Ministry of Mines

National Mineral Exploration Trust

Minutes of the 36th Technical-cum-Cost Committee (TCC) meeting held on 23rd and 24th December, 2021 through videoconferencing at Geological Survey of India, DGCO, A-II Pushpa Bhawan, New Delhi

The 36th Technical-cum-Cost Committee [TCC] meeting of National Mineral Exploration Trust [NMET] was held under the chairmanship of Shri Janardan Prasad, Additional Director General, Geological Survey of India [ADG, GSI], and Chairman, TCC, NMET on 23rd and 24th December, 2021 at GSI, DGCO, A-II Pushpa Bhawan, New Delhi through videoconferencing. The TCC members and representatives of Exploration Agencies [EAs] participated through their respective VC nodes. The list of participants is at **annexure-1**.

Dr. L. P. Singh, Director, GSI and Member Secretary, TCC NMET, welcomed Shri Janardan Prasad, ADG, GSI & Chairman, TCC; Members of the TCC, participants representing various EAs. He briefly outlined the project proposals submitted by EAs on various mineral commodities. Total ten new project proposals submitted by EAs [MECL- 8; and CMPDI- 2] were discussed in the meeting.

Shri Janardan Prasad, ADG, GSI and Chairman, TCC welcomed the participants. The proceeding of meeting was initiated as per circulated agenda.

Agenda-wise discussions are summarised as follows.

36.1: Technical evaluation of new project proposals:

36.1.1. Proposal for Reconnaissance Survey (G4) for Copper, Lead, Zinc and Gold in Sanori Block, District: Lalitpur, Uttar Pradesh. [Implementing Agency: MECL]

a) The proposal was discussed in 35th TCC meeting wherein the committee had suggested to resubmit the proposal after incorporating some of the analytical results to strengthen the proposal for exploration of basemetal and gold.

b) Now, MECL has resubmitted the proposal for discussion after carrying out a short field visit to the area.

c) After short field visit, the MECL has submitted that the Sanori block is characterized by denudational hills with inselberg of small hillocks and long serrated ridges of quartz reefs. The main lithological units in the area are pink and grey coarse-grained granite of Bundelkhand Gneissic Complex [BGC]. The general orientation of foliation is N60°W S60°E. Numerous North-East trending quartz reefs are intruding the granitoids. The quartz reefs of BGC locally exhibit disseminated sulphide mineralization in the form of specks of pyrite and chalcopyrite.

d) It has been submitted that 15 samples have been analysed by handheld XRF and it is observed that silica and alumina are the major elements with minor or trace amounts of

29/12/21

29/12/21

iron, calcium, titanium. The copper content in the samples varies between 16ppm to 56ppm [exceptions 976ppm and 1797ppm only in two samples]; zinc varies from 10ppm to 172ppm; and lead content varies from 6ppm to 47ppm.

e) After detailed deliberations, the committee opined that the samples analysed for copper and zinc by handheld XRF are not encouraging enough to launch an exploration program for basemetal in this area.

The Committee suggested not to take up this project for G4 exploration as the analytical results do not help in launching it.

36.1.2. Proposal for Reconnaissance Survey (G4) for PGE, Nickel, Cobalt and Gold in Rangapura block [34.09 sq. km], District: Hassan, Karnataka. [Implementing Agency: MECL]

a) MECL has submitted that the area exposes rocks of Peninsular Gneissic Complex [PGC] and Dharwar Super Group of Archaean age, situated between Nuggihalli-Aladahalli Schist belt in the east and Holenarsipur Schist belt in the west. It is conveyed that this part of the gneissic complex with several schistose enclaves is moderately high both in aero-magnetic and radiometric response in comparison with either of the schist belts.

b) The Rangapura block exposes litho-units belonging to PGC represented by granites, quartzo-felspathic gneiss and migmatites. The granites (PGC) are traversed by younger intrusives consisting of basic intrusive (dolerite/gabbro) and acid intrusives (quartz vein/reef) etc.

c) MECL has submitted that the geochemical survey by GSI has indicated presence of copper, nickel, arsenic [average value 33.86 ppm and highest value 365ppm] and gold [< 0.1g/t and 0.19 g/t Au] in the area. The concentration of nickel is higher in all the rock types and ranges from 53ppm in gneiss to 412ppm with an abnormal value of 1.8% Ni in ultramafic rocks. It has been conveyed that the ultramafic lithounits in the area are important loci for PGE mineralization, which further enhance the geological interest for gold and nickel incidences.

d) MECL has conveyed that during the Field Season 1992-93, GSI had carried out detailed mapping on 1:5000 scale in Rangapura block over an area of 21.55 sq. km. The mapping was carried out along traverse lines laid at 200 m interval across the baseline running NW-SE. Total 1200 geochemical samples were collected on 200m x 50m grid pattern. On the basis of anomalous values, GSI had recommended for sampling at closer intervals to understand the mineral potentiality of the area.

e) It has been conveyed that the MECL has also collected 8 samples from the area and the analyses indicated 537ppm of Ni and 232ppm of Co.

f) Based on the detailed deliberations the committee opined that the project can be taken up for G4 stage of exploration, however, geological mapping and geophysical components are not required to be taken up at this stage.

29/12/21 29/12/21

g) Initially BRS (150 samples) and trenching of 500 cu m (250 samples) will be taken up. Thereafter, the outcome will be reviewed after six months and decision on 500m drilling will be taken at the time of review.

The Committee recommended the proposal for approval by EC for Reconnaissance Survey (G4) for PGE, Nickel, Cobalt and Gold in Rangapura block [34.09 sq. km], District: Hassan, Karnataka with estimated cost of Rs. 257.51 Lakhs including GST in time schedule of 12 months for carrying out the proposed work and submission of report as per Annexure-2A & 2B.

36.1.3. Proposal for Reconnaissance Survey (G4) for Copper, Nickel and associated minerals in Dhans Kumarwara Murum block (132 sq. km), District: Rajnandgaon, Chhattisgarh. [Implementing Agency: MECL]

a) Geologically the area is exposed by the metasedimentary [phyllites, quartzites, feldspathic grits and sandstones] and metevolcanic [rhyolites, andesites and associated tuffs] sequences.

b) The area has been-subjected to intense shearing. The shear zones are usually trending N-S direction, varying in length from about 100m in Dhans area to about 3 km in Kumarwara area and in width from a few metres to 500m.

c) It has been submitted that the regional geochemical survey was carried out by GSI during Field Season 1975-1977 in the Malanjkhand extension area, central block, Rajnandgaon district and it was recommended that the anomaly zones near Dhans, Kumarwara and Murum may further be investigated in detail for nickel and copper mineralization.

d) MECL has submitted that on the basis of statistical analyses of 521 stream sediment samples, anomalous zone for copper in west of Murum (21°53'N :80°52' E) and two anomalous zones for nickel near Dhans (21°40' N :80°45' E) and Kumarwara (21°37' N :80°50' E) have been identified.

e) It has been submitted that the most of the block area falls in forest land and is under "inviolate" (No Go) Forest area.

f) Based on the submission of MECL, the committee opined that the area falls under the "inviolate" (No Go) Forest area, hence the sample collection, pitting and trenching may not be permitted. In such circumstances, it may be appropriate to take requisite permissions from the forest department before envisaging the project.

g) The DGM, Chhattisgarh conveyed that the necessary permissions will be sought from the forest department and project will be resubmitted in the next TCC.

The Committee suggested to resubmit the proposal after receiving necessary forest permissions in the next TCC meeting.

