PROPOSAL FOR KALYCHOCHRA BLOCK, RAYAGADA DISTRICT, ODISHA STATE

FOR G3 STAGE MINERAL EXPLORATION
UNDER NATIONAL MINERAL EXPLORATION TRUST (NMET)

Bauxite
(Non-Ferrous Mineral)

By

Directorate of Mines and Geology, Odisha, Bhubaneswar
Department of Steel and Mines, Government of Odisha

Summary of the Block for G3-Stage Exploration

Features	Details
Block ID	Kalychochra Bauxite Plateau
Current Exploration Agency	Joint Director Geology, Zonal Survey, Koraput. Directorate of Mines and Geology, Odisha, Bhubaneswar. Department of Steel and Mines, Odisha.
Previous Exploration Agency	GSI 1970-71 & 1976-77, MECL 1978-83
G4 stage Geological Report (Previous stage Geological Report)	1. Preliminary Report on the Bauxite Occurrences around Kashipur, Kalahandi district, Orissa. By P. K. Banerjee, Geologist, Geological Survey of India, 1962-63. 2. Investigation for Bauxite in Baphlimali Parbat, Koraput District, Odisha; Ghosh B.K., Geologist & Mehra S., Assistant Geologist of GSI, GR-1970-71 & 1976-77. 3. Exploration Report: East Coast Bauxite Project, Baphilimali Bauxite Plateau, Koraput District. 1978-83 by MECL.
Commodity	Bauxite
Mineral Belt	East Coast Bauxite
Completion Period with entire Time schedule to complete the project	12 months
Objectives	To assess the grade and reserve of the bauxite deposit.
Whether the work will be carried out by the proposed agency or through outsourcing and details thereof Components to be outsourced and name of the outsource agency.	After approval of the Project, survey and mapping will be carried out with followed by sampling. Subsequently drilling will be carried out. Survey and Drilling work will be carried out through Outsourcing Agency. The outsourcing agency will be finalized through open tender.
Name/Number of Geoscientists	2 Geoscientists with support staff.
Expected Field days (Geology, Geophysics, Surveyor)	Geologist field days: 240 days Survey days: 30 days

1.	**Location**	
	Latitude	19° 18' 17.577" N- 19° 19' 53.287" N
	Longitude	82° 58' 47.857" E- 83° 00' 02.656" E
	Villages	Kalychochra
	Tehsil/Taluk	Kashipur
	District	Rayagada
	State	Odisha
2.	**Area(hectares/square kilometers)**	
	Block Area	3.83 sq.km
	Forest Area	There is no Reserve Forest
	Government Land Area	Approx. 3.00 sq.km in the area
	Private Land Area	Approx.0.83 sq.km in the area
3.	**Accessibility**	
	Nearest Railhead	Tikiri
	Road	SH-44
	Airport	Jeypore
4.	**Hydrography**	
	Local Surface Drainage Pattern(Channels)	The drainage system is mainly controlled by plateau with very few perennial and numerous ephemeral streamlets
	Rivers/Streams	Ephemeral streams and creeks
5.	**Climate**	
	Mean Annual Rainfall	1030-1569 mm
	Temperatures (Dec-Min.) Temperatures (June-Max.)	10° 42°
6.	**Topography**	
	Toposheet Number	E44E15 (65I/15)
	Morphology of the Area	The area represents gentle to flat tabular plateau and bounded by hill slope which dissected the streamlets from the plateau top.
7	**Availability of baseline geosciences data**	
	Geological Map (1:50K/25K)	Available (Geological data from GSI reports and Bhukosh portal)
	Geochemical Map	Not Available
	Geophysical Map (Aero-geophysical, Ground geophysical, Regional as well as local scale GP maps)	Not Available
8.	**Justification for taking up G3 stage mineral exploration**	The target area forms a part of EGMB and represented by numerous flat topped denudational topography sharing plateau

		morphology. The plateaus in the region have been proved to be lateritic residuum with enrichment of bauxite of various thickness and grade during execution of Eastern ghat bauxite project under taken by GSI, DoMG & MECL where largest plateaus have been explored in details. The present block hosts a small plateau with capping area of 2.24 Sq.km (approx.) & with well-developed scarp faces with a lateritic profile. Analysis of 13 grab samples indicates Al_2O_3 contents varying from 27.209 to 61.413 % & SiO_2 content from 0.667 to 4.061 % which justifies its economic potentiality. Moreover, Baphilimali plateau is at crow fly distance is under active mining by M/s Utkal Alumina with proved resources of 157.656 million tonnes of metallurgical grade. With the above boundary the plateau needs detailed assessment of its resources & grade by systematic geological mapping, trial excavation, drilling, sampling & analysis.

KALYCHOCHRA BAUXITE PLATEAU; DETAILED BLOCK DESCRIPTION

1. Block Summary

Physiography

- The area regionally exhibits mainly alternate chains of hills and valleys. Few hillocks form flat or gently sloping plateau with lateritic residuum. The plateaus are often barren or with scanty shrubs & wild grass. The area experienced humid to subtropical climatic condition with heavy rainfall during monsoon, extreme cold in winter and pleasant summer. The plateau capping at places exhibit Saucer shaped depression (Photo-I & IV).

Background Geology (Regional Geology & Geology of the Block)

- The area represents the CKZ of Eastern Ghat Mobile Belt (EGMB). The Mesa topography of East coast bauxite plateau forms a unique geomorphological component of the EGMB arranged in a linear pattern along NE-SW direction with respect to the boundary shears. The high-grade metamorphic ensemble includes litho-assemblages of pelitic & psammopelitic gneisses, Charnockite suites and granitic suite of gneisses permeated by pegmatite & vein Quartz. The khondalite (sillimanite-garnet bearing gneiss) and at places charnockite have been altered to lateritic substratum peneplaination fluctuation of EH & PH condition. Bauxitisation occurs by in-situ chemical weathering (de-silicification) of underlying rocks, in which aluminous rich mineral such as sillimanite and feldspar dominate. On continuous weathering and leaching action, the residual alumina mineralization (mainly gibbsite and occasionally boehmite) is formed in blanket type-bauxite capping on the plateau top with rare iron minerals.

Objectives

To evaluate the grade and quantify the reserve of bauxite within the study area.

