	53	54	56	56	54	50	613	40.9	Copper Sum $14.667 million
		Battery Scrap	24	25	27	29	32	32	32	32	32	32	32	32	32	32	32	457	30.4	Gold Sales 1.534 million tons÷0.5 X 1 g/t X 0.95 X $400/oz÷31.1= $0.037 million
		Lead Refinery Imported	63	57	70	71	69	61	62	60	63	63	62	54	54	53	55	917	61.1	Silver Sales 1.534 million tons÷0.5 X 500 g/t X 0.95 X $5/oz÷31.1= $0.234 million
																				Copper Sales 1.883 million tons X $600/ton= $1.401 million
		Lead Refinery Production Amount	100	99	111	118	125	125	130	130	135	140	140	135	135	130	130	1,883	125.5	Lead Sum $1.401 million
																				Silver Sales 4.256 million tons÷0.5 X 85 g/t X 0.3 X $5/oz÷31.1= $0.035 million
	Zinc	Zinc Refinery Domestic Production	152	161	170	203	249	293	315	319	326	343	348	350	356	350	321	4,256	283.7	Copper Sales 3.589 million tons X $1,000/ton= $3.589 million
		Refined Zinc	166	190	195	210	220	230	245	260	275	293	280	275	265	260	225	3,589	239.3	Zinc Sum $3.624 million
																				Total $19.692 million ($1.313 million/y)

Promotion Plan Objective		Establish Production Base, Escape Danger					Reform Industry System & Structure					Activate Production, Use High Technology					Investment	Capital Resource				Evaluation			
JSC Name	Project Name \ Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Amount (million$)	Own Capital	Government Capital	Project Finance	Foreign Capital	Priority	Re-examine Feasibility Study	Research Investigation	Note
(1) Zhezkazganstvetmet	(1) Annensky &																(?)	◎				1	-	-	Start production in 1996
	Akchipassky Mine development																(?)	◎				1	-	-	
	(2) No.1&2 concentrator modernization				30	30											60	◎				3	○	-	
	(3) Zhilandinskaya Mine development						50	50	150	150	100						500			◎	○	2	○	-	Start production for 2 mines, 3 pits (standard $ 128 million)
	(4) Smelting plant SO_2 gas recovery		10	10													20	◎			○			○	
	(5) No.2 central power station				100	200	200										500		◎	○		3	○	-	
	(6) Refinery plant modernization											150	150				300	◎			○	2	-	○	All equipment is renewed & modernized for 250,000 t/y
	(7) Copper alloy production					10											10	○		○		1	○	-	
	(8) Power cable plant construction							68	50								118			○		2	○	-	
	(9) Close mine																(?)	○	◎		○	-			Stop production at East Mine in 2008 & West Mine in 2005
(2) Balkhashmed	(1) Boschekul Mine development		100	100	50												250			◎		1	-	-	Open mine in 1999 (standard $156 million)
	(2) Chilisai Mine development (includes concentrator)		20					(30)	(25)								20 (55)	◎				1	○		Kokutau deposit development, start production in 1998 (standard $84 million)
	(3) Concentrator modernization			10	5												15	◎				2	-	○	SX-EW and its arrangement
	(4) Smelter · sulfuric acid plant modernization				20	30											50	○	○		◎	1	-	-	160,000 t/y Cu
	(5) Maintenance of boiler, etc., (own power plant)						20	8									28	◎			○	2	-	○	
	(6) Actogay Mine development							50	50	50	50						200	○		◎		2	○	-	Production starts in 2006, in 2008 production is 18 mln t/y
	(7) Close mine & improve								12								12	◎			○	2	○	○	Close Sayak in 2006, Kounrad heap leaching start
(3) EKCChC	(1) Nicolaevskoye stripping	3	3	3	3	3											12	◎				1	-	-	Working pit slope improvement, renew equipment
	(2) Artemyevskoye Mine development		25	25	20												70	◎				1	-	-	Production starts in 1999, in 2001 production 1 mln t/y
	(3) Close Shemonaihinskoye																(?)	○				-	-	-	Finish mining in 2001, abandon pit
(4) Zhezkent MCC	(1) Orlovskoye Mine improvement		10	5													15	◎				1	-	-	Increase production to 1.2 mln t/y in 1999

