PART I

GENERAL REMARKS

CHAPTER 1 INTRODUCTION

1-1 Background and purpose

Potential for the existence of metallic ore deposits is high in the Kyrghyz Republic. Many mineral resources such as gold, silver, copper, lead, zinc, mercury, antimony, tin, tungsten, uranium and rare earths have been found.

In the USSR era, exploitation was limited to mercury, antimony, uranium and rare earths. After the destruction of the USSR, the Kyrghyz Republic has focused its policy on mining to earn foreign currency especially, gold mining which is very competitive in the world market economy. In 1997, the Kumtor gold mine was developed by the Kyrghyz governmental organization in cooperation with a Western mining company.

In response to the request of the government of the Kyrghyz Republic, Japan had successfully conducted the mineral exploration project in the Talas area from 1994 to 1997.

The government of the Kyrghyz Republic (the State Agency on Geology and Mineral Resources) evaluated the project with Japan and requested a new technical cooperation project for mineral exploration in the Alay area in December 1996. It includes the Altyn-Jylga and Karakazyk which are promising districts for mine development. The Japanese government (the Ministry of International Trade and Industry (MITI)), Japan International Cooperation Agency (JICA) and Metal Mining Agency of Japan (MMAJ) sent a delegation to the Kyrghyz Republic for the preliminary survey in June 1997. An agreement on the scope of work for the Alay area project was signed between the governments of the Kyrghyz Republic and Japan on 27 June 1997.

The purpose of the project was to clarify the geology and occurrence of ore deposits in the survey area and discover a new deposit. Another purpose was to transfer Japanese technologies of survey and analysis to the Kyrghyz counterpart through the collaborative survey.

1-2 Economic infrastructure and natural conditions in the survey area

The survey area lies from southwestern part of the Osh province to the eastern part of the Batken province. The area belongs administratively to the Kadamjai and Chon-Alay regions of the Osh province and the Batken province, is situated on the Turkestan-Alay Mountains of the Southern Tien-Shan range.

1-2-1 Roads

The Altyn-Jylga District, where the Phase II survey was conducted, lies in the westernmost part of the Alay area. The survey district is accessible from Osh City, the Province capital, by following a principal road southwestward, passing through Kizyr-Kiya, Kadamdjai and Khaydarkan, and going upstream along the Sokh River, which flows into the Fergana Basin, to Sokh Village,