2. Previous Work

Previous Exploration in adjoining area (Regional area): All the sample (bedrock/trench/groove/soil), bore-hole location should be plotted on the geological map and analytical data should be discussed briefly

a) During 1962-63, GSI has covered an area of 320 Sq.km by the geological mapping in scale 1:63,360 around Kalahandi & Koraput. The proposed site for exploration around Kalychochra was earlier known as Kathakal and reported that, East of Kathakal & South-East of Baphilimali forms a U-shaped thick deposit of Bauxite

capping & reported lateritic capping.

b) Later during 1970-71, Geological Survey of India (GSI) had taken up reconnaissance survey and preliminary examination of the lateritic bauxite around Baphilimali Plateau (adjacent to Kalychochara) as a part of Eastern Coast Bauxite Project (ECBP). An area of 87 Sq.km was geologically mapped on 1:63,360 scale around Baphilimali Parbat. In addition to this, detailed geological mapping (1:2,000 scale) was undertaken over the Baphalimali plateau covering on area of 1.36 sq.km two blocks & estimated a reconnaissance resource of 0.739 million tonnes of bauxite of 45% Al_2O_3. In the year 1976-83, GSI & MECL carried out detailed exploration of Baphilimali plateu by drilling in regular grids of 100 & 200m, estimated a resource of 157.656 million tonnes of metallurgical grade.

c) Collaboration of Govt. of Odisha and Indian Aluminium Company (INDAL) taken up redrilling and sampling in the parts of Baphilimali Bauxite deposit in 1992. Drilling of 799 m has been done in 30 Boreholes (BHs) by NALCO and 65 metres of drilling in 2 BH was carried out by DMG (O) with total 864m of drilling. 863 nos. of BHs samples and 435 channel samples has been collected.

d) During 1960-61, DoMG, Odisha conducted G4 stage preliminary investigation for bauxite deposits around Kashipur tehsil, Koraput. A reconnaissance resource of 1.65 lakh tonnes of bauxite with 46-60% Al_2O_3 and 6-24% Fe_2O_3 was estimated and recommended for auger drilling.

Thus, the ideal bauxite profile in Baphilimali plateau is as follows which a kin to the East coast bauxite deposits of Odisha.

Lithounits	**Thickness**
Top soil	0.00 to 1.40m
Siliceous and ferruginous pisolitic laterite	0.05 to 8.00m
Aluminous clayey laterite low grade bauxite	4.00 to 8.00m
Bauxite	7.00 to 32.00m
Clayey bauxite	3.00 to 8.00m
Lithomarge clay	1.00 m to 5.00m
Partially altered Khondalite.	Continues.

Baphilimali plateau area now under active bauxite mining by Utkal Alumina Ltd. It has a total proved mineral reserve of 157.656 million ton with grade of +44.12% Al_2O_3 & 2.32% SiO_2, along with sub-grade reserve of 8.513 million ton of +30-40% Al_2O_3& -

7% SiO_2.

A pre-field study was done by DoMG around the Kalychochra Plateau for taking up a G3 level investigation under NMET funding. The plateau resembles a flipped crescent with its concave side facing west. The approximate dimensions of the capping area are 2.5km X 400m. The plateau surface is primarily covered with soil, exposure of laterite and aluminous laterite are visible across the plateau. Notable features include three saucer-shaped depressions (Photo-iv). The plateau attains maximum elevation of 1020m at MSL. It has developed scarp section in its 11 parts of the plateau. The vertical drop of scarp faces varies from 2m to 8m. The lateritic substratum is underlained by both Charnockite & Khondalite. An existing conveyor belt is located near Village Lundurukana. Khondalite Exposures are noticed along the conveyor belt near Village Andirakanch and NW of Village Jogiparitunda with trend varying from N40°–50°E due dip 45°–55° SE(Photo-V).

During the course of cursory traverses, 13 random grab samples and 11 scrap samples were collected from various locations across the plateau (Plate-IV), sample has been analyzed by XRF which shows avg. values of Al_2O_3, SiO_2 & Fe_2O_3 are 43.50%, 4.62% & 25.15 % respectively. So it clearly indicates that it is a potential block for metallurgical bauxite, (Annexure-I). 9 grab samples out of 13 and 5 out of 11 scrap samples indicate>40% Al_2O_3 with varied Fe_2O_3 content.

Chemical analysis report of samples of the Kalychochra Bauxite Plateau

Grab Sample

Sample ID	Alumina (Al_2O_3)%	Silica (SiO_2)%	Fe_2O_3%	LOI%	TiO_2%
KBG-1	30.70	2.12	44.40	18.88	2.40
KBG-2	**49.52**	1.34	16.00	27.28	4.48
KBG-3	**48.36**	2.52	20.48	25.61	2.55
KBG-4	**49.71**	1.29	17.87	26.12	4.34
KBG-5	**50.33**	2.88	17.45	26.80	2.05
KBG-6	**41.23**	1.90	28.74	23.23	4.20
KBG-7	**61.41**	0.67	16.66	17.38	3.28
KBG-8	32.47	0.96	40.06	18.96	6.94
KBG-9	33.05	4.06	40.76	19.91	1.61
KBG-10	36.54	1.09	38.11	21.60	2.10
KBG-11	**42.13**	3.15	30.30	21.70	2.12
KBG-12	**54.77**	1.85	11.93	29.46	1.58
KBG-13	**43.97**	3.71	24.32	23.10	4.16

Scrap Sample

Sample ID	Alumina (Al_2O_3)%	Silica (SiO_2)%	Fe_2O_3%	LOI%	TiO_2%
KBS-1	39.68	27.53	12.37	16.93	3.17
KBS-2	36.35	4.11	35.86	21.02	1.93
KBS-3	38.44	2.79	30.30	22.15	5.70
KBS-4	35.60	4.80	35.91	20.30	2.88
KBS-5	27.21	14.87	38.94	16.60	1.80
KBS-6	**52.69**	2.44	12.73	27.43	4.02
KBS-7	**59.11**	1.59	4.82	31.63	2.33
KBS-8	**49.15**	6.56	14.37	26.20	2.93
KBS-9	38.26	15.81	24.70	19.21	1.63
KBS-10	**40.49**	2.03	32.52	22.10	2.48
KBS-11	**52.79**	0.87	13.98	28.22	3.76

3. Block description

The Kalyachochra Bauxite block is located about 32 km from the nearby town Tikiri, and about 88 Km from the District Hqs. Rayagada. Block area covers 3.83 sq.km, out of which bauxite plateau dimension extends up to length of 2500m and average width of 400m covering an area of 2.24sq.km.The area has a variable contour value from 950m to 1020m MSL (Plate-II).Plateau occurs in an irregular crescent shape, scrubs and rocky knobs are present in the plateau. Thin rim of soil cover has been noticed at places on the plateau. Vertical drop of the Scrap exposures varies from 3.00m to 8.00m.

Proposed Block boundary corner point of Kalychochra Block

CP	Longitude	Latitude
A	82° 59' 44.621" E	19° 19' 53.287" N
B	82° 59' 54.132" E	19° 19' 39.855" N
C	83° 00' 02.656" E	19° 18' 49.447" N
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4. Planned Methodology

The methodology will be adopted as per G3 stage of exploration and work will be taken

in two phases, i.e. geological mapping and pit sampling in first phase and core drilling in second phase. With this background, it is proposed to estimate the

a) Geological mapping -1:12500 scale
b) Detailed Geological mapping- 1: 4000 scale
c) Topographic survey- 4000 total station
d) Trial excavation
e) Drilling
f) Core logging
g) Sampling
h) Analysis

a) Geological Mapping: The total study area of 3.83 Sq. km. will be mapped on 1:12,500 scale by taking geological traverses in the Proposed area. Demarcation of plateau along with different litho-units, litho-contacts, structural features, and geomorphic features etc., will be carried out (Plate-II).

b) Detailed Geological Mapping: The bauxite bearing area will be mapped on 1:4000 scale with the exposures of laterite, bauxite etc. as available at the top of the plateau along with the structural details will be recorded & plotted. A geological plan with topographical contours, borehole points, pits, surface features etc. on 1:4000 scale is to be prepared.

