

Final Report of RP No. 70 area of 1870 Sq. Km. in the districts of Koraput & Malgangiri, Orissa for the Period from 25th Sept 06 to 26th March 09.

1.0 Introduction:

Geological investigation aimed at locating primary source of diamondiferous kimberlitic/ lamproite and allied rock formation was taken up in RP 70 over an area of 1870 sq. Km. in parts of Koraput and Malkangiri Districts of Orissa. The area is featured in S.I. T. S. No. 65J/1, 2, 5 & 6.

The exploration activities include diction of regional as well as closed spaced gravel/loam samples from the suitable trap sites, study of land sat imageries, aerial photographs, followed by ground truthing of mounds, valley fill all other structural features. The sampling was designed in such a way that all the 1st order to 3rd order streams were covered along with high bud areas. Standard techniques were adopted in collecting the samples comprising of 40 kg of samples of -1.5 mm size for detailed studies to find the present of DIM grains.

1.1 Location

The RP area is featured in Survey of India Toposheet No. 65J/1,2,5 & 6. Boiperiguda, (Block HQs) is connected to Jeypore town by an all weather roads having the block has at Boiperiguda. Access the interior are as is difficult due to its ragged topography with thick forest cover and high mountain ranges.

1.2 Geomorphology & Drainage:

The area is characterized by highly undulating terrain occupied by high hills and undulating topography with deep valley fills.

The drainage is criss – crossed and presents a dendritic drainage pattern.

2.0 Geology:

The area forms a part of Bhandra of Archaean age and falls in the eastern most margin. Further the older metamorphites of this area is overlain by proterozoic formations. The area exhibits a well fabricated lineament structures both micro and mega scale. Often the basic intrusive and pegmatites are seen to have been emplaced along some of the lineaments. The geological succession and other details are as follows:

Recent	Soil/ Alluvium
Sub-Recent	Laterite cover
Proterozoic	Metasediments (Purple shale)
Archaean (Older Metamorphites)	Quartz vein Pegmatite, Dolerite dykes Granite Gneiss and Porphyritic Granite .

The prospectivity of the area is high due to its age, structure and virginity of the area from diamond exploration point of view. Besides, the R.P. area is lying in the fringe of the cratonic block with development of NW-SE, N-S aligned lineaments. Joint planes along E-W, N-S and NE-SN are prevalent in the basement granites of the area.

3.0 Exploration :

The report highlight the exploration activities undertaken during the period from 26.3.07 to 25.9.07 it is also a follow-up action to scan the area previously sampled, which showed positiveness due to observation of positive "Diamond Indicator minerals like chormite and ilmenite(?). of course plenty of garments are also observed, which are mostly crustal origin.

During the period, care was taken to look for the suitable trapsites on 2nd / 3rd order creeks showing plenty of gravels and silts arrested in large numbers. In case of extreme dirthness of creek gravels. Loam samples were collected to cover the area in such a pattern that no area is left without any sample. In addition to this, possible geomorphological exposure like circular depression, smooth highlands and basic dikes and other exposure were scanned too, in the sense that these are possible locii for finding the Kimberlite/ Lamproite.

4.0 Work Done :

During the period under review 40 nos. of regional gravel and loam samples were collected for analysis. As a norm the samples were lifted from the trapsitens created by country rock bar, tree-root network and meanders. During sampling, the nature and size of the creeks were studied too along with clay/ silt content. It is observed that the pebbles, boulders, cobbles are derived from granite terrain and most of the contents are semirounded to rounded. Each sample weighing more than 40kgs belonging to (-) 1.5mm size was collected from 2nd/ 3rd order seasonal creeks. The samples were collected to of more than 100litres of gravel/ loamy materials. The samples density registers at 1 sample/10sq.km. which is good norm for such type of terrain. Besides cross traverse checks were done over 10 kms to examine the lithounits and possible positive enormous features.

The area which has been sampled represents lithofacies of high grade metamorphism as well as granites and basic nature. Although garnets are seen in the area, but likelihood of crustal origin. Since, plenty of garnets are often seen, finding of pyrope garnet is not ruled out. This area is favourable site for looking into the finding of Kimberlitic Chromite grains as path finders.

In the assorted gravel beds of the creeks show pebbles of dolerite basic rock. It is indirectly pointed out that the area is infested with dykes, which is one of the positive sign of the terrain likely to host kimberlites/ Lamproites. Observation of D.I.M. grains and their E.P.M.A. would suggest the further step to explore in detail for discovery of Kimberlite/ Lamproite.

3.0 Conclusion and Recommendation:

The analysis results of gravel/ loam samples has brought a number of grains of garnets, chromite, illuminate and other obegres.

However after careful analysis of the same under EPMA/ICP probs, indicated that these grain are not of kimberlitic origin. Further, ground truthing of structural features, cross traversing could not locate + ve mineralogic holodings in the RP area.