29/12/21 29/12/21

36.1.4. Proposal for Reconnaissance Survey (G4) for Lithium and Potassium in Merak block (114.19 sq. km), District: Leh, Union Territory of Ladakh. [Implementing Agency: MECL]

a) The proposed block is located beside Pangong Tso lake in Ladakh. The block is geologically represented by Pangong Metamorphic Complex, Kakset Granitoid complex and Khardung volcanics. The pegmatite veins are intruding within amphibolite and granites in the block.

b) The block is geologically exposed by alluvium, moraines, hill wash & scree, amphibolite, grey phyllite, quartzite, schistose rocks. The Pangong metamorphic complex consist of hornblende schists, granites, diorites, rhyolite, dacite etc.

c) It has been also conveyed that the initial field survey in the areas was carried out by MECL in association with Directorate of Mines and Geology, Union Territory of Ladakh.

d) MECL has collected water samples from 9 locations including valleys & lakes and analysed for 11 elements. The lithium value ranges between 5.11ppm to 175.64ppm and potassium value ranges between 3.73ppm to 82.42ppm. However, the exceptionally high value 532.24ppm and 140.94ppm of lithium and potassium respectively have been recorded in the water sample collected from Pangong Tso (lake). The value of other elements remained below detection limit.

e) MECL has submitted that the project proposal for geological mapping over an area of 114.19 sq. km on 1: 12,500 scale along with bed rock sample collection and pitting /trenching.

f) Based on detailed deliberations, the committee opined that the values of Li obtained by MECL from Pangong Lake water appears very high and needs to be rechecked. However, the project may be taken up for geological mapping on 1: 12,500 scale for 114.19 sq. km, BRS (100 samples) and pitting/ trenching of 200 cu.m (150 samples) in schedule time of two years. The field work will be carried out for 120 days in first year and outcome of work will be reviewed after one year.

The Committee recommended the proposal for approval by EC for Reconnaissance Survey (G4) for Lithium and Potassium in Merak block (114.19 sq. km), District: Leh, Union Territory of Ladakh, with estimated cost of Rs. 213.04 Lakhs including GST in time schedule of 24 months for carrying out the proposed work and submission of report as per Annexure - 3A & 3B.

36.1.5. Proposal for Preliminary Exploration (G3) for Copper in Thakurdih-Charakmara block, District: Giridih, Jharkhand. [Implementing Agency: MECL]

a) The proposal was discussed in 34th TCC meeting [34.1.1] wherein committee had suggested to modify the proposal and resubmit in the next TCC. Now, MECL has submitted the proposal after attending the recommendations.

b) It is pertinent to mention that three and four mineralised zones in Mundadevta-Darkhuli block and South Jharia blocks respectively have been intersected in boreholes drilled by

GSI. Mineralisation is in the form of fissure veins type associated with closely spaced shear zones, often showing branching, sometimes cymoidal and mostly parallel to sub-parallel to the foliation.

c) As the anomalous values of Uranium were reported from the area, the consent of AMD was sought by MECL. In response to this, AMD has suggested that the MECL may take up the Preliminary Exploration (G3) for Copper and associated minerals in Thakurdih-Charakmara block bounded by the eight UTM (Zone-45) coordinates [(i) 466667, 2468627; (ii) 469000,2468629; (iii) 469000, 2466395; (iv) 467970, 2466393; (v) 467970, 2465027; (vi) 469588.1535, 2465025.267; (vii) 469606.9495, 2463998.267 and (viii) 466667, 2464000] subject to the following conditions:

   i. As copper and uranium minerals are grouped as "Associated Minerals" under Rule 37 of MCR, 2016, MECL shall permit the officers of AMD for undertaking gamma-ray logging of the boreholes drilled to confirm the mineralization of Atomic Minerals, if any.

   ii. In the case of discovery of any atomic minerals consequent to exploration of copper, MECL shall comply with the provisions of MMDR Act, 1957 and the rules made thereunder in the interest of atomic minerals, in particular to Rule 65 "Special provisions relating to Atomic Minerals" and rule 64 "Geophysical data to be supplied to GSI and AMD" of MCR, 2016.

   iii. In the case of discovery of any atomic minerals, further mineral concessions shall be subject to assessment of threshold as per the provisions of AMCR, 2016.

d) Based on detailed deliberations, the committee opined that initially five boreholes for first level of drilling may be carried out, thereafter, in case of encouraging results, the decision on further five boreholes will be taken up.

e) The IP, resistivity and magnetic survey may be deployed with uniform profile line direction i.e. NE-SW perpendicular to the regional trend of geological formations which remains at NW-SE direction.

f) The project will be reviewed after six months and needs to be completed within twelve months.

The Committee recommended the proposal for approval by EC for Preliminary Exploration (G3) for Copper in Thakurdih-Charakmara block, District: Giridih, Jharkhand with estimated cost of Rs. 388.59 Lakhs including GST in time schedule of 12 months for carrying out the proposed work and submission of report as per Annexure - 4A & 4B.

36.1.6. Proposal for Reconnaissance Survey (G4) for REE in Kathalguri block, District: Nagaon and Karbi Anglong, Assam. [Implementing Agency: MECL]

a) The block area exposes metasedimentary rocks of Assam Meghalaya Gneissic Complex which is represented by quartzites of Proterozoic age. The quartzites are intruded by the

29/12/21 29/12/21

acid intrusives, granites, quartzo-feldspathic veins, pegmatites, basic epidiorite and amphibolite (?) dykes. The plane area is mainly covered by recent alluviums.

b) It has been submitted that the study conducted by Dibrugarh University, Assam has indicated presence of REEs in some A-type Pan African granitoids in Kathalguri area. The average LREE content in the non porphyritic Kathalguri granitoids is 607.46 ppm.

c) MECL has submitted that the petrological-geochemical parameters of the Kathalguri granitoids indicates concentration of accessory minerals, e.g. xenotime, allanite, monazite, sphene, bastnaesite, apatite and zircon.

d) It has been submitted that three grab samples have been collected by MECL in July, 2021 and are analysed by handheld XRF which have indicated the ΣREE ranging from 369ppm - 514ppm.

e) GSI had collected geochemical samples from the area. After synthesis and evaluation of statistical parameters and preparation of element distribution map, four anomalous areas viz., (i) Borjuri, (ii) Kathalguri - Lalpathar, (iii) Jiajuri and (iv) Bamuni have been identified. Stream sediment samples collected from the area shows the anomalous values of major oxides and trace elements like Co, Ni, Y, V and Cu.

f) It is pertinent to mention that the average TREE content in granites remains at 200ppm worldwide and the ΣREE content above 1000ppm is considered anomalous for REE exploration. In present proposal the maximum reported ΣREE content is about 500ppm.

g) The committee opined that the ΣREE concentration in the present proposal is not encouraging, hence the project may not be taken up.

The Committee suggested not to take up this project for G4 stage of exploration as the ΣREE values do not warrant for launching an exploration program.

36.1.7. Proposal for Reconnaissance Survey (G4) for Diamond in Bangaon-Tumla-Kendapani block (2280 sq. km), Districts: Jashpur, Raigarh and Surguja, Chhattisgarh. [Implementing Agency: MECL]

a) The area is exposed by the rocks of Chhotanagpur Gneissic Complex (granite, granite gneiss, granodiorite, migmatite, meta basalt, mica schist, quartz mica schist, meta pyroxenite, hornblende schist, amphibolite, chlorite schist, magnetite tremolite schist, quartzite, biotite schist, meta gabbro, actinolitetremolite schist) with patches of Gangpur Group (mica schist and quartzite), Singhbhum Group (hornblende schist) and Lower Gondwana.

b) The meta-sedimentary rocks, gneisses, schist and meta-volcanic are the oldest rocks in the area and occur as enclaves within non-foliated to weakly foliated granites. Large scale granitisation of the meta-sedimentary rocks are also observed.

c) It has been conveyed that the indicator minerals for diamond investigation have been reported from Raigarh, Jashpur and Surguja districts by GSI and Jindal Steel & Power Limited. The area is occupied by granitoids of various compositions and of different ages

29/12/21 29/12/21

along with the large enclaves of schist belts. Diamond are reported to occur in the gravel bars of Ib, Maini and Mand rivers and their tributaries in the area.

d) After detailed deliberation, the committee opined that the G4 stage exploration in the proposed area was already carried out by GSI and Jindal Steel & Power Limited and there is no scope for similar G4 stage exploration in the same area.

e) The committee further opined that it may be appropriate to collate all the available geoscience data based on which the potential areas, if any, may be identified for further stage of exploration, if warranted.