c) Topographical Survey: The area under investigation i.e., plateau area around Kalychochra measuring about 2.24 Sq. Km. will be surveyed in 1:4000 Scale by total station. The length of the block in the longer axis is 2.5 km and the average width of 400.0m. Contouring is to be carried out at 2m interval. Reduced level of the boreholes and survey stations are to be determined with reference to available Bench Mark. All the boreholes, important surface features, survey stations & Pits are to be marked and tied with the survey plan. The block boundary will be surveyed by DGPS & Total Station in WGS-84 datum (Plate-II).

d) Trial excavation: Few trial pits will be sunk in the Saucer depression with dimension 2m X 2m X 4m pit (16 Cu.m) to know the soil cover over the

plateau.

e) Drilling: Vertical boreholes are proposed for G3 stage of exploration in the plateau. The boreholes will be drilled by dry core drilling methods up to the lithomarge/ non-mineralized zone. The floor of the bauxite horizon being mostly of gentle gradient with regular habit, the maximum depth of the boreholes is believed to be 30m. Total 6 No. of boreholes is proposing into account this shape & geometry of the plateau & grid spacing of G3 level. If required another 2 to 3 boreholes may be suggested after putting the proposed BHs. (Plate-V).

The details of proposed boreholes are given the table below:

Sl. No.	Proposed Borehole No.	Depth to be drilled (m)
1	KBH-1	30
2	KBH-2	30
3	KBH-3	30
4	KBH-4	30
5	KBH-5	30
6	KBH-6	30
Total		**180m (±20%)**

f) Geological Core logging: Geological core logging will be carried out carefully by recording details and lithological characters of the formations including colour, texture, mineralogical composition, structural details, and lithological variations encountered in the boreholes. At this stage, the overburden, the roof and floor of the bauxite horizon will be marked as per the prescribed end use grade of bauxite.

g) Sampling:

- **Grab Sampling:** Samples will be collected from plateau-top exposures at a 100m x 100m grid interval after scrapping off humus.
- **Channel Sampling:** Channels measuring 15 cm x 10 cm will be cut along scarp faces, and meter-wise samples will be drawn from the entire scarp sections.
- **Core drilling:** Vertical dry core drilling will be done on the proposed BHs. Point by LT rigs. NX casing will be used, and dry drilling will be carried out with 76mm bits to recover substratum lithologies. The collar RL, drilling depth, and coordinates will be accurately recorded. Core samples will be carefully collected from the barrel to prevent contamination, and the core length will be recorded for each run.

- **Core Sampling:** About 150 meterwise core samples will be drawn from the mineralised zones for chemical analysis. In bauxite zone, the sample length will be reduced from 1m to 0.50m; if required, while in the transition zone / Bauxitic clay zone the length of sample may increase or decrease. Each sample thus obtained, will be crushed to (-) 100 mesh size and its quantity will be further reduced to 1000 gram by coning quartering. Four representative samples weighing about 100 grams each will be taken from this, one of which will be sent for chemical analysis for five radicals, i.e.,Al_2O_3,SiO_2, Fe_2O_3, TiO_2& LOI and others samples needs to be kept for the purpose of check analysis. One sample will be kept for preparation of composite samples & other special tests and one preserve future use.

h) Analysis:

I. **Check Samples**: 10% of the total chemical samples shall be analysed for 5 radicals as internal check analysis and 10% of the total chemical samples will be analysed for same 5 radicals from other NABL accredited laboratory as external checks to test the reliability of sampling and analytical data.

II. **Borehole Composite Samples**: After receipt of analytical results of chemical samples of the borehole core, bauxite zones will be marked at ≥ 40% Al_2O_3&< 5% SiO_2 and ≥ 40% Al_2O_3&<5% SiO_2 for each of the boreholes. For 6 samples of the bauxite zones encountered in boreholes, composite samples shall be prepared by mixing each sample within the respective zone in their length proportions and reducing the sample by coning and quartering method for drawl of final sample to be analysed for 5 radicals. About 6 Borehole-core composite samples will be analysed for 5radicals viz. Al_2O_3, SiO_2, Fe_2O_3, TiO_2& LOI. However, provision for analysis of 6 nos. of composite sample for 5 radicals has been made in the bauxite zone encountered in the boreholes.

III. **ICPMS Studies**: The bauxite zone needs to be studied for trace elements, RM & REE distribution by ICPMS. Semi-quantitative analysis in respect of Pb, Zn, Ni, Co, Mo, Sn, V, Ga, Zr, Cr, As, Sb, Bi, Sc & Ge for 10 samples for analysis and Total Available Alumina & Reactive Silica (SiO_2) to be carried out by ICPMS studies.

IV. **Mineragraphic and Petrographic Studies**: In order to characterize the lithologies through mineralogical studies. 10 rock specimens from the area will be taken up for Petrographic studies. 5 ore specimens from the bauxite zones

will also be studied in polished section to know about the constituent ore minerals, their mode of occurrence, textures and other mineragraphic characteristics of bauxite.

V. **XRD studies**: **5 samples** from Bauxite deposit will be subjected to X-Ray Diffraction studies to know about mineral phases of bauxite and involved lithologies.

VI. **Bulk Density**: Bulk density analysis will be conducted on 10 samples from various categories, including metallurgical, beneficiable, and low-grade bauxite, as well as aluminous laterite. This will help determine the density values for each category, aiding in resource estimation and characterization.

5. Nature Quantum and Target

Nature and Quantum of work proposed:

The bauxite exploration project will be carried out as a Preliminary Exploration (G3-stage) following the UNFC guidelines.

Components	**G3**	Nature and Quantum of work
Topographic Survey		3.83 Sq. Km
Geological Mapping	RF1: 4,000	3.83 Sq. Km-1:12,500
Pitting/Trenching	Pitting/trenching to expose mineralized zone	100 Cu. m
Geochemical Survey	Geochemical sampling (Chip/Channel/Pit/Trench/Core/Soil)	Channel sampling – 100 m Pit sampling - 20 nos.
Scout drilling / Systematic drilling Only Systematic drilling	Boreholes spacing (As per MEMC, 2015)	180m
Drill Core sampling	Drill core cuttings at 1m interval	150
Petrographic and mineragraphic studies	Rocks of the deposit (host rock for mineralisation), alterations connected with mineralisation, target mineral phases (ore and gauge metal/ mineral), paragenesis, Primary secondary zones	Petrography - 10 XRD- 5 ICPMS-10 XRF-5
Synthesis of all available data, Not required in the quantum of work	i) Integration of regional/detailed geophysical, geological and geochemical data, if not done earlier. (Should be given in soft copy in shape file) ii) Synthesis of all available data and Report writing	-

6. **Exploratory Drilling**: NA
7. **Manpower deployment:** Enclosed in cost estimation
8. **Break-up of expenditure:** Enclosed in cost estimation

9. **References**

- Ramam, P.K. & Rao, M.G. et. al, (1977): Report on resource evaluation of East Coast Bauxite deposits (A.P & Orissa), PP: 328-361. Unpublished GR of GSI, DoMG Odisha & MECL.
- Indian bureau of mines (2022) Indian mineral year book 2021, part-3 mineral reviews 60th edition, bauxite, and advance released.
- A brief of exploration for bauxite in India, 2020, GSI
- Swain S. 1960-61, Preliminary Investigation for bauxite deposit, Koraput, DoMG, Odisha.
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- Exploration Report: East Coast Bauxite Project Baphilimali Bauxite Plateau, Koraput District. 1978-83, MECL.
- S.Somnath F.S. 1981-82; Redrilling in the Baphilimali Bauxite plateau, DoMG, Odisha.

