

## **Chapter 4 Evaluation**

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### (1) Tempursari District

Pyrite dissemination and alteration minerals such as sericite are widely developed in Tertiary volcanic • pyroclastic rocks and intruding dioritic rocks. Gold, silver, copper mineralization was observed in parts of these alteration zones. Soil geochemical prospecting results show that parts of the high copper and gold anomalies overlap these alteration zones. Geophysical survey revealed that the chargeability in the area trends to be higher in the western part and lower in the eastern part. Some chargeability anomalies were detected in all four survey lines. The anomalous zones show vertical structure and would reflect pyrite dissemination in intruding rocks and silicified vein zones because of its high chargeability, high resistivity and vertical structure. It is interpreted from analysis of the distribution of diorite intrusive bodies and faults and the high chargeability that Ngrawan River Basin in the northern part has the highest mineral potential.

### (2) Purwoharjo District

Results of the geological survey do not indicate the existence of mineralization in the Purwoharjo District, and the high copper content in the stream sediments discovered during the second-year survey is inferred to be the results of high copper in the source areas. Thus it was concluded that further survey is not warranted.

### (3) Seweden District

In this district, wide spread white-colored argillization and pyrite dissemination is observed. Silicification and argillization are particularly strong in the dacite intrusive bodies and their vicinity in the Putih River Basin where copper and gold mineralization is observed. Also on the western side, although on small scale, quartz veinlets associated with copper, lead, and zinc mineralization are found and either epithermal gold-silver or mesothermal deposit of the porphyry copper type can be anticipated. Soil geochemical exploration of these zones shows concentration of high Au, Cu, Pb, Zn, As anomalies in the Putih Basin and the vicinity which was confirmed to largely coincide with the silicified and argillized zones. From the above, it is concluded that Putih River Basin has the highest mineral potential in this District. Some chargeability anomalies exceeding 30 mV/V are detected in the central-eastern deep parts by geophysical survey. They form two north-south trending anomalous zones at the elevation of -100 m. Drilling Results show argillic alteration continues from the 37.30m, which is the lower boundary of oxidation zone to the bottom of the

hole. No significant base and precious metal mineralization was encountered by one hole that was drilled at the western high chargeability zone, while strong pyrite dissemination occurs quite consistently. The pyrite occurs as dissemination of altered andesitic rock or in-veinlets along hair cracks such as joints. A molybdenite-pyrite-quartz-clay occurs at deeper part, while copper mineral occurs only as exsolution mineral from pyrite under microscopy. However, these mineral phenomena are considered to be manifestations of porphyry copper deposits. It is recommended that the lateral extension of the wide alteration zones which were intercepted by one scout drilling should be follow-up.

#### (4) Prambon district

Many gold-silver-bearing quartz veins and silicified veins occur in the northern part of this district, and they all strike in the N-S to NNW-SSE direction, and those extending more than 1km can be divided into at least 4 zones. The highest gold assay result of rock samples is 3g/t Au, but gold mineralization is observed throughout the zones. Soil geochemical exploration shows that the high gold content of soil occurs intermittently and its distribution generally agrees with the surface occurrence of quartz and silicified veins. Considering the results of the survey of the southern part of the district carried out during the second year, the occurrence of vein deposits in the northern quartz-silicified vein zone is high in this District. Two holes of the four intercepted wide silicified and agillized zones. The assay results show the highest gold values 10.40g/t over 0.60m width intercepted by MJIE-P1. The study of fluid inclusion of quartz or calcite vein show the homogenization temperatures are about 200 °C and salinities are low. Therefore, it is concluded that epithermal mineralization occurs widely, mainly in the northern part. The quartz veins in the northern extension of the vein that intercepted by two holes should be given higher priority. Also the zones on both eastern and western sides of the above two zones are also important targets and drilling should be carried out. Also the zones on both eastern and western sides of the above two zones are also important targets and drilling should be carried out.

#### (5) Other district

It is recommended that geological survey be carried out in the following (1) and (3)~(6) districts on the basis of the conclusions regarding geochemical reconnaissance area, and it is also recommended that detailed geochemical survey of soil and rocks be carried out and drilling targets be extracted simultaneously. Then mineral potential of each district should be comparatively examined and drilling be carried out in the most promising zones. Where the high-potential targets are not confined only to veins and are extensive in area, it is recommended that IP electric survey (profile line length in the order of 10km) be carried out before drilling. (Geophysical survey: pyrite dissemination is expected to occur in mineralized zones expected in the area such as

epithermal hydrothermal deposits and porphyry copper bodies, and IP electric is considered to be the best method to apply). Also scout survey should be carried out in the following (g)~(i) districts for understanding the cause of the geochemical anomalies in conjunction with semi-detailed geological survey. Geological survey of (b) district will be mentioned in 5-2-3.

- (a) Selogiri district: Selogiri deposit in the eastern margin of the western area and auriferous quartz veins in the vicinity.
- (b) Prambon district: Quartz veins (gold, silver anomalies) to the north of Trenggalek in the southwestern part of the eastern area of the district.
- (c) Sentul district: Silicified zones to the southwest of Trenggalek.
- (d) Seweden district: Alteration zones associated with gold, copper mineralization to the south of Blitar in the central part of eastern area of the district.
- (e) Purwodadi district: Copper, gold mineralized and altered zones to the southeast of Malang.
- (f) Tempursari district: Gold, copper mineralized and altered zones.
- (g) K. Jinggring district: Gold anomalous zones to the south of Tulungagung in the western