The Committee suggested to resubmit the proposal after collating all geoscience data and demarcation of potential zones, if any, in the next TCC meeting.

36.1.8. Proposal for Preliminary Exploration (G3 stage) for Gold and associated minerals in Pharsabahar block (0.81 sq. km), District: Jashpur, Chhattisgarh. [Implementing Agency: MECL]

a) Geologically the area is represented by granite gneiss, chlorite schists, quartzite/ quartz reef and quartz veins.

b) The block area is predominantly exposed by granite. Quartzite bands trending NNW-SSE present within the chlorite schists are supposed to be the host rock for the gold mineralisation in the block. The area is invariably traversed by a network of numerous quartz veins trending in divergent directions.

c) It has been conveyed that the anomalous values of gold have been recorded in the recrystallized chert /quartzite bands in the area. The quartz veins are varying in length from mere stringers to about 1.3 km. The major quartz vein present is trending in NNW-SSE direction and two major auriferous concentrations are reported the block.

d) Based on detailed deliberation, the committee opined that the Pandripani block situated close to the proposed block was sufficiently explored by GSI in Field Season1993-1997 and a small quantum of resource has been reported.

e) Further, the committee opined that all the village names are to be explicitly marked in the geological map and the gap areas, if any, needs to be identified in the block to conceive further stage of exploration in the area. The committee opined that MECL needs to ensure that, in the modified proposal, there should not be any duplication of work.

The committee suggested to resubmit the proposal in the next TCC meeting after collating all geoscience data and demarcating all villages on geological mapand indicating any area which has further scope of exploration.

29/12/21

29/12/21

36.1.9. Proposal for Preliminary Exploration (G3) for Coal in East of Chuperbhita block, Rajmahal Coalfield, District: Godda, Jharkhand. [Implementing Agency: CMPDI]

a) East of Chuperbhita block is located in the east-central part of the Chuperbhita basin. The eastern side of the block is bounded by a CBM block whereas the western side of the block is bounded by Chuperbhita block/ mine.

b) The Gumani River flows through the northern part of block in almost east-west direction and provides the main drainage channel to the area. It is a perennial river and its catchment area is spread over about 1096 sq.km.

c) It has been conveyed that total five boreholes have been drilled by MECL in and around the block. Out of this, 02 boreholes i.e. RCH-38 and RCH-64 falls within the northern boundary of the proposed block, while, RCH-91 is located at the northern boundary. Borehole no. RCH-149 and RCH-151 are just at the outside of eastern boundary of the proposed area.

d) The project proposal was sent to GSI for their comments. In response to this, GSI has conveyed that the exploratory drilling was carried out by GSI near Simlong (24°46'N : 87°27' E) in the Chuperbhita Coalfield on 1965.

e) The borehole (RJC-I) was drilled upto a depth of 164m and drilling was suspended due to excessive pressure of artesian water as artesian aquifers were encountered at depths of 87.00m and 105.94m in this borehole.

f) Six Barakar coal seams were intersected and an estimated resource of 48.90 MT was assessed, out of which 1.89 MT belongs to the proved category. However, the borehole RJC-I near Simlong area, drilled earlier by GSI, is falling within the East of Chuperbhita Block proposed by CMPDI.

g) It has been conveyed that the coal of G8 to G10 grade is expected to be found in the area.

h) CMPDI has submitted that about 50m thick Rajmahal traps are also present in the block which may be used as dimension stone.

i) After detailed deliberation, the committee opined that the project may be taken up by deploying 4,100m drilling in eight boreholes [Bh-1, 2, 4, 5, 7, 9, 10 and 11] with time schedule of 14 months.

The Committee recommended the proposal for approval by EC for Preliminary Exploration (G3) for Coal in East of Chuperbhita block, Rajmahal Coalfield, District: Godda, Jharkhand with estimated cost of Rs. 430.47 Lakhs including GST in time schedule of 14 months for carrying out the proposed work and submission of report as per Annexure - 5A & 5B.

36.1.10. Proposal for Preliminary Exploration (G3) for Coal in Paseriya block, North Karanpura coalfield, District: Hazaribagh, Jharkhand. [Implementing Agency: CMPDI]

a) It has been submitted that the North Karanpura Coalfield is the western most member of the east-west chain of Damodar Valley Gondwana coalfields and forms a vast expanse of coal bearing formations spread over Hazaribagh, Ranchi, Chatra & Latehar districts of

29/12/21 29/12/21

Jharkhand. The coalfield is known primarily for its reserves of Non-Coking coals which are characterized by a high percentage of ash and moisture content and suitable for power generation.

b) The Paseriyablock (2.0 sq. km) is situated in the south eastern part of the North Karanpura coalfield. The proposed block is the western extension of already recommended project 'West of Chano-Rikba block' for EC approval and southern extension of 'Rohne block' and the similar seam patterns are expected to be encountered in Paseriya block as well.

c) After detailed deliberation, the committee opined that this is a very small block of only 2 sq. km and could have been included in the "West of Chano-Rikba block" for suitable exploration and auctioning, in case good reserve is proved.

d) The committee opined that this small block may not be suitable for G3 stage exploration independently.

The Committee suggested not to take up this project for G3 stage of exploration due to its very small dimension of only 2.0 sq. km.

36.2. Review of ongoing projects:

36.2.1. Preliminary Exploration (G3) for Potash in Lakhasar-sub basin, North-Western part of Rajasthan, District: Bikaner, Rajasthan. [Implementing Agency: MECL]

a) The project was approved in March, 2020 with an estimated cost of Rs. 1753.53 lakh and time schedule of 24 months.

b) It has been submitted that total of 10,161m drilling in 15 boreholes have been completed against the set target of 10,040m in 15 boreholes. The sampling and analytical work is in progress. The additional drilling of 121.0m has been done.

c) MECL has conveyed that the analytical results are yet to be received.

d) The committee noted the progress of work in the block.

The Committee opined that the sufficient data are not available for review at this stage and suggested to complete all the analyses of 15 boreholes by May, 2022. Thereafter the outcome of the findings will be reviewed. The additional drilling, cost, if any, and time extension will be recommended for approval at that time.

36.2.2. General Exploration (G2) for Copper in Tonda block, Eastern Khetri Copper Belt, District: Jhunjhunu, Rajasthan. [Implementing Agency: MECL]

a) The Tonda Copper block was recommended during 24th TCC meeting in October, 2020 at a cost of Rs 650.39 lakh with time schedule of 14 months.

29/12/21 29/12/21

b) MECL informed that drilling meterage has been revised in 30thTCC with additional 245m of drilling in 13 boreholes [3,795m] and drilling have been completed with total of 3,803.50m. There is additional drilling of 8.50m and 100 primary samples.

c) The committee noted the progress of work in the project.

d) The committee opined that the structural disposition of Naila-Ki-Dhani and Tonda blocks are correlatable for better understanding of mineralisation as both these blocks are adjacent to each other with NE-SW and NW-SEtrends respectively.

e) During the 24th TCC meeting the committee had also suggested, that if the results of borehole data of north-eastern extremity of Naila-ki-Dhani and north-western extremity of Tonda block are found encouraging then the area in between two blocks may demand mapping and drilling and blocks may be joined. Decision in this regard will be taken after completion of drilling in two blocks.

Keeping the above in view the committee opined that the review of both Naila-ki-Dhani and Tonda block will be done after receiving analytical results of both the blocks to have a clear pictorial disposition of mineralised zones in the area. The additional drilling, cost, if any, and time extension will be recommended for approval after the review of the work done.

