MINUTES OF THE 8th MEETING OF TECHNICAL COMMITTEE OF NATIONAL MINERAL EXPLORATION TRUST (NMET) HELD AT RSAS, GSI, BANGALORE ON 3rd & 4th FEBRUARY- 2017.

The 8th Meeting of Technical Committee of National Mineral Exploration Trust (NMET) was held at RSAS, GSI, Bangalore on 03-02-2017 & 04-02-2017 under the Chairmanship of Dr P. R. Golani, Dy. Director General, GSI, Training Institute for technical appraisal of eleven (18) new proposals submitted by MECL, DGM, Odisha & NMDC and review of three (3) ongoing proposals under NMET funding of MECL & DGM, MP. The details of the review are as follows:-

A- National Mineral Development Corporation Limited (NMDC), Hyderabad:

NMDC presented the proposal stating that **four (04)** proposal allotted by Ministry of Mines for Regional exploration are to be discussed in the meeting. The proposals are:

1. Recconnaicence Survey (G-4) for Gold & Associated elements in Bukkapatna Block, (Block ID: SR-KAR-09), District – Tumkur, Karnataka.
2. Recconnaicence Survey (G-4) for Gold & Associated elements in Matmari Block, (Block ID: SR-KAR-05), District- Raichur, Karnataka.
3. Recconnaicence Survey (G-4) for Iron Ore in Jampani_Dilkiburu- Danguaposi Block, (Block ID: ER-JH-01), District - West Singhbhum, Jharkhand.
4. Recconnaicence Survey (G-4) for Iron Ore and Manganese in Degve-Kalna-Asaniya Block, (Block ID: CR-MH-01), District- Sindhudurg, Maharashtra.

The Block wise discussion is given below:-

1- Recconnaicence Survey (G-4) for Gold & Associated elements in Bukkapatna Block, (Block ID: SR-KAR-09) in an area of 168 Sq. Km, District- Tumkur Karnataka.

The committee discussed the proposal in detail and agreed to the proposal with the following technical modifications. (Quantum of Work Table is Annexed)

a) Geological Mapping to be carried out on 1:12,500 scale based on ground traverses.
b) ASTER data (freely available) may be used for Remote Sensing studies.
c) NGCM & NGPM data of GSI to be consulted and geophysical Survey is to be carried out after completion of Geological Mapping, Geochemical Sampling and receipt of analysis of the samples.
d) Stream Sediment samples not required.
e) All previous Reports including report of Dr H.S. M. Prakash and GSI & BRGM Report are to be consulted and their recommendations may be included.
f) Some samples to be collected for TRACE elements (Antimony, Molybdenum, Arsenic, Tellurium & Bismuth etc).
g) Bedrock samples = 150 nos.
h) All the Gold analysis is to be carried out by Fire Assay method only.
i) Purchase of data cost is to be removed from cost estimates.
j) Trenching of 100 cu. m has to be carried out.
k) The analytical content may change as per the sample number.

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

2. **Recconnaicence Survey (G-4) for Gold & Associated elements in Matmari Block, (Block ID: SR-KAR-05) in an area of 513 sq. km**, **District- Raichur, Karnataka**.

The committee discussed the proposal in detail and agreed to the proposal with the following modifications.

a) Geological Mapping is to be carried out on 1:12,500 scale and on the Map provided the source of map is to be mentioned and Coordinates are to be given properly.
b) Bed rock samples are to be carried out 100 Numbers only.
c) Recconnaicence survey by remote sensing to target the potential area around 150 sq. km. (apx.) area is to be delineated for detailed mapping on 1:12,500 scale.
d) The committee advised to give the source of map, plate etc.

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

3. **Recconnaicence Survey (G-4)) for Iron Ore in Jampani_Dilkiburu- Danguaposi Block, (Block ID: ER-JH-01) in an area of 100Sq. Km, District - West Singhbhum Jharkhand**.

The committee discussed the proposal in detail and agreed to the proposal with the following modifications.

a) Field work is suggested in the area to demarcate the area for mapping.
b) Geological Mapping is to be carried out on 1:12,500 scale.
b) Accordingly the NQT will framed

4. **Recconnaicence Survey (G-4) for Iron Ore and Manganese in Degve-Kalna-Asaniya Block, (Block ID: CR-MH-01) in an area of 100Sq. Km, District- Sindhudurg, Maharashtra.**

The committee discussed the proposal in detail and agreed to the proposal with the following modifications .

a) Geological Mapping is to be carried out on 1:12,500 scale.
b) 50 number of Bed rock samples may be collected.
c) Soil and Stream sediment samples not required.
d) 100 cu. m. Trenching is to be carried out in the block.
e) Geophysical Survey (Magnetic) is to be carried out as close as possible.

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

Dr Joyesh Bagchi, Director (Technical), MoM asked about the fifth block allotted to NMDC. NMDC officials informed that NMDC is carrying the work of 5th block under MOU with State Government of Madhya Pradesh and Madhya Pradesh Mineral Development Corporation. Dr Bagchi suggested that the work has to be completed within the given time frame and submitted the periodic progress and NMDC assured that they will finalised time schedule of the fifth exploration block it will be submitted to NMET secretariat and the progress of the work will be furnished periodically.

II- Mineral Exploration Corporation Limited (MECL), Nagpur, Maharashtra:

MECL submitted 14 proposals for discussion in the meeting.

Shri B. P. Raturi, Dy. General Manager (Exploration), MECL presented 14 (Fourteen) proposals for discussion in the meeting-

1) **Reconnaissance Survey** (G-4 level) for Basemetal and Gold in Mohar Cauldron Area **(Block-ID CR-MP-08),** in an area of 100 Sq. Km, District: Shivpuri, (Madhya Pradesh).
2) **Recconnaicence Survey (G-4 stage)** for Manganese in Ambadala-Sunakhunti Area **(Block-ID ER-ODS-02)**in an area of 100Sq. Km, District: Rayagada & Kalahandi, (Odisha).
3. **Recconnaicence Survey (G-4 stage)** for Tin in Pihra area, **(Block-ID ER-JH-03)** in an area of 100 Sq. Km, District: Giridih & Kodarma, (Jharkhand).
4) **Recconnaicence Survey (G-4 stage)** for Andalusite in Nagar-Untari Area, **(Block ID-ER JH-07)** in an area of 100 Sq. Km, District: Garhwa, (Jharkhand).
5) **Recconnaicence Survey (G-4 stage)** for Cu, Pb and Zn in Kusumarja & Adjoining Areas**, (Block-ID ER-JH-08),** District: Giridih, (Jharkhand).
6) **Recconnaicence Survey (G-4 stage)** for Gold in Vettukathi Kotta Block, **(Block- ID SR-KRL-02)** in an area of 155 sq. km, District: Malappuram & Neelgiri, (Kerala),
7) **Recconnaicence Survey (G-4 stage)** for Bauxite in Kasaragod East Block, **(Block-ID SR-KRL-03)** in an area of 291 Sq km, District: Kasaragod, (Kerala).
8) **Recconnaicence Survey (G-4 stage)** for Dunite in Andipatti - Jambumadai-Urakari Sector **(Block ID-SR TN-05)** in an area of 100 sq km, District: Namakkal, Perambalur, (Tamil-Nadu)
9) **Recconnaicence Survey (G-4 stage)** for Ni, Cr & Magnesite in Namakkal Block, **(Block ID: SR-TN-08)** in an area of 240 Sq. Km, District: Namakkal, Perambalur, (Tamil Nadu).
10) **Recconnaicence Survey (G-4 stage)** for Diamond in Chelima Block, **(Block-ID SR-AP-01)** in an area of 702 sq. km., District: Kurnool & Prakasham (Andhra Pradesh).
11) **Recconnaicence Survey (G-4 stage)** for Diamond in Kalyandurg-Timmasamudram Block **(Block-ID SR-AP-02)** in an area of 1172 sq.km, District: Anantpur, (Andhra Pradesh).
12) G-3/2 Level Exploration for Bauxite in the **Tarhapani West Block** of the East Coast Bauxite Belt, District - Koraput, Odisha.
13) Exploration of G-3 Stage for Limestone in **Jamodi Mahanna Block**, Upgradation of G4-exploration work, District- Satna, Madhya Pradesh
14) Exploration of G-3 Stage for Limestone in **Naubasta -Kolard Block**, Upgradation of G4-exploration work**.** District- Satna, Madhya Pradesh.

