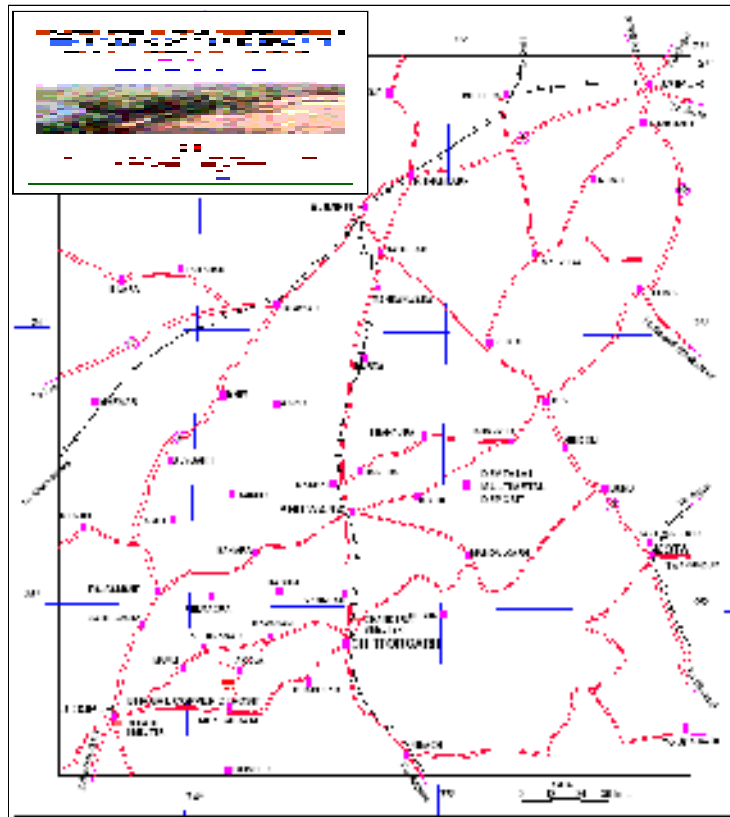


**GEOLOGICAL REPORT ON EXPLORATION FOR COPPER ORE**  
**BHAGAL COPPER DEPOSIT (PHASE-I & II)**  
**DISTRICT - CHITTORGARH, RAJASTHAN**

**EXECUTIVE SUMMARY**



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**OCTOBER-2005**

# **GEOLOGICAL REPORT ON EXPLORATION FOR COPPER ORE BHAGAL COPPER DEPOSIT DISTRICT- CHITTORGARH, RAJASTHAN.**

## **EXECUTIVE SUMMARY**

### **1.0 LOCATION**

Bhagal copper deposit is located in Wari-Akola-Bhinder Belt (Latitude 24°–40'–30" to 24°–41'–16" and Longitude 74°–11'–17" to 74°–12'–03"), west of village Gujaron - Ki - Bhagal in tehsil Kapasan with district headquarters at Chittorgarh in the state of Rajasthan. The area falls in the Survey of India Toposheet No.45 L/2. The block is 20 km. from Fatehnagar and Bhupalsagar railway stations on Udaipur – Chittorgarh – Meter gauge railway line.

### **2.0 GEOLOGY AND STRUCTURE**

The Bhagal area together with Wari and Rewatiya mineralised zone at north and Kedaria and Bansra in south, is forming a part of Wari - Bhupalsagar – Akola – Bhagal - Binder lineament and the rocks of the area belong to Rajpura Dariba group and Mangalwar Complex of Bhilwara Super group of Archaean age.

Major part of the deposit is almost a plain country with thick soil cover and alluvium and scarce rock exposures. Outcrops of quartz, amphibolites with acid volcanics are observed.

The rocks of Rajpura-Dariba group and Mangalwar Complex of Archaean age follows almost NNE - SSW trend and depicts gradational contact with change in trend of structural element to N-S with moderate to steep dips towards east varying from 30° - 45°. The area exhibits regional metamorphism of rocks.

The rock types met in the block are garnetiferous quartz-chlorite mica schist with interbands of Garnetiferous-quartz mica schist, Rhyolite, Psammatic gneiss, Andalusite-chlorite-quartz schist, Andalusite-garnet-graphite-quartz-mica, Quartz amphibolite, Amphibole quartzite, Quartz vein etc.

Three phases of folding have been observed in Bhagal copper deposit. First phase Folds (F1) is tightly overturned isoclinal folds. Second phase fold (F2) are asymmetrical, open to tight folds with gentle northerly plunge and are co-axially superimposed on the earlier folds. The axial plane follows the N-S to NNW-SSE trend with easterly dip at 45°-50°. The third phase folds (F3) are wide open and symmetrical. The axial plane of these folds is vertical to sub vertical and follows the axis of the folds.

### **3.0 MINERALISATION**

A few old workings besides profuse malachite encrustation, bornite, covellite and chalcopyrite are the main surface manifestations of mineralisation.

Mainly metasoda rhyolite, garnet mica schist and metavolcanics host mineralisation in Bhagal block. The copper mineralisation is, by and large, controlled by the structural elements.