36.3. Timeline extension of projects:

36.3.1.Reconnaissance Survey (G4) for Copper inNamapur block of 115 sq. km area, District: Rajanna Sircilla (Erstwhile Karimnagar), Telangana. [Implementing Agency: MECL]

a) It has been conveyed that all the assigned targets have been successfully completed and the geological report has been submitted for peer review.

b) The MECL has requested for timeline extension of one month i.e. 31.01.2022.

Keeping the above in view, the committee recommended for approval of timeline extension of one months (31st January, 2022) for completion of the said project without any financial impact by Executive Committee.

36.3.2. Reconnaissance Survey for Graphite & Manganese in Rengali Graphite block, District: Balangir, Odisha. [Implementing Agency: MECL]

a) Rengali Graphite poject was recommended in 24th meeting of TCC held in October, 2020 and approved in 17th meeting of EC held on 5th November, 2020 with timeline of 12 months.

29/12/21

29/12/21

b) Projected was reviewed in 33rd TCC meeting and based on analytical results, committee had suggested for 8 scout boreholes with 500m drilling.

c) MECL has conveyed that the drilling was commenced on 21st October, 2021 and so far drilling in five boreholes have been completed. Drilling in remaining three boreholes are in progress.

d) The Committee noted the progress and suggested to submit the geological report after completing all the analytical results.

e) MECL has requested for timeline extension of 5 months i.e. 30.04.2022.

Keeping the above in view, the committee recommended for approval of timeline extension for 5 months [up to 30th April, 2022] for completion of the said project without any financial impact by Executive Committee.

36.4. Cancellation / Pre-closer of approved projects

36.4.1. General Exploration (G2) for limestone in Diggaon Block, District: Kalaburgi, Karnataka. [Implementing Agency: MECL]

a) It has been conveyed that the Diggaon block was successfully explored by MECL for G3 stage of exploration and the geological report was submitted as per schedule.

b) Based on the encouraging results, the project was upgraded for G2 stage of exploration. Now, owing to the recent amendments in auction rules, the block is considered suitable for auctioning.

c) MECL also informed Diggaon limestone block is under consideration for auction by State Government of Karnataka.

d) Keeping this in view the MECL has requested to withdraw the sanction of the Diggaon (G2) block.

e) The Committee opined that a consent letter may be sought from the State Government of Karnataka for auction of the Diggaon limestone block.

Keeping the above in view, the committee recommended to withdraw the sanction of General Exploration (G2) for limestone in Diggaon Block, District: Kalaburgi, Karnataka by EC.

36.5. The meeting ended with vote of thanks by Director and member secretary, TCC, NMET.

29/12/21 29/12/21

List of TCC members attended 36th Technical-cum-Cost Committee (TCC) meeting of NMET held on 23rd and 24th December, 2021 through videoconferencing.

S. No.	Name/Designation	Status	Remarks
1	Shri Janardan Prasad, ADG &HoD, SR, GSI, Hyderabad	Chairman, TCC, NMET	Attended in person
2	Shri Ranjan Kumar Sinha, Controller General (Retd.) Indian Bureau of Mines, Noida	TCC Member	Attended via videoconference
3	Shri P. Tarafdar, Dy. Director General (Retd.) Geological Survey of India, Kolkata	TCC Member	Attended via videoconference
4	Dr. Manoranjan Mohanty, Dy. Director General (Retd.) Geological Survey of India, Bhubaneshwar	TCC Member	Attended via videoconference
5	Shri Naeem Ahmad, General Manager-Exploration (Retd.), CMPDI Ltd., Aligarh	TCC Member	Attended via videoconference
6	Dr. Anjani Kumar, Dy. General Manager (Exploration) &HoD-Planning (Retd.), MECL, Nagpur	TCC Member	Attended via videoconference
7	Dr. J. V. Ramarao, Dy. Director General (GP) [Retd.], Geological Survey of India, Hyderabad	TCC Member	Attended via videoconference
8	Shri B. Saravanan, Additional Director, Atomic Minerals Directorate for Exploration and Research, Hyderabad	TCC Member	Attended via videoconference
9	Shri Amit Saran, Director, NMET, Ministry of Mines	TCC Member	Attended via videoconference
10	Dr. L. P. Singh, Director, Geological Survey of India, DGCO, New Delhi	Member Secretary, TCC, NMET	Attended in person
11	Shri Ravi Kumar Gupta, Deputy General Manager (Finance), HCL, Kolkata	TCC Member	Attended via videoconference
12	Shri P. K. Maharana, Dy. General Manager (Finance), NALCO, Bhubaneshwar	TCC Member	Attended via videoconference
13	Shri Vinay Pal, Assistant Cost Account Officer (Finance), Geological Survey of India, DGCO, New Delhi	TCC Member	Attended in person

29/12/21

Annexure-1

List of participants attended 36th Technical-cum-Cost Committee (TCC) meeting of NMET held on 23rd and 24th December, 2021 through videoconferencing

S. No.	Name/Designation	Email ID	Contact No	Organisation
1	Shri Janardan Prasad, ADG &HoD, SR, GSI	janardan.prasad@gsi.gov.in	7763800788	Chairman, TCC
2	Shri Ranjan Kumar Sinha, Controller General (Retd.) IBM	sinhark57@rediffmail.com	9421777637	Member, TCC
3	Shri PradiptaTarafdar, DDG (Retd.) GSI	tarafdar.pradipta@gmail.com	9503088847	Member, TCC
4	Dr.Manoranjan Mohanty, DDG (Retd.) GSI	manoranjanmoha@gmail.com	9483511287 8249014425	Member, TCC
5	Dr. J. V. Ramarao, DDG (GP) (Retd.) GSI	rarajammi@gmail.com	9440691284	Member, TCC
6	Dr. Anjani Kumar, DGM(Retd.), MECL	anjanikumar1957.ak@gmail.com	9975350576	Member, TCC
7	Shri Naeem Ahmed, EM(Retd.), CMPDI	ahmadnaeem17@yahoo.co.in	8588092153	Member, TCC
8	Shri B. Saravanan, AMD, Hyderabad	addldir-op1.amd@gov.in	8987571606	Member, TCC
9	Shri Amit Saran, Director &HoD, NMET	amit.saran@nic.in	9717647259	Member, TCC
10	Dr. L. P. Singh, Director, GSI	nmet-tcc@gov.in	9490748249	Member Secretary, TCC
11	Shri P. K. Maharana, DGM (F), NALCO, Bhubaneshwar	pmaharana@rediffmail.com	8500669500	Member, TCC
12	Shri Ravi Kumar Gupta, DGM (F), HCL, Kolkata	ravi_g@hindustancopper.com	9433274328	Member, TCC
13	Shri Vinay Pal, ACAO, GSI	palvinay009@gmail.com	8527368161	Member, TCC
14	Dr.Deshraj Trivedi, Senior Geologist	nmet-tcc@gov.in	9419244294	NMET
15	Shri Subhash Kumar, Senior Geologist	nmet-mines@gov.in	9868302624	NMET
16	Shri M. Baskaran, GM, (Exploration)	gm-exploration@mecl.co.in	8248532307	MECL, Nagpur
17	Shri V. K. Srivastava, GM, (Exploration)	gm.exploration.cmpdil@gmail.com		CMPDI, Ranchi
18	Sri Yuvaraj, Senior Geologist Min (Incharge)	mlsdmg1@gmail.com		DGM Karnataka
19	Shri S. K. Sinha, Director (Mines)	director-mines@jharkhandmail.gov.in		DGM, Jharkhand
20	Shri R. P. Singh, Geologist	rps1173@gmail.com	9621045793	DGM, UP
21	Mr. Kailash Dongre, Joint Director (Geology)	kailashdongre.kd@gmail.com	9424282791	DGM, Chhattisgarh

29/12/21

Annexure-2A

Estimated cost for Reconnaissance Survey (G4) for PGE, Nickel, Cobalt and Gold in Rangapura block [34.09 sq. km], District: Hassan, Karnataka.