In addition MECL presented Review of work done in three proposals under NMET Projects.

The Block wise discussion is given below:-

1) Recconnaicence Survey (G-4 stage) for Basemetal and Gold in Mohar Cauldron Area (Block-ID CR-MP-08), in an area of 100 Sq. Km, District: Shivpuri, (Madhya Pradesh).

The committee discussed the proposal in detail and agreed to the proposal with the following modifications.

a) Geological Mapping is to be carried out on 1:12500 scale.
b) The NGCM data of GSI is to be studied and in case anomalies are observed Stream Sediment sample for lower order may be collected. Total 100 number soil & stream sediment sample may be collected.
c) Aster data (Freely available) (Remote sensing studies) analysis for alteration studies in the area to be carried out.
d) Analysis for REE & Uranium shall be carried out (30 N0s each).

e) Petrographic studies for par-alkaline rocks may be carried out

f) Geophysical Survey carried out by GSI is to be given.

g) 100 cu. m. Trenching is to be carried out in the block. The work will be taken up after review of above work

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

2) Recconnaicence Survey (G-4 stage) for Manganese in Ambadala-Sunakhunti Area (Block-ID ER-ODS-02) in an area of 100Sq. Km, District: Rayagada & Kalahandi, (Odisha).

The committee discussed the proposal in detail and agreed to the proposal with the following modifications.

a) Remote sensing studies not required.

b) Geological Mapping is to be carried out on 1:12500 scale.

c) Soil samples and Stream sediment samples are not required.

d) Close space Geophysical Survey has to be carried out

i) Magnetic survey at 50 m interval.

ii) Detailed IP & Resistivity Survey has to be carried out.

iii) Self Potential survey is not required.

e) 100 No Bed rock samples are to be collected.

f) Trenching of 100 Cu. m. (maximum) is to be carried out after Geological Mapping & Geophysical Survey.

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

3. Recconnaicence Survey (G-4 stage) for Tin in Pihra area, (Block-ID ER-JH-03) in an area of 100 Sq. Km, District: Giridih & Kodarma, (Jharkhand).

The committee discussed the proposal in detail and agreed to the proposal with the following modifications.

a) Remote sensing studies are to be carried out.

b) 100 N0 of Bed rock samples are to be prepared.

c) Soil Sampling is not required and 100 numbers panning samples to be collected.

d) Analysis for Uranium, REE and Cs shall be carried out (50 N0).

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

4) Recconnaicence Survey (G-4 stage) for Andalusite in Nagar-Untari Area, (Block ID-ER JH-07) in an area of 100 Sq. Km, District: Garhwa, (Jharkhand).

The proposal was approved by the committee after detailed discussion with the following modifications.

a) The Geomorphological Map of GSI is to be studied. After studying the map colluvial zones will be marked.

b) The quantum of work is to be finalised as per float ore methodology.

c) Geological Mapping to be carried out on 1: 12500 Scale.

d) Lineament and Geomorphological Map of GSI is to be downloaded.

f) Pitting is to be carried out for 150 cu. m . Trenching is not required. The locations & number of pits shall be decided based on Physiography of the area.

e) Remote Sensing study is not required. Bed rock samples are not required.

f) Drilling is also not required.
g) 20 no samples shall be analysed for Rare Earth Elements.
h) Specific Gravity samples for 5 Nos.
I) Thin Section Studies on 20 Nos samples.
J) Whole Rock Analysis not required.

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

5) Recconnaicence Survey (G-4 stage) for Cu, Pb and Zn in Kusumarja & Adjoining Areas, (Block-ID ER-JH-08), District: Giridih, (Jharkhand).

The proposal was approved by the committee after detailed discussion with the following modifications.

a) Aster data (Freely available) (Remote sensing studies) analysis for alteration studies in the area to be carried out.
b) GSI carried out NGCM.
c) Stream sediment samples to be reduced to 50 Number and Soil samples to 25 Number. Bed Rock samples 100Nos.
d) Trenching of 100 cu. m. has to be carried out and Pitting is not required.
e) Specific Gravity is to be carried out for 10 Number samples.
f) Geophysical Survey is to be carried out by Induced Polarisation & Resistivity Surveys.

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

6) Recconnaicence Survey (G-4 stage) for Gold in Vettukathi Kotta Block, (Block- ID SR-KRL-02) in an area of 155 sq. km, District: Malappuram & Neelgiri, (Kerala),

The committee discussed the proposal in detail and agreed to the proposal with the following modifications.

a) The Block boundary of the Block is to be corrected in consultation with RMH-II, GSI Southern Region and the area is to be reconciled.
b) Remote Sensing is not required.
c) 100 N0 of Bed rock samples are to be collected.
d) Stream Sediment samples are to be collected from I^{st} & II^{nd} order drainage. Then panning is to be done for collection of the 150 Nos samples.
e) Review of work will be done after Geological Mapping, Geochemical Sampling and analysis.
f) Geophysical Survey & Trenching & Pitting will be done after Review.
g) Some samples may be analysed for complete analysis and Specific Gravity.
h) Index of the Geological Map to be corrected as per the 50 K Map given in the Dossier.

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

7) Recconnaicence Survey (G-4 stage) for Bauxite in Kasaragod East Block, (Block-ID SR-KRL-03) in an area of 291 Sq km, District: Kasaragod, (Kerala).

The proposal was approved by the committee after detailed discussion with the following modifications.

a) Remote Sensing is to be carried out with the help of Aster data.
b) Geological Map in the Dossiers to be checked.
c) Bed rock samples are to be collected (150N0).
d) Pitting shall be carried out (100 Cu. m.).

e) Analysis of 100 no samples for Vanadium & Gallium may be carried out. In addition 5 Nos samples may be analysed for Ni & REE.

f) Thin Section & Polished section Study to be carried out in 10 N0 samples.

g) X RD studies samples – 15 N0s

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

8) Reconnaissance Survey (G-4 stage) for Dunite in Andipatti - Jambumadai-Urakari Sector (Block ID-SR TN-05) in an area of 100 sq km, District: Namakkal, Perambalur, (Tamil-Nadu).

The committee discussed the proposal in detail and agreed to the proposal with the following modifications.

a) In view of Use of Dunite having >47% MgO, and around 1.00% Al_2O_3 it is proposed to delineate within the Andipatti Dunite.

b) Geological Mapping to be carried out on 1:12500 Scale.

c) Remote Sensing not required.

d) During Mapping demarcate the Chromitite and sulphidic mineralised bands and analyse for Ni & PGE (20 samples each) and for Dunite 100Nos.

e) Bed Rock sampling to be carried out by Channel sampling (100 Nos).

f) NGPM data of GSI are available to be consulted hence Geophysical Survey not required.

g) Trenching of 100 cu m is to be carried out and 100 samples to be collected.

h) XRD studies from Sulphidic zones for 10 no samples. EPMA-10 Nos

i) Specific Gravity determinations in 10 number samples. Thin Section, Polished section & Whole Rock 10 N0 each

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

9) Recconnaicence Survey (G-4 stage) for Ni, Cr & Magnesite in Namakkal Block, (Block ID: SR-TN-08) in an area of 240 Sq. Km, District: Namakkal, Perambalur, (Tamil Nadu).

