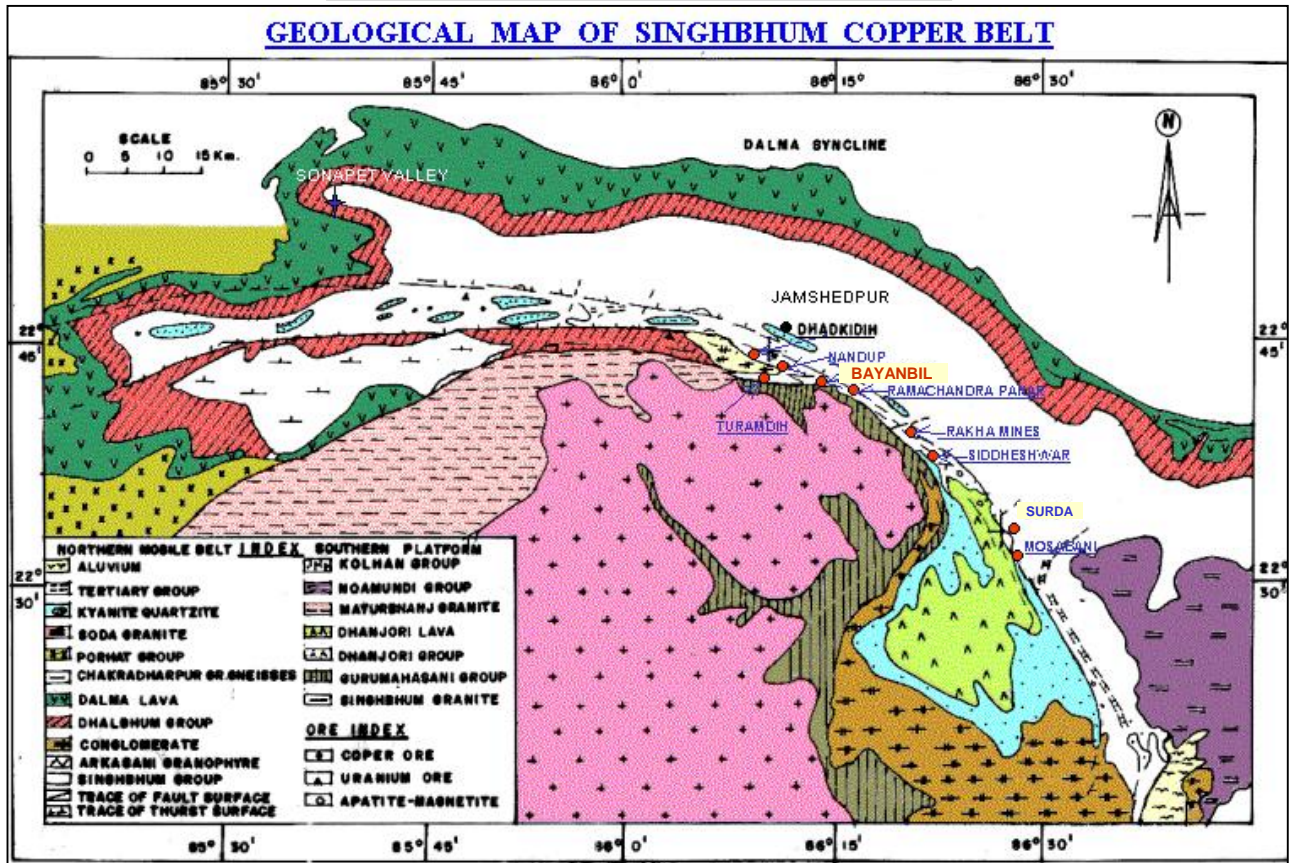


GEOLOGICAL REPORT ON EXPLORATION FOR COPPER

BAYANBIL BLOCK

DISTRICT - EAST SINGHBHUM, JHARKHAND

EXECUTIVE SUMMARY



MINERAL EXPLORATION CORPORATION LIMITED
 (A Government of India)
 EASTERN ZONE
 RANCHI

JULY, 2006

**GEOLOGICAL REPORT ON EXPLORATION FOR COPPER ORE
BAYANBIL BLOCK
SINGHBHUM COPPER BELT
DISTRICT: EAST SINGHBHUM, JHARKHAND**