Chalcopyrite is main copper ore mineral in the area. The other ore minerals are pyrrothite, pyrite and magnetite in the decreasing order of abundance. Ilmenite, Haematite, Graphite and Sphene are present as minor minerals whereas Limonite/goethite, Sphalerite, Pentlandite, Machinawite and Tennantite occur as accessory minerals. Mineralisation occurs as veins, veinlets, stringers, fracture fillings, patches and disseminations.

### **4.0 QUANTUM OF WORK DONE**

MECL has carried out detailed Geological Mapping & topographical survey covering 1.00 Sq/Km area. 4237.00 m of drilling in 25 boreholes, 1192 number of primary and check samples, 100 Nos of Primary samples for Au & Ag (Fire assay method), 18 Nos of composite samples for 4 radicals i.e. (Cu, Pb, Zn & Mo) 30Nos of composite samples for (6 radicals i.e. Cu, Pb, Zn, Mo, Ni & Co) and 48 samples for Au & Ag (fire Assay). 48 Nos.of samples for Emission Spectroscopy and 30 Nos.of samples for XRD studies, Petrographic studies on 50 Nos.of samples and Minerographic studies on 55 Nos of samples and 80 Nos of specific gravity determination test along with 2 Ore beneficiation (bulk sample) study, one Geotechnical Studies and 551 Stations for Geophysical survey were also carried out by MECL in the Block. Based on the above data and earlier data of GSI, an exploration report was submitted by MECL.

### **5.0 ORE RESERVE ESTIMATION**

A total of 9.23 million tonnes of ore reserves with 0.735% Cu. have been estimated at 0.5% Cu. cut off. Out of these reserves, 4.80 million tonnes with 0.78% Cu are confined between 450 MRL to 350 MRL while 4.43 million tonnes with 0.69% Cu are estimated between 350 MRL to 200 MRL over 1000m strike length.

At 0.2% Cu. cut off, the total ore reserves are to the tune of 28.89 million tonnes with 0.46% Cu.

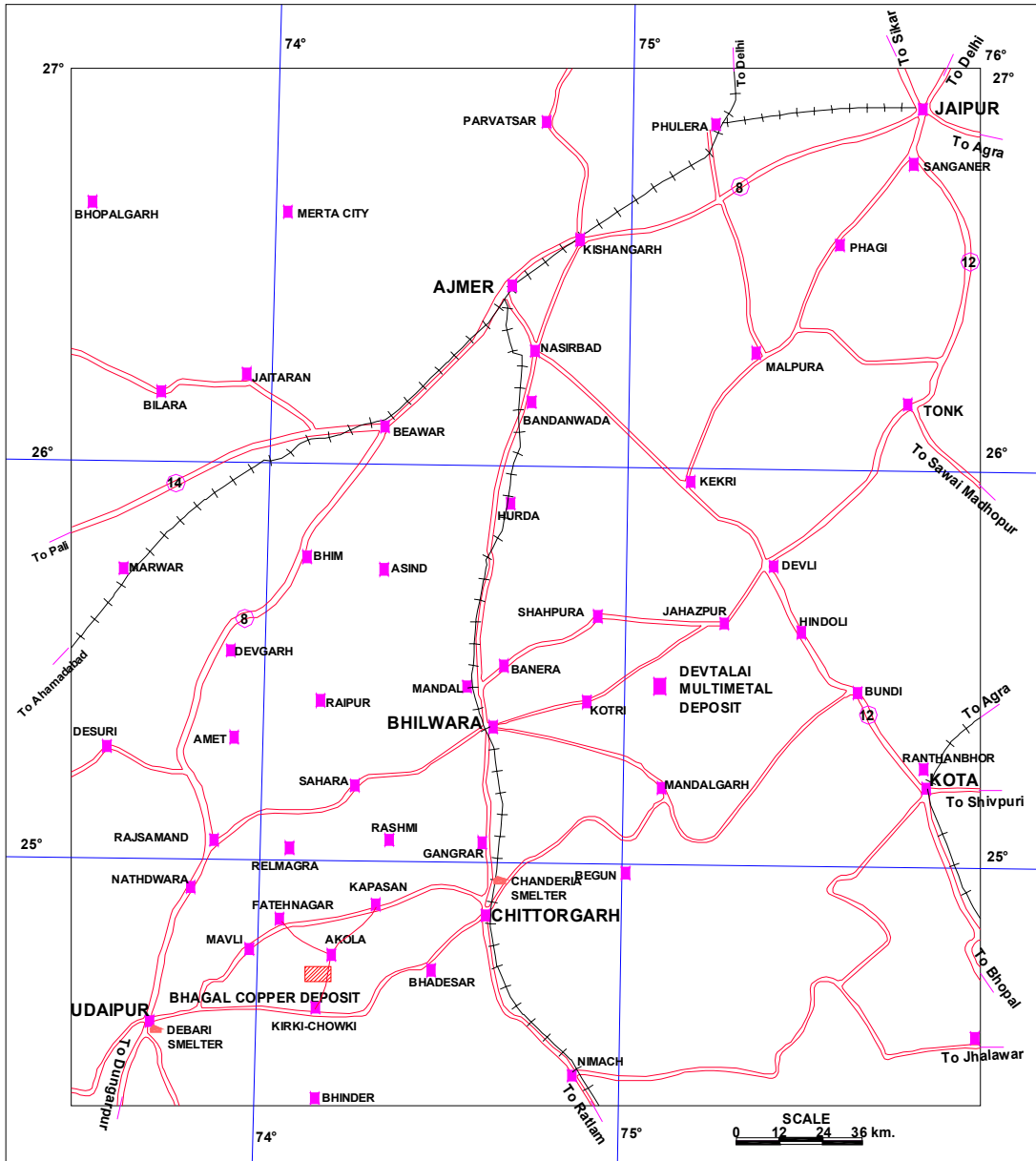
**The Deposit has been classified as Category 'B' of UNFC 332.**