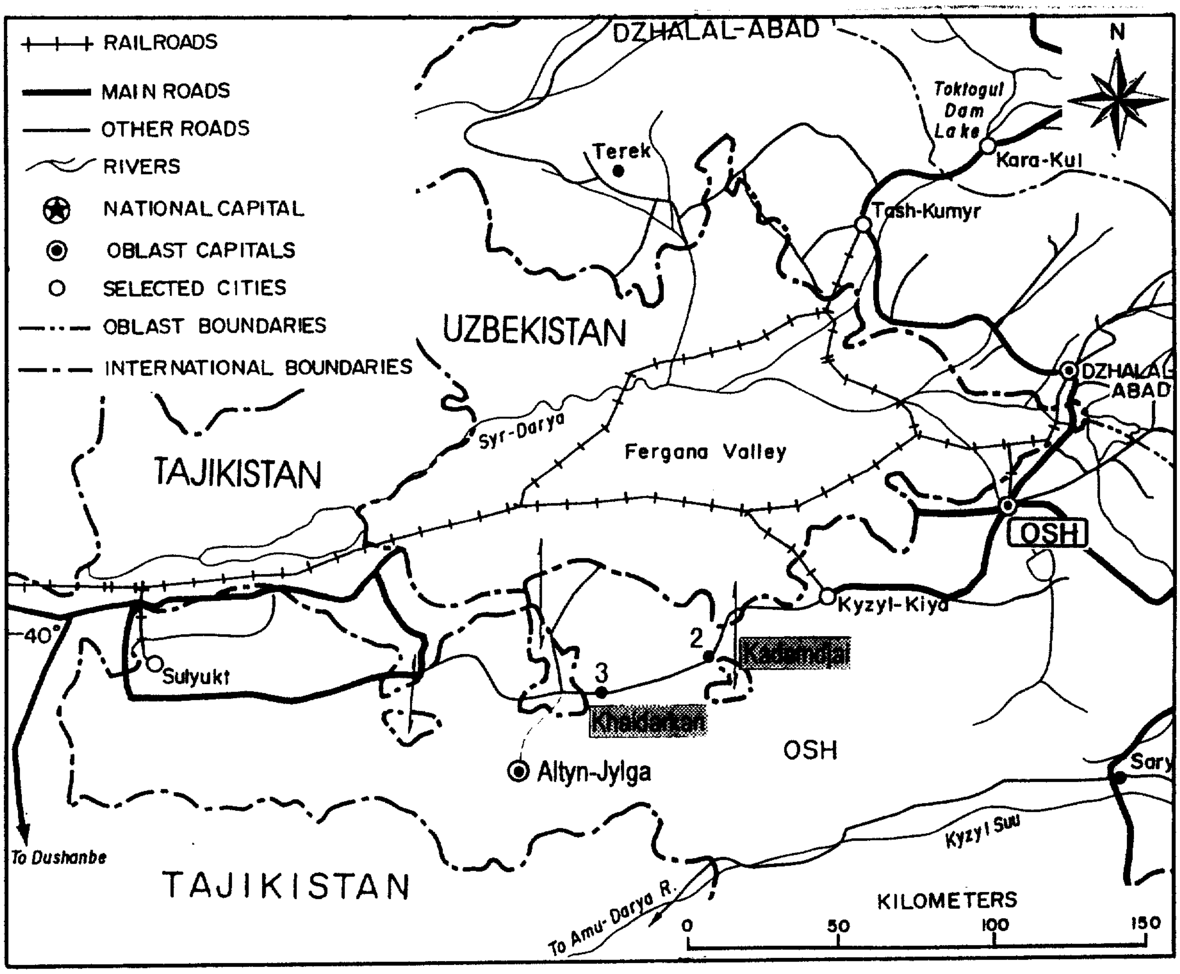

Fig.I-1-2 Transportation System

the nearby population center of the survey area. The principal road passes through two Uzbek territories. One is south of Kadamdjai and the another is Sokh Village. Osh and Khaydarkan are connected by the approximately. 174 km paved road (a three-hour car ride). From Khaydarkan to Altyn-Jylga, the road distance is some 50 km, of which the 20 km section before the Sokh Village is paved while the rest consists of gravel roads; it takes some one hour and half by car. Small villages are spotted along the Sokh River from Sokh Village to Altyn-Jylga. In

Sary-Tara, one of such small villages nearest to the survey district, there remains piles of copper slag reminiscent of old copper mining and smelting operations.

The Shulan Geological Party of the South Kyrghyz Geological Expedition, which is the Kyrghyz counterpart for operation of the subject survey, is headquartered in Kadamjai and has a workshop in Khaydarkan.

1-2-2 Electric power and communication

The Kirghyz electric power network is an integral part of the Central Asian power network, and has been developed characteristically in order to connect the cities and existing Kombinats. Consequently, most of the mountainous regions that have high potential for mineral resources are left unconnected with the network. The Altyn-Jylga District is some way off the main power lines but a 10 kVA transmission line from Kara-Tokoi via the Uzbek enclave passes through Altyn-Jylga and the power is supplied from Tajikistan. However, the transmission line has become so superannuated that it must be replaced by new lines to ensure a stable power supply.