EXECUTIVE SUMMARY

1.0 LOCATION

Bayanbil block falls in the Survey of India Toposheet No.73 J/2 and lies in the East Singhbhum district of Jharkhand. The area is bounded by the latitude 22° 43' 25" - 22°43'53" and longitude 86°11'38" - 86° 12' 34". The block is located at a distance of about 6.5 kms South of Tatanagar railway station. Bayanbil copper deposit lies in the heart of mining activity center. The Maubhandar copper Smelter of ICC/HCL, Jaduguda Uranium mines, Turamdih & Bandhuhuran Uranium mines are located within 35 Km. radius of deposit. Banking, postal and other communication facilities are available at Sundarnagar, a suburb of Jamshedpur. The steel city, Jamshedpur, has all types of workshop, marketing and health services facilities.

2.0 GEOLOGY AND STRUCTURE

The regional geology of Singhbhum Copper Belt is primarily based on the work of Dunn & Dey (1942). A major structural feature postulated by them was the existence of an anticlinorium comprising highly metamorphosed rocks of Iron Ore Series and a Great Shear/Thrust Zone, which according to them was formed along the over folded southern limb of the anticlinorium.

The most prominent structural element seen in the area is the axial plane schistosity (S_2). The bedding planes (S_1) are not seen clearly. Strain slip cleavage and crenulation cleavage (S_3) has developed along the axial planes of these folds. The end of tectonic activity is marked by post shearing faults. The different phases of deformation appear to have taken place during a single phase of orogeny.

The Bayanbil copper deposit forms a part of the Singhbhum shear zone. The rock units as mapped on the surface and as encountered in boreholes includes quartz-sericite schist, quartz-sericite-chlorite schist, quartz-magnetite-sericite-chlorite schist, amphibolite and quartzites. All rocks grade in to each other and the contact of these rocks are gradational. The host rock for copper mineralisation is either the quartz- magnetite- chlorite schist or quartz-chlorite – sericite schist.

The foliation strike varies from N65°W – S65°E to N50°W– S50°E with northwesterly dips ranging from 30-55°. The linear structure is seen mainly in form of puffers with plunge 20°-35° both towards East and west.

3.0 MINERALISATION

The indications of copper mineralisation are seen on the surface in the form of ill developed gossan, boxwork after sulphides, limonite incrustation and malachite Stains.

Mineralisation is mainly in the form of sulphides. Major ore minerals are Chalcopyrite & pyrite. Mineralisation is confined to quartz-chlorite-sericite schist & Quartz-magnetite chlorite-sericite schist. The control of mineralisation in the area is mainly structural. As the main mineralisation is mainly confined to quartz chlorite sericite schist and quartz magnetite chlorite sericite schist, the lithological control of mineralisation is also not ruled out.

4.0 QUANTUM OF WORK

The quantum of work carried out by MECL in the block is as under: -

| Sl. No. | Item of work | Achievements |
|---------|--|--|
| 1. | Geological and Survey a) Geological Mapping b) Topographical Survey | 0.65 Sq. Km. 0.70 Sq. Km. |
| 2. | Exploratory Drilling a) No. of Boreholes b) Meterage | 22 Nos. 2889.85 Mtrs. |
| 3. | Chemical Analysis a) Primary samples b) Check samples c) Primary samples for Au & Ag (Fire assay method) d) Composite samples (4 radicals) e) Composite sample for Au & Ag | 1150 Nos. 50 Nos. 100 Nos. 60 Nos. 60 Nos. |
| 4. | Physical Analysis a) Emission spectrography b) X.R.D. c) Petrographic studies d) Mineragraphic studies e) Specific gravity determination | 60 Nos. 10 Nos. 30 Nos. 30 Nos. 50 Nos. |
| 5. | Ore Beneficiation studies | 1 No. |
| 6. | Geo-technical studies | 1 BH. |

5.0 ORE RESERVE ESTIMATION

The ore zones have been delineated at 0.2% and 0.5% Cu cut off, 1.50m. minimum stopping with and 2.50m. parting width. The lodes important for correlation, even though do not follows the strict norm have been considered. Based on spatial distribution five lodes have been identified in the block, namely lode -L-1, L-2, L-3, L-4 & L-5.

The total ore reserves estimated at 0.2% or 0.5% cut off over strike length of 800m. between cross section S-I & S-XIII is as given below.

| | | | | |
|-----------------|-------|---------------|------|----------|
| At 0.2% cut off | 15.74 | million tones | 0.69 | % Copper |
| At 0.5% cut off | 8.79 | million tones | 1.00 | % Copper |

Besides ore contains nickel, cobalt, gold, magnetite and molybdenum.