Total block area- 34.09 sq. km; Nos. of Borehole- 5; Borehole depth range- upto 100m; Completion Time- 12 Months

S. No.	Item of Work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item- Sl No.	Rates as per SoC	Qty.	Total Amount (Rs)	
A	**GEOLOGICAL WORK**						
1	**Geological Mapping, Geochemical Sampling, Channel Sampling, Boreholes logging & sampling and Report writing**						
a	Charges for one Geologist per day at HQ for monitoring	day	1.3	9,000	60	5,40,000	
b	Charges for one Geologist per day at field	day	1.3	11,000	120	13,20,000	
c	Labour (2 Nos.) Base rate - Rs.420	day	5.7	420	240	1,00,800	Amount will be reimburse as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
d	Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes by DGPS	Per Point of observation	1.6.2	19,200	5	96,000	
e	Charges of one Surveyor (1 Party)	one surveyor per day	1.6.1a	8,300	-	-	-
f	Labours (4 Nos) Base rate - Rs. 420*4=1680/-	day	5.7	1,680	-	-	Amount will be reimburse as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
g	Charges for one Sampler per day (1 Party) for geochemical, channel and core samples	one sampler per day	1.5.2	5,100	65	3,31,500	
h	Labours (4 Nos) Base rate - Rs. 420	day	5.7	420	260	1,09,200	Amount will be reimburse as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher

29/12/21

24/12/21

B	**PITTING AND TRENCHING**				**Sub Total- A**	**24,97,500**	
1	Trenching (1m x 2mx 3410 m)	Cu m	2.1.1	3,300	500	16,50,000	
C	**DRILLING**				**Sub Total- B**	**16,50,000**	
1	Drilling up to 300m (Hard Rock)	m	2.2.1.4a	11,500	500	57,50,000	
2	Borehole deviation Survey by Multishot Camera	m	2.2.6	330	500	1,65,000	
3	Land / Crop Compensation (in case the BH falls in agricultural Land)	per BH	5.6	20,000	5	1,00,000	Amount will be reimbursed as per actual or max. Rs. 20000 per BH with certification from local authorities
4	Construction of concrete Pillar (12"x12"x30")	per borehole	2.2.7a	2,000	5	10,000	
5	Transportation of Drill Rig & Truck associated per drill (1 rigs)	Km	2.2.8	36	2,600	93,600	Certification in this regard is required to be provided
6	Monthly Accommodation Charges for drilling Camp (up to 1 Rigs)	month	2.2.9	50,000	4	2,00,000	
7	Drilling Camp Setting Cost	Nos	2.2.9a	2,50,000	1	2,50,000	
8	Drilling Camp Winding up Cost	Nos	2.2.9b	2,50,000	1	2,50,000	
9	Road Making (Flat Terrain)	Km	2.2.10a	22,020	5	1,10,100	Road Making will be considered as per the requirement and Road Making Charges will be reimbursed for max. 5 km.
10	DGPS Survey for Block Boundary	per point	1.6.2	19,200	-	-	
11	Drill Core Preservation	per m	5.3	1,590	180	2,86,200	This amount will be reimbursed after successful delivery of the cores to concerned libraries/authorities.
D	**LABORATORY STUDIES**				**Sub Total- C**	**72,14,900**	
1	**Chemical Analysis**						
I	**Primary & Check Samples from Surface outcrop, steam sediments and soil**						
i)	**Primary samples**						
	a. For Ni, Co, Cr, Cu, Pb, Zn	Nos	4.1.7a & 4.1.7b	2,841	150	4,26,150	
	b. For PGE	Nos	4.1.5d	11,800	150	17,70,000	
	c. For Au & Ag by fire assay	Nos	4.1.5a	4,760	25	1,19,000	
ii)	**Internal check samples (5%)**						
	a. For Ni, Co, Cr, Cu, Pb, Zn	Nos	4.1.7a & 4.1.7b	2,841	8	21,308	
	b. For PGE	Nos	4.1.5d	11,800	8	88,500	

29/01/24

29/01/24

	c. For Au & Ag by fire assay	Nos	4.1.5a	4,760	1	5,950	
ii)	**External check samples (10%)**						
	a. For Ni, Co, Cr, Cu, Pb, Zn	Nos	4.1.7a & 4.1.7b	2,841	15	42,615	
	b. For PGE	Nos	4.1.5d	11,800	15	1,77,000	
	c. For Au & Ag by fire assay	Nos	4.1.5a	4,760	3	11,900	
II	**Primary & Check Samples from Trench**						
i)	**Primary samples**						
	a. For Ni, Co, Cr, Cu, Pb, Zn	Nos	4.1.7a & 4.1.7b	2,841	250	7,10,250	
	b. For PGE	Nos	4.1.5d	11,800	250	29,50,000	
	c. For Au & Ag by fire assay	Nos	4.1.5a	4,760	50	2,38,000	
ii)	**Internal check samples (5%)**						
	a. For Ni, Co, Cr, Cu, Pb, Zn	Nos	4.1.7a & 4.1.7b	2,841	13	35,513	
	b. For PGE	Nos	4.1.5d	11,800	13	1,47,500	
	c. For Au & Ag by fire assay	Nos	4.1.5a	4,760	3	11,900	
ii)	**External check samples (10%)**						
	a. For Ni, Co, Cr, Cu, Pb, Zn	Nos	4.1.7a & 4.1.7b	2,841	25	71,025	
	b. For PGE	Nos	4.1.5d	11,800	25	2,95,000	
	c. For Au & Ag by fire assay	Nos	4.1.5a	4,760	5	23,800	
III	**Primary & Check samples from Drill Core**						
i)	**Primary samples**						
	a. For Ni, Co, Cr, Cu, Pb, Zn	Nos	4.1.7a & 4.1.7b	2,841	100	2,84,100	
	b. For PGE	Nos	4.1.5d	11,800	100	11,80,000	
	c. For Au & Ag by fire assay	Nos	4.1.5a	4,760	25	1,19,000	
ii)	**Internal check samples (5%)**						
	a. For Ni, Co, Cr, Cu, Pb, Zn	Nos	4.1.7a & 4.1.7b	2,841	5	14,205	
	b. For PGE	Nos	4.1.5d	11,800	5	59,000	
	c. For Au & Ag by fire assay	Nos	4.1.5a	4,760	1	5,950	
ii)	**External check samples (10%)**						
	a. For Ni, Co, Cr, Cu, Pb, Zn	Nos	4.1.7a & 4.1.7b	2,841	10	28,410	
	b. For PGE	Nos	4.1.5d	11,800	10	1,18,000	
	c. For Au & Ag by fire assay	Nos	4.1.5a	4,760	3	11,900	
IV	**Composite samples**						
	a. For Ni, Co, Cr, Cu, Pb, Zn	Nos	4.1.7a & 4.1.7b	2,841	20	56,820	
	b. For PGE	Nos	4.1.5d	11,800	20	2,36,000	
	c. For Au & Ag by fire assay	Nos	4.1.5a	4,760	20	95,200	
V	**ICP-MS studies (34 Trace elements)**	Nos	4.1.14	7,731	20	1,54,620	