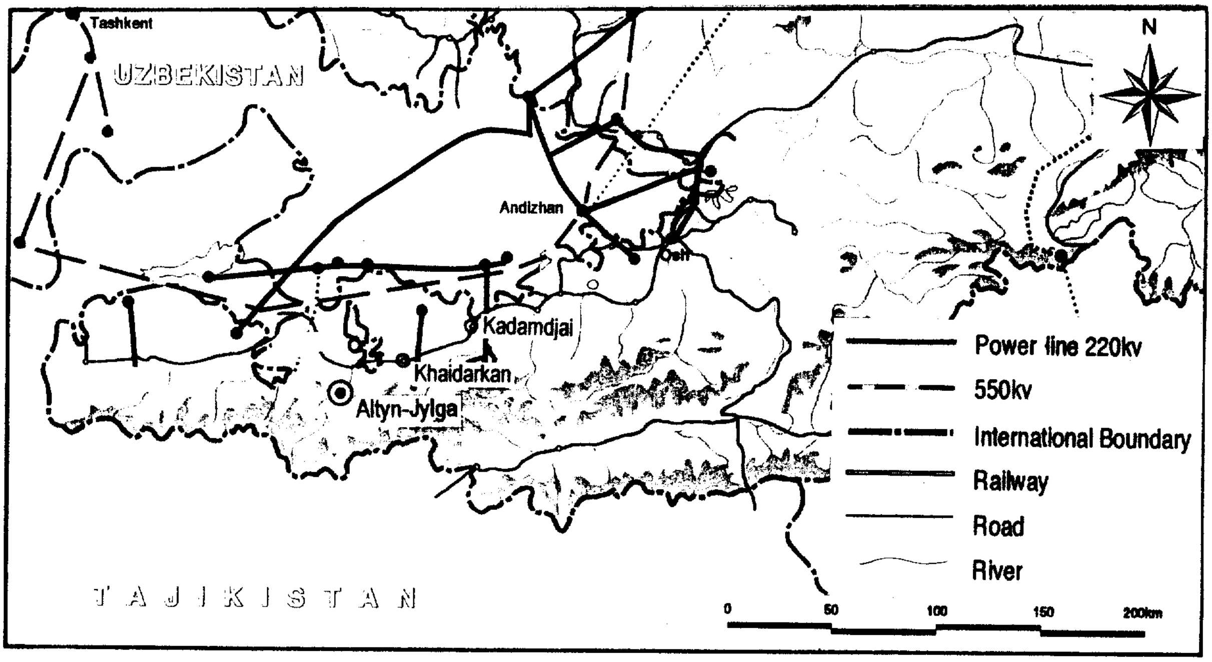

Fig.I-1-3 Electric Power Line System

The existing telecommunication lines / facilities in Khaydarkan are also superannuated. To communicate from there to Bishkek, one has to rely on operators' service, which will bring difficulties in the case of emergency.

1-2-3 Natural condition

The Altyn-Jylga district is located on the right bank of the Sokh River. In the district, ore bodies out crop on the slope ranging from 1,800 m to 2,200 m in altitude. Steep rocky ridges characterize the topography with 3,200 m to 4,500 m in altitude and a deep valley.

The Sokh River originates from the border on Tadjikistan. The river terraces occur widely on both banks. The annual average discharge is 50-60 m^3/s. The river water is not available for drinking and mining works because it contains very fine sand supplied from glaciers during spring to autumn. Water from branches of the Sokh River had been used for drinking and mining works in phase II survey, while permanent flowing water from the 1850 m level tunnel was used in this year.

The climate of the survey area is typical continental type. In the Altyn-Jylga district, the monthly average temperature ranges from -25°C ~ -20°C in February, to 30°C ~ 35°C in July. The annual precipitation is low as 250 mm ~ 300 mm. It is covered with snow from the end of October to April. There are about 220 clear days per year.

The Altyn-Jylga district is mostly covered with grassy barren soil. Bushes and poplar trees grow along the valley.

1-3 Ore deposits in the survey area

1-3-1 Alay area

In the Turkestan-Alay area, gold-silver-polymetallic mineralization is associated with the calc-alkalic rock series as the Karakazyk complex. Tin-tungsten mineralization is associated with the alkali-calcic rock series as the Surmetash complex. Rare metals are accompanied with pegmatite and metasomatic rocks around alkali intrusives.

Ore deposits and mineral manifestations in this area are as follows: Altyn-Jylga ore field (Au, Cu), Kokusu ore field (Au, Ag, Cu, Bi, W, Sb, Pb, Zn), Augul-Gavian ore field (Au, Cu) and Allaudin ore field (Sn, W).

1-3-2 Around Altyn-Jylga district

Augul-Dongryuk and Ozernoe skarn type gold-copper manifestations, and Ak-Sai, Chakush and Kara-Shoro vein type gold bearing sulfides hydrothermal silicification manifestations has been known around the Altyn-Jylga district (Fig.I-1-4). These manifestations have been surveyed on the surface so far.

