

CHAPTER 4 SUMMARY OF THE PHASE I SURVEY RESULTS

4-1 Correlation Between Mineralization and Geological Setting

According to the results of petrological chemistry for the granitic rocks, MFA diagram indicated that igneous rock such as as granitic rocks belong to the cal-alkaline rock series that were developed in the orogenic belt. The Rb-(Y+Nb) and Nb-Y diagrams show that the granitic rocks belong to within-plate granites and volcanic-arc granites, or volcanic-arc granite and syn-collisional granites. The granitic rocks in the area are a product related to the subduction process of the ocean plates and their igneous activity. The granitic rocks distributed in the project area were formed in the same conditions as the formations of the porphyry Cu-Mo ore deposits.

Three types of mineralization exist in the project area: one type consists of deposits and occurrences of porphyry Cu-Mo ore deposits hosted in granitoid, the second type consists of Cu mineralization related to basaltic dykes and the third type corresponds to gold mineralization related to granite.

The Erdenet copper deposit operating at present time is the biggest porphyry copper-molybdenum deposit in eastern Asia. The same mineralization of the Zuukhiin gol mineral showing, Mogoin gol mineral showing, Khujiriin gol mineral showing and Danbatseren mineral showing and others are known in the area. The Khujiriin gol mineralization may be a poly-metallic mineralization, with high ore assay values of Cu, Pb and Zn.

The ore deposits and mineralized areas are widely distributed in the area put between two big scale structural lines in EW direction and occurring locally in cross points controlled by faults systems in NW-SE and NE-SW directions. On the other hand, the ore deposit and mineralized area are occurred in the area in places where the magmatism was very actively controlled by the subduction system.

The structure of plutonic rocks arrangements, the basin structure, dyke arrangement structure and fault structure were developed in the area. The Erdenet mine is located in the southern part of the basin structure and occurred in the cross points of the NW-SE faults and NE-SW faults. The same structural control is observed in the Danbatseren area, Mogoin gol/Khujiriin gol area and Zuukhiin gol area.

The mineralization is controlled by the geological structures of NW-SE and NE-SW directions. Magmatism after formation of porphyry Cu-Mo deposits was controlled by NS structures in places where dykes of andesite and dacite occurred in the area.

Mineralized zones in the Erdenet mine area are extended and presenting elongated NW-SE directions with six mineral showings being confirmed in the area.

4-2 Correlation Between Geochemical Anomaly and Mineralization

According to the statistical results of the rock chemical analytical data, the elements related to

the porphyry copper-molybdenum mineralization selected (Ag-Cd-Cu-(Mo)-Pb-W-Zn) indicated Factor 2 as shown Fig. II-2-5. High factor scores (more than 1.5) as same as the Erdenet Mine area are distributed in the central mineralized zone of Zuukhiin gol area and in the Khujiriin gol mineral showing of the Mogoin gol/Khujiriin gol area. The geochemical anomalies of Au, Ag, Cu, Mo and Pb are distributed in the Erdenet mine area, The Zuukhiin gol area and the Khujiriin gol mineral showing of the Mogoin gol/Khujiriin gol area. In the leached zone developed in the upper part of the alteration zone related to the porphyry Cu/Au mineralization, the analysis of the chemical elements of Ba-Ca-Co-Fe-Mg-Mn-Ti-Zn or (As)-(Ag)-Mo and Al-Be-(Ca)-K-Na are indicated Factor 1 and 3.

The leached zone is confirmed in the Mogoin gol mineral showing of the Mogoin gol/Khujiriin gol area, the Tsagaan Chuluut area and the Danbatseren area. In the leached zone of the strong altered zone related to the hydrothermal mineralization, analytical values of Al, Be, Ca, K, Na and Ti are very low but the analytical value of Cr is higher in the leached zone.

The mineral assemblage of alteration mineral zoning in the Erdenet Mine is thought to present a) quartz-sericite, b) quartz-sericite-chlorite and c) albite-chlorite distributed from the central part to outside. Alteration mineral assemblages as same as the Erdenet mine area, are confirmed in the central hill of the Zuukhiin gol area and in the Khujiriin gol mineral showing of the Mogoin gol/Khujiriin gol area.

In the Tsagaan Chuluut area the alteration mineral assemblage includes mainly mineral assemblage of quartz-(jarosite)-(kaolinite), quartz-alunite-(pyrophyllite)-(kaolinite) and quartz-alunite-sericite-(kaolinite) related to advanced argillic alteration. The alteration mineral assemblage including alunite belongs to the advanced argillic alteration zone. In the Mogoin gol mineral showing, the alteration mineral assemblage is mainly including mineral assemblage of quartz-andalusite, quartz-andalusite-sericite and sericite-(smectite) related to high sulphide hydrothermal alteration. In the Danbatseren area, the alteration mineral assemblage is mainly including mineral assemblage of quartz-andalusite, quartz-andalusite-sericite and sericite-(smectite) related to high sulphide hydrothermal alteration.

According to the distribution of the alteration mineral assemblage, the idealized model for the porphyry type Cu-Mo ore deposits, indicated in Fig. I-4-1, shows the advanced argillic alteration and underlying porphyry Cu/Au deposits taken from Sillitoe. From central part of the porphyry copper alteration to outside, it is found distributed potassic alteration zone with K-feldspar and biotite, propirite zone and sericite zone and advanced argillic alteration zone characterized by alunite and pyrophyllite. In the acidic alteration zone of the upper part of the porphyry copper alteration system, the alteration mineral assemblage of sericite- pyrophyllite-(diaspore and andalusite) type is distributed.