List of Plates

Plate-I: Location map of Kalychochra bauxite plateau under Kashipur tahasil, Rayagada district

Plate-II: Index map of Kalychochra bauxite plateau under Kashipur, Rayagada district, RF1:100,000.

Plate-III: Regional geological map around Kalychochra plateau under Kashipur, Rayagada on RF1:250,000.

Plate-IV: Scarp/ Grab sample location map of Kalychochra plateau, Rayagada district, RF1:25,000.

Plate-V: Proposed Borehole plan and pit location Map of Kalychochra plateau, Rayagada district on RF 1:10,000.

Plate-VI: Generalised projected bore hole logging in the plateau

Annexure

Annexure-I: Scan copy of Chemical analysis report of 24nos. of sample of the Kalychochra Bauxite Plateau.

Photographs

Photo-I: Escarpments of different location over the plateau.

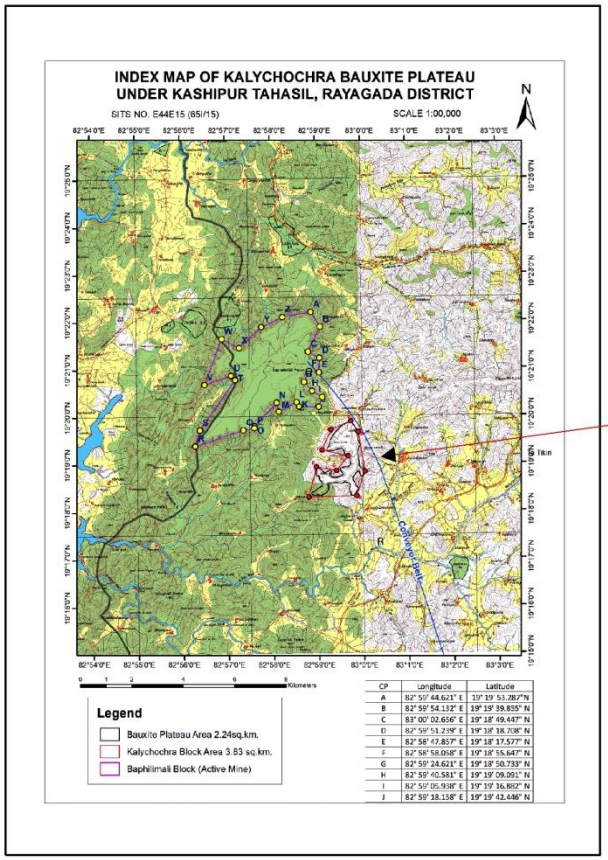
Photo -II: Plateau exposed laterite, Lateritic bauxite &lateritic boulders and drawl of sample.

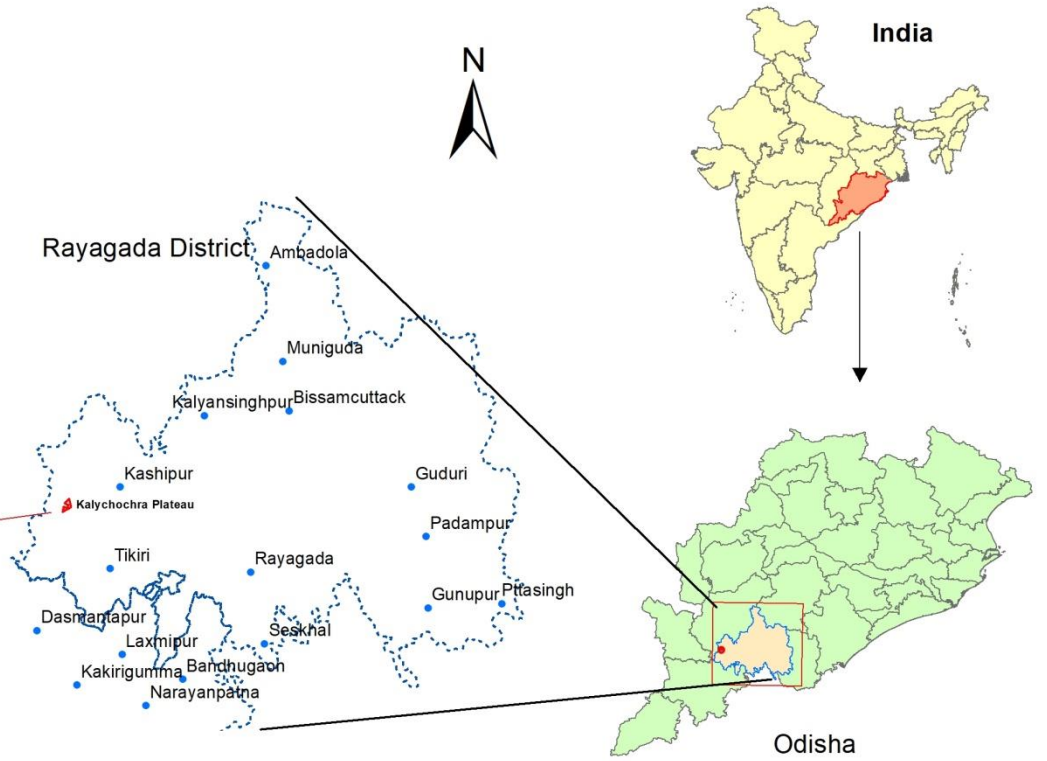
Photo -III: Baphilimali (Active mine M/s UAIL) Plateau view and their Belt conveyor.

Photo -IV: Saucer-shape depression and soil cover over plateau.

Photo -V: Exposures of lithounits of Lateritic boulder, Lateritic bauxite, Khondalite and Charnockite.

