



# **GEOLOGICAL REPORT ON INTEGRATED EXPLORATION FOR COPPER SHITALPANI BLOCK, MALANJKHAND GRANITOID DISTRICT- BALAGHAT, MADHYA PRADESH**

## **EXECUTIVE SUMMARY**

### **1.0 LOCATION**

The block is located about 10 km. North west of Malanjkhanda open cast mine in Baihar tehsil, dist. Balaghat, MP. It lies between Latitude 22°03'11" to 22°03'20" N and Longitude 80°39'16" to 80°40'16" E and form a part of 64B/12. Area: 2 Sq. km. (2.00 km. X 1.00 km.)

### **2.0 GEOLOGY AND STRUCTURE**

The oldest rock in the area belongs to Amgaon Group represented by amphibolite, migmatites with occasional aplite veins, resting over unknown basement rocks. Nandgaon Group represented by metavolcanic suite of rocks follows the Amgaon group of rocks.

The next younger is the suite of granitic rocks with variable composition known as Malanjkhanda granitoid. It is intruded by younger Darbaritola granite exhibiting aplitic texture and other linear bodies in the form of dykes comprising basic rocks and vein quartz. All the rocks are unconformably overlain by Chilpi group of rocks, which comprise mainly of argillitic meta sedimentaries. The Chilpi is overlain by Jamtola group of rocks represented by Quartz Veins, Phyllites, mica, schist, limestones, quartzite etc. All the above rocks have been intruded by younger intrusive rocks. The youngest rock types are Deccan traps, which are lateritised at places.

The Shitalpani block is covered by Malanjkhanda granitoid, intruded by quartz veins, aplites and metadolerite dykes along sheared zones, joints and fractures. The Amgaon group of rocks are occurring to the west and also found to occur in the block as enclave and caught up patches in granitoid rocks. The granitoid show gneissosity having almost N-S with dip of about 70° – 75° due west. The geological succession as worked out from geological mapping and subsurface data are as follows.

### Stratigraphic Sequence in Shitalpani block

Intrusive rocks	Metadolerite dyke Aplite Quartz veins
Malanjkhanda granitoid	Granitic rocks/Granite Gneiss

### 3.0 MINERALISATION

The surface manifestation in the form of limonite and ferruginous staining, specks and stringers of chalcopyrite and pyrite, staining of malachite observed mainly in vein quartz indicated the presence of copper mineralisation.

The vein quartz is the main host rock of copper mineralisation. However, it is also present in Granite. Granite and Hornblende-chlorite-quartz schist also show specks of pyrite & chalcopyrite occasionally. The mineralisation is generally in the form of disseminations, specks and stringers of chalcopyrite, pyrite, limonite. Malachite and ferruginous staining are also present.

### 4.0 QUANTUM OF WORK DONE

MECL has carried out detailed Geological Mapping & topographical survey covering 2.00 Sq. Km area, 500 Cu.m of trenching/shallow pitting, 12 Lkm of IP profiling at 50m interval, 550 stations of SP Survey, 550 stations of Magnetic Survey, 10 Nos. of Vertical Electrical soundings, 2.0 Sq.km of geochemical survey at 100mx50m grid. 1544.85 m of drilling in 9 boreholes, 821 (562+259) number of primary and check (Drill core & trench) samples for copper, 276 Primary (Drill core & trench) samples for Au, Ag by fire assay method, 2 Nos of composite samples for Au by fire Assay method, 325 Nos. of geochemical samples (105 for 10 radicals+145 for 5 radicals + 75 Nos. for gold, 18 Nos. of composite samples analysed for 7 radicals and 9 Nos for trace and minor elements (10 radicals) were analysed. Petrographic studies on 50 Nos.of samples and Minerographic studies on 25 Nos of samples, 40 Nos of specific gravity determination test were carried out by MECL in the Block. Based on the above data and earlier data MECL has prepared Geological report of the block.

## **5.0 ORE RESERVE ESTIMATION**

Test drilling carried out has indicated presence of copper mineralisation in the area. In general, the copper content has been found to be feeble, one meter zone with 2.17% Cu has been intersected in borehole MSP-2.

On the basis of integrated exploration, it can be concluded that mineralisation is found to occur over a strike length of about 600 m. Though in one borehole rich zone was intersected, copper mineralisation in general is feeble, hence resource estimation could not be attempted.