The Zuukhiin gol area and the Khujiriin gol area are equaled to nearly part or lower part of the porphyry copper mineralization system. The Tsagaan Chuluut area equaled to the upper part of the acidic alteration of the mineralization. The Mogoin gol area and the Danbatseren area are equaled to the lower part of acidic alteration. The alteration mineral assemblage in each of the areas shows

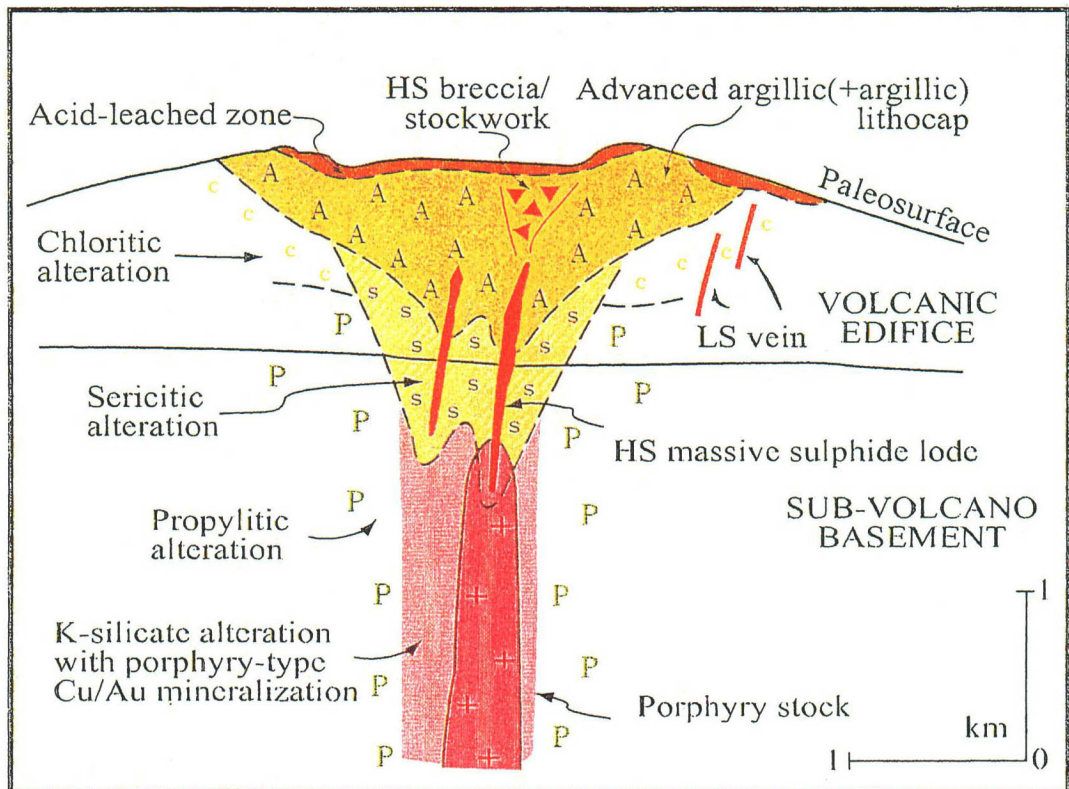


Fig. I-4-1 Idealized advanced argillic alteration (lithocap) and underlying porphyry Cu/Au deposit taken from Sillitoe (1995)

probably the depth of the porphyry type Cu-Mo mineralization system.

4-3 Correlation Between Previous Geophysical Anomaly and Mineralization

Previous geophysical surveys of ground magnetic and electric IP electric had been conducted until 1985. Compiled data of the geophysical survey is shown in Fig. II-1-3.

The previous magnetic and IP geophysical surveys in the Erdenet Mine area indicated that Erdenet NW ore deposit is located in lowest magnetic zone, small high chargeability zones and relatively lower resistivity zone. Erdenet Central and Erdenet SE (Oyut) mineralized zones are located in relatively lower zones with clear NW-SE direction.

Low magnetic anomalous zone could not be confirmed in the other 6 areas. However, high chargeability zones were confirmed in the Zuukhiin gol area, Mogoin gol/Khujiriin gol area and Danbatseren area.

4-4 Summary of Formation of the Erdenet Ore Deposits

Erdenet NW, Erdenet Central, Erdenet Intermediate and Erdenet SE (Oyut) are ore deposits in the project area. The Erdenet NW ore deposits, called the Erdenet mine, were developed by open pit methods. The ore reserves of Erdenet Central, Erdenet Intermediate and Erdenet SE (Oyut) ore deposits have been already calculated.

In and around the Erdenet mine as shown in Fig. II-2-29, the plutonic rocks are divided into Selenge Complex and Erdenet Complex. The Erdenet Complex is composed of granite-porphyry, syenite-porphyry, diorite porphyry and granodiorite porphyry. In the Erdenet mine, the host rock of the porphyry Cu-Mo mineralization is the Selenge Complex and the igneous rock related to the porphyry Cu-Mo mineralization is the Erdenet Complex. As shown in Fig. I-3-1, in the project area can be confirmed the structure of plutonic rocks arrangements, the basin structure, dyke arrangement structure and fault structures. The Erdenet mine exists in the junction of the NW-SE faults and NE-SW faults.

The mineral assemblage of alteration mineral zoning in the Erdenet Mine, as shown in Fig. I-4-2, is thought to present a) quartz-sericite, b) quartz-sericite-chlorite and c) albite-chlorite distributed from the central part to outside. From central part of the porphyry copper alteration to outside, it is found distributed potassic alteration zone with K-feldspar-biotite-propirite zone and sericite zone and advanced argillic alteration zone characterized by alunite and pyrophyllite. In the acidic alteration zone of the upper part of the porphyry copper alteration system, it is found distributed the alteration mineral assemblage of sericite- pyrophyllite-(diaspore and andalusite) type.

The genetic model of the Erdenet porphyry copper molybdenum deposit is made by using the characteristics of Erdenet mine and other mineral showings as shown Fig. I-4-1.