The deposit has been classified under Category 'A' of UNFC 331.

The total cost of exploration is Rs. 207.98 Lakhs.

GEOLOGICAL MAP OF SINGHBHUM COPPER BELT

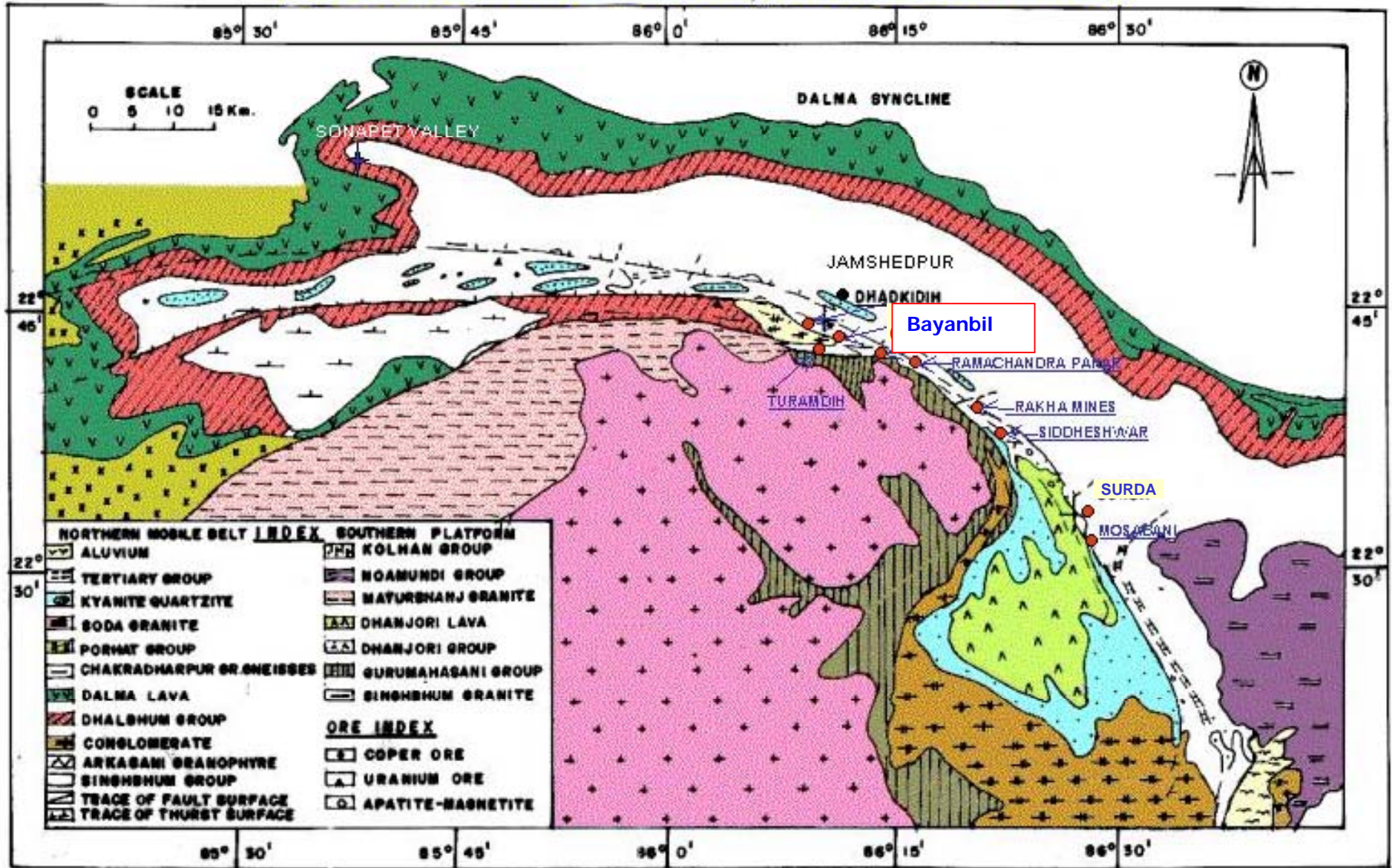


Fig. - i

Level Plan at 125 mRL, Bayanbil Copper Deposit, Jharkhand