29/12/21

29/12/21

2	**Physical & Petrological Studies**						
i)	Preparation of thin section	Nos	4.3.1	2,353	20	47,060	
ii)	Complete petrographic study report	Nos	4.3.4	4,232	20	84,640	
iii)	Preparation of polish section	Nos	4.3.2	1,549	5	7,745	
iv)	Complete mineragraphic study report	Nos	4.3.4	4,232	5	21,160	
v)	Digital Photographs	Nos	4.3.7	280	5	1,400	
vi)	Specific Gravity Determination	No.	4.8.1	1,605	-	-	
vii)	Whole Rock Analysis	Nos	4.1.15a	7,568	10	75,680	
					Sub Total- D	**93,20,150**	
E					**Total A to D**	**2,06,82,550**	
F	**Geological Report Preparation**	**5 Hard copies with a soft copy**	**5.2**	For project exceeding Rs. 150 lakh but less than Rs. 300 Lakh - to A minimum Rs. 7.5 lakh or 3% of the value of work whichever is more		**7,50,000**	Reimbursement will be made after submission of the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
G	**Peer review Charges**		**As per EC decision**			**10,000**	
H	**Preparation of Exploration Proposal (5 Hard copies with a soft copy)**	**5 Hard copies with a soft copy**	**5.1**	**2% of the Cost or Rs. 3.8 Lakhs whichever is lower**		**3,80,000**	Will be reimbursed after submission of the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.
I					**Total Estimated Cost without GST**	**2,18,22,550**	
J	**Provision for GST (18% of J)**					**39,28,059**	GST will be reimburse as per actual and as per notified prescribed rate
K	**Total Estimated Cost with GST**					**2,57,50,609**	***or Say Rs. 257.51 Lakh***

Note - If any part of the project is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item no. 6 of NMET SoC. In case of execution of the project by NEA on its own, a Certificate regarding non outsourcing of any component/project is required.

29/12/21

29/12/21

Annexure-2B

Schedule timeline for Reconnaissance Survey (G4) for PGE, Nickel, Cobalt and Gold in Rangapura block [34.09 sq. km], District: Hassan, Karnataka.

			1	2	3	4	5	6	REVIEW	7	8	9	10	11	12
1	Camp Setting	Month													
2	Satellite Imagery Study	Party days													
3	Geological Mapping	Party days													
3	Geochemical Sampling	Party days													
4	Geophysical Survey	Months													
5	Geophysical Report	Months													
6	Pitting and Trenching	Cu M													
7	Channel Sampling	Party days													
8	Surface Drilling (1 rig)	m.													
9	Survey Party days	Party days													
10	Geologist Party days	Party days													
11	Core Sampling	Party days													
12	Camp Winding	Months													
13	Laboratory Studies	Nos.													
14	Report Writing with Peer Review	Months													

29/12/21

29.12.21

Annexure-3A

Estimated cost for Reconnaissance Survey (G4) for Lithium and Potassium in Merak block (114.19 sq. km), District: Leh, Union Territory of Ladakh.

Total block area- 114.19 sq. km; Completion Time- 24 Months

S. No.	Item of Work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC- Item- S. No.	Rates as per SoC	Qty.	Total Amount (Rs)	
1.0	**Remote Sensing Studies**						
1.1	Satellite imagery/Aerial photo interpretation studies						
	a) Charges for procurement of satellite imageries	Nos	1.1.a	0	1	-	If required; will be reimbursed as per actual
	c) Cost of interpretation in terms of Geologist man days	days	1.1b	9,000	15	1,35,000	
					Sub Total- A	**1,35,000**	
2.0	**Geological Mapping (LSM), Other Geological Work**						
2.1	Large scale (LSM) Geological mapping, trenching and drilling					-	
	a) Geologist man days for Geological mapping, trenching (for field)	days	1.2 and 6	11,000	240	26,40,000	
	b) Labour (field) for Geological mapping work	per worker	5.7	431	480	2,06,880	Amount will be reimburse as per the notified rates for unskilled labour by the Central Labour Commissioner or respective State Govt. whichever is higher
	c) Surface Sampling -1 Sampler Labour charge not included	day	1.5.2	5100	40	2,04,000	
	d) Labour charges for sampling	day	5.7	431	160	68,960	Amount will be reimburse as per the notified rates for unskilled labour by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- B	**31,19,840**	
	Sub Total- B		para 5 of SoC	3.35 times higher		**1,04,51,464**	**Field activities in Remote and**

29/12/21

29/12/21

				than the normal SoC			inaccessible terrain existing in north eastern states (Rates are 3.35 times)
3.0	**Mineral Investigation**						
3.1	Trenching/Pitting#$						
	a) Excavation of trenches & pits	per cu m	2.1.1	3,330	200	6,66,000	
	Sub Total- C				**Sub Total- C**	**6,66,000**	
			para 5 of SoC	3.35 times higher than the normal SoC		**22,31,100**	**Field activities in Remote and inaccessible terrain existing in north eastern states (Rates are 3.35 times)**
4.0	**Laboratory Studies**						
4.1	Chemical Analysis						
	i) Surface sampling (Bed Rock Samples/Soil/Stream Sediment)						
	a) 34 element Package analysis by ICP-MS for surface samples	per sample	4.1.14	7,731	100	7,73,100	
	b) For REE analysis	per sample	4.1.7	5,380	60	3,22,800	
	ii) Check Samples (Bed Rock/Soil/Stream Sediment Samples) - 5% Internal & 10% External					-	
	a) 34 element Package analysis by ICP-MS for surface samples	per sample	4.1.14	7,731	15	1,15,965	
	b) For REE analysis	per sample	4.1.7	5,380	9	48,420	
4.2	**Pit & Trench, Primary Samples**					-	
	a) 34 element Package analysis by ICP-MS for surface samples	per sample	4.1.14	7,731	150	11,59,650	
	b) For REE analysis	per sample	4.1.5a	5,380	30	1,61,400	
	ii) Check Samples - 5% Internal & 10% External					-	
	a) 34 element Package analysis by ICP-MS for surface samples	per sample	4.1.14	7,731	23	1,73,948	
	b) For REE analysis	per sample	4.1.5a	5,380	8	43,040	
4.3	**Estimation of major oxides by XRF (Whole rock analysis)**						
	Major oxides	per sample	4.1.15a	4,200	10	42,000	
4.5	**Petrological / Mineralographic studies**						
	a) Preparation of thin section	per sample	4.3.1	2,353	20	47,060	
	b) Study of thin section for	per sample	4.3.4	4,232	20	84,640	

29/12/21

29/12/21

	petrography						
	c) Digital photomicrograph of thin polished section	per sample	4.3.7	280	20	5,600	
4.6	XRD	per sample	4.5.1	4000	20	80,000	
					Sub Total- D	**30,57,623**	
5.0	Geologist man days (1 No.) for Geological map & Report (HQ)	days	1.2	9,000	120	**10,80,000**	
					Total (A to D)	**1,69,55,187**	
6.0	**Geological Report Preparation**	Nos	5.2	For project exceeding Rs. 150 lakh but less than Rs. 300 Lakh - to A minimum Rs. 7.5 lakh or 3% of the value of work whichever is more	1	**7,50,000**	Reimbursement will be made after submission of the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
7.0	**Preparation of Exploration Proposal**	Nos	5.1	2% of the Cost or Rs. 3.8 Lakhs whichever is lower	1	**3,39,104**	will be reimbursed after submission of the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.
8.0	**Report Peer Review Charges**	lumpsum	As per EC decision	10000	1	**10,000**	
					Total Cost without GST (1 to 8)	**1,80,54,290**	
9.0	**Provision for GST (18%)**					**32,49,772.24**	GST will be reimburse as per actual and as per notified prescribed rate
10.0	**Total Estimated Cost with GST**					**2,13,04,062**	***or Say Rs. 213.04 Lakh***

Notes:

	If any part of the project is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item no. 6 of NMET SoC. In case of execution of the project by NEA on its own, a Certificate regarding non outsourcing of any component/project is required.
*	Marked items not indicated in SoC and required to be taken up during the course of exploration shall be charged separately (as per actual)
$	Trenching/Pitting dimensions are tentative may vary depending upon the geology and field conditions.
i	Satellite imageries shall be procured from website/NRSA as the case may be and procurement charges if any shall be charged at actual.
#	2nd level of work shall be carried out after review of 1st level work i.e. Geological mapping, geochemical sampling, pitting/trenching and analysis.
	All Field related activities are 3.35 times calculated as the area is in Himalayan terrain.