As the results of the airborne geophysical survey, Erdenet mine occurred in the folding axis trending NW-SE direction in places where low magnetic anomaly is detected in the domain 3. Other

three ore deposits are located in the southern wing of folding structure. The ore deposits in the Erdenet mine area are located in the lowest magnetic anomalies where Erdenet complex with porphyritic rock are occurred. The Erdenet mine as shown in Fig. II-3-18 is located in the small-scale lowest magnetic anomalous zone in the low magnetic anomaly trending NW-SE direction. In the small-scale lowest magnetic anomalous zone, porphyry of Erdenet complex occurred in places related to the formation of the porphyry type copper – molybdenum ore deposits. As shown in Fig II-3-19, high potassium content is detected in the Erdenet ore deposits where an open-pit existed. However, other mineral deposits in the Erdenet mine area present intermediate potassium anomaly in small scale because of the soil cover. According to the previous ground geophysical survey data, low magnetic anomaly, high IP chargeability and relative low resistivity were detected in the Erdenet ore deposits.

As shown in Fig.I-4-3, it is considered that the Erdenet ore deposit of the porphyry type copper – molybdenum ore deposits is formed under the condition of N-S stress or compression and in the folding axis detected by regional structural analysis from airborne magnetic survey.

Consequently, it is important for the exploration of the porphyry type copper – molybdenum ore deposits:

- 1) To find the area controlled by the general geological structure such as folding structures,
- 2) To find the porphyritic rock related the Erdenet complex,
- 3) To find the alteration mineral assemblage and the geochemical nature related to the formation of porphyry type copper – molybdenum ore deposits and
- 4) To find the low magnetic anomalous zone and high potassium content zone.

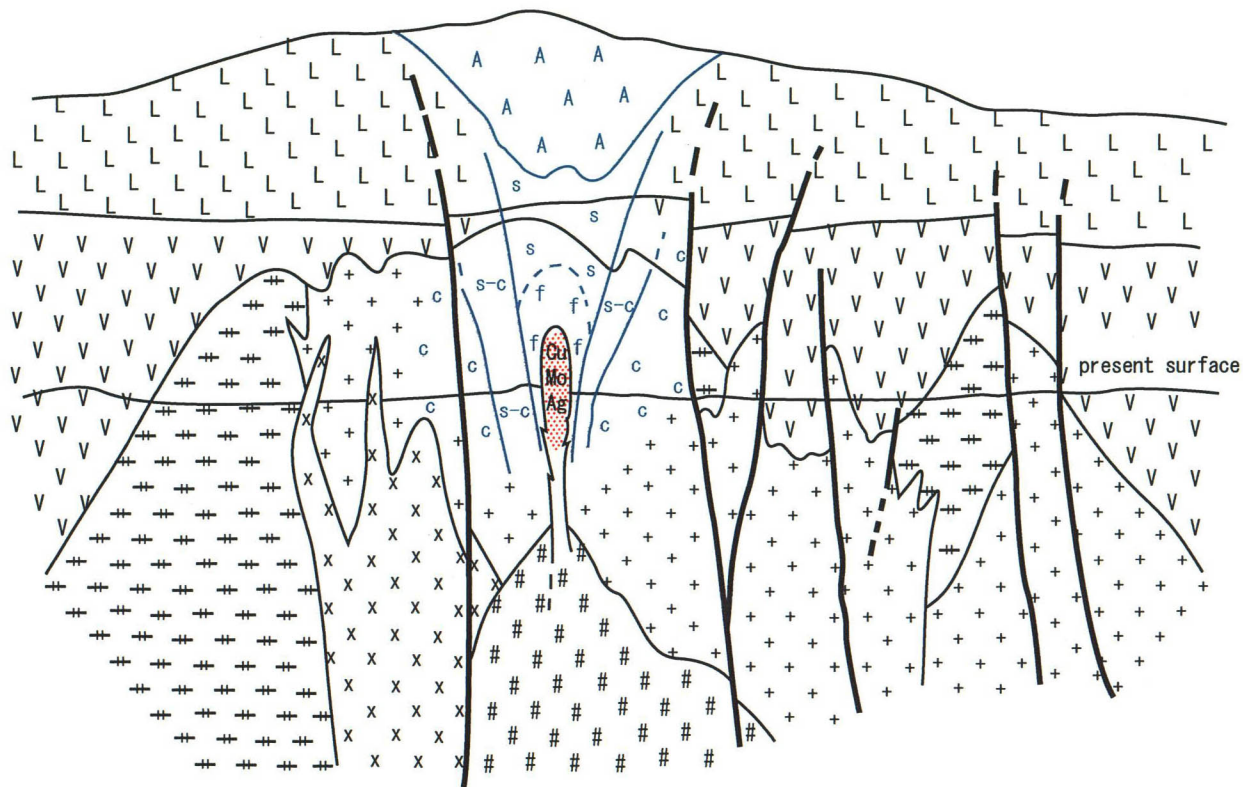
4-5 Preliminary Evaluation of Mineral Potentiality

In the Erdenet mine, the area consists of Pre-Cambrian, Permian volcanic rocks, Triassic to Jurassic volcanic rocks, Permian granites, Permian to Triassic porphyries, Triassic to Jurassic porphyry, dykes and Quaternary deposits.

In and around the Erdenet mine, the plutonic rocks are divided into Selenge Complex and Erdenet Complex. The Erdenet Complex is composed of granite-porphyry, syenit-porphyry, diorite porphyry and granodiorite porphyry. In the Erdenet mine, the host rock of the porphyry Cu-Mo mineralization is the Selenge Complex and the igneous rock related to the porphyry Cu-Mo mineralization is the Erdenet Complex.

There exists in the area several deposits: Erdenet NW, Erdenet Central, Erdenet Intermediate and Erdenet SE (Oyut) ore deposits. The Erdenet NW ore deposits were developed by open pit methods. The ore reserves of Erdenet Central, Erdenet Intermediate and Erdenet SE (Oyut) ore deposits have been already calculated. The Ore reserve of the Erdenet mine in 1999 was 1,400,000,000 ton (Cu: 7,000,000 ton, Mo: 200,000 ton)

The mineralizations of the Erdenet mine are controlled by NW-SE trending geological structures.