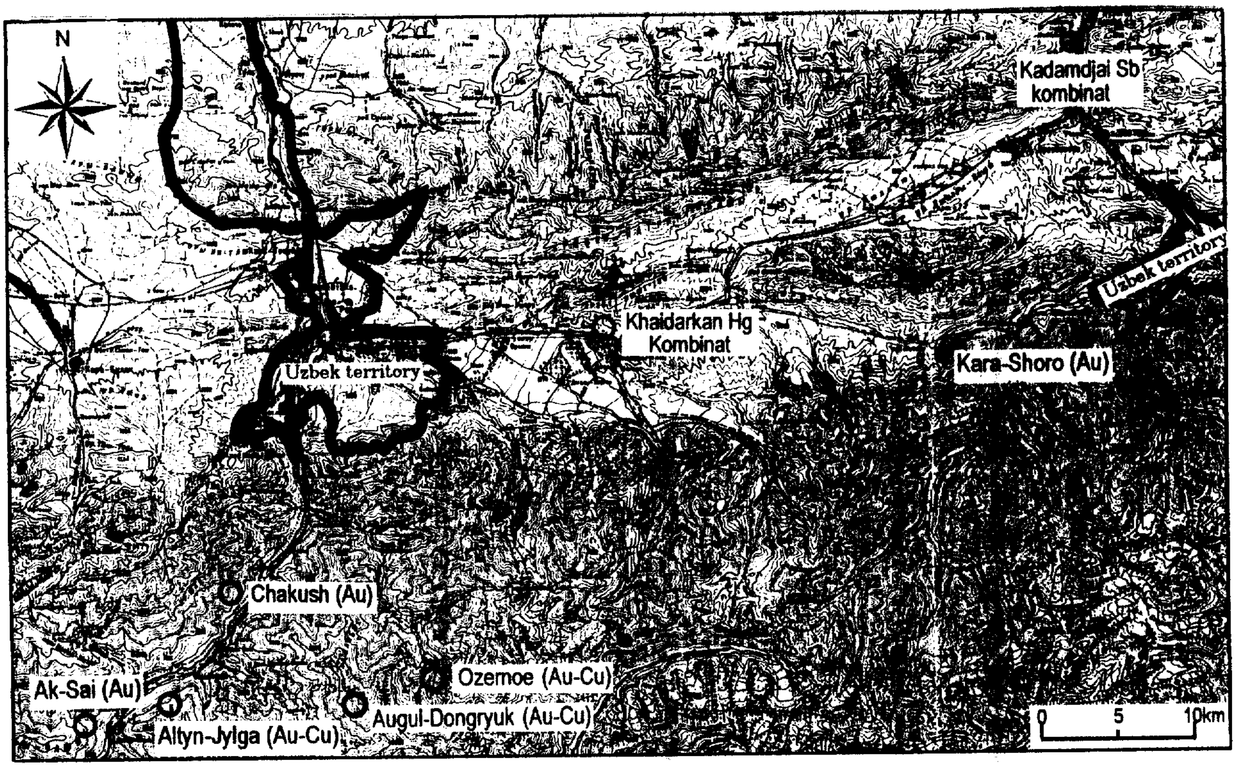

Fig.I-1-4 Gold Manifestations around Altyn-Jylga District

1-3-3 Altyn-Jylga Ore Field

The occurrence of ore deposits in the Altyn-Jylga ore field and its geological outline are demonstrated in Fig. I-1-5.

(1) Geologic structure

The Altyn-Jylga ore field comprises gold and copper-bearing skarn deposits formed in the contact zones of late Carboniferous to early Permian Altyn-Jylga intrusive rock body with limestone of the Devonian Kumbel Formation. The intrusion consists of granodiorites (282 ± 14Ma) and gabbroid. Granodiorite porphyry dikes and lamprophyre dikes(299 ± 15Ma) are also abundant. The lamprophyre dikes cut the granodiorite bodies.

The boundary between the intrusive rock body and limestone strikes NE-SW and dips southward. Most of the dikes strike NE-SW dipping south, or strike NW-SE dipping south. The bedding planes of limestone generally strike NE-SW and dip southward although, in some parts, they strike E-W dipping south. The boundary zone with the intrusion, some 100m wide, consists of white-colored, massive marbles, whose structure has not been known.

