

Kulli Koh iron ore deposits, district Dalbandin, Chagai, Balochistan, Pakistan: A case study

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Abstract

The Kulli Koh area falls in the eastern part of Northern Chagai Arc, within the eruptive zone of the Balochistan Geosyncline. The Northern Chagai area was probably initiated as an Island Arc during Early Mesozoic bordered on the south by a deep Geosyncline i.e the Dalbandin Trough. The different phases of volcanism during late Cretaceous to Pleistocene have been noticed in the area.

The oldest rock unit exposed is the Sinjrani Volcanic Group of Late Cretaceous Age. During this period, volcanism has been the most extensive and widespread and resulted in deposition of 1000 to 1200 meter thick assemblage of volcanic rocks including agglomerate, tuff and lava. In the western part of the Chagai Arc, these volcanics are intermixed with shale, sandstone and limestone. Overlying Sinjrani Volcanics is the Humai Formation of Late Cretaceous age.

The Great Chapper Fault passes at 1.5 to 2 Km south of the mineralized area trending almost in East-West direction. This great fault, in general, divides the Sinjrani Volcanics from the sedimentary rock units i.e., Humai and Rakhshani Formations, in the adjoining region. The fault has given rise to a number of off-shoot faults in the area. Mostly mineralization has been noticed along or in close proximities of the fault planes identified in the area.

The iron ore deposits in the Chagai District are mostly volcanogenic and are in the form of vein filling or semilunar, wedge shaped tapering bodies of variable thickness. These deposits have a good potential as many hidden fumarolic centers might be present around the two main strato – volcanoes and other large number of volcanic centers in the region. The Kulli Koh area is fairly rich in iron ore (Magnetite, Hematite and Micaceous Hematite). Iron ore is mostly found, in two kinds of environment; these are either in form of veins of varying exposed dimensions, associated with, diorites representing Chagai intrusions or volcanogenic rocks mostly andesite, representing the Sinjrani Volcanics.

Mostly, the magnetite or hematite found in veins of mostly irregular nature but at some places, the ore body parallels the enclosing diorites. At some places, the ore bodies cut and intrude into the enclosing host rocks. The iron ore deposits associated with volcanic rocks sometimes become large, especially where the bodies are found within or close to the felsite bodies. On the basis of clustering of outcrops of iron ore and its potential, eight blocks have been identified in the Kulli Koh area. The grade of the iron ores found in the area range from medium to high grade. Sulphur, copper, quartz, calcite and phosphorous are within the permissible limits for metallurgical purposes.

A large number of private / local contractors have been engaged in mining and producing iron ore at an average of 24,000 tonnes per annum. Very safe assessment made during present investigation indicates that this production can at least be doubled by taking various necessary steps.