LEGEND

- Triassic~Jurassic L L L :volcanic rock
- Permian~Triassic V V V :volcanic rock
- Erdenet Complex (Triassic~Jurassic) # # # :porphyritic rock
- Selenge Complex (Permian~Triassic) x x x :granite
- + + + :granodiorite
- + + + :diorite
- :fault

ALTERATION

- A:Advanced argillic alteration
- c:Propyritic alteration
chlorite(epidote+calcite)
- s-c:sericite-chlorite alteration
- s:sericitic alteration
- f:quartz-sericite alteration
- K:K-silicate alteration

Fig. I-4-2 Genesis model of Erdenet ore deposit in early Jurassic

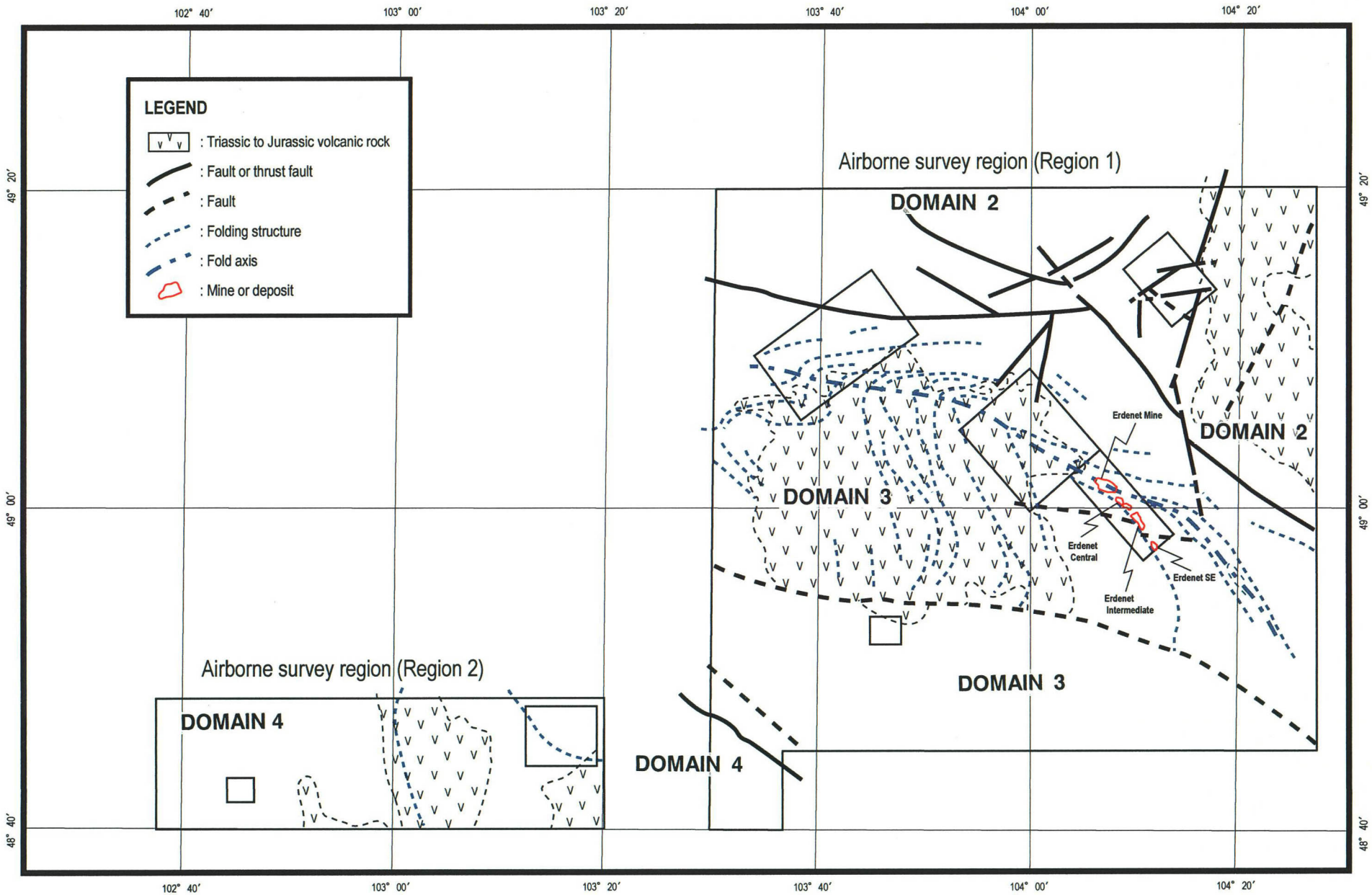


Fig. I-4-3 Geotectonic setting of the Western Erdenet area

The igneous activity of post-mineralization tends to occur along N-S trending. The mineralized zones in the area with six known ore bodies and mineralizations in total including the Erdenet mine, show NW-SE trends elongated approximately 20km. The Erdenet mine was found in the cross points of the NW-SE faults and NE-SW faults.

Alteration of the Erdenet Mine area is composed of alteration mineral assemblage of sericite-(smectite), sericite-chlorite-(smectite) and chlorite. The mineral assemblage of alteration mineral zoning in the Erdenet Mine consists of: a) quartz-sericite, b) quartz-sericite-chlorite and c) albite –chlorite distributed from the central part to outside.

According to the statistical results of the rock chemical analytical data, the selected elements of Ag-Cd-Cu-(Mo)-Pb-W-Zn related to the porphyry copper-molybdenum mineralization, indicated Factor values of 2. High geochemical anomalies of Au, Ag, Cu, Mo and Pb were found distributed in the Erdenet mine area.

The previous magnetic survey and IP geophysical survey in the Erdenet Mine area indicated that Erdenet NW ore deposit corresponds to a zone with lowest magnetic values, low high chargeability and in relatively lower resistivity distributions.

Similar geological, geochemical and geophysical characteristics as the Erdenet mine are confirmed in the Zuukhiin gol area and the Khujiriin gol area of the Mogoin gol/Khujiriin gol area. First priority for high potential porphyry of Cu-Mo mineralization similar as the Erdenet Mine ore deposits were found in the central part of the Zuukhiin gol area and in the Khujiriin gol mineralized zone of the Mogoin gol/Khujiriin area.