(2) Mineralization

Mineralization is observed in most part of the skarn zone consisting of garnet and pyroxene, formed in contact zones of the intrusive rock body with limestone. Mineralization accompanying skarnization is also recognizable in the dikes. Bonanzas are formed in intersections of the skarn zone with dikes or fractures. The mineralization is inferred to be centering on the gold geochemical anomaly zone in to the Altyn-Jylga valley.

Ores occur in the skarn in form of irregular masses, veins or dissemination. Gold occurs as electrum, mostly included in chalcopyrite or bornite and observed in cleavages or along outlines of these minerals. Main skarn minerals are clinopyroxene, garnet, amphibole and wollastonite.

(3) Distribution of deposits

The ore bodies and deposits in the subject ore field are, from the north, Northern Deposit, Central Deposit (includes the No.3 Ore Body and the No.5 Ore Body), Southern Deposit, Western Deposit and Far Western Deposit (Fig. I-1-5). The No.5 Ore Body occurs in dikes and fractures, whilst the others are present in the skarn zone.

(4) Gold potential

The gold potential have been estimated, on the basis of the surveys so far conducted, of the Nos. 3 and 5 Ore Bodies and Southern Deposit, which add up to 36.5 tons at a cut-off grade of 1 g/t. As to Western Deposit and Far Western Deposit, the potentialities remain unknown, as surveys that permit overall ore reserves estimation have not been conducted as yet. Since the past geological reconnaissance and trenching survey suggest continuity of ore deposits, further survey can possibly lead to acquisition of substantial ore reserves.

1-4 Conclusions and recommendations of the Phase II survey

At the 1850 m level in the No. 3 ore body of the Altyn-Jylga ore field, tunnel survey was designed based on the results of Phase I survey. Its purpose is to (i) confirm continuity of the gold mineralization zone discovered by the past drilling survey; (ii) examine the mineralization, thereby drawing exploration guidelines; and, (iii) design survey programs for the succeeding years.

1-4-1 Conclusions of the Phase II survey

(1) The continuity of the No. 3 ore body between 1,930 m level and 1,850 m level and high-grade zone found by the past drilling surveys has been ascertained. Area and average grade of the ore body at the 1,850 m level was estimated to be