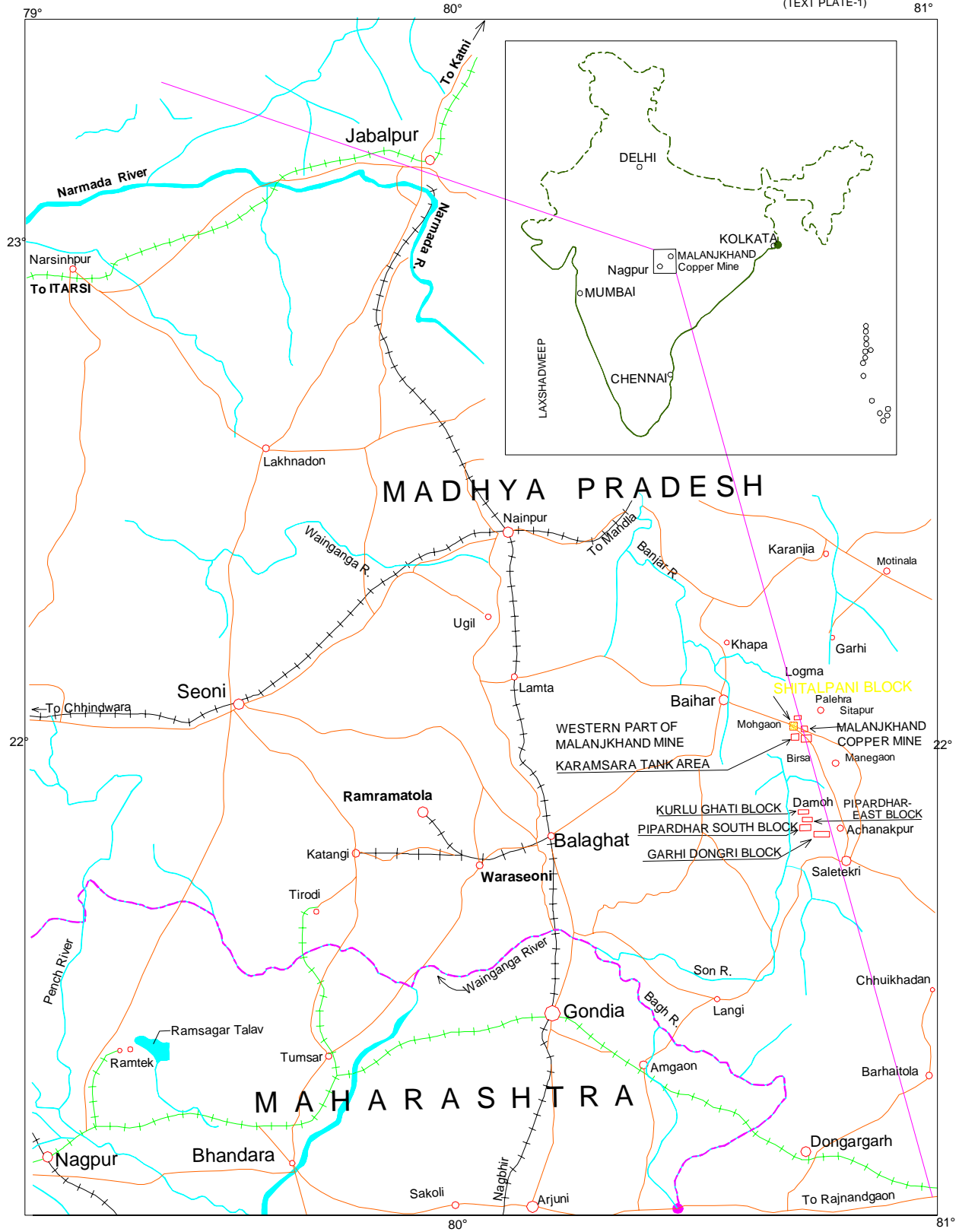
**The Deposit has been classified as Category 'D' of UNFC 333.**