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

5-1 Conclusions

The survey results can be summarized per area as follows:

5-1-1 Conclusions of the geophysical survey

As the results of airborne magnetic and radiometric surveys at the Western Erdenet area, in Area-1 it is detected an elongated magnetic lineament along NW-SE direction from the southeast corner to the center of the area with slight bending but showing a further westward continuation

This low magnetic zone, where Erdenet mine is located, are probably due to the results of demagnetization during the alteration process.

A tectonic line detected on the south part of Area-1 along an ENE-WSW seems to intersect the basement rocks and younger sedimentary basins. It is inferred that this tectonic ENE-WSW line controls the Western Erdenet area.

High Potassium anomalies are seen distributed along the same trend as the magnetic NW-SE trend in Area-1. Most of the strong potassium signatures are detected in the open pit of Erdenet mine. This NW-SE trend spreads through the westward and continues to Khujiriin Gol area.

From the interpretation of the aeromagnetic and radiometric data, most prospective zones were extracted. This zone includes a NW-SE magnetic lineament that continues westward in Area-1 and likely to be related to mineralization with potassium high signature zones.

5-1-2 Conclusions of the geological survey

The results of the geological survey and the existing data compilation indicate that the characteristics of the porphyry copper type mineralization of each area and the chemical element behavior accompanied with the mineralization were clarified as shown in Table I-5-1.

(1) Zuukhiin gol area

According to the results of the geological survey shown in Fig. II-2-11, the alteration in the mineralized zone of the area, which is composed of sericite-chlorite type and chlorite type, indicated propylitic alteration. Especially, the center of the Zuukhiin gol mineralized zone in the trench presents alteration of sericite-chlorite type. The alteration related to the mineralization indicates the same alteration mineral assemblage as the Erdenet mine area. The results of rock chemical analysis indicated that values of more than Cu 50 ppm with Cu 11,740 ppm in maximum are concentrated in the center of the Zuukhiin gol mineralized zone and that Factor 2 scores of more than 0.5 that are related to the geochemical activity of the porphyry copper type mineralization, were also distributed

Table I-5-1 Summary of geological survey results for each area

	Country rocks	Intrusion	K/Ar Dating (Ma)	Structure	Alteration	Mineralization	Rock Chemistry	Ore assay (in max)
Zuukhiin gol area	λ J1 α β T2-J1 α λ tP2-1	γ δ π 3T1s γ 3P2-T1s γ 2P2-T1s γ δ 1P2-T1s δ 1P2-T1s	258	NE-SW MNW-ESE EW	ser-chl-(sme) chl	pyrite goethite hematite limonite malachite	Cu: >300ppm Cu: >1,000ppm Mo: — Ag: >2.0 ppm Factor 2: >1.5	Cu: 0.464 % Mo: 0.001 % Pb: 0.007 % Zn: 0.019 % Au: <0.01g/t Ag: <5 ppm
Mogoin gol/Khujirinin gol area	α β T2-J1 α β P2	λ J1 γ δ 2T1s δ 1T1s		NE-SW	qtz-ser-(Kf)-(kao) qtz-pyro-kao qtz-and ser-(sme) ser-chl-(sme) chl fresh	pyrite hematite limonite	Cu: — Cu: — Mo: — Ag: — Factor 2: —	Cu: 0.002 % Mo: <0.001 % Pb: 0.016 % Zn: <0.002 % Au: <0.01g/t Ag: <5 ppm
Khujirinin gol area	α β T2-J1 α β P2	γ δ 2T1s δ 1T1s	287	MNW-ESE EW	ser-(sme) ser-chl-(sme) chl fresh	pyrite goethite hematite limonite chalcopyrite malachite	Cu: >300ppm Cu: >1,000ppm Mo: >12 ppm Ag: >2.0 ppm Factor 2: >1.5	Cu: 11.131 % Mo: 0.026 % Pb: 5.575 % Zn: 2.64 % Au: 0.03g/t Ag: 221 ppm
Tsagaan Chuluut area	λ π T2-J1 T2-J1mg P1hn1	γ 3P2-T1s γ δ 2P2-T1s δ 1P2-T1s		NW-SE NS EW NE-SW	qtz-(jar)-(kao) qtz-alu-(pyro)-(kao) qtz-alu-ser-(kao) qtz-ser-(Kf)-(kao) ser-chl-(sme) chl		Cu: >300ppm Cu: — Mo: >12 ppm Ag: — Factor 2: —	
Erdenet mine area								
Erdenet Central area	P1hn1 V- ϵ	γ δ π P2-T1e γ δ 2P2-T1s δ 1P2-T1s	259	NS NW-SE NE-SW EW	ser-chl-(sme) chl kao fresh		Cu: >300ppm Cu: >1,000ppm Mo: >12 ppm Ag: >2.0 ppm Factor 2: >1.5	
Erdenet southeast area	P1hn1 V- ϵ	γ δ π P2-T1e γ δ 2P2-T1s δ 1P2-T1s		NS NW-SE NE-SW EW	ser-(sme) ser-chl-(sme) chl fresh		Cu: — Cu: — Mo: — Ag: >2.0 ppm Factor 2: —	
Danbatsem area	α β T2-J1 α λ tP1-2	λ J1 γ δ 2T1s δ 1T1s		NW-SE WNW-ESE NS	qtz-(jar)-(kao) ser-chl-(sme) chl fresh	goethite hematite limonite	Cu: — Cu: — Mo: — Ag: — Factor 2: —	Cu: 0.004 % Mo: <0.001 % Pb: 0.003 % Zn: 0.003 % Au: <0.01g/t Ag: <5 ppm
Undrak area	γ 2P2-T1s γ δ 2P2-T1s ϵ ; γ 2D2	γ 2PZ1 γ δ 2PZ1 γ δ 1PZ1		NW-SE	ser-(sme) ser-chl-(sme) fresh	pyrite hematite	Cu: — Cu: — Mo: — Ag: — Factor 2: —	Cu: 0.123 % Mo: 0.001 % Pb: 6.737 % Zn: 0.682 % Au: 1.49 g/t Ag: 538 ppm
Tsookher mert area	T2-J1mg D2ot	γ 3P2-T1s γ δ 3P2-T1s δ 1P2-T1s	248	NE-SW NW-SE EW	ser-(sme) ser-chl-(sm) chl fresh	goethite hematite limonite malachite	Cu: — Cu: — Mo: — Ag: — Factor 2: —	Cu: 0.011 % Mo: <0.001 % Pb: 0.002 % Zn: 0.002 % Au: <0.01g/t Ag: <5 ppm

in the mineralized zone.