29/12/21

29/12/21

Annexure-3B

Schedule timeline for Reconnaissance Survey (G4) for Lithium and Potassium in Merak block (114.19 sq. km), District: Leh, Union Territory of Ladakh.

S. No.	Activities	MONTHS																						
		Field Working window at Ladakh region					No Working duration at Ladakh region												Field Working window at Ladakh region				Non Working duration at Ladakh region		
		01	02	03	04	05	06	07	08	09	10	11	12		01	02	03	04	05	06	07	08	09	10	11	12
1	Remote Sensing studies																									
2	Camp setting																									
3	Geological mapping & Sampling																									
4	Sample preparation (days)																									
6	Analytical work																									
7	Exploratory mining for trenching/pitting																									
8	Sample preparation (trench/pitting samples)																									
9	Analytical work																									
10	Camp winding																									
11	Geologist at HQ																									
12	Geological report																									
13	Peer Review																									
	* Commencement of project will be reckoned from the day the exploration acreage is available along with all statutory clearances																									
	*Time loss on account of monsoon/agricultural activity/forest clearance/ local law & order problems will be addition to above time line.																									

Review

29/12/21

29/12/21

Annexure-4A

Estimated cost for Preliminary Exploration (G3) for Copper in Thakurdih-Charakmara block; District: Giridih, Jharkhand.

Total block area- 10 sq. km; Nos. of Borehole- 10; Borehole depth range: 120-180m; Completion Time -12 Months

S. No.	Item of Work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item - Sl. No.	Rates as per SoC	Qty.	Total Amount (Rs)	
A	**GEOLOGICAL WORK**						
1	**Boreholes logging & sampling & report writing**						
a	Charges for Geologist per day at HQ	day	1.3	9,000	60	5,40,000	
b	Charges for Geologist per day at field	day	1.3	11,000	120	13,20,000	
c	Labours Charges; Base rate- Rs.431	day	5.7	431	240	1,03,440	Amount will be reimburse as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
2	**Survey (on 1:5000 Scale)**						
a	Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes by DGPS	Per Point of observation	1.6.2	19,200	10	1,92,000	
b	Charges of Surveyor	one surveyor per day	1.6.1a	8,300	60	4,98,000	
c	Labours Charges for survey work; Base rate - Rs. 431	day	5.7	431	240	1,03,440	Amount will be reimburse as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
d	Charges for Sampler	one sampler per day	1.5.2	5,100	15	76,500	2 months for primary, check, composite sample preparation
e	Labours Charges for sampling; Base rate - Rs. 431	day	5.7	431	60	25,860	Amount will be reimburse as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- A	**28,59,240**	
B	**Ground Geophysical Survey**						

29/12/21

29/12/21

1	Induced Polarization (I.P), Resistivity and Magnetic	Per Line KM	3.4b	1,44,869	60	86,92,158	
C	**DRILLING**				**Sub Total- B**	**86,92,158**	
1	Drilling up to 300m (Hard Rock)	m	2.2.1.4a	11,500	1,500	1,72,50,000	
2	Borehole deviation Survey by Multishot Camera	m	2.2.6	330	1,500	4,95,000	
3	Land / Crop Compensation (in case the BH falls in agricultural Land)	per BH	5.6	20,000	10	2,00,000	Amount will be reimbursed as per actual or max. Rs. 20000 per BH with certification from local authorities
4	Construction of concrete Pillar (12"x12"x30")	per borehole	2.2.7a	2,000	10	20,000	
5	Transportation of Drill Rig & Truck associated per drill (1 rigs)	Km	2.2.8	36	2,000	72,000	Certification in this regard is required to be provided
6	Monthly Accomodation Charges for drilling Camp (up to 2 Rigs)	month	2.2.9	50,000	8	4,00,000	
7	Drilling Camp Setting Cost	Nos	2.2.9a	2,50,000	1	2,50,000	
8	Drilling Camp Winding up Cost	Nos	2.2.9b	2,50,000	1	2,50,000	
9	Road Making (Flat Terrain)	Km	2.2.10a	22,020	5	1,10,100	Road Making will be considered as per the requirement and Road Making Charges will be reimbursed for max. 5 km.
10	Drill Core Preservation	per m	5.3	1,590	300.00	4,77,000	
D	**LABORATORY STUDIES**				**Sub Total- C**	**1,95,24,100**	
1	**Chemical Analysis**						
i)	**Primary samples**						
	a. for Cu, Ni, Mo, Co, W	Nos	4.1.7a	2,506	100	2,50,600	
	b. Au by Fire Assay	Nos	4.1.5a	2,380	20	47,600	(20% of primary samples)
ii)	**Check samples Internal (5%)**						
	a. for Cu, Ni, Mo, Co & W	Nos	4.1.7a	2,506	5	12,530	
	b) For Au (Gold) by Fire Assay	Nos	4.1.5a	2,380	1	2,380	5% of i-(b) above
iii)	**Check samples External (10%)**						
	a. for Cu, Ni, Mo, Co & W	Nos	4.1.7a	2,506	10	25,060	
	b) For Au (Gold) by Fire Assay	Nos	4.1.5a	2,380	2	4,760	10% of i-(b) above
iii)	**Composite Samples**						
	a) For 5 Radicals (Cu, Ni, Co, W, Mo)	Nos	4.1.7a	2,506	10	25,060	

29/12/21

29/12/21

	b) For Au (Gold) by Fire Assay	Nos	4.1.5a	2,380	10	23,800	
	c) ICP-MS (34 Elements)	Nos	4.1.14	7,731		-	
					Sub Total- D	**3,91,790**	
E	**Petrological samples (Surface & Bh Core Samples)**						
i	Preparation of thin section	Nos	4.3.1	2,353	10	23,530	
ii	b) Study of Thin Section	Nos	4.3.4	4,232	10	42,320	
					Sub Total- E	**65,850**	
F	**Mineragraphic Studies (Surface & Bh Core Samples)**						
a	Preparation of polished section	Nos	4.3.2	1,549	10	15,490	
b	Study of Polished Section	Nos	4.3.4	4,232	10	42,320	
c	Digital Photographs	Nos	4.3.7	280	10	2,800	
					Sub Total- F	**60,610**	
G	**Total A to G**					**3,15,93,748**	
H	**Geological Report Preparation**	**5 Hard copies with a soft copy**	**5.2**	For the projects is having cost more than Rs. 300 lakhs - A minimum of Rs. 9 lakhs or 3% of the value of work whichever is more subject to Max. Rs. 20 lakhs		**9,47,812**	Reimbursement will be made after submission of the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
I	**Peer review Charges**		**As per EC decision**			**10,000**	
J	**Preparation of Exploration Proposal (5 Hard copies with a soft copy)**	**5 Hard copies with a soft copy**	**5.1**	**2% of the Cost or Rs. 3.8 Lakhs whichever is lower**		**3,80,000**	Will be reimbursed after submission of the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.
K	**Total Estimated Cost without GST**					**3,29,31,560**	
L	**Provision for GST (18% of K) %**					**59,27,681**	GST will be reimburse as per actual and as per notified prescribed rate
M	**Total Estimated Cost with GST**					**3,88,59,241**	***or Say Rs. 388.59 Lakh***

Note - If any part of the project is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item no. 6 of NMET SoC. In case of execution of the project by NEA on its own, a Certificate regarding non outsourcing of any component/project is required.

29/12/21

29/12/21

Annexure-4B

Schedule timeline for Preliminary Exploration (G3) for Copper in Thakurdih-Charakmara block, District: Giridih, Jharkhand.