JSC Name	Project Name \ Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Investment Amount(mln$)	Capital Resource: Own Capital	Capital Resource: Government Capital	Capital Resource: Project Finance	Capital Resource: Foreign Capital	Evaluation: Priority	Evaluation: Re-examine Feasibility Study	Evaluation: Research Investigation	Note
Zyryanovsk Lead Combine	(1) Maleevskoye Mine development	10	50	10	→												70	○		◎		1	-	-	High priority, in 2002-1.5 mln t/y
	(2) Mine development near Maleevskoye						Exploration				50	50					100	○	◎		○	3	-	○	Begin production in 2002 in 2009, 1 mln t/y
	(3) Mine closure																	◎	○			-			Close Zyryanovsk Mine in 1999
Leninogorsk PC	(1) Tishinskoye mine lower level development		10														10	◎				1	-	-	Increase production in 1999, large investment is risky
	(2) Roasting and sulfuric acid plant (1st period)		20	45													65	◎			○	1	-	-	Sulfur burner 120 t/y
	(3) Roasting and sulfuric acid plant (2nd period)													30	10		40	◎			○	2	○	-	
	(4) Chekmar mine development		1		30	30	30	10	→								1+100	○	○	◎		3	○	○	Start production in 2002 (standard $100 mln), re-examine feasibility
	(5) Modernization of concentrator equipment			10	4	→											14	◎				2	-	-	Renew facility (include measuring equipment)
	(6) Talovsk tailing pond reinforcement				5	10											15		○		○	1	-	○	
UK Pb-Zn Combine	(1) Sulfuric acid plant (include sulfur burning)			40	58												98	○			○	1	○	-	75 X 2 units/y
	(2) Gubekoe sulfuric acid plant (include sulfur burning)			20	30												50				○	2	○	-	
	(3) Modernization of lead smelter						→	40	35								75	◎				2	-	-	Gas recovery
	(4) Gubekoe copper refining plant rationalization								→	100	100	50					250		○	◎		2	○	-	
	(5) Copper electrolysis plant		20	30													50		○	◎		2	○	-	
	(6) Roasting plant													20	40		60	◎			○	1	-	-	
Irtysh PC	(1) Mine modernization		6														6	○							
	(2) Yubileyno-Snegirihinskoye Mine development		10	10	4												24	○			○	1	○	○	Start production in 1999 (standard $100 mln)(excludes $36 mln for concentrator construction)
	(3) Mine closure						→		)								(?)	○	◎			-	-	-	Close Belousovskoye Mine in 2003
Shymkent Lead Plant	(1) Lead smelter rationalization (50,000 t/y)			3													3	◎	○			3	-	○	
	(2) Sulfur burning equipment				3	2											5	◎	○		○	2	-	-	
	(3) Lead battery production factory		10	30													40	○		◎		1	-	○	
	(4) Sulfuric plant modernization							15	15								30	◎			○	2	○	-	
Zhambyl	Rodnikov Mine development																(2)		○	◎		2	○	-	
Tekeli Pb-Zn Combine	(1) Mine closure				→												(3+?α)		◎		○	(2)	-	○	Slowly close mine by 1999
	(2) Reconstruction of concentrator																(6)	(○)	(◎)			(3)	-	○	Make plan to close mine
Shatkiya Mine Management	Construction of concentrator at mine site																(100)	(◎)				(3)	-	○	Mainly barite, lead/zinc by-product
Sary-Arka Polymetal	Zhairem deposit development																(300)	◎		○		(3)	○	-	
	Total (million US$)			1,333 (267/y)					1,453 (290/y)				500 (100/y)				3,286 (219/y)								Investment sum is 16.7% of total sales

4-3 Plan of Support

The development of the implementation to support the promotion plans is shown in Table 4-3(1). The period of implementation is mainly until 2005. It is proposed to establish an institution to sort out the frozen debt in the enterprise based on the previous management contract and make a detailed liquidation plan.