According to the previous survey data, the mineralization is inferred with an extension up to 300 m in depth. For further survey works, it is considered that IP geophysical survey should be conducted in the mineralized zone in order to clarify the scale of the mineralization. If the results of the survey are promising, drilling survey would be conducted in places where geophysical anomalies are detected.

The previous exploration work were abandoned because of the low ore grade. At the present time, the technology of SX-EW method exists. It means that if oxide ores of more than Cu 0.3 % are distributed and concentrated in the area, the mining development is likely to be feasible.

(2) Mogoin gol/Khujiriin gol area

The Mogoin gol mineralized zones and the Khujiriin gol mineralized zone exist in the Mogoin gol/Khujiriin gol area.

In relation to the results of the geological survey in the Mogoin gol area, alteration mineral assemblages of quartz-sericite- (K-feldspar)-(kaolinite), quartz-pyrophyllite-kaolinite, quartz-andalusite and quartz- andalusite-sericite were confirmed in the strong altered zone. Alteration mineral assemblages of sericite-(smectite), sericite-chlorite-(smectite) and chlorite were also confirmed around the strong altered zone. These alteration mineral assemblages are generally observed in the epithermal and acidic alteration zone under high sulfidation system. The alteration zone is generally developed in the upper part of alteration system of the porphyry Cu/Au type mineralization. The results of the rock geochemistry indicate that the leached zones of elements exist in the alteration zone. However, Factor 2 scores of more than 0.5 are not distributed in the zone, and because this factor indicates the chemical activity related to the porphyry copper type mineralization, it is considered that the porphyry copper type mineralization may exist in the deeper part of the Mogoin gol area.

According to the results of the geological survey in the Khujiriin gol area, the alteration mineral assemblage of sericite-(smectite) type, sericite-chlorite-(smectite) type and chlorite type are distributed in the area. The distribution of the alteration mineral assemblages is same as the Erdenet mine area. In relation to the results of the rock chemistry, high copper vales of more than Cu 50 ppm and Cu 5,5072 ppm in maximum is concentrated in the central part of the Khujiriin gol mineralization zone. Factor 2 scores of more than 0.5 are also concentrated in the center of the Khujiriin gol mineralization zone. The ore samples with copper oxides show high values of: Cu 11.13 %, Pb 5.78 %, Zn 2.64 %, Mo 0.269 % and Ag 221 ppm in maximum. Mineralization type of the Khujiriin gol mineralization zone may be not only the porphyry copper type mineralization but also the poly-metallic mineralization. The results from fluid inclusion presented an average temperature of 244.2 °C to 289.0 °C and salinity of 3.0 % to 4.0% which means that the low temperatures of porphyry copper type mineralization system indicates epithermal mineralization.

Consequently, it is considered that not only the porphyry copper type mineralization but also the

poly-metallic mineralization may have occurred in the Khujiriin gol mineralization zone. The potential is thought to be high. It is considered that a detailed geological survey and IP electric geophysical survey should be conducted in the Khujiriin gol mineralization zone. If the survey results are promising, drilling survey would be conducted in the zone in order to better clarify the geology and mineralogy.

(3) Tsagaan Chuluut area

According to the results of the geological survey, the Permian to Triassic granodiorite of Selenge complex is distributed in and around the Tsagaan Chuluut Mountain and Triassic to Jurassic volcanic rocks cover the granodiorite.

The alteration mineral assemblage of quartz-(jarosite)-(kaolinite) type and quartz-alunite-(pyrophyllite)-(kaolinite) type is distributed in the white argillized and silicified zone in and around the Tsagaan Chuluut mountain. The alteration zone belongs to the advanced argillic alteration zone of the porphyry Cu/Au type alteration system. The expected porphyry Cu-Mo mineralization is inferred to exist in the deeper part from the ground surface.

The previous geophysical survey results indicated that the white argillized and silicified zone is located in the magnetic the IP anomaly zone.

It is considered that porphyry type Cu-Mo mineralization may exist in the deeper part from the ground surface.

(4) Erdenet mine area

In the Erdenet mine area, besides the Erdenet NW ore deposit, the following deposits are found distributed: the Erdenet Central ore deposit, the Erdenet Intermediate ore deposit and the Erdenet SE ore deposit are distributed. The feasibility study of these three ore deposits have already been carried out. At present, the Erdenet NW ore deposit has only been operated by open-pit methods.

In Erdenet NW ore deposit, the ore reserves in 1999 was 1,400,000,000 t (Cu: 7,000,000 t, Mo: 200,000 t), mining operation is feasible for 35 years. The secondary enriched sulphide continues to 400m from the surface. The oxidized zone is distributed from 100m to 300m from surface. The existence of primary ore was confirmed by drilling holes of 1,000 m in depth. At present, the open-pit have been mined up to 1.325 m in sea level and 8 levels.

In the Erdenet Central ore deposit, the ore reserve is confirmed to be 1,250,000 t (Cu: 0.43 %, Mo: 0.018 %) by the feasibility study. The results of the rock geochemistry indicate that the analytical vales are Cu 608 ppm, Pb 58 ppm, Zn 55 ppm, Au 32 ppb, Ag 7.7 ppm and Mo 101 ppm.

In the Erdenet Intermediate ore deposit, the analytical vales are Cu 67.7 to 185 ppm, Pb 126 to 638 ppm, Zn 71 to 689 ppm, Au 2 to 10 ppb, Ag 1.1 to 10.1 ppm and Mo 3 to 188 ppm.

In the Erdenet SE (Oyut) ore deposit, the ore reserve is confirmed to be 41,890,000 t (Cu: 0.40 %, Mo: 0.007 %) by the feasibility study.