**The Total Cost of Exploration is Rs. 135.36 Lakhs.**

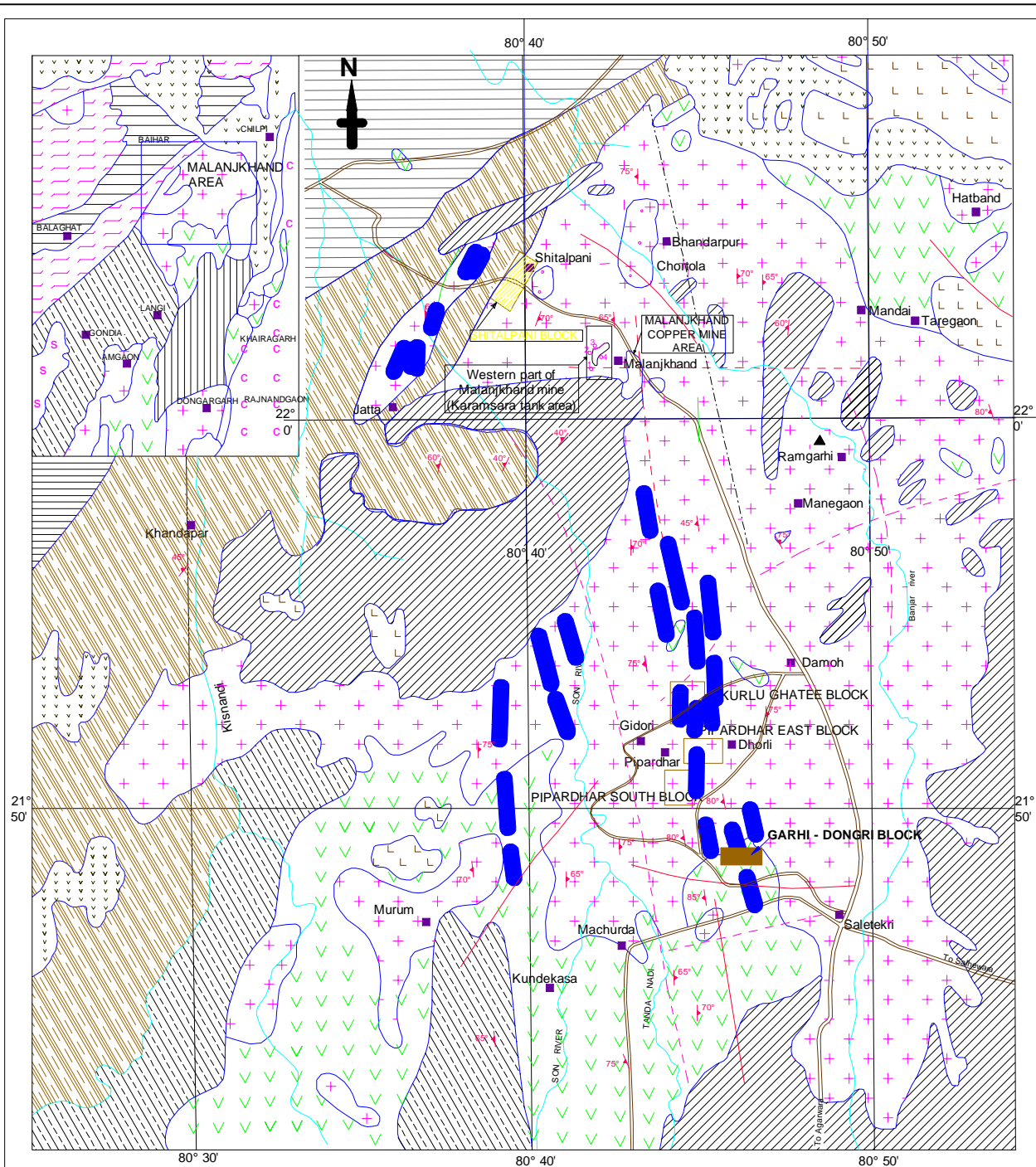
# LOCATION MAP OF SHITALPANI BLOCK

## LOCATION MAP

(TEXT PLATE-1)



# REGIONAL GEOLOGICAL MAP OF MALANJKHAND AREA



## INDEX

(After Pal & Bhargava 1987, Journal Geol. Soc. of India, Vol 56 No. 4, Oct' 2000.)

	Tirodi gneisses		Laterite
	Chhattisgarh group		Deccan basalt
	Khairagarh group		Chilpi metasediments
	Sakoli group		Sausar schist
	Quartz vein / basic dykes		Amgaon schist and gneisses
	Porphyritic granitoids		Locality / mineralisation
	Grey and pink Malanjkhand granitoids		Zone of intense tectonic and magmatic activity
	Nandgaon volcanics		Lineament and foliation

MINERAL EXPLORATION CORPORATION LIMITED		
REGIONAL GEOLOGICAL MAP OF MALANJKHAND AREA		
SHITALPANI BLOCK MALANJKHAND GRANITOIDS, DISTT. : BALAGHAT, M.P.		
0 5 Km.		
Processed at : I. T. Centre, M.E.C.L.	TRACED BY : P.S. VAIDYA, T.A (SDM) R.J. KAMBLE, T.A (SDM)	
MEO/CZ/NGP/DO NO. 1829/2007	PLATE NO. - I	1