LOCATION MAP OF KALYCHOCHRA BAUXITE PLATEAU UNDER KASHIPUR TAHASIL, RAYAGADA DISTRICT



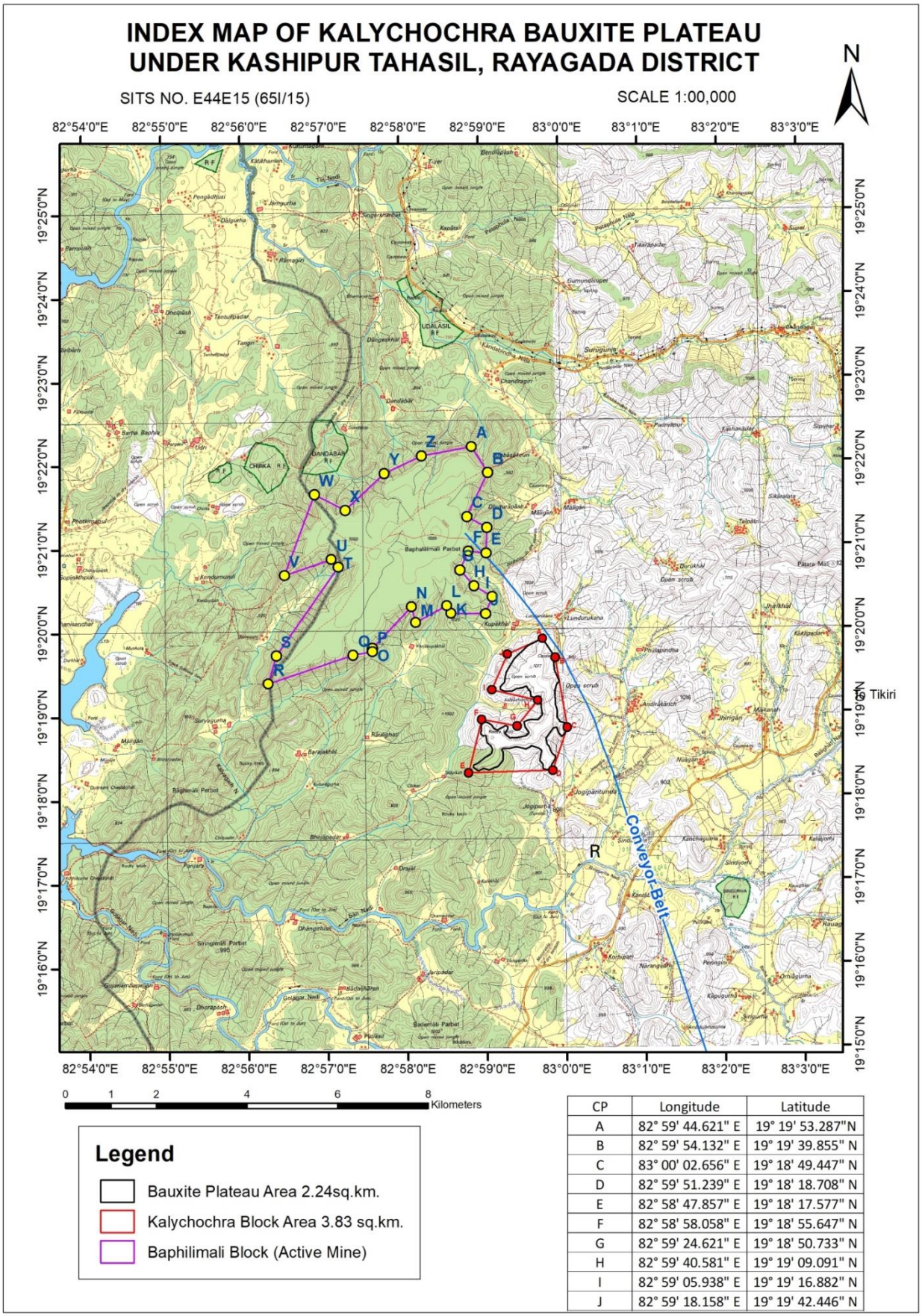


Legend

Proposed Geological Mapping Area

Plate-II

INDEX MAP AROUND KALYCHOCHRA PLATEAU UNDER KASHIPUR, RAYAGADA.



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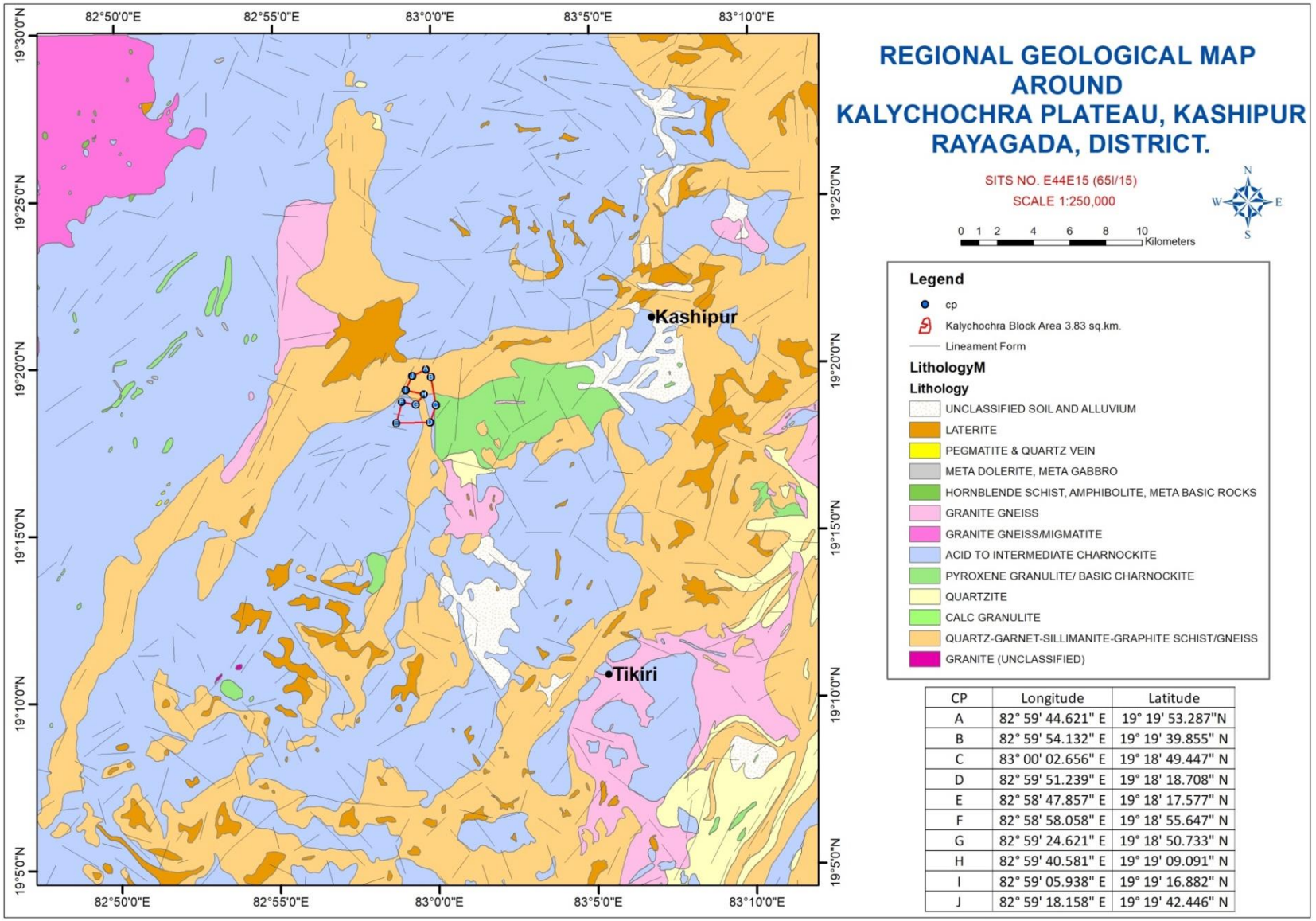
REGIONAL GEOLOGICAL MAP AROUND KALYCHOCHRA PLATEAU UNDER KASHIPUR, RAYAGADA.