The previous geophysical survey in the Erdenet Mine area indicated that Erdenet NW ore deposit is located in lowest magnetic zone, in a typical highest chargeability and relatively lower resistivity zone.

(5) Danbatseren area

The alteration mineral assemblage of quartz-jarosite-kaolinite type is observed in the white argillized and silicified zone. The mineral assemblage shows the deeper part of the litho-cap and the path of the hydrothermal water with high temperature. The previous geochemical exploration could not detect the geochemical anomaly, but the previous geophysical survey detected anomalies with high chargeability zones of small scale.

The potential in this area is probably low because the porphyry copper mineralization that may exist in the area is probably of a small scale.

(6) Undrakh area

The mineralized zone in the Undrakh area is controlled by porphyry type copper mineralization. But the scale of the mineralization is small and with a weak degree of alteration. The analytical ore assay grade is as low as Cu 0.011%. The previous geophysical survey did not detect any anomaly.

Consequently, it is considered that the mineral potential in the Undrakh area is very low.

(7) Tsookher mert area

According to the results of the geological survey, the scale of the Tsookher Mert mineral showing is 1.5m in width and 700 m in EW length. The ore assay grade is Au1.49g/t, Ag538g/t, Cu0.247%, Pb6.737%, Zn0.682% and Bi0.017% in maximum. The rock geochemical values are widely ranging and low.

The scale of the Hatan hoshuu mineal showing is as small as 50m X 50m. The ore grade shows values of Cu0.006%, Pb0.005% and Zn0.004%.

In the two mineral showings, the ore assay grades are widely changing. And the scale of the mineralization was also very small. Consequently, further survey works for mineral exploration should not be conducted in this area.

5-1-3 Summary of the survey

From the interpretation of the aeromagnetic and radiometric data, most prospective zones were extracted. This zone includes a NW-SE magnetic lineament that continues westward in Area-1 and likely to be related to mineralization with potassium high signature zones. This low magnetic zone, where Erdenet mine is located, are probably due to the results of demagnetization during the alteration process.

High potential areas for porphyry Cu-Mo mineralization as same as the Erdenet Mine ore deposits

(Fig. I-5-1 and Fig. I-5-2) were extracted as follows:

(1) First priority potential area selected from airborne geophysical survey and geological survey

Three areas were extracted as follows:

- a) Southeastern Erdenet area including the Erdenet mine area
- b) Western mineralized zone including Khujiriin gol mineral showing in the Mogoin gol/ Khujiriin gol area.
- c) Central mineralized zone in the Zuukhiin gol area

(2) Second priority potential area

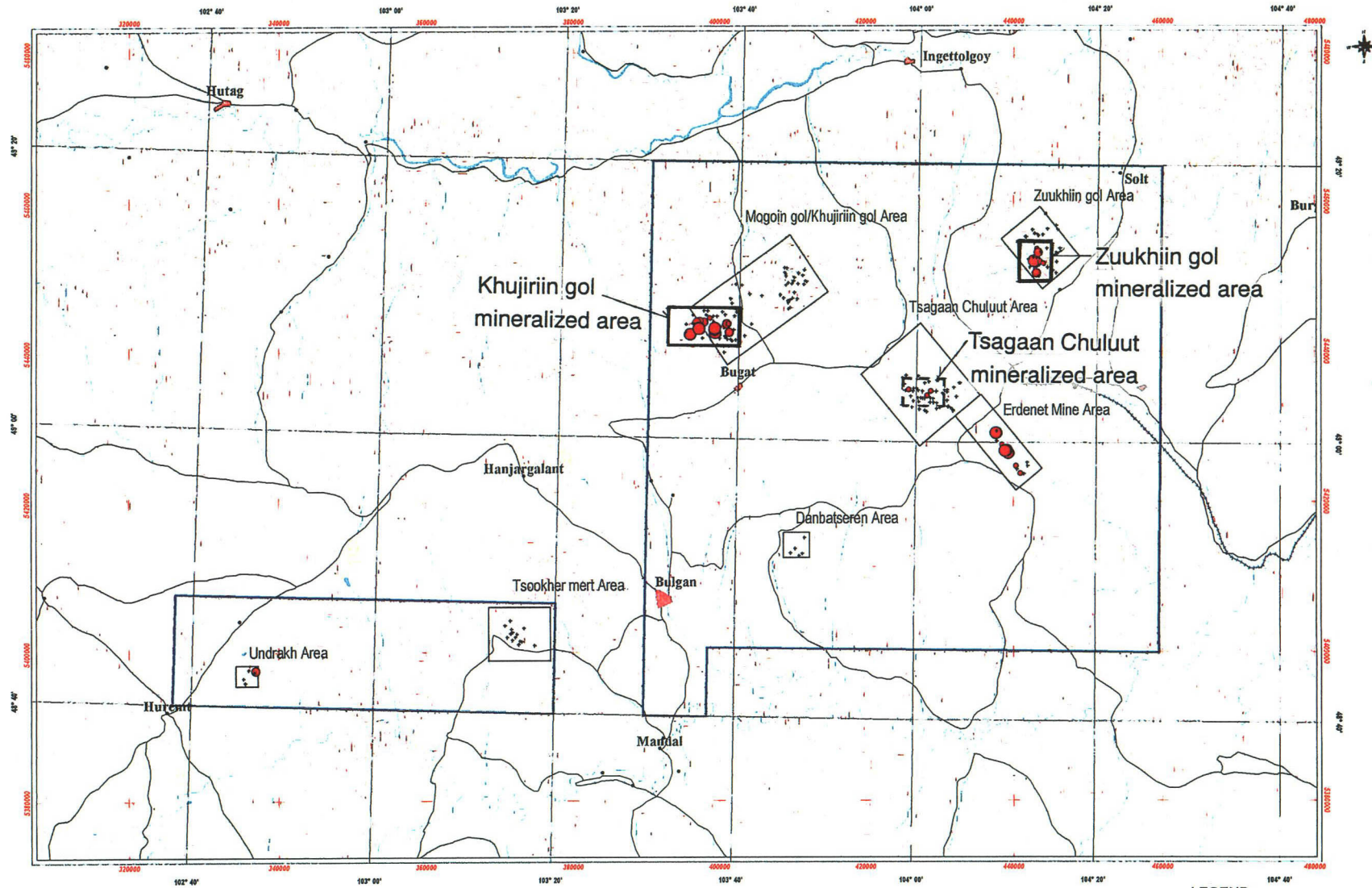
Second potential area presents advanced argillic alteration zone related to porphyry Co-Mo mineralization in the deeper part from the ground surface. The extracted area is as follow:

