

**FINAL REPORT FOR RP NO.76 AREA 550
SQ. KM. IN NAWANGPUR DISTRICT OF
ORISSA FROM 26TH SEPTEMBER 2006 TO
25TH SEPTEMBER 2009.**

Introduction:

Geological investigation in the form of regional geological studies, regional soil sampling followed by close spaced gravel/ loam sampling, study of satellite and, structural data have been taken up over an RP area of 550 Sq. Km. in parts of Nowrangpur district in orissa. The exercise was done its locate possible occurrence of kimberlite/ lamprite group of the rocks comprising of diamonds and other precious minerals. The area is featured in Survey of India Topo Sheet No. 65I/2 & 6. During above period 109 nos. of gravel/ loam samples have been collected over the entire area to find out the occurrences of diamond indicator minerals which ultimately lead to locate the possible kimberlite bodies in the vicinity.

II. Location and Access:

The area under report is featured in Survey of India Topo Sheet No. 65I/2 & 6. Nowrangpur- Dabugam- Umerkot road posses through middle of RP area. Villages are connected by metal roads. However accessibility is difficult in the rainy seasons. The RP area comprises both hilly terrain as well as valleys. The valleys are wide and open; the hills are occupied by rocks belonging to Bailadila Iron Ore group of Pre-Cambrian age.

III. Geomorphology, Climate and Drainage:

The geomorphology of the area is a mixed type. Wide open valleys and hill ranges dominate the terrain. Podagada hill is a conspicuously high hill in the area containing the iron ore group of rocks. As a result of which the area depicts rolling topography with development of semi-trellis pattern drainage network. Details have been furnished in the previous reports submitted earlier.

IV. Flora and Fauna:

The area has a few wild animals particularly in the Podagada hills. The hills show a moderate density of forest growth and shrubs.

V. Objective:

The objective of the work was to cover as much as possible within the total R.P. area and also to collect samples from around the positive mineragraphic halos, which had been identified during regional sampling and ground checking.

VI. Geology:

Broadly the area is located on the eastern margin of the Bhandara Cratonic Block and consists of rocks of older metamorphites overlain by Bailadila group of rocks of Pre-Cambrian age. The valley is filled with a thick soil mantle. The imagery exhibits both mega and micro lineaments striking in NE-SW and E-W directions. The NW-SE striking lineaments are often pronounced. Some of the dolerite dykes and mafic dykes occupy the NE-SW and E-W trending lineaments.

Joints exhibiting a semi-trellis pattern are well developed and control the drainage system. All the lithological details and structures along with metamorphism have been furnished in the earlier submitted reports.

VII. Exploration:

The objective being to locate diamond bearing kimberlite/lamproite bodies, exploration work was taken up in form of the study the geology of the area, regional gravel/loam sampling of the 1st and 2nd order streams, closed spaced soil sampling in the areas where DIM grains have been found. Further, major structural linements, depressions as well as high areas were scanned to locate possible KL bodies.

In the first phase of operations, 109 nos of gravel/ loam samples were collected and subjected an area of 274.80 Sq. Km. It has been left out of the RP area as it is found to be devoid of any +ve indicator minerals (at the time of 2 years). Close spaced sampling as well as cross traverses in the remained area was continued subsequently.

Quantum of work done:

- (i) Ground Truthing of the entire area.
- (ii) Gravel/ Loam Sampling : 109
- (iii) Ground checking : 20 Km of traverse lines
- (iv) Checking of geomorphic features: 18

Soil sampling was done as per international standards. 90 litres of the samples were collected and screened to – 5mm. At least 40 kg of the screened samples were taken for microscopic analysis to see the presence of DIM grains.

Depressions, basic intrusive etc., have been examined. However no conclusion could be drawn to the presence of thick alluvium cover.

In diamond and precious stone exploration geomorphic signatures are very important. The circular depressions and gentle mounds were checked in the R.P.

area. The semi-circular to circular depression in the southern part of the block was examined but no conclusion could be drawn as a thick soil profile occurs. For this a ground geophysical survey and drilling are required to unearth the sub-surface features.

Viii. Conclusion:

Detailed examination of the entire RP area has brought to light the presence of DIM grains in the eastern parts of basin. However, no definite K/L bodies have been physically located on the ground. It is recommended that electromagnetic survey followed by drilling in the + ve areas are to be taken up to locate the hidden KL bodies if any in the future operation.