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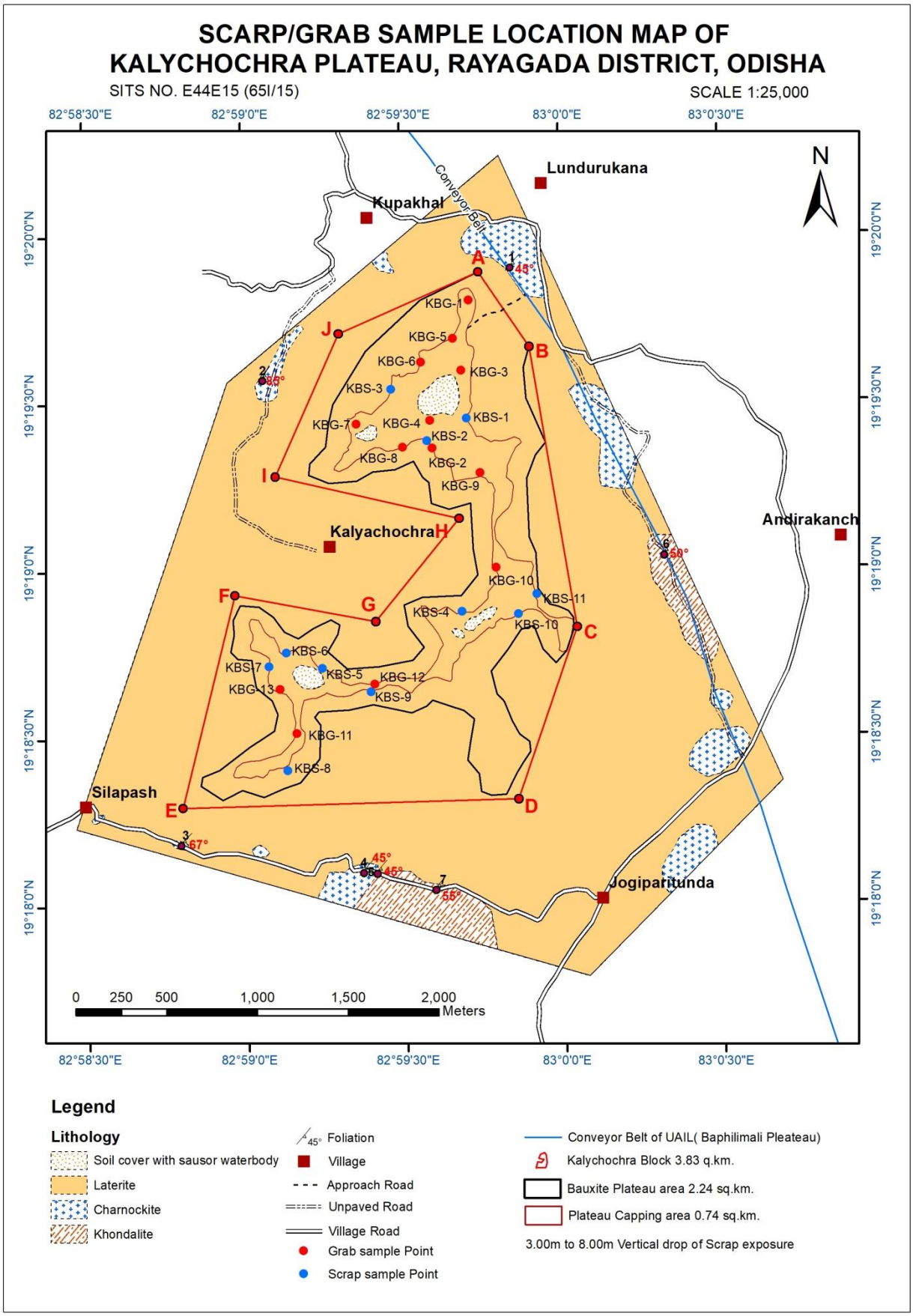
Note: Interpreted Geological data from the **Bhukosh** portal

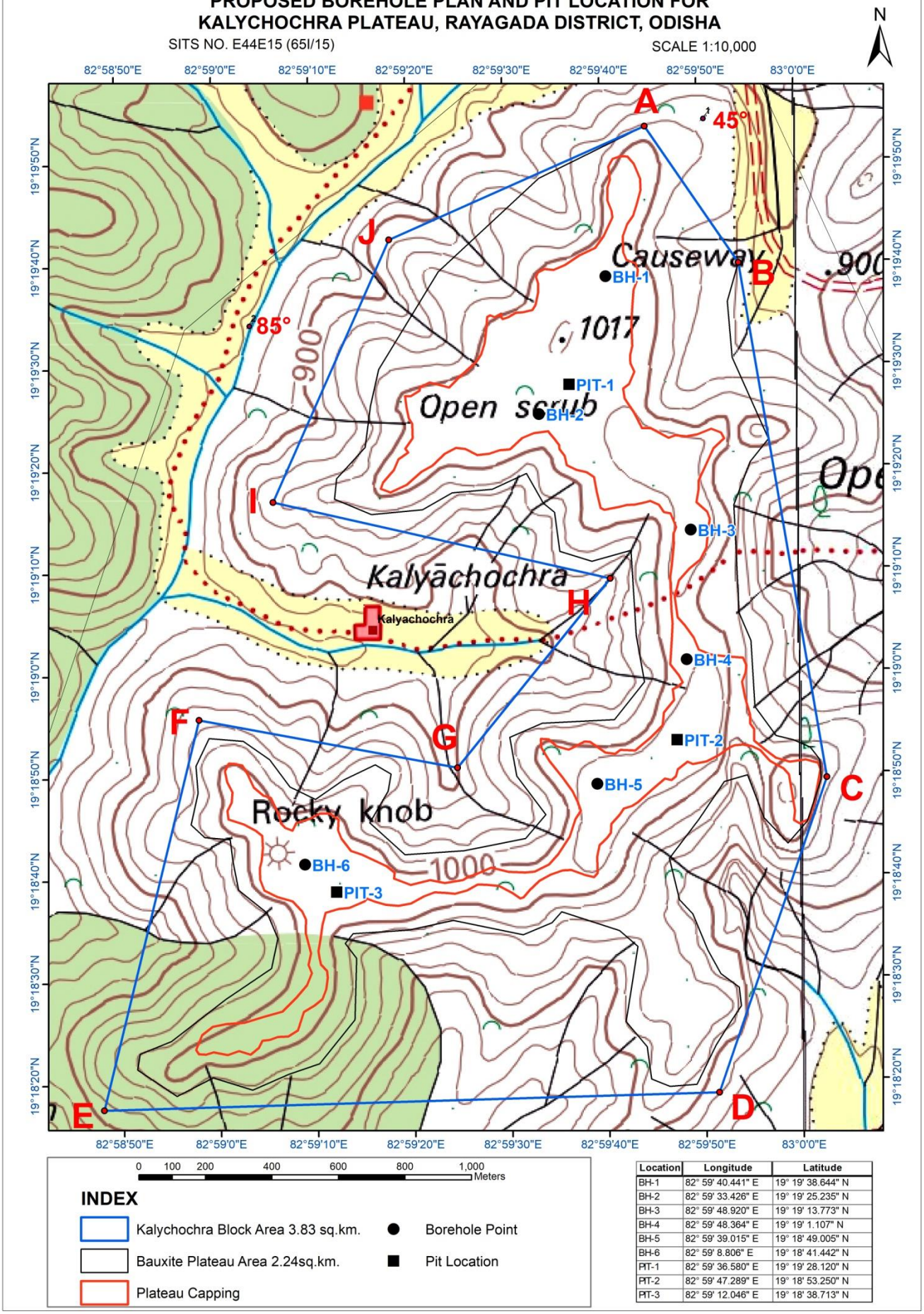
Scarp/ Grab sample location map as per field data **Plate-IV**