The proposal was approved by the committee after detailed discussion with the following modifications.

a) Geological Mapping on 1: 12500 scale.

b) Geophysical survey data of GSI are available. Gravity & Magnetic Survey to be carried out on Close space

c) 1:25000 Scale map is available. The same may collected from GSI.

d) After demarcating Ultramafic bodies the Chromiferous and Sulphide bands are to be delineated within it.

e) NGCM & NGPM data are available. The NGCM data are to be studied thoroughly & carefully

f) Integration of NGCM, NGPM and Aerogephysical data is to be carried out.

g) 200 Nos of Bed rock Channel samples are to be collected. If required the number of samples for sulphide zones can be increased.

h) Trenching to be carried out 200 cu. m.

i) Stream Sediment samples not required.

The committee decided that review of data generated shall be done after completion of Geological Mapping and Geochemical sampling work.

10) Reconnaissance Survey (G-4 stage) for Diamond in Chelima Block, (Block-ID SR-AP-01) in an area of 702 sq. km., District: Kurnool & Prakasham (Andhra Pradesh).

The committee suggested following data to be collected -

1. Remote Sensing using Aster/Hyper-spectral data for search of potential KCR/Lamproite sites.
2 Geological mapping on 1:12,500 for search of small bodies like KCR/ Lamproites rocks not useful and need not be attempted.
3 Indicator Mineral Surveys and its processing through micro-density media separators/Wilfrey table and laboratory scanning and identification. In regional exploration one sample per 25 sq km of area is to be collected from the appropriate streams (which is generally 3rd and 5th order stream).
4 Depending upon the results of above regional exploration work, ground geophysics is to be carried out after the review of work.

11) Recconnaicence Survey (G-4 stage) for Diamond in Kalyandurg-Timmasamudram Block (Block-ID SR-AP-02) in an area of 1172 sq.km, District: Anantpur, (Andhra Pradesh).

The committee suggested following data to be collected -

1 Remote Sensing using Aster/Hyper-spectral data for search of potential KCR/Lamproite sites.
2 Geological mapping on 1:12,500 for search of small bodies like KCR/ Lamproites rocks not useful and need not be attempted.
3 Indicator Mineral Surveys and its processing through micro-density media separators/Wilfrey table and laboratory scanning and identification. In regional exploration one sample per 25 sq km of area is to be collected from the appropriate streams (which is generally 3rd and 5th order stream).
4 Depending upon the results of above regional exploration work, ground geophysics is to be carried out after the review of work.

12) G-3/2 Level Exploration for Bauxite in the Tarhapani West Block of the East Coast Bauxite Belt, District - Koraput, Odisha (DGM-Odisha Block).

The proposal was approved by the committee after detailed discussion with the following modifications.

a) In view of available data of Surface samples, escarpment samples and Pit samples of DGM, Odisha the committee suggested that Boreholes may be taken up systematically first on 800mx 200m grid and results are positive then to 400m x 200m grid. The grid is suggested in view of the length and width (Longer Axis & shorter axis) of the block.
b) A total of 23 Bores are approved by the committee for G-3 stage exploration
c) All the boreholes shall be closed within 1 m clay zone after intersecting Bauxite zones except two boreholes which will be taken upto basement Khondalites to know the total column of Bauxite & laterite horizon.
d) Some of the samples from Clay zones shall be analysed for REE, V and Ga.
e) In case the results of G-3 exploration are positive the data will be reviewed and G-2 exploration can be taken up seamlessly.

13) Exploration of G-3 Stage for Limestone in Jamodi Mahanna Block, Upgradation of G4- exploration work, District- Satna, Madhya Pradesh

The proposal was approved by the committee after detailed discussion with the following modifications.

Based on the results of G-4 stage exploration the committee agreed for G-2 Exploration with spacing at 400m in the South Eastern and Eastern part of the block and G-3 stage exploration with borehole spacing of 800m in Western & North-western part of the block. The committee suggested review of the work after partial completion of work in Western & North-western part of the block

14) Exploration of G-3 Stage for Limestone in Naubasta - Kolard Block, Upgradation of G4- exploration work. District- Satna, Madhya Pradesh.

The committee suggested a total of 7 no boreholes in Naubasta Kollard Block. Out of 7 boreholes 4 boreholes are suggested in the Block falling in the eastern part and 3 (three) boreholes in the block falling in the western part. To avoid the overburden thickness the boreholes proposed in updip side i.e. north and northwest, not in the down dip side.

15) Exploration of G-2 Stage for Limestone in Ghunchihai Block, District- Satna, Madhya Pradesh.

The status of on-going exploration of Ghunchihai was reviewed by the committee and decided that 2 (two) boreholes may be drilled to confirm the continuity at 200m grid lines for confirming G-1 Level.

16) G-2 Exploration for Iron Ore in Jhumka Pathiriposhi Block, District- Sundargarh, Odisha.

The Exploration work was discussed in detail. MECL informed the committee regarding the drilling work of the Block that there is problem in taking up some of the boreholes proposed under RC drilling because of non-approachability of the RC drills to the proposed points in the hilly areas and these boreholes are necessary for the logical conclusion of exploration in the block. After studying the Geological Map & Sections the committee agreed for drilling the proposed points under core drilling. In addition to the above based on the ongoing exploration in some of the section lines the Iron mineralised zones are open in the strike direction and 9 additional boreholes were proposed by MECL. After careful study of the Geological cross sections the committee agreed for taking up of 7 boreholes under core drilling. Thus a total of 17 Number of boreholes shall be drilled under core drilling.

17) Review of on-going Regional Exploration of Agnigundala North Block (SR-AP-09) and Kesarpur south Copper Block (ER-ODS-09) was also carried out by the committee.

Based on the present available Geological Mapping data and study of Aerogephysical data of GSI MECL proposed Geophysical Survey work of 10 Line Km in Agnigundala North Block(SR-AP-09). The committee after detailed discussion agreed for Geophysical Survey of 8 Line Km in the North Western part of the Agnigundala North Block, where the visual mineralisation have been observed during mapping around the old working areas. The Geophysical survey shall be taken up from the known area and if the results are positive then the survey should be continued. Geological Map should be provided during the discussion for any subsequent approval sought

Based on the present available Geological Mapping data and study of Aerogephysical data of GSI MECL proposed Geophysical Survey work of 8 Line Km in Kesarpur South Block (ER ODS-09). Regarding Geophysical Survey in Kesarpur Block the committee decided that survey will carried out based on the results of geochemical samples.

The meeting ended with vote of thanks.