The "Non-ferrous Metal Industry Promotion Agency", "Trade Promotion Agency", and "Society of Non-ferrous Metal Industry Council," etc., are proposed as independent institutions for a fixed period of operation.

The support by special legislation should be made as the legislative measures should be abolished after the escape from the crisis situation.

The section of the related institutions shows the main functions and business operations shared by the ministries and bureaus within the government.

Strong support from the above mentioned pertinent ministries and related institutions is essential in order to concretely proceed with the prompt implementation of the project formation.

① Direct and indirect participation in the project formation.

② Support of international and domestic financing of funds.

③ Reduction of country risk for foreign capital.

④ Provision of guarantees on national assets.

⑤ Treatment of trouble.

⑥ Simplification of procedures to approve project investment.

Table 4-3(1) Support Program for Implementation of Action Plan

◎ Main Work
○ Actual Work
△ Assist Work

Classification	Item	Contents	Implementation Period 1996-2000	2000-2005	2005-2010	Related Organizations: High Level Government Organization (include President & staff)	Ministry of Trade & Industry: Department for General Measures	Ministry of Trade & Industry: Metallurgical Office	Ministries Related to Economy: Ministry of Finance (mostly taxes)	Ministries Related to Economy: Managing Committee of Capital	Ministry of Environment: Ministry of Labor	Ministry of Geology	State Government	Private Enterprise (including production people)	Note
Organization	(1) Establish exploration agency	Reinforce exploration for the area development	←	→			○					◎			Need to receive foreign aid
	(2) Aid for newly developed mines	①Countermeasure for closing mines (including settlement of business)	←	→			◎			○	○		○		Legal time limit-5 years
		②Aid for new mine development		←	→			◎			○	○	○		
		③Non-ferrous metal industry measure for aid	←	→			◎	○			○		○		
	(3) Trade promotion agency	Promote trade, collect & publicize information	←	→		◎	○						○	△	Embassy outside country and cooperation
	(4) Kazakhstan metal industry cooparative	Request adjustment measure-private producer	←	→				○						◎	Adjustment of labor conditions at enterprise
	(5) Mining industry council	①Draft and examine measure for industry		←	→			◎				○	○	△	21st century plan-5 year period
		②Reduce and exempt various taxes and make a special account	←	→		◎	△		○						Customs tax pool and special account (time limit)
Law & Regulations	(1) Improve import related taxes	①Reduce or exempt import tax on goods	←	→			○		◎						Export insurance, import/export management system
		②Import taxes related to non-ferrous industry equipment & materials	←	→			○	△	◎					△	Production until industry revives
		③Special tax system affecting underground resource development							○			◎			Special power rate, transportation charge
	(2) Revision of corporate accounting law	①Adopt depletion allowance system	←	→			○		◎					△	
		②Enterprise inspection system	←	→		◎				○			○	△	Fair trade oversight system
	(3) Legal system related to privatization	①Establish legal grounds-management contract	↔			◎	△			○				○	
		②System of approval items-private enterprises	↔	→			◎			○	△		○		
	(4) Revision of underground resource laws	①Mining laws that corresponds to privatization		↔	→		△	○				◎	○		
		②Revision of mine health and safety laws		↔	→			◎		○(○)			○		Reconsider standards for approval
Welfare	(1) Improve welfare department	Share between state and enterprise	←	→						○			◎	△	
	(2) Worker training	Employment countermeasure for mine, smelter, concentrator, etc.	↔			○		△	○		(○)		◎	△	Industry lead (company town)
	(3) Social insurance system	Revision of pension, health insurance and unemployment insurance		←	→				○		◎		○	△	
Marketing	Market development measure	LME market, selling distribution	↔				○	◎							
Environment	Establish environment center	Environmental monitoring, re-examine regulation standards	←	→			◎	△			○	○	○	○	
Technical Aid	(1) Development survey	Detailed survey plan in promotion plan	↔				◎		△			○		○	East Kazakhstan State polymetal, Balkhash copper
	(2) Quality survey	Survey surrounding area of Post Samarsky and Maloevska	←	→					○		○	◎			
	(3) Dispatch of personnel	①Advise environmental conservation & safety	↔						○		◎		○		Environment, mine safety (ventilation,etc.)
		②Energy conservation	↔				◎						○		Energy conservation measure related to non-ferrous metal industry
		③Measure for mining industry	↔			◎	○						○		Maintainence after promotion plan implemented
		④Quality control	←	→			◎	○						○	
		⑤Financial accounting for property evaluation	←						○	◎					
		⑥Information management	←	→			○	◎				○		△	Maintenance related to database
Economic aid	Aid depending on foreign government and financial institutions	Financial aid for each enterprise project	←	→		◎	○		○	○		○	○		Aid by loan or grant