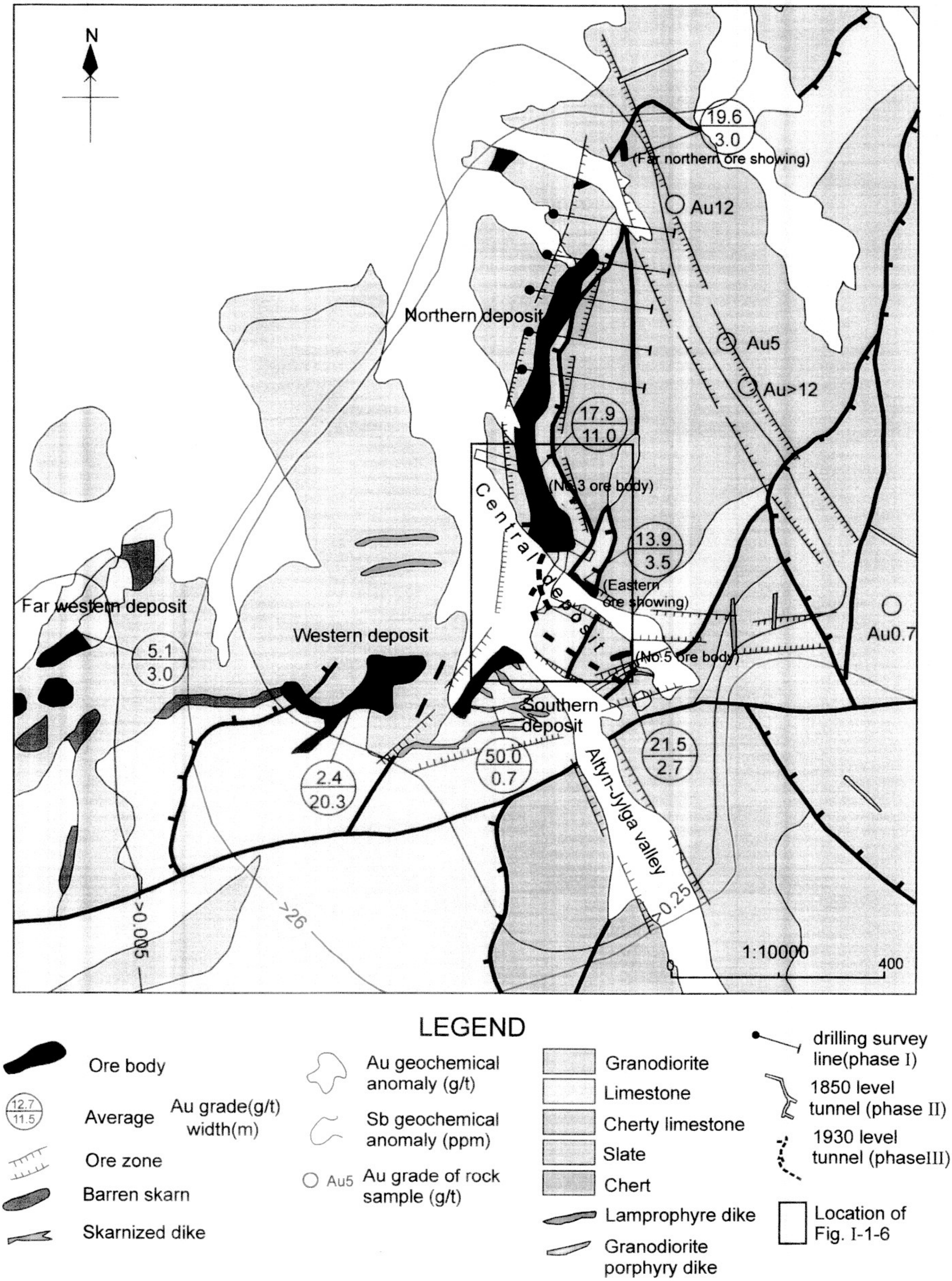

Fig. I-1-5 Distribution of Ore Deposits in Altyn-Jylga Ore Field

2,000 m^2 and 7.0 g/t Au (cut-off grade 1g/t), respectively. The ore body is inferred to continue horizontally and vertically downward.

(2) The gold mineralization of the No. 3 ore body can be divided into the following three stages:

Stage A. Mineralization accompanied with pyroxene-dominant skarnization along the boundary of the Altyn-Jylga intrusive body and limestone in the late stage of the skarnization

Stage B. Mineralization accompanied with garnet-dominant reskarnization of lamprophyre and skarn at the beginning of the late stage of reskarnization

Stage C. Mineralization which occurred along the fractures near the skarn after formation of the skarn

High-grade ore and bonanzas were formed in the second stage around intersections of the skarn zone and dikes.

(3) It is inferred that the No. 5 ore body and Southern deposit consist of a continuous mineralization zone. The mineralization of these ore bodies was probably formed in a similar mode of occurrence as the bonanzas of the No. 3 ore body. The potential gold reserves of the No. 3, the No. 5 and Southern ore bodies are estimated altogether at 29.3 tons.

1-4-2 Recommendations of the Phase II survey

It is required to explore the part below the 1,850m level thereby clarifying the potential of the ore body.

In order to bring the Altyn-Jylga District to the development stage, it would be necessary to clarify further the mechanism of the mineralization on the basis of Phase II results, and establish guidelines for exploring the ore zone consisting of the No. 5 ore body, the Southern deposit, as well as other promising ore bodies and deposits, thereby substantially increasing ore reserves.

(1) Exploration targets

(i) Extensions of the skarn zone in the horizontal and vertical directions

(ii) Intersections of the skarn zones with dikes

(2) Localities and methods of survey

A. Downward and horizontal drilling survey of the No. 3 ore body

B. Driving a survey tunnel toward the ore zone consisting of the No. 5 and Southern ore bodies, and detailed surface geological survey of the ore zone

C. Detailed surface geological survey of the vein-like ore bodies at the extreme north and to the east of the No. 3 ore body, as well as the Western and Far Western deposits.