(Shri Lalit Khasdeo, Sr Geologist)
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1. Reconnaissance Survey (G-4 level) for Base metals and Gold in Mohar Cauldron, (Block-ID CR-MP-08), in an area of 100 sq. km., District: Shivpuri (Madhya Pradesh)			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1	**ASTER Data Analysis (Remote Sensing Studies)** (on 1: 50000 Scale)	Scene	1 Scene 100 sq. km.
2	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km	100 sq. km.
3	**Topographical Survey** (on 1:12,500 Scale in potential Zone Areas)	Sq. Km	As per requirement
	Bore Hole Fixation (Scout Boreholes)*	Nos	5 Nos
	& Coordinate Determination*	Nos	5 Nos
4	**Geochemical Sampling**		
	a) Bed Rock Sampling	Nos.	100 Nos
	b) Soil Sampling & Stream Sampling	Nos.	100 Nos
5	Excavation (Trenching /Pitting)*	Cu. m.	100 Cu. m.
6	**Drilling (coring)***	**m**	**600m (5 Bhs)**
7	**Geological work ***		
	a) Geological Core Logging, Sample Preparation etc.	m	600m (5 Bhs.)
9	**Laboratory Studies**		
	I) Surface Sampling (Primary samples)		
	i) Bed Rock samples		
	a) For Cu, Pb & Zn b) For Au & Ag by Fire Assay c) REE d) Uranium	Nos Nos. Nos Nos	100 Nos 30 Nos 20 Nos 20 Nos
	ii)) Soil Samples & Stream Sediment Samples		
	a) For Cu, Pb & Zn b) REE & Uranium c) For Au & Ag by Fire Assay	Nos. Nos Nos	100 Nos. 20 Nos 30 Nos
	iv) Check Samples (Bed Rock / Soil & Stream sediment)		
	a) For Cu, Pb & Zn b) For Au & Ag by Fire Assay c) REE & Uranium	Nos Nos Nos	20 Nos 6 Nos 6 Nos
	v) Pit & Trench Primary & Check Samples*		
	a) For Cu, Pb & Zn b) For Au & Ag by Fire Assay c) REE & Uranium	Nos Nos Nos	110 Nos 33 Nos 10 Nos
	vi) Drill Core Primary Samples *		
	a) For Cu, Pb & Zn b) For Au & Ag by Fire Assay	N0s N0s	220 Nos 30 Nos
	vii) Composite Samples *		
	a) For 5 radicals (Cu, Pb, Zn, Co & Ni) b) Au & Ag (By Fire Assay)	Nos Nos	15 Nos 15 Nos
10	**Physical Studies**	Nos.	15 Nos

	a) XRD – Studies on Composite samples		
	b) Spectroscopic Studies (La-MC-ICP MS Method Full Spectrum of 48 radicals)	Nos.	15 Nos
11	**Petrological Samples (Surface & Bh Core Samples***		
	a) Preparation of Thin Section b) Study of Thin Section	Nos Nos	20 Nos 20 Nos
12	**Mineragraphic Studies (Surface & Bh Core Samples)***		
	a) Preparation of Polished Section b) Study of Polished Section	Nos Nos	20 Nos 20 Nos
13	**Whole Rock Analysis -**		
	SiO_2, Al_2O_3, Fe_2O_3, TiO_2, MnO, CaO, Na_2O, K_2O+H_2O, MgO, P_2O_5, CO_2, & S.	Nos	5Nos
14	**Specific gravity Determination***	Nos.	10 Nos
15	**Report Preparation [As per Minerals (Evidence of Mineral Contents) Rule-2015]**	**Nos**	**1**
*** The 2nd Level of work to be decided after Review of Geological Mapping & Geochemical Sampling**			

2. Proposed Quantum of Work for Reconnaissance Survey for Manganese in Ambadala-Suna-khunti area, (Block-ID ER-ODS-02), in area of 100 Sq Km Area, District: Rayagada, Kalahandi, (Odisha)			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km.	100 sq. km.
2	**Topographical Survey** * (on 1:12,500 Scale in potential Zone Areas)	Sq. Km.	As per requirement
	Bore Hole Fixation (Scout Boreholes) *	Nos.	5 Nos.
	RL & Coordinate Determination	Nos.	5 Nos.
3	**Geochemical Sampling**		
	a) Bed Rock Sampling	Nos.	100 Nos.
4	**Ground Geophysical Survey** (Work to be carried out after completion of Geological Mapping)		
	a) Magnetic Survey at 50m Interval	No of Sts.	1020 Nos.
	b) Resistivity	Line Km	20 Line Km
	c) Induced Polarization Survey at an station interval of 25m and line interval of 100m	Line Km	20 Line Km
5	Excavation (Trenching /Pitting) *	Cu. m.	100 Cu m
6	**Drilling (coring)***	**m**	**600m (5 Bhs)**
7	**Geological work ***		
	a) Geological Core Logging, Sample Preparation etc.	m	600m (5 Bhs.)
8	**Laboratory Studies**		
	I) Surface Sampling (Primary samples)		
	i) Bed Rock samples		
	a) For Mn, Fe, SiO_2, Al_2O_3, P & LOI	Nos.	100 Nos.
	iv) Check Samples (Bed Rock)		
	a) For Mn, Fe, SiO_2, Al_2O_3, P & LOI	Nos.	10 Nos.
	v) Pit & Trench Primary & Check Samples *		
	a) For Mn, Fe, SiO_2, Al_2O_3, P & LOI	Nos.	110 Nos.
	vi) Drill Core (Primary + Check) Samples *		
	a) For Mn, Fe, SiO_2, Al_2O_3, P & LOI	Nos.	220 Nos.
	vii) Composite Samples *		
	a) For Mn, Fe, SiO_2, Al_2O_3, P & LOI	Nos.	10 Nos.
9	**Physical Studies**		
	a) XRD – Studies on Composite samples *	Nos.	10 Nos.
	b) Spectroscopic Studies (La-MC-ICP MS Method Full Spectrum of 48 radicals) *	Nos.	10 Nos
10	**Petrological Samples (Surface & Bh Core Samples)#**		
	a) Preparation of Thin Section b) Study of Thin Section	Nos Nos	30 Nos 30 Nos
11	**Mineragraphic Studies (Surface & Bh Core Samples) #**		
	a) Preparation of Polished Section b) Study of Polished Section	Nos Nos	30 Nos 30 Nos
12	**Whole Rock Analysis***		
	For SiO_2, Al_2O_3, Fe_2O_3, TiO_2, MnO, CaO, Na_2O, K_2O+H_2O, MgO, P_2O_5, CO_2, & S.	Nos	10 Nos
14	Specific gravity Determination*	Nos.	10 Nos
15	Report Preparation [As per Mineral (Evidence of Mineral Contents) Rule-2015]	Nos	1
***The 2nd Level of work to be decided after Review of Geological Mapping & Geochemical Sampling**			
# part samples shall be analysed in second level of work after review			

3.Quantum of work of Reconnaissance Survey for Tin in Pihra area (Block-ID ER-JH-03), in an area of 100 sq. km., District: Giridih and Kodarma (Jharkhand)			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1	**Remote Sensing (Structural Mapping) & Reconnaissance Mapping (on 1: 50000 Scale)**	Scene	1 Scene 100sq km
2	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km	100 sq.km
3	**Topographical Survey** * (on 1:12,500 Scale in potential Zone Areas)	Sq. Km.	As per requirement
	Bore Hole Fixation (Scout Boreholes)*	Nos.	5 Nos.
	RL & Coordinate Determination*	Nos.	5 N0s.
4	**Geochemical Sampling**		
	a) Bed Rock Sampling	Nos.	100 Nos.
	C) Panning Sediment Sampling	Nos.	100 Nos.
5	**Excavation (Trenching /Pitting)**	**Cu. m.**	**100 Cu. m.**
6	**Drilling (coring)***	**m**	**600m (5 Bhs)**
7	**Geological work*** **a**) Geological Core Logging, Sample Preparation etc.	m	600m (5 Bhs.)
8	**Laboratory Studies**		
	I) Surface Sampling (Primary samples)		
	a) For Sn, Nb & Ta	Nos.	100 Nos.
	b) REE	Nos.	50 Nos.
	c) U,& Cs	Nos.	50 Nos.
	iii) Panning Sediment Sampling a) For Sn, Nb & Ta	Nos.	100 Nos.
	iv) Check Samples (Bed Rock / Soil/ Stream sediment) a) For Sn, Nb & Ta	Nos.	25 Nos.
	v) Pit /Trench (Primary & Check) Samples* a) For Sn, Nb & Ta	Nos.	110 Nos.
	vi) **Drill Core Primary Samples*** a) For Sn, Nb & Ta	Nos.	220 Nos.
	vii) Composite Samples * a) For Sn, W, Nb, Ta & Mo	Nos.	15 Nos.
9	**Petrological Samples (Surface & BH Core Samples)#** a) Preparation of Thin Section b) Study of Thin Section	Nos. Nos.	30 Nos 30 Nos
10	**Mineragraphic Studies# (Surface & BH Core Samples)** a) Preparation of Polished Section b) Study of Polished Section	Nos. Nos.	30 Nos 30 Nos
11	**Physical Studies*** a) XRD – Studies on Composite samples	Nos.	15Nos.
	b) Spectroscopic Studies* (La-MC-ICP MS Method Full Spectrum of 48 radicals)	Nos.	20 Nos.
12	**Whole Rock Analysis* -** SiO_2, Al_2O_3, Fe_2O_3, TiO_2, MnO, CaO, Na_2O, K_2O+H_2O, MgO, P_2O_5, CO_2, & S.	Nos	10 Nos
13	**Specific gravity Determination***	Nos.	10 Nos
14	**Report Preparation [As per Mineral (Evidence of Mineral Contents) Rule-2015]**	**Nos.**	**1**
*** The 2nd Level of work to be decided after Review of Geological Mapping & Geochemical Sampling**			
# part samples shall be analysed in second level of work after review			