PROPOSED BOREHOLE PLAN AND PIT LOCATION FOR KALYCHOCHRA PLATEAU, RAYAGADA DISTRICT, ODISHA

SITS NO. E44E15 (65I/15)

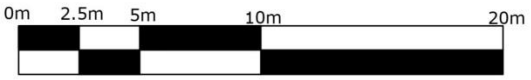
SCALE 1:10,000



Location	Longitude	Latitude
BH-1	82° 59' 40.441" E	19° 19' 38.644" N
BH-2	82° 59' 33.426" E	19° 19' 25.235" N
BH-3	82° 59' 48.920" E	19° 19' 13.773" N
BH-4	82° 59' 48.364" E	19° 19' 1.107" N
BH-5	82° 59' 39.015" E	19° 18' 49.005" N
BH-6	82° 59' 8.806" E	19° 18' 41.442" N
PIT-1	82° 59' 36.580" E	19° 19' 28.120" N
PIT-2	82° 59' 47.289" E	19° 18' 53.250" N
PIT-3	82° 59' 12.046" E	19° 18' 38.713" N

GENERALISED PROJECTED BORE HOLE LOGGING IN THE PLATEAU

* Tentative thickness of litholgy



INDEX

LATERITE	
ALUMINOUS LATERITE	
BAUXITE	
LITHOMARGE	
PARTIALLY LATERITISED KHONDALITE(PLK)	
KHONDALITE/ CHARNOCKITE	

Annexure-I

Chemical analysis report of samples of the Kalychochra Bauxite Plateau
Note: - KBK- Grab Sample, KBS- Scrap Sample

DIRECTORATE OF MINES AND GEOLOGY,
STEEL AND MINES DEPARTMENT, GOVT. OF ODISHA,
BHUBANESWAR
Heads of Department Building, Unit-V, Pin-751001
Tel No.: 0674-2391537, Fax No.: 0674-2391684
Email ID: dirmines_odisha@rediffmail.com

ANALYSIS REPORT

Name of the Sample : Bauxite Sample.
Received from : O/o The Joint Director Geology, Zonal Survey, Koraput..

Sl. No.	Identity Mark	R.L. No.	LOI%	SiO_2%	Fe_2O_3%	TiO_2%	Al_2O_3%
1	KBK – 1	815-P/24	18.88	2.12	44.40	2.40	30.70
2	KBK – 2	816-P/24	27.28	1.34	16.00	4.48	49.52

JOINT DIRECTOR (C.A)
Joint Director (C.A)
Directorate of Mines and Geology
Odisha, Bhubaneswar

DIRECTORATE OF MINES AND GEOLOGY,
STEEL AND MINES DEPARTMENT, GOVT. OF ODISHA,
BHUBANESWAR
Heads of Department Building, Unit-V, Pin-751001
Tel No.: 0674-2391537, Fax No.: 0674-2391684
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ANALYSIS REPORT

Name of the Sample : Bauxite Sample.

Received from : O/o The Joint Director Geology, Zonal Survey, Koraput.

Sl. No.	Identity Mark	R.L. No.	LOI%	SiO_2%	Fe_2O_3%	TiO_2%	Al_2O_3%
1	KBK – 3	1110-P/24	25.61	2.518	20.484	2.552	48.366
2	KBK – 4	1111-P/24	26.12	1.291	17.872	4.339	49.709
3	KBK – 5	1112-P/24	26.8	2.878	17.454	2.048	50.333
4	KBK – 6	1113-P/24	23.23	1.905	28.737	4.198	41.228
5	KBK – 7	1114-P/24	17.38	0.667	16.662	3.279	61.413
6	KBK – 8	1115-P/24	18.96	0.959	40.059	6.941	32.469
7	KBK – 9	1116-P/24	19.91	4.061	40.764	1.612	33.056
8	KBK – 10	1117-P/24	21.6	1.094	38.11	2.102	36.542
9	KBK – 11	1118-P/24	21.7	3.15	30.3	2.124	42.13
10	KBK – 12	1119-P/24	29.46	1.851	11.933	1.58	54.776
11	KBK – 13	1120-P/24	23.1	3.712	24.325	4.161	43.969
12	KBS – 1	1121-P/24	16.93	27.533	12.37	3.17	39.684
13	KBS – 2	1122-P/24	21.02	4.114	35.862	1.929	36.349
14	KBS – 3	1123-P/24	22.15	2.787	30.305	5.701	38.442
15	KBS – 4	1124-P/24	20.3	4.801	35.91	2.878	35.597
16	KBS – 5	1125-P/24	16.6	14.873	38.936	1.806	27.209
17	KBS – 6	1126-P/24	27.43	2.438	12.731	4.023	52.694
18	KBS – 7	1127-P/24	31.63	1.593	4.824	2.326	59.109
19	KBS – 8	1128-P/24	26.19	6.557	14.367	2.935	49.154
20	KBS – 9	1129-P/24	19.21	15.813	24.699	1.631	38.257
21	KBS – 10	1130-P/24	22.1	2.03	32.52	2.483	40.489
22	KBS – 11	1131-P/24	28.22	0.87	13.984	3.757	52.792

21.11.24

JOINT DIRECTOR (C.A)

Photographs





Photo-I: Escarpments of different location over the Kalychochora Plateau.

Photo-II: (a).Plateau exposed laterite, lateritic bauxites and lateritic boulders.
(b). Grab sample were drawn from the lateritic bauxite.