D. Ore dressing test (quantification of ore characteristics and studies on ore dressing process)

1-5 Outline of the Phase III survey

(1) Survey site and purpose

In the Phase III survey, drilling survey at the 1,850 m level on the No.3 Ore Body in the Altyn-Jylga District and tunnel survey from the same ore body toward southeast at 1,930 m level were conducted based on the results of the Phase II survey. Its purpose is to (i) confirm vertical and horizontal continuity of the No.3 Ore Body; (ii) clarify continuity to the deeper level and geological structure of the ore zone consisting of the No.5 Ore Body and the Southern Deposit; and, (iii) examine the actual state of mineralization for drawing exploration guidelines. Locations of the drilling survey and tunnel survey are shown in Fig. I-1-6 (refer to Fig. I-1-5).

(2) Methods and contents of the survey

Methods and contents are shown in Table I-1-1.

(3) Organization of the survey team and period of field survey

The members of the Japanese survey team and Kyrghyz counterparts are shown below.

Japanese drilling survey and tunnel survey members are engaged in the field work from June 15 to August 27 and June 15 to August 22 respectively. On 23rd August, armed fighters from Tajikistan territory captured the tunnel survey members includes four Japanese and a Kyrghyz interpreter. The tunnel survey was broken off by the incident at the middle point of the planned schedule. The drilling survey members had been left the camp before the incident, 21st August, after completion of field survey.

The survey was carried out with the cooperation of the South Kyrghyz Geological Expedition (SKGE) and its subsidiary, Shuran Geological Party.

Japanese survey team:

Mr. Nobuhisa NAKAJIMA	OMRD*; Leader of survey team, Geology
Mr. Hirotaro FUJII	OMRD; Mining
Mr. Haruo HARADA	OMRD; Geology
Mr. Toshiaki ARIIE	OMRD; Mining
Mr. Masamitsu KOMURA	OMRD; Drilling
Mr. Nobuhiko YAMAMOTO	OMRD; Drilling

*Overseas Mineral Resources Development Co., Ltd.

Kyrghyz counterparts:

Mr. Sheyshenaly MURZAGAZIEV	SAGMR*; Leader of survey team
Mr. Duishenbek KAMCHYBEKOB	SAGMR; Mining
Mr. Vladimir P. ZUBKOV	SAGMR; Geology
Mr. Victor P. ROGALSKY	SAGMR; Mining
Mr. Ivan I. SOLOSHENCO	SKGE*2; Geology
Mr. Ysmanaly MANSUROV	SKGE; Mining
Mr. Nikolay Andr. PYKHOTA	SKGE; Geology