4. Quantum of work of Reconnaissance Survey for Andalusite in Nagar-Untari area (Block- ID ER-JH-07), in an area of 100 sq. km., District: Garhwa (Jharkhand)			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1	**Geo-morphological studies** (on 1: 50,000 Scale)	Sq. km.	100sq km
2	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km	100 sq.km
3	**Topographical Survey*** (on 1:12,500 Scale)	Sq. Km.	As per requirement
4	**Geochemical Sampling**		
	a) samples for REE (to be collected from ore rich zone)	Nos.	20 Nos.
	Pitting	Cu. m.	150 Cu. m.
5	**Laboratory Studies**		
	I) Surface Sampling (Primary samples)		
	a) REE	Nos.	20 Nos.
	iii) Check Samples a) REE	Nos.	2 Nos.
	iv) Pit & Check Samples a) For $SiO2$, Al_2O_3, Fe_2O_3, TiO_2, CaO, Na_2O, K_2O, MgO, & LOI.	Nos.	165 Nos.
6	**Petrological Samples (Surface & Bh Core Samples)** a) Preparation of Thin Section b) Study of Thin Section	Nos. Nos.	20 Nos 20 Nos
7	**Specific gravity Determination**	Nos.	05 Nos
8	**Report Preparation [As per Mineral (Evidence of Mineral Contents) Rule-2015]**	**Nos.**	**1**

5. Reconnaissance Survey Proposal (G-4 level) for Cu, Pb, Zn in Kusumarja and Adjoining areas, (Block-ID ER-JH-08), in an area of 100 sq. km., District: Giridih, (Jharkhand)			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1	**ASTER Data Analysis** (Remote Sensing Studies) (on 1: 50,000 Scale)	Scene	1 Scene 100 sq. km.
2	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km	100 sq.km
3	**Topographical Survey*** (on 1:12,500 Scale in potential Zone Areas)	Sq. Km	As per requirement
	Bore Hole Fixation* (Scout Boreholes)	Nos.	5 Nos.
	& Coordinate Determination*	Nos.	5 Nos.
4	**Geochemical Sampling (**Will be carried out in anomalous areas)		
	a) Bed Rock Sampling	Nos.	100 Nos.
	b) Soil Sampling	Nos.	25 Nos.
	c) Stream Sediment Sampling	Nos.	50 Nos.
5	**Ground Geophysical Survey (**Will be carried out in anomalous areas)		
	a) Resistivity	Line Km	30 Line Km
	b) Induced Polarization Survey at an station interval of 25m and line interval of 100m	Line Km	30 Line Km
6	Trenching	Cu. m.	100 Cu. m.
7	**Drilling* (coring)**	**m**	**600m (5 Bhs)**
8	**Geological work**		
	a) Geological Core Logging, Sample Preparation etc.*	m	600m (5 Bhs.)
9	**Laboratory Studies** (To be carried out on samples collected from anomalous areas)		
	I) Surface Sampling (Primary samples)		
	i) Bed Rock samples		
	a) For Cu, Pb & Zn	Nos.	100 Nos.
	ii)) Soil Samples		
	a) For Cu, Pb & Zn	Nos.	25 Nos.
	iii) Stream Sediment Samples		
	a) For Cu, Pb & Zn	Nos.	50 Nos.
	iv) Check Samples (Bed Rock / Soil/ Stream sediment)		
	a) For Cu, Pb & Zn	Nos.	18 Nos.
	v) Pit & Trench Primary & Check Samples		
	a) For Cu, Pb & Zn	Nos.	110Nos.
	vi) Drill Core Primary Samples *		
	a) For Cu, Pb & Zn	Nos.	220 Nos.
	vii) Composite Samples *		
	a) For 5 radicals (Cu, Pb, Zn, Co &Ni) b) Au & Ag (By Fire Assay)	Nos. Nos.	15 Nos. 15 Nos.
10	**Physical Studies *** a) XRD – Studies on Composite samples	Nos.	15 Nos.

	b) Spectroscopic Studies *(La-MC-ICP MS Method Full Spectrum of 48 radicals)	Nos.	20 Nos.
11	**Petrological Samples * (Surface & Bh Core Samples**		
	a) Preparation of Thin Section b) Study of Thin Section	Nos. Nos.	40 Nos. 40 Nos.
12	**Mineragraphic Studies * (Surface & Bh Core Samples)**		
	a) Preparation of Polished Section b) Study of Polished Section	Nos. Nos.	25 Nos. 25 Nos.
13	**Whole Rock Analysis ***		
	SiO_2, Al_2O_3, Fe_2O_3, TiO_2, MnO, CaO, Na_2O, K_2O+H_2O, MgO, P_2O_5, CO_2, & S.	Nos.	10 Nos.
14	**Specific gravity Determination**	Nos.	10 Nos.
15	**Report Preparation [As per Mineral (Evidence of Mineral Contents) Rule-2015]**	**Nos.**	**1**
*** The 2nd Level of work to be decided after Review of Geological Mapping & Geochemical Sampling**			

6. Reconnaissance Survey Proposal (G-4 level) for Gold in Vettukathi Kotta Block, (Block-ID SR-KRL-02), in an area of 155 sq. km., District: Malappuram & Nilgiri, (Kerala)			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km	155 sq. km.
2	**Topographical Survey*** (on 1:12,500 Scale in potential Zone Areas)	Sq. Km	As per requirement
3			
	Bore Hole Fixation* (Scout Boreholes)	Nos	5 Nos.
	& Coordinate Determination*	Nos	5 Nos.
4	**Geochemical Sampling**		
	a) Bed Rock Sampling	Nos.	100 Nos
	b) Panning samples from stream sediments	Nos.	150 Nos
5	**Ground Geophysical Survey* (**Will be carried out in anomalous areas)		
	a) Magnetic Survey	No of Sts.	1020 Nos
	b) Self Potential	No of Sts.	1020 Nos
	c) Resistivity	Line Km	20 Line Km
	d) Induced Polarization Survey at an station interval of 25m and line interval of 100m	Line Km	20 Line Km
6	**Exploratory Mining***		
	Excavation (Trenching /Pitting)	Cu. m.	150 Cu m
7	**Drilling (coring)***	**m**	**600m (5 Bhs)**
8	**Geological work***		
	a) Geological Core Logging, Sample Preparation etc.	m	600m (5 Bhs.)
9	**Laboratory Studies**		
	I) Surface Sampling (Primary samples)		
	i) Bed Rock samples		
	a) Au by Fire Assay	Nos.	100 Nos
	ii) Panning samples		
	a) Au by Fire Assay	Nos.	150 Nos
	iv) Check Samples (Bed Rock / Penning sediment)		
	a) Au by Fire Assay	Nos.	25 Nos
	v) Pit & Trench Primary & Check Samples*		
	a) Au by Fire Assay	Nos.	165 Nos
	vi) Drill Core (Primary + check) Samples*		
	a) Au by Fire Assay	Nos.	220 Nos
	vii) Composite Samples*		
	a) Au & Ag by Fire Assay	Nos.	20 Nos
10	**Physical Studies*** a) XRD – Studies on Composite samples	Nos.	15 Nos
	b) Spectroscopic Studies *(La-MC-ICP MS Method Full Spectrum of 48 radicals)	Nos.	20 Nos
11	**Petrological Samples * (Surface & BH Core Samples**		
	a) Preparation of Thin Section	N0s	30 Nos