4-4 Foreign Aid

High-priority projects are supporting actions after the promotion plan are as follows:

1. Establish Environmental Control Technology Centers

   East Kazakhstan region, Balkhash region.

2. Dispatch of Personnel (especially policy advisers to follow up on the promotion plan)

3. F/S preparation of modernization

   F/S for each combine and feasibility action plans are made after reviewing details of the promotion plan for the polymetal industry in East Kazakhstan region

4. Regional development

   Development of Yubileyno-Snegirihinskoye Mine

5. Geological survey

   Exploration of surrounding area of Maleevskoye Mine

The government's strong desire and enthusiasm for implementation are essential to get foreign aid. For this purpose, frequent revisions in its legislation should be avoided to maintain stable policies.

Table 4-4(1) Possible projects by using Foreign Assistance Organization

	No.	Name of Projects	Economic Assistance		Technical Assistance		
			Grant Aid	Loan Assistance	Development Survey	Research Cooperation	Dispatch of Personnel
Project	1	Exploration	◎	○	○	○	◎
	2	Improvment & Reinforcement of Sulfric Acid Plant	◎	○	○	○	○
	3	Renewal & Reinforcement of Smelter	○	◎	—	—	○
	4	Nurturing of Processing Industry	○	○	○	—	○
	5	Development of Mines	—	○	○	○	○
	6	Establishment of Environment Control Technology Center	◎	—	—	○	○
Policy Support	1	Promotion Policy Adviser	—	—	◎	—	◎
	2	Legal Adviser	—	—	—	—	○
	3	Technical Guidance on Energy Conservation, Quality Control	—	—	◎	—	○
	4	Preparation of F/S of Modernization	—	—	◎	○	◎

5. Action Program for Political Recommendations

5. Action Program for Political Recommendations

The action program of policies relating to promotion of the non-ferrous metals industry are shown in Table 5 (1).

(1) It is desirable to define the non-ferrous metal industry as the core industry in the future, just as it was an important industry in Japan in the past, and execute the government's budgeted investments and policies in accordance with this definition. The role of the industry remains important until the machinery and petroleum industries mature.

(2) Policies for the escape from the industry crisis shall be executed aiming at the stabilization until 2000. The special measures shall be abolished after restoration of the industry.

- Temporary freezing of liabilities of enterprises (government's guarantee) (1997)
- Foreign Investment Law is amended to add clauses giving long-term benefits to foreign capital. (1997)
- Reduction and exemption of tariff, commodity tax, and added-value tax, etc. (1997 - 2000)

(3) Reduction or shutdown of unprofitable state-owned enterprises.

