Nonferrous and precious metals postcollisional metallogeny in the Lesser Caucasus and NW Iran

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In the Lesser Caucasus and NW Iran at the postcollisional stage after closure of the Tethys Ocean, a metallogeny province developed with significant porphyry, stockwork and lode deposits: molybdenum-copper porphyry mineralizations in Kajaran and Agarak, lode and stockwork gold mineralizations in Meghadzor and Zod, (Lesser Caucasus); copper porphyry mineralizations in Sungun, gold-copperporphyry mineralizations in Mazra, low sulphidation, epithermal gold and gold-copper porphyry mineralizations in Miverud (Iran) are the important mineralizations in this province.

The deposits temporally, spatially and genetically related to Megri-Ordubad and Alborz-Magmatic belts.

The mineralizations are related to the Tertiary (Oligocene-Miocene) diorite porphyry, syenite-diorite porphyry, granodiorite-porphyry intrusions and related apophyses.

Among those Kajaran with 4,5 mlnt Mo, Sungun with 5 mlnt Cu, Zod with 124 t Au, Meghadzor with 60 t Au and 30 t Ag resreves are the most significant deposits. They have been explored in detail and they are being exploited. On the other hand exploration has been continuing in the Miverud low sulphide Au and Au-Cu porphyry mineralizations. Miverud is mainly Au bearing mineralization. Upper lateral zone of the porphyry system which has low sulphide epithermal Au mineralization signatures appear to have been exposed and exploration has been on this section of the mineralization. Available data indicate that deep inner zone of the system has Au-Cu porphyry mineralization.

Drillings, trenching showed that Au-Cu porphyry mineralization zone, laterally and upwards passes into low sulphide mineralizations with disseminated mineralizations, stock work, veins and veinlets. Disseminated mineralizations are related to metasomatic silicifications, K-Na feldspar alterations, sericitizations and argillizations.

Disseminated mineralizations are cut by quartz veins and veinlets as well as stockwork of argillites, related to the shear zones.

Low sulphide Au bearing mineralizations have minor quantity of Cu, so cyanide heap leaching technology which is the cheapest, considered to be suitable for Au extraction here.

In the low sulphide mineralization zone Au-Cu sulphide stockworks and veins are also present. They are considered to be the indicators of Au-Cu porphyry system down below. Drillings penetrating below the above lying low sulphide mineralization zone is expected to intercept Au-Cu porphyry mineralization zone.

It is noteworthy that presence of rare metals, Sb, W and Mo is the characteristic feature of post collision mineralization in the Lesser Caucasus and NW Iran.

The deposits such as Kajaran, Agarak, Zod, Meghradzor (Lesser Caucasus), so Sungun and Miverud (NW Iran) are associated with rare metals (Sb, Mo amd W) mineralization.

Key words: *postcollision, low sulfidation, gold-copper porphyry.*