	b) Study of Thin Section	N0s	30 Nos
12	**Mineragraphic Studies* (Surface & BH Core Samples)**		
	a) Preparation of Polished Section b) Study of Polished Section	N0s N0s	20 Nos 20 Nos
13	**Whole Rock Analysis* -**		
	SiO_2, Al_2O_3, Fe_2O_3, TiO_2, MnO, CaO, Na_2O, K_2O+H_2O, MgO, P_2O_5, CO_2, & S.	Nos	10 Nos
14	**Specific gravity Determination***	Nos.	25 Nos
15	**Report Preparation* [As per Minerals (Evidence of Mineral Contents) Rule-2015]**	**N0**	**1**
*** The 2nd Level of work to be decided after Review of Geological Mapping & Geochemical Sampling**			

7. Quantum of work of Reconnaissance Survey for Bauxite in Kasaragod East Block, (Block-ID SR-KRL-03), in an area of 291Sq Km, District: Kasaragod, (Kerala)			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1	Remote Sensing Studies (**ASTER Data Analysis freely available**) (on 1: 50,000 Scale)	Scene	1 Scene 291 sq. km.
2	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km	291 sq. km.
3	**Topographical Survey*** (on 1:12,500 Scale in potential Zone Areas)	Sq. Km	As per requirement
	Bore Hole Fixation* (Scout Boreholes)	Nos	5 Nos
	RL & Coordinate Determination*	Nos	5 N0s
4	**Geochemical Sampling** (Taken up in Anomalous areas)		
	a) Bed Rock Sampling	N0s.	150 N0s
5	Pitting	Cu. M.	100 Cu. M.
6	**Drilling (coring)***	**m**	**250m (5 Bhs)**
7	**Geological work**		
	a) Geological Core Logging, Sample Preparation etc.*	m	250m (5 Bhs.)
8	**Laboratory Studies**		
	I) Surface Sampling (Primary samples)		
	i) Bed Rock samples		
	a) For Al_2O_3,Fe_2O_3, SiO_2, TiO_2 & LOI	Nos	150 Nos
	b) REE	Nos.	05 nos
	c) Ni	Nos.	05 nos
	d) Vanadium & Gallium	Nos.	100 nos
	ii) Check Samples (Bed Rock)		
	a) For Al_2O_3,Fe_2O_3, SiO_2, TiO_2& LOI	Nos	15 Nos
	iii) Pit & Check Samples		
	a) For Al_2O_3,Fe_2O_3, SiO_2, TiO_2 & LOI	Nos	110 Nos
	iv) Drill Core *(Primary + Check) Samples		
	a) For Al_2O_3,Fe_2O_3, SiO_2, TiO_2 & LOI	Nos	165 Nos
	v**) Composite Samples* for 12 radicals**		
	a) For Cao, MgO, Al_2O_3,Fe_2O_3, SiO_2, SO_3, P_2O_5, Mn_2O_3, TiO_2, K_2O, Na_2O & LoI	Nos	20 Nos
9	**Physical Studies**		
	a) XRD – Studies on Composite samples	Nos.	15 Nos
10	**Petrological Samples (Surface & Bh Core Samples)**		
	a) Preparation of Thin Section b) Study of Thin Section	Nos Nos	10 Nos 10 Nos
11	**Whole Rock Analysis***		
	For SiO_2, Al_2O_3, Fe_2O_3, TiO_2, MnO, CaO, Na_2O, K_2O+H_2O, MgO, P_2O_5, CO_2, & S.	Nos	10 Nos
12	**Specific gravity Determination**	Nos.	10 Nos
13	**Report Preparation [As per Minerals (Evidence of Mineral Contents) Rules-2015]**	**Nos**	1
*** The 2nd Level of work to be decided after Review of Geological Mapping & Geochemical Sampling**			

8. Quantum of work of Reconnaissance Survey for Dunite in Andipatti-Jambumadai-Urakarai Sector, (Block ID-SR-TN-05), in an area of 100 Sq Km, Distt: Namakkal, Perambalur (Tamil Nadu)			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km	100 sq. km
2	**Topographical Survey*** (on 1:12,500 Scale in potential Zone Areas)	Sq. Km	As per requirement
3	Bore Hole Fixation* (Scout Boreholes)	Nos	5 Nos
	RL & Coordinate Determination*	Nos	5 N0s
4	**Geochemical Sampling** (Taken up in Anomalous areas)		
	a) Bed Rock Sampling	N0s.	100Nos
5	**Exploratory Mining**		
	Trenching	Cu. m.	100 Cu m
6	**Drilling (coring)***	**m**	**600m (5 Bhs)**
7	**Geological work***		
	a) Geological Core Logging, Sample Preparation etc.*	m	600m (5 Bhs.)
8	**Laboratory Studies**		
	I) Surface Sampling (Primary samples)		
	i) Bed Rock samples		
	a) For MgO, Al_2O_3, Fe_2O_3, SiO_2, CaO & LOI	Nos	100 Nos
	b) For Ni & Cr	Nos	20 Nos
	c) For PGE	Nos	20 Nos
	ii) Check Samples (Bed Rock)		
	a) For MgO, Al_2O_3, Fe_2O_3, SiO_2, CaO & LOI	Nos	10 Nos
	b) For Ni & Cr	Nos	2 Nos
	c) For PGE	Nos	2 Nos
	iii) Trench Primary & Check Samples		
	a) For MgO, Al_2O_3, Fe_2O_3, SiO_2, CaO & LOI	Nos	…110 Nos
	b) For Ni & Cr	Nos	…22 .Nos
	c) For PGE	Nos	…22 Nos
	iv) Drill Core Primary Samples*		
	a) For MgO, Al_2O_3, Fe_2O_3, SiO_2, CaO & LOI	Nos	165 Nos
	b) For Ni & Cr	Nos	165 Nos
	c) For PGE	Nos	55 Nos
	v**) Composite Samples***		
	a) For MgO, Al_2O_3, Fe_2O_3, SiO_2, CaO & LOI	Nos	15 Nos
	b) For Ni & Cr	Nos	15 Nos
	c) For PGE	Nos	5 Nos
9	**Physical Studies**		
	a) XRD – Studies on Composite samples	Nos.	10Nos
	b) Spectroscopic Studies (La-MC-ICP MS Method Full Spectrum of 48 radicals)	Nos.	10 Nos
10	**Petrological Samples (Surface & Bh Core Samples)**		
	a) Preparation of Thin Section b) Study of Thin Section	Nos Nos	10 Nos 10 Nos