Unprofitable mines and others which have lost users and failed in management due to exhausted resources, low-grade crude ore and high cost shall be shut down. (1997 - 2000)

(4) The privatization program currently under way will last until 2000, afterward the leadership of the management shall be transferred to the private sector (including foreign capital). After 2000, the government shall manage and guide the industry with the administrative authority of supervision, audit, permit and approval.

(5) For implementation of promotion policies, the following execution organizations shall be set up::

- Non-ferrous Metals Promotion Agency
  - Liquidation of debt, closure of mines, support of management stabilization.
- Trade Promotion Agency
  - Positioned at diplomatic establishments abroad to cooperate with the private sector.
- Metal Industry Council
  - Reinforcement of cooperation within the industry and lobbying of policy proposals.
- Exploration Agency
  - Continue long-term exploration enterprise

(6) The Environment Ministry shall be responsible for environmental preservation of the whole nation and MIT for its business regions.

In business regions where there is a possibility of environmental pollution, an Environmental Control Technology Center involving the provincial government shall be establish and function as the core of the environmental management system. The government's advisory support is necessary for an improvement of the sulfuric-acid production plants.

(7) Foreign cooperation and aid are unavoidable.

An active approach is essential for the exchange of staff, technical cooperation and economic cooperation such as fund financing and investment.

(8) Supply of Funds

In principle, self-supply is the responsibility of individual businesses. The government shall provide the enterprise with such support, when needed, in this process such as a governmental guarantee.

(9) It shall become one of the most important supporting measure to promote agriculture (supply of fertilizer made from sulfuric acid), the machinery manufacturing and high-tech industries (secondary processing products) in order to expand domestic demand for the non-ferrous metal products.

Table 5(1) Action Program for the Policy Support Measures in Promotion Plan

Legend:
Prepare → ● establish/implement → × abolish related ···→ ○ mine △ refinery □ Processing ◇ market # environment
Classification symbol