*SAGMR: State Agency on Geology and Mineral Resources

*2SKGE: South Kyrghyz Geological Expedition

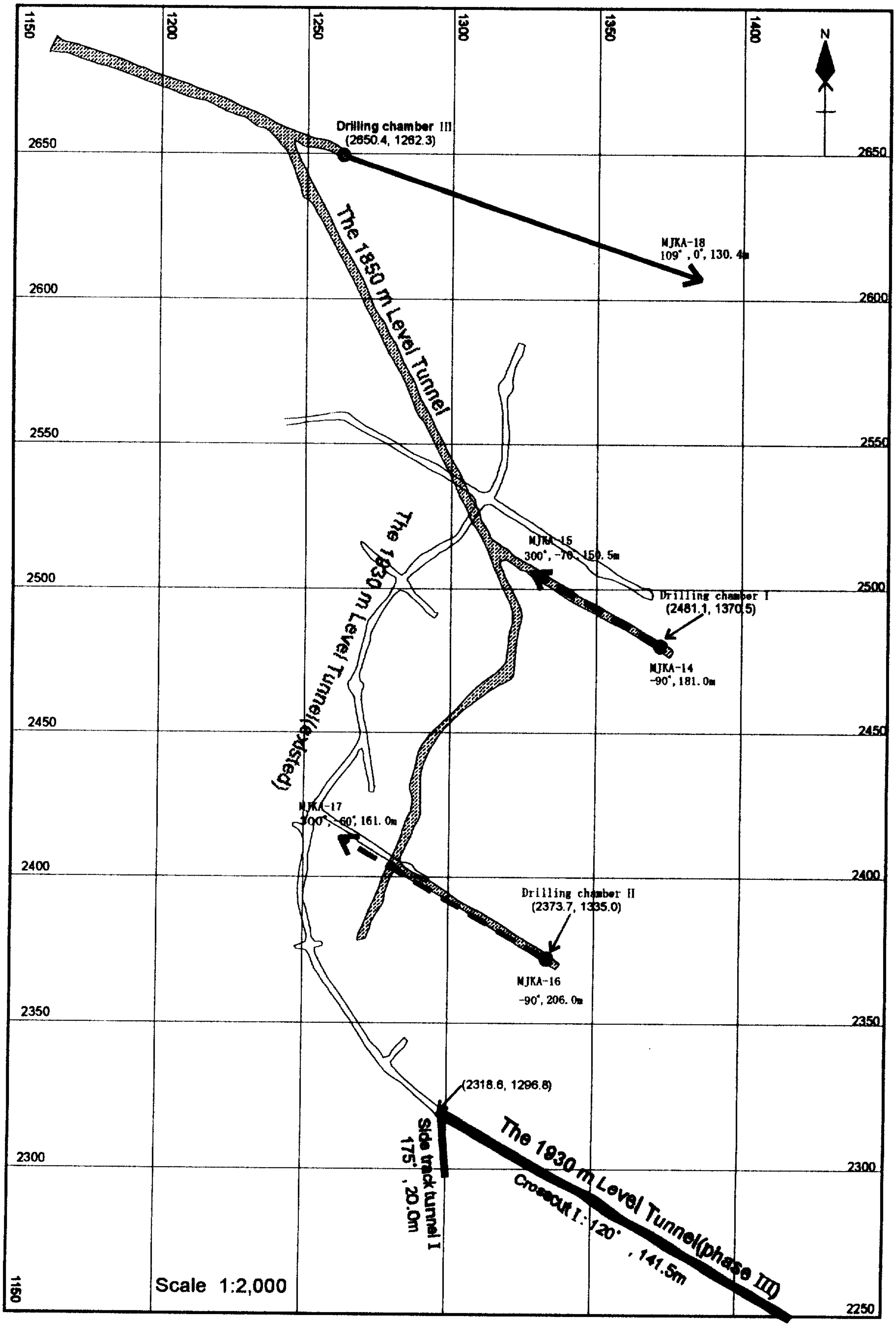

Fig. I -1-6 Location Map of the Tunnel Survey and the Drilling Survey

Table I-1-1 Methods and Contents of the Survey

Tunnel survey : 1930 m level

Tunnel name	Size:h x w(m)	Length(m)	Gradient	Direction
Crosscut I	2.5x2.45	141.5	1/200	120°
Sidetrack I	2.5x2.45	20.0	1/200	120°
	Total	161.5		

Drilling survey : underground drillings in the 1850 m level tunnel

Drillhole no.	Core size	Length(m)	Inclination	Direction
MJKA-14	HQ-NQ	181.0	-90°	—
MJKA-15	HQ-NQ	150.5	-70°	300°
MJKA-16	HQ-NQ	206.0	-90°	—
MJKA-17	HQ-NQ	161.0	-60°	300°
MJKA-18	HQ-NQ	130.4	0°	109°
	Total	828.9		

Laboratory studies

Item	Quantity		
	Tunnel	Drillcore	Total
Observation of thin section of rocdks	6	25	31
Observation of polished thin section of ores	8	18	26
Chemical analysis of ores(Au, Ag, Cu, Pb, Zn, Mo, As, Sb)	135	388	523
X-ray diffraction analysis	5	8	13
Homogenization temperature measurement of fluid inclusions	6	17	23
EPMA analysis of minerals	36	26	62

Mineral separation test : 1 representative ore of The No.3 ore body (1850 m level)

Item	Quantity
Shaking table separation	1set
Flotation	1set
Observation of polished thin section of ores and minerals	13
Chemical analysis of separated minerals(Au, Ag, Cu, Fe, As, S)	10
X-ray diffraction analysis of separated minerals	12
Modal analysis of separated minerals	3
EPMA analysis of minerals	12