11	**Mineragraphic Studies (Surface & Bh Core Samples)**		
	a) Preparation of Polished Section b) Study of Polished Section	Nos Nos	10 Nos 10 Nos
12	**Whole Rock Analysis**		
	For SiO_2, Al_2O_3, Fe_2O_3, TiO_2, MnO, CaO, Na_2O, K_2O+H_2O, MgO, P_2O_5, CO_2, & S.	Nos	10 Nos
13	**Specific gravity Determination**	Nos.	10 Nos
14	**Report Preparation [As per Mineral (Evidence of Mineral Contents) Rule-2015]**	**Nos**	1
*** The 2nd Level of work to be decided after Review of Geological Mapping & Geochemical Sampling**			

9. Quantum of work of Reconnaissance Survey for Ni, Cr and Magnesite in Namakkal block (Block ID SR TN-08), in an area of 240 Sq Km, District: Namakkal, (Tamil Nadu)			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1			
2	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km	240 sq.km
3	**Topographical Survey*** (on 1:12,500 Scale in potential Zone Areas)	Sq. Km	As per requirement
	Bore Hole Fixation* (Scout Boreholes)	Nos	5 Nos
	RL & Coordinate Determination*	Nos	5 N0s
4	**Geochemical Sampling** (Taken up in Anomalous areas)		
	a) Bed Rock Sampling (channel samples)	N0s.	200 Nos
5	**Ground Geophysical Survey** (Work to be carried out after completion of Geological Mapping)		
	a) Magnetic Survey	No of Sts.	2040 Nos
	b) Gravity Survey	No of Sts.	2040 Nos
6	Trenching	Cu. m.	200 Cu m
7	**Drilling (coring)***	**m**	**600m (5 Bhs)**
8	**Geological work**		
	a) Geological Core Logging, Sample Preparation etc.*	m	600m (5 Bhs.)
9	**Laboratory Studies**		
	I) Surface Sampling (Primary samples)		
	i) Bed Rock samples		
	a) For MgO, Al_2O_3, Fe_2O_3, SiO_2, CaO & LOI	Nos	200 Nos
	b) For Ni & Cr	Nos	100 Nos
	c) For PGE	Nos	50 Nos
	ii) Check Samples (Bed Rock)		
	a) For MgO, Al_2O_3, Fe_2O_3, SiO_2, CaO & LOI	Nos	20 Nos
	b) For Ni & Cr	Nos	10 Nos
	c) For PGE	Nos	05 Nos
	iii) Trench Primary & Check Samples		
	a) For MgO, Al_2O_3, Fe_2O_3, SiO_2, CaO & LOI	Nos	220 Nos
	b) For Ni & Cr	Nos	110 Nos
	c) For PGE	Nos	55 Nos
	iv) Drill Core (Primary + check) Samples*		
	a) For MgO, Al_2O_3, Fe_2O_3, SiO_2, CaO & LOI	Nos	165 Nos
	b) For Ni & Cr	Nos	165 Nos
	c) For PGE	Nos	55 Nos
	v) Composite Samples *		
	a) For MgO, Al_2O_3, Fe_2O_3, SiO_2, CaO & LOI	Nos	15 Nos

	b) For Ni & Cr	Nos	15 Nos
	c) For PGE	Nos	5 Nos
10	**Physical Studies**		
	a) XRD – Studies on Composite samples*	Nos.	20 Nos
	b) Spectroscopic Studies (La-MC-ICP MS Method Full Spectrum of 48 radicals)*	Nos.	20 Nos
	c) SEM-EDX studies	Nos.	20 Nos
	d) EPMA studies	Nos.	20 Nos
11	**Petrological Samples (Surface & Bh Core Samples)**		
	a) Preparation of Thin Section b) Study of Thin Section	Nos Nos	20 Nos 20 Nos
12	**Mineragraphic Studies (Surface & Bh Core Samples)**		
	a) Preparation of Polished Section b) Study of Polished Section	Nos Nos	10 Nos 10 Nos
13	**Whole Rock Analysis**		
	For SiO_2, Al_2O_3, Fe_2O_3, TiO_2, MnO, CaO, Na_2O, K_2O+H_2O, MgO, P_2O_5, CO_2, & S.	Nos	10 Nos
14	**Specific gravity Determination**	Nos.	05 Nos
15	**Report Preparation [As per Mineral (Evidence of Mineral Contents) Rule-2015]**	**Nos**	1
*** The 2nd Level of work to be decided after Review of Geological Mapping & Geochemical Sampling**			

10. Reconnaissance Survey Proposal (G-4 level) for Diamond in Chelima Block (Block-ID SR-AP-01) in an area of 702 sq. km., District: Kurnool & Prakasham, Andhra Pradesh			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1	**Remote Sensing (using ASTER/Hyperspectral data)** (on 1: 50000 Scale)	Scene	1 Scene 702 sq. km.
2	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km	702 sq.km.
3	**Geochemical Sampling**		
	a) Stream Sediment Sampling (1 sample /25 sq. km. area from 3rd & 5th order drainage)	Nos	30 Nos
4	**Laboratory Studies**		
	i) Stream Sediment Samples		
	a) Heavy Mineral analysis	Nos	30 Nos
5	**Report Preparation [As per Mineral (Evidence of Mineral Contents) Rule-2015]**	**Nos**	**1**

11. Reconnaissance Survey Proposal (G-4 level) for Diamond in Kalyandurg-Timmasamudram Block (Block-ID SR-AP-02), District: Anantpur, Andhra Pradesh			
Sl. No.	**Item of work**	**Unit (m)**	**Proposed Quantum of Work**
1	**Remote Sensing (using ASTER/Hyperspectral data)** (on 1: 50000 Scale)	Scene	1 Scene 1172 sq. km.
2	**Geological Mapping** (on 1:12,500 Scale)	Sq. Km	1172 sq. km.
3	**Geochemical Sampling**		
4	a) Stream Sediment Sampling (1 sample /25 sq. km. area from 3rd & 5th order drainage)	Nos	50 Nos
	Laboratory Studies		
5	i) Stream Sediment Samples		
	a) Heavy Mineral analysis	Nos	50 Nos

12. Details of Proposed Exploratory Work for Tarhapani West Bauxite Deposit			
Sl.	**Item details**	**Unit**	**Quantum**
1.	Topographic Survey (Contour interval 2m)	Sq. Km.	1.47
2.	Detailed Geological mapping (1:2000 scale)	Sq. Km.	1.47
3.	Core drilling (800m x 200m & 400 x 200 grid) 23 BHs each of 20m depth except two boreholes to be drilled upto basement Khondalite.	m.	500
4.	Sampling & Chemical Analysis		
A)	Primary samples to be analysed for 5 radicals viz. Al_2O_3, SiO_2, Fe_2O_3, TiO_2 & LOI		
i.	Borehole Core samples	Nos.	450
ii.	Check samples (10% internal +5% external)	Nos.	70
B)	Composite samples		
i.	Borehole Core samples, (to be analysed for 7 radicals, viz. Al_2O_3 , SiO_2 , Fe_2O_3, TiO_2, V_2O_5, P_2O_5 & LOI)	Nos.	35
ii.	Composite Core samples (14 radicals, viz. Al_2O_3 , SiO_2 , Fe_2O_3, TiO_2, V_2O_5, P_2O_5, LOI, CaO, MgO, K_2O, Na_2O, SO_3 , Cr_2O_3 & Organic carbon)	Nos.	25
iii	REE	Nos	15
iv	Ga & V	Nos.	25
v	Total available Alumina	Nos.	10
vi	Total available Reactive Silica content	Nos.	10
5.	Physical Studies		
a).	Spectroscopic studies for 14 trace elements viz. Pb, Zn, Ni, Co, Mo, Sn, V, Ga, Zr, Cr, As, Sb, Bi, Ge	Nos.	05
b).	X-RD studies	Nos.	10
6.	Petrographic Studies	Nos.	10
7.	Mineragraphic Studies	Nos.	10
8.	Sp. Gravity & porosity determination	Nos.	20 each
9.	Geological Report Preparation	Nos.	1