S. No.	Activities	Unit	Months											
			1	2	3	4	5	6	Review	7	8	9	10	11	12
1	Camp Setting	Month													
2	Ground Geophysical Survey														
3	Core Drilling (1 rig)	m													
4	Survey Party days	day													
5	Geologist days at field	day													
6	Sampling days, Core Sampling	day													
7	Laboratory Studies	Nos.													
8	Geologist Party days at HQ	day													
9	Report Writing	Month													
10	Camp Winding	Month													
NOTE:															
	Commencement of project may be reckoned from the day the exploration acreage is available along with all statutory clearances.														
	Time loss on account of monsoon/agricultural activity/forest clearance/local law & order problem/ lockdown etc will be additional to above time line.														

29/12/21

29/12/21

Annexure-5A

Estimated cost for Preliminary Exploration (G3) for Coal in East of Chuperbhita block, Rajmahal Coalfield, District: Godda, Jharkhand.

Total block area- 20.66 sq. km; Nos. of Borehole- 8; Borehole depth range- 260m to 640m; Completion Time- 14 Months

S. No.	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs)	Qty.	Amount (Rs)	Remarks
1 - Outsourced Component								
	I- Field operations (Outsourcing)							
A	**DRILLING**							
1	Drilling (As per MoC Rate 2020-21)	2.2.1.1b	m		5,619	4,100	2,30,37,900	Copy of MoC approved Rate is required
B	**GEOPHYSICAL STUDIES**							
1	Borehole Geophysical logging (As per MoC Rate 2020-21)	MoC Rates - Pls. refer note 5	m		697	4,100	28,57,700	Copy of MoC approved Rate is required
	Total Cost of outsourcing component						**2,58,95,600**	Reimbursement of outsource component will be made as per Para 3 of NMET-SoC. The copy of contract agreement for outsourced component is required to be provided.
2. In-House Component								
	I- Field Work							
A	**GEOLOGICAL WORK**							
i	Geological Party days-Field	1.5.1b	Day	11,000	11,000	120	13,20,000	
ii	Geological Party days-HQ (Data processing & Report Preparation)	1.5.1b	Day	9,000	9,000	45	4,05,000	
						Sub Total- A	**17,25,000**	
B	**GEOPHYSICAL STUDIES**							
i	Geophysicist Party days-Field	3.19	Day	11,000	11,000	16	1,76,000	
ii	Geophysicist days-HQ (Data processing & Report Preparation)	3.19	Day	9,000	9,000	10	90,000	
						Sub Total- B	**2,66,000**	
	II-Laboratory Studies					**Field Work Total (A+B)**	**19,91,000**	
1	**Band By Band Analysis**							

29/12/21

29/12/21

a	Ash+Moisture	4.2.6	per sample	700	700	1,100	7,70,000	
b	House Keeping	4.2.1	per sample	115	115	1,100	1,26,500	
2	**Overall analysis**							
a	Proximate analysis	4.2.7	per sample	935	935	350	3,27,250	
b	Moisture at 60% RH & 40C	4.2.8	per sample	1,010	1,010	350	3,53,500	
c	GCV	4.2.11	per sample	1,505	1,505	350	5,26,750	
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	350	2,78,250	
3	**Special Test**							
a	Ultimate analysis	4.2.17	per sample	9,945	9,945	25	2,48,625	
b	Total Sulphur	4.2.14	per sample	1,900	1,900	25	47,500	
c	Distribution of Sulpher	4.2.15	per sample	3,695	3,695	25	92,375	
d	HGI including sample preparation	4.2.18	per sample	3,805	3,805	25	95,125	
e	AFT (Ash Fusion Temperature)	4.2.20	per sample	2,745	2,745	25	68,625	
f	Ash analysis	4.2.25	per sample	325	325	25	8,125	
4	**Petrographic analysis**							
a	Pellet preparation	4.3.14a	per sample	1,160	1,160	22	25,520	
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25,000	25,000	22	5,50,000	
c	Microlithotype Analysis (with photomicrography)	4.3.14g	per sample	25,000	25,000	22	5,50,000	
d	Mean Ro%	4.3.14j	per sample	16,345	16,345	22	3,59,590	
					Laboratory Studies Total		**44,27,735**	
	III. Miscellaneous Charges (Departmental)							
a	DGPS Survey of boundary, borehole points (8 boreholes & 20 boundary point)	1.6.2	per point	19,200	19,200	28	5,37,600	
b	Borehole pillaring	2.2.7	per Bh	2,000	2,000	8	16,000	
c	Land crop compensation	5.6	per Bh	20,000	20,000	8	1,60,000	Amount will be reimbursed as per actual or max. Rs. 20000 per BH with certification from local authorities
d	Preparation of Exploration Proposal	5.1	lump sum	2% or Rs. 3.8 lakh whichever is lower		1	3,80,000	EA has to submit the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.

29/12/21

29/12/21

e	Peer review			10,000	10,000	1	10,000	
f	Tender Process Cost (on outsourced component)	2.3	lump sum	2% or Rs. 5 lakh whichever is lower		1	500000	will be reimbursed when copy of signed agreement/tender for outsourced component will be submitted.
g	Operational charges for CMPDI (on outsourced component)	Point 3 (iii)of SOC				1	15,00,000	will be reimbursed as per point 3 of NMET-SoC after recalculation when actual cost of outsourcing component will be provided. The copy of contract agreement for outsourced component and work completion report are also required to reimburse the operational charge
					Miscellaneous Charges Total		**31,03,600**	
					Total cost for in-House component (I to III)		**95,22,335**	
3 - Total Cost for outsource and in-House component (1 & 2)							**3,54,17,935**	
	Geological Report preparation	5.2		For project exceeding Rs. 300 Lakh - to A minimum Rs.9 lakh or 3% of the value of work whichever is more			10,62,538	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
4 - Total Cost of the project without GST							**3,64,80,473**	
					Provision for GST (18%)		65,66,485	GST will be reimburse as per actual and as per notified prescribed rate
5- Total Cost of the project with GST							**4,30,46,958**	***Or Say Rs. 430.47 Lakh***
NOTEs -	1) If any part mentioned in the in-house component is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item no. 6 of NMET SoC. For in-house component of the project, a Certificate from the NEA regarding non outsourcing of any component/project is required.							
	2) Above rate of drilling, GPL, Chemical, Physicomechanical are budgeted rates.							
	3) There are numerous items in chemical anlysis.The CIMFR rates will be applied for actual payment.							

29/12/21

29/12/21

4) For Drilling & Geophysical the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.

5) GPL rates is Rs 697/- per meter as per MoC Rates for minimum 8 parameters, the break up is as follows-

Sl. No.	Probe	MoC approved Rate 2020-21 (in Rs)	
1	Base Log		162
2	Dual Density		110
3	Natural Gamma		96
4	Caliper		20
5	SPR		41
6	Sonic		131
7	Deviation		96
8	Resistivity		41
	Total		**697**

6) Lumpsum amount of Rs. 10,000 has been considered for Peer Review.

Annexure-5B

Time Schedule/Action Plan for East of Chuperbhita Block, Rajmahal Coalfield

S. No	Activities		Months													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Outsourcing	Months														
2	Mobilising	Months														
3	Drilling (Nos. of rigs-3 rigs)	Months														
4	Borehole Geophysical logging	Days														
5	Geologist days, Field	Days														
6	Geophysicist days, Field	Days														
7	Laboratory Studies (Band By Band)	Nos.														
8	Laboratory Studies (Overall)	Nos.														
9	Laboratory Studies (Special)	Nos.														
10	Laboratory Studies (Petrography, Trace element & Geotechnical)	Nos.														
11	Geologist days, HQ	Days														
12	Geophysicist days, HQ															
13	Report Writing & Peer Review	Months														
Note:	Please add activities accordingly and timeline (months)															
	Total time period for completion of project- 14 months from sanction of project.															

29/12/21

29/12/21