CHAPTER VI

CONCLUSIONS AND THEIR IMPLICATIONS IN PROSPECTING

CONCLUSIONS AND IMPLICATIONS IN PROSPECTING : New areas of mineral deposits have to be explored because of the increasing demand of minerals for industrial development. The course of investigation leading to the discovery of mineral deposits has been trecherous and time consuming with relatively low success rate. Field operation and exploration techniques have become increasingly expensive. In view of this, effective and low cost oriented prospecting methods have to be established at various stages prior to exploration. An attempt has been made in this direction in the present investigation.

The Koheda area, as stated earlier, forms part of the vast granitic terrain of Archean age. This area was choosen specifically due to the presence of suitable rock type for hosting copper and molybdenum mineralisation. Orientation geochemical surveys were carried out aiming at identifying anomalous areas of elemental concentration. Thereafter, based on the elemental configuration in primary and secondary geochemical landscape, ore bearing granites have been recognised in Koheda area by using geochemical guides.

PRIMARY ENVIRONMENT (LITHOGEOCHEMISTRY) : The geochemistry of granites of Koheda area has thrown light in understanding the dispersion of various elements in the primary environment. The mineralised and barren granites of Koheda area are similar

to plumasitic and normal granites, respectively, of Tauson and Kozlov's (1973) classification.

The study revealed that the granites from Kurella Dharmasagarpalli, Maisampalli and Regonda have attained high degree of differentiation involving silica and potash enrichment. The perpotassic granites from the above mentioned localities exhibit relative enrichment of copper, lead, zinc, molybdenum, tungsten and tin apart from silica. Thus, it is inferred that the granites are of "specialised type". These granites show a complex elemental zoning. This is based on the separation of Cu - As from Mo - W - Sn in the above mentioned localities. Their geochemical affinities is reflected in their correlation coefficients.

The field observations at Maisampalli, Dharmasagarpalli, Regonda and Kurella revealed the presence of chalcopyrite, pyrite and molybdenite specks in the granites. The petrochemistry corroborates with field investigations and might prove drilling targets for copper - molybdenum deposits in the above mentioned localities.

SECONDARY ENVIRONMENT : The study of secondary geochemical dispersion pattern was confined to the elements Cu, Pb, Zn, Ni, Co, Cr, Mo, W, Fe and Mn. The reason for selecting these group of elements is due to their geochemical affinity,

association with base metal and molybdenite mineralisation. It was also felt that the investigation must be cost effective and therefore, the elements analysed in rocks had been short-listed for soils and sediments. The secondary dispersion pattern of elements are noticed to form wide haloes in soils and long dispersion trains in lake sediments in the area of investigation.

SOIL GEOCHEMICAL SURVEY : The dispersion patterns of various elements analysed in the soils of Koheda area are closely related to the mineralisation. The geochemical haloes are superjacent and are ideal for interpretation and location of ore bearing granites.

The acidic pH in soils in conjunction with anomalous values of Mo, W, Cu, Co and Zn at Kurella and Maisampalli represent proximity of oxidising sulphide bodies within granites. Apart from the mineralised soils of the above mentioned localities, isolated anomalies of some target elements (Cu, Zn, Mo, W and Co) are found at Regonda, Ramachandrapuram, Gotlamitta and Arepalli. These anomalies are suspected to represent burried ore deposits. Hence drilling in these areas would prove buried productive granites.

The relative sizes of anomalous haloes for the target elements indicate their relative mobilities in the mineralised

soils. The relative sizes of anomalous haloes for the target elements are Zn (24 km^2), Cu (16.8 km^2), Co (10.10 km^2), W (9 km^2) and Mo (8.2 km^2). It is, therefore, proposed that these elements can be used as pathfinders of different scales.

LAKE SEDIMENT GEOCHEMICAL SURVEYS : Large number of lakes have developed over the granitic terrain of Koheda area. Therefore, the lake sediment geochemical survey has been carried out for establishing geochemical tools on reconnaissance scale. The wide spread anomalies of Cu, Zn, Co, Mo and W in sediments reflect the imprints of mineralised soils and rocks in the lake basins.

The anomalous patterns of target elements in th sediments of lake chain series indicate the presence of ore bearing granites at Dharmasagarpalli, Maisampalli and Regonda.

Thus the lake sediment geochemical method serves as rapid and cost effective technique in locating ore bearing plutons from the study area.