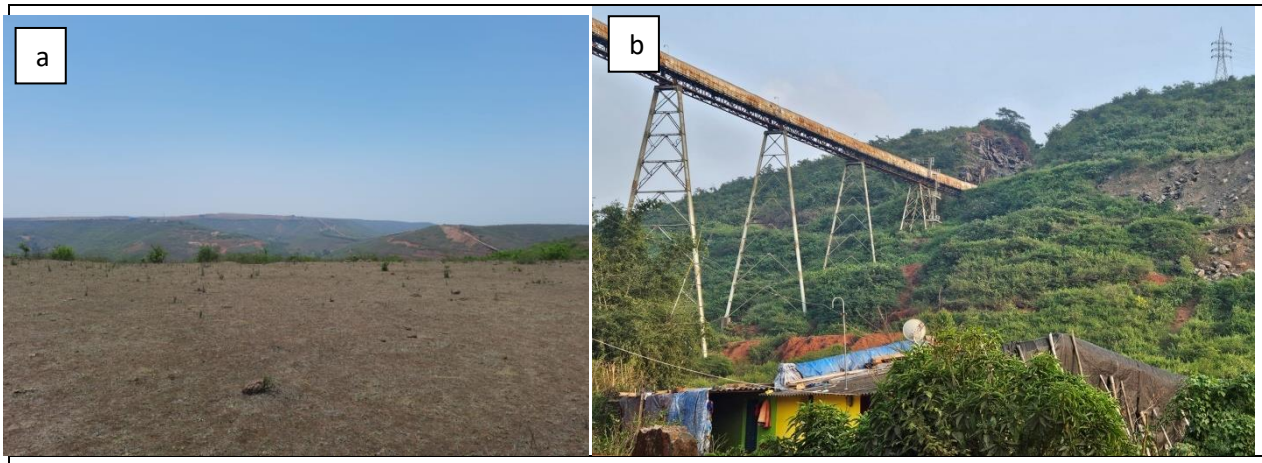

Photo-III: (a). Baphilimali plateau view from Kalychochra plateau about 2.5km apart from the plateau. (b). A conveyor beltis passing by Northern base foothill of the Plateau exposing the charnockite.

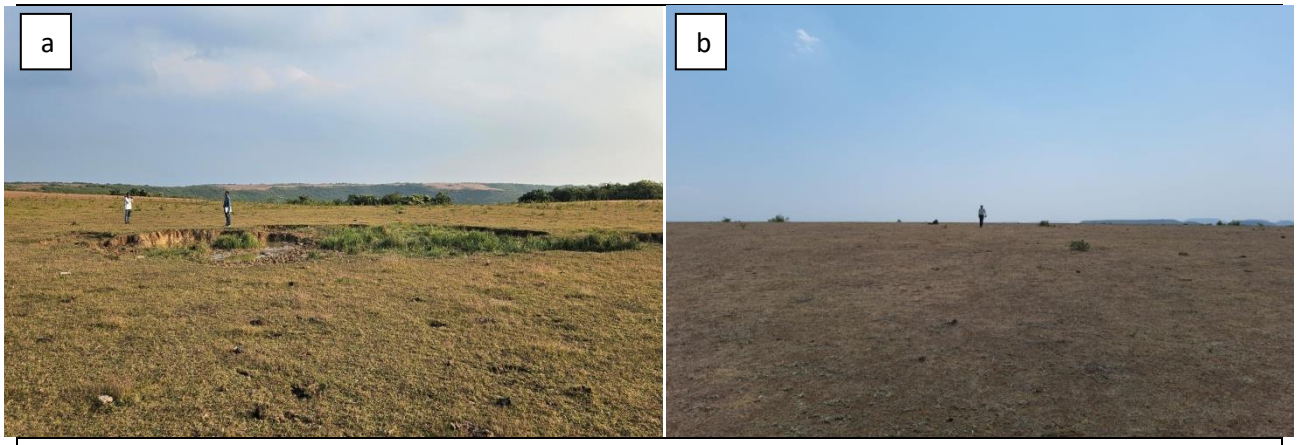

Photo-IV: (a) Saucer-shape depression over north portion of the plateau with 0.7m of soil cover. (b) Plateau with flat top covered with thin rim 0.3m of soil cover.

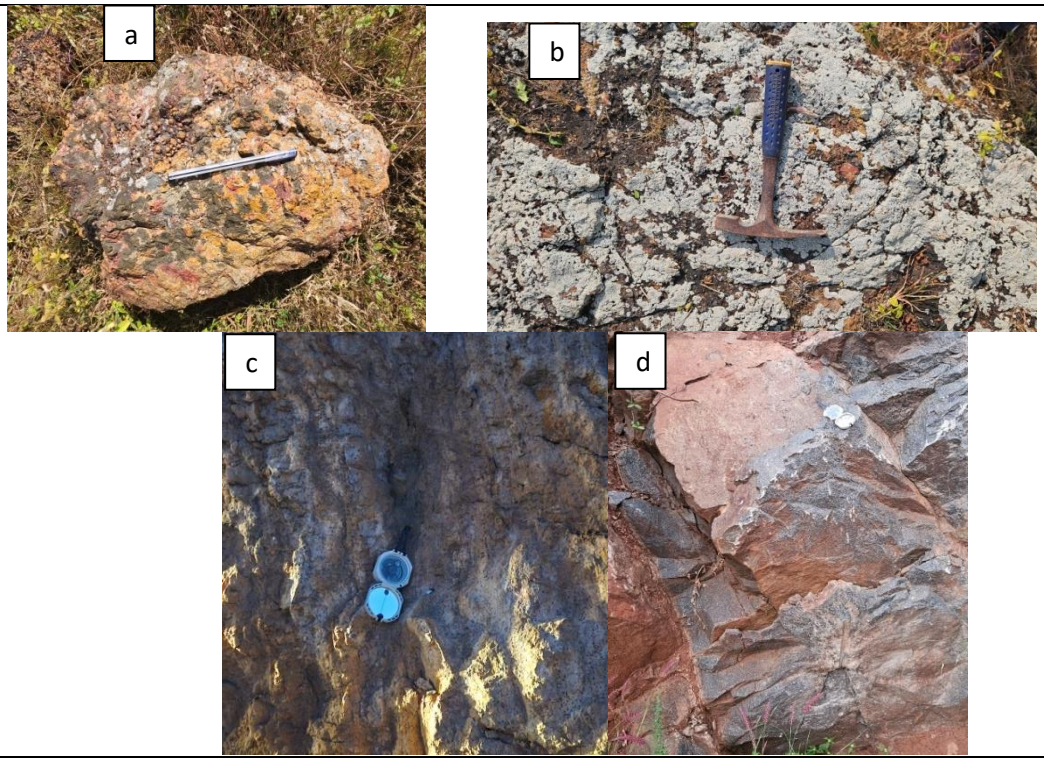

Photo-V: Exposures of Laterite (b). Exposure of Aluminous laterite with lichen. (c). Exposure of Khondalite on the way of conveyor belt in the hill cutting near Andrakanch.(d).Exposure of Charnockite on the way to Silaposh.

TIMELINE FOR THE PROJECT

Time Schedule of Exploration of Kalychochra Bauxite Plateau, Kashipur Rayagada District: 12 months														
Sl. No.	**Work Components**	**Work Period in month**												**Time period Days**
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	
1	Camp Setting				Review By TCC on approval of 2nd phase(Finalization of BHs. Plan and Tender)									7 Days
2	Large scale Geological Mapping on scale 1:12,500 (383 Ha)													45 Days
3	Topographic Survey, DGPS of Corner point													30 Days
4	Detailed Geological Mapping on scale 1:4000													60 Days
5	Pitting (4 Pits)													15 Days
6	Drilling (6 BHs)													60 Days
7	DGPS of BHs fixation													7 days
8	Core Logging & sampling													60 Days
9	Sample processing & analysis													90 Days
10	Camp winding													7 days
11	Analysis, compilation of data & preparation of Geological report with peer review													120 days
		Field Period							Preparation of Report and analysis					

Note: Mapping and drilling 3-month time lag may be accorded during the monsoon.