- a) Tsagaan Chuluut mountain area with advanced argillic alteration

5-2 Recommendations for Phase II Survey

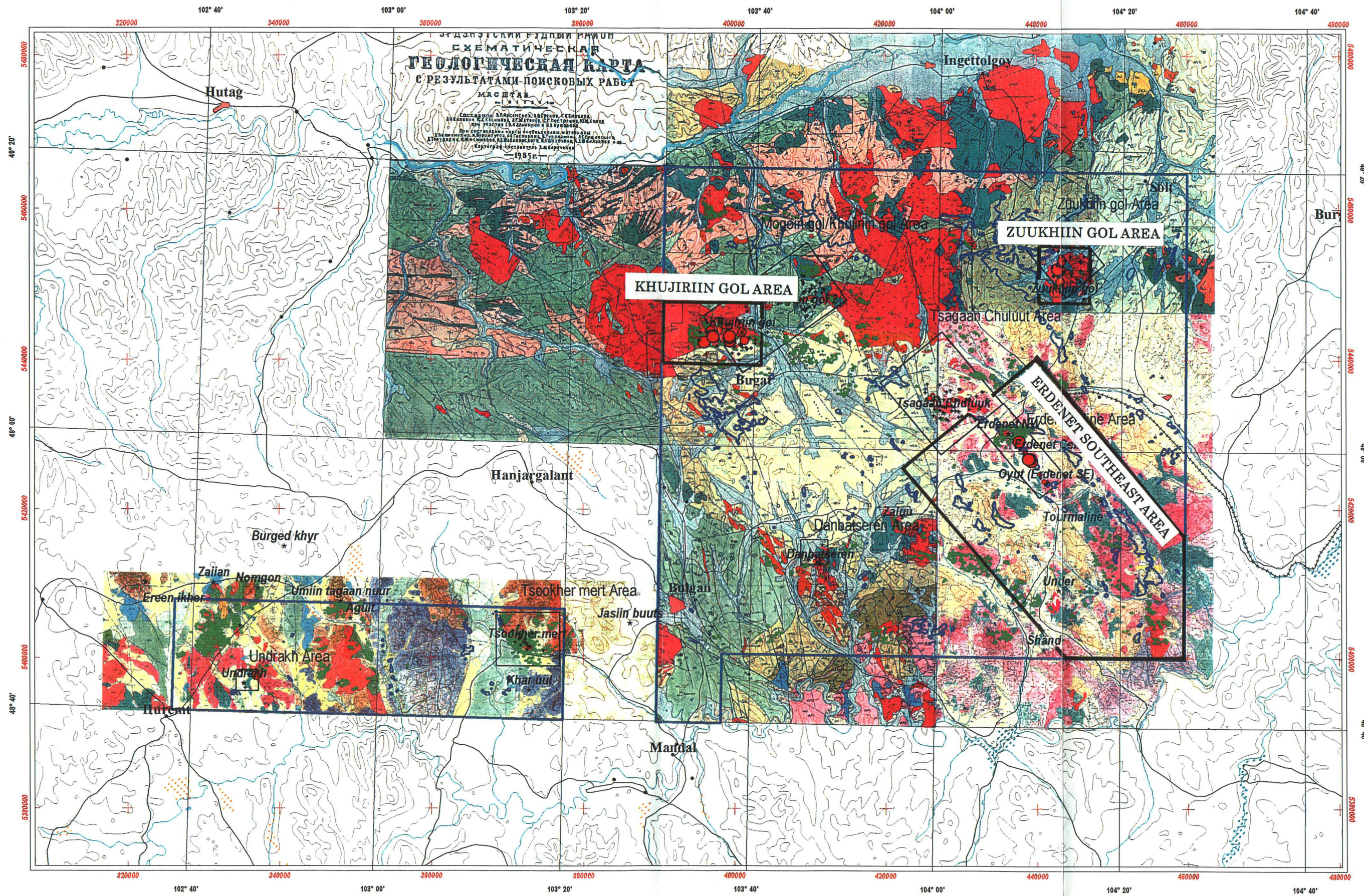
The following surveys are recommended for the first priority potential area, the second priority potential area and the areas selected by airborne geophysical in the Western Erdenet area during the Phase II survey.

- (1) The Zuukhiin gol mineralized zone and the Zuukhiin gol mineral showing as shown in Fig. I-5-1 are selected for the first priority potential area, where porphyry Co-Mo mineralization are expected near the ground surface. It is recommended to conduct detailed geological survey and geophysical IP survey in the two areas. According to the their results, it is recommended that drilling survey should be conducted in order to further clarify the geology and mineralization in the area.
- (2) It is also recommended to conduct reconnaissance and semi-detailed geological survey as Phase I survey in the Southeastern Erdenet area and Khujiriin gol area (Fig. I-5-2) selected by the results of the airborne geophysical survey.



Factor score 2 distribution map

Fig. I-5-2 Recommendation areas in Erdenet Mine area by the geological survey



Solid interpretation map



Projection: UTM
Spheroid: WGS84
Zone: 48

Mineral occurrence
* Erdenet NW

LEGEND

Magnetic anomaly
($rtp \leq 59,000nT$)
Radioactive anomaly
(potassium ≥ 160)

- ◇ Semi-detailed survey area
- Airborne survey area
- City
- Town
- +— Railway
- Main road

Fig. 1-5-1 Recommendation areas in Erdenet Mine area by the geophysical survey