The studies on the baseline data of Environmental studies covering land use / land cover pattern studies have been carried out in the block.

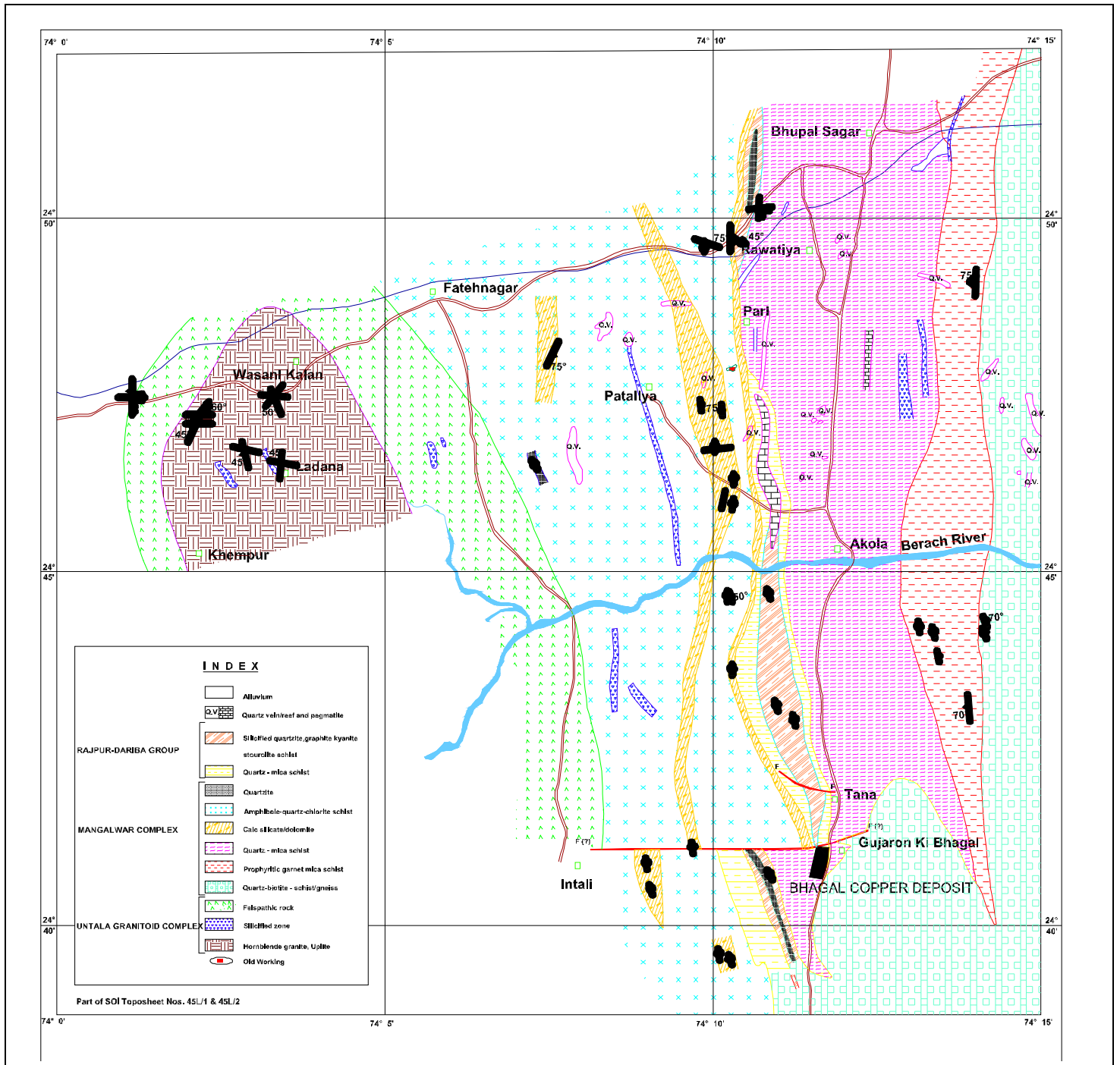
**The Total Cost of Exploration is Rs. 314.30 Lakhs.**

# LOCATION PLAN BHAGAL COPPER DEPOSIT, DISTT. CHITTORGARH, RAJASTHAN

Text Plate - I



# Regional Geological map



# Geological Cross Section

