

Geological mapping and mineral investigations in Dir Area, Khyber Pakhtunkhwa, Pakistan

Ihteshamul Haq, Muhammad Awais Khan and Yousaf Haroon

Geological Survey of Pakistan, Peshawar

E-mail: awaispsh@yahoo.com

Geological mapping and mineral investigation of Dir quadrangle (38 M/16) was carried out on 1:50,000 scale. The area is located in the north of MMT in the western part of Kohistan Island Arc terrain. In the southern part of the investigated area, banded amphibolites are present which are part of Kamila amphibolites. This unit is intruded by Deshai diorite in the south western part of the mapped area. The amphibolite unit is overlain by a thick sequence of metasediments known as Barawal Banda Formation. The Barawal Banda Formation is further divided in two distinct mappable units, the lower part consists of meta sediments including slates and phyllites while the upper part is consists of hard, massive quartzite. These metasediments are intruded by a small igneous body known as Bibior diorite. The Barawal Banda Formation is overlain by Utror Volcanics (mainly andecite and dacite). These volcanics have a faulted contact with the underlain Barawal Banda Formation known as Shandur Thrust while its upper contact is faulted against the Lawari Pluton which is called Dir Thrust.

During the field investigations in the project area, extensive copper mineralization in the form of Malachite, Azurite and Chalcopyrite were identified in Kalpani Kandao, Bibior, Bekarai, Rokhan, Salamkot and Shao areas. Most of the copper mineralization is present in quartz veins ranging in thickness from 2 to 30 feet which are mainly associated with diorite intrusions. In few areas including Bekarai and Rokhan, the copper mineralization is present in Utror Volcanics.

More than 100 samples were collected from different locations, out of which 29 representative samples were selected for chemical analysis. Each sample was analyzed for 20 radicals to know the chemical composition and anomaly. The results showed that in few samples the concentration of Cu was from 0.3 to 0.5%, which is quite promising. Keeping in view the importance of copper, further extensive work in the specific zones is recommended.