	1996	1997	1998	1999	2000	2001 ～ 2005	2006 ～	Evaluation: Priority	Evaluation: Difficulty	Evaluation: Easy	Note
Promotion plan: Targets	Take measures for the industry to escape from the crisis and to establish a industrial basis.					Reform industrial regime & structure	Activate industry, upgrade structure				
Major events and forecast	The industry will face difficulty due to the shortage of funds despite closure of unprofitable operations, start of promising projects and request for foreign assistance including investment.					Sound corporate management and privatization will be completed and productivity will improve.	Active enterprises, large projects to be implemented by private investors self-raised funds. The industry and products to be internationally recognized.				
Agency, Organization		→ ● NMPA○△□(1997～						1	○		Placed under MIT; engaged in mine closure & liquidation and information control. Management stabilization; financial resources appropriated partially by General Account budget and Special account.
			●TPA△□○(1998～					3		○	Assist overseas marketing of products; international publicity; collect information.
		●NMIA○△□(1997～						2		○	Strengthen sectoral unification→price adjustment; policy proposal/petition/collect information.
			→ ●Mining Council○△□(1998～2000) → × (Continuance to be studied)					1		○	Deliberate and report to Gov't the nonferrous metal industry policies; comprised of industry, academic and gov't sectors.
		●EA○(1997～						3	○		Execute exploration on behalf of the state; recipient of foreign technical assistance; sells mining claims. Financial resources → mining claim tax revenues.
Revision of Laws		●Special Measures Law on Exp-Imp Duties → × (Liberalization) ○△□○(1997～2000)						1	○		Exemption of export-import duties; full liberalization in 2001.
		●Special Accounting Law concerning non-ferrous Metal Industry→ × ○△□(1997～2000)						2	○		Revenues from sale of state assets, Import duties, VAT, etc. related to non-ferrous metals are used for the Agencies' operations.
			●Depletion Allowance System○(1997～2005)			→ ×		2	○		Special measures on income tax on mining (Special depreciation for galleries) steps).
		●Revise the Corporation Law(Private Cos.) ○△□(1997～						2	○		Corporate audit system, revise corporate accounting law(depreciation base, etc.); mortgaging mining claims.
	●Law Governing Management Contract → × ○△□○(1996～2000)							1		○	Management contract desirably be terminated upon expiration.
					●Revise the Underground Resources Law○(2000～)			3	○		Mining right regime suitable to privatization (e.g. earliest arrival principle); revise mining right(check operation plan) approval system and safety standards.
Local Administration	●Transfer welfare facilities to local gov't.○△□#(1996～)							1		○	Change in burdening of infrastructure → "beneficiary pays principle"; revise local taxation.
		● Reinforce professional training centers.						3		○	Re-educate the unemployed (due to mine closure/reduction); employment adjustment measures.
			●Spin-off of divisions(separation of State-owned shares)○△□(1998～2000)					2	○		Spin-off of auxiliary divisions(sell state-owned shares)→foster small-medium enterprises. Major divisions to be separated: repair, construction, food product preparation, transportation and welfare(partial).
Sale		●Registration on the LME△(1997～1999)						1		○	Certification of copper and zinc within 3 years.
		● Trade firm△□×(1997～)						2		○	Gov't involvement up to 2000; full privatization after 2001. Close collaboration with the Trade Promotion Agency and the Society of Non-ferrous Metal Industry. Participate in international metal market study groups(e.g., ILZSG).
Environment		●Environment control Technology Center(1997～) (Balkhash, Ust-Kamendgorsk)				●Zhezkazgan, etc.#(2000～)		1		○	Set up environment-monitoring stations near zones where production facilities are concentrated. Request for international technical cooperation.
		●Development study△#									Make a treatment plan of hazardous smelter slag.
Technical Cooperation — Dispatch of personnel		●Policy advisor 1 ○△□#(1996～						1		○	Assistance for the implementation program in Promotion Plan
		●Environment advisor 1 × ○△#(1997～2000)						1		○	Assistance for establishing the Environment Control Technology Center and mine-refinery safety standards.
			●Finance & Accounting, × Assets valuation 2 (1998～2000)					2		○	Revise Corporate Accounting Law; assistance for assets valuation of State Corporations(evaluation of stocks)
				●Quality control 1 × △□(1999～2001)				2		○	Quality standards for processed products
				●Energy saving 1 △□(1999～2001) ×				2		○	Advice for total energy policy aimed at energy law, etc.
Technical Cooperation — Basic Survey for Development		●Modernization survey○△□(1997～1999)				●Modernization survey○△□(2001～2003)		2		○	Detailed Survey of projects in East Kazakhstan area; review of the feasibility studies Chekmar, Samarsky. Conduct feasibility study of nuturing processing industry
		●Regional survey, mine development ○(1997～1999)				●Regional survey, mine development ○(2000～2005)	●Regional survey, mine development○(2006～	2		○	Access tunnel for mine development
Economic Cooperation		●Develop	●Improve SO_2 emission equipment△					1 1		○	
	polymetallic ore deposits○ (Malcevsky, Artemyevsk)		●mine development○(Boshchekul, etc.)			●Reinforce copper refinery(Irtysh)△ ●Develop large copper mines○(Zhilandinskaya, etc.)		1 3 2		○ ○	Improve SO_2 gas emission from sulfuric acid plants(official loans or grants) Loan assistance(the two step loan)

Nonferrous Metals Promotion Agency (NMPA)
Trade Promotion Agency (TPA)
Non-ferrous Metal Industry Association(NMIA)
The Mining Council
Exploration Agency (EA)

Priority 1.Execute promptly
2.Necessary to execute
3.Desirable to execute

Difficult: It is required adjustment among many related agencies
It extends wide influence
Easy : It is possible among a few agencies