	13- Quantum of Work Proposed in the G-2 / G-3 Exploration for Limestone In Jamodi Mahanna Block, District- Satna, Madhya Pradesh		
Sl. No.	**Item of Work**	**Unit**	**Proposed Quantum of work**
1	Topographic Survey (on 1:5,000 Scale).	Sq. Km.	31.00 sq. km
2	Geological Mapping (on 1:5,000 scale).	Sq. Km.	31.00 sq. km
2	Drilling (at 400m x 400m grid interval, B.H- 76nos.) (at 800m x 800m grid interval B. H. 31nos.)	m. m.	4255m (107Bhs)
3	Laboratory Studies		
	i) Chemical Analysis; Primary + Check for 6 radicals i.e. CaO, MgO, Al_2O_3, SiO_2, Fe_2O_3 and LOI	Nos.	2000
	ii) Check samples (10% of Primary) for 6 radicals i.e. CaO, MgO, Al_2O_3, SiO_2, Fe_2O_3 and LOI	Nos.	200
	iii) Primary samples for 2 radicals SO3 & P2O5	Nos	50
	ii) External Check sample (5 %of Primary) for analysis of 6 radicals i.e. CaO, MgO, Al_2O_3, SiO_2, Fe_2O_3 and LOI	Nos.	100
	iii) Composite Samples a) For 12 radicals (CaO, MgO, Al_2O_3, SiO_2, Fe_2O_3, SO_3,P_2O_5 , LOI, MnO_2, K_2O, Na_2O and Cl.)	Nos.	650
4	Physical Studies		
	a) Spectroscopic Studies (10 elements)	Nos.	20
	b) XRD studies	Nos	25
5	Petrological Studies Preparation of Thin Section Petrographic Studies	Nos	25 Each
6	Specific Gravity Determinations	Nos	30
7	Report Preparation (Digital format)	Nos.	1 No.

	14- Quantum of Work Proposed in the G-3 Exploration for Limestone In Naubasta – Kollard Block, District- Satna, Madhya Pradesh		
Sl. No.	**Item of Work**	**Unit**	**Proposed Quantum of work**
1	Topographic Survey (on 1:5,000 Scale).	Sq. Km.	15.00 sq. km
2	Geological Mapping (on 1:5,000 scale).	Sq. Km.	15.00 sq. km
2	Drilling (at 800m x 800m grid interval, B.H- 76nos.)	m.	280m (7Bhs)
3	Laboratory Studies		
	i) Chemical Analysis; Primary + Check for 6 radicals i.e. CaO, MgO, Al_2O_3, SiO_2, Fe_2O_3 and LOI	Nos.	100
	ii) Check samples (10% of Primary) for 6 radicals i.e. CaO, MgO, Al_2O_3, SiO_2, Fe_2O_3 and LOI	Nos.	10
	iii) Primary samples for 2 radicals SO3 & P2O5	Nos	5
	ii) External Check sample (5 %of Primary) for analysis of 6 radicals i.e. CaO, MgO, Al_2O_3, SiO_2, Fe_2O_3 and LOI	Nos.	5
	iii) Composite Samples a) For 12 radicals (CaO, MgO, Al_2O_3, SiO_2, Fe_2O_3, SO_3,P_2O_5, LOI, MnO_2, K_2O, Na_2O and Cl.)	Nos.	20
4	Physical Studies		
	a) Spectroscopic Studies (10 elements)	Nos.	10
	b) XRD studies	Nos	10
5	Petrological Studies Preparation of Thin Section Petrographic Studies	Nos	10 each
6	Specific Gravity Determinations	Nos	10
7	Report Preparation (Digital format)	Nos.	1 No.

8th N.M.E.T. MEETING AT RSAS, GSI BANGALORE
03.02.107

Sl.No.	Name Dr./Shri/Smt.	Designation	Organisation	Signature
1	P.R. Golani	DyDG	GSI	
2	Dr. M. Mohanty	DyDG	GSI	
3.	B.P. Raturi	Dy G.M (Exp)	MECL	
4.	Dr. S.K. Biswas	Advisor (Tech)	MECL	
5.	E. Hanumantha Rao	CEO, MERIT ~~DMG AP~~	MERIT Dept of Geology, Mines AP	
6	N.H. VAGHMAREY	Asstt. Geologist	D.G.M.M.P	
7.	S.A. KHAN	Dy. Director	DGM. MP. Indore	3.2.17.
8.	Dr. Ch. Sravan Kumar	DGM (Geology)	NMDC, Hyd.	
9	Swaminathan S.	Manager (Geol.)	NMDC, Hyd	
10	Shankar Kulkarni	Supdt (ML)	DMG.	
11.	SURESH. B.R.	Senior Geologist	DMG-Karnataka.	
12	J.V. Rama Rao	Director (GP)	GSI	
13	P. Sharma	JTGM (ME)	KIOCL Ltd	
14	Shivakumar M	Manager (ME)	KIOCL Ltd.	
15	S.R. Kisku.	Dy.DG & RMH-II	GSI, Hyderabad	
16	J. PRASAD	Dy. DD. SU Jharkhand	GSI, Ranchi	
17	Dr. L.S. SHEKHAWAT	Dy DG & RMH-II	GSI, Jaipur	
18	M. SRIDHAR	DyDG & RMH-II	GSI. CR Nagpur.	
19	A Sharma	GM (Geol.)	CMPDI, Ranchi	3/2/17
20	S.K. Thakur	G.M. Expl.	MECL	3/2/17
21.	L. Khaslen	Senior Geologist M-II, GSI, Nagpur	GSI	3.2.17
22.	J. BAGCHI	Director (Tech.) Ministry of Mines	MoM	

8th N.M.E.T. MEETING AT RSAS, GSI BANGALORE

04 ~~03~~.02.107

Sl.No.	Name Dr./Shri/Smt.	Designation	Organisation	Signature
1	P.R. GOLANI	DY DG	GSI	
2	S.K. THAKUR	GM (Expl.)	MECL	
3	Dr M. Mohanty	Dy Dy	RSAS, GSI	
4.	Dr. J. BALAKRISHNA	Director (T)	MOM	
5	B.P. Rathy	Dy. G.M. (Expl)	MECL	
6.	Dr. S.K. Biswas	Advisor (Tech)	MECL	
7	Shivakumar M	Mgr (MIE)	KIOCL	
8	PANDEAD KRISHNESHA	RCOM/HRD	IBM.	
9.	S.A. KHAN	Dy. Director (Tech)	DGM office Incharge M.P.	
10	Dr. N.H. Vaghmarey	Asstt. Geologist	DGM. M.P. Jabalpur	
11	S.R. Kisku.	Dy. D.G & RMH-II	GSI, Hyderabad Southern Region	
12	J. PRASAD	DY. D.G.	GSI SU-Jharkhand Ranchi	04/02
13	DR. L.S. Shekhawat	Dy DG	GSI, WR, Jaipur	04/02
14	M. SRIDHAR	DY DG/RMH-I	GSI, CR, Nagpur	4/2/17
15	A. Sharma	GM (Geology)	CMPDI, Ranchi	4/2/17
16	J.V. RAMA RAO	Director (GP)	GSI, Hyderabad	04.02/17
17.	Lalit Khaskalo	Senior Geologist	M-II GSI, Nagpur	04.02.17
18.	S.K. Satapathy	Asst. Manager	MECL	
19	E. Hanumantha RAO	CEO, MERIT	MERIT DMG-AP	04/02/17