Ministry of Mines
National Mineral Exploration Trust

Minutes of the 47th Technical-cum-Cost Committee [TCC] meeting held on 28th and 29th November, 2022 in hybrid mode at Geological Survey of India, Field Training Centre, Zawar, Udaipur, Rajasthan

The 47th 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 28th and 29th November, 2022 at FTC, Zawar, Udaipur, Rajasthan in hybrid mode. The TCC members and representatives of MECL, NMDC, DGM Chhattisgarh, DMG Rajasthan have attended the meeting in-person at FTC, Zawar and representatives of CMPDI, OMECL, DMG Karnataka, DGM Assam, DGM Maharashtra, IBM and GSI have attended the meeting through videoconference. The list of participants is in **annexure-1**.

Shri Suresh Chander, Director, GSI and Member Secretary, TCC NMET, welcomed Shri Janardan Prasad, ADG, GSI & Chairman, TCC; Members of the TCC and participants representing various Exploration Agencies [EAs]. He conveyed that total 10 new project proposals including one proposal for financial assistance for procurement of machinery/ laboratory equipment/ instruments etc. have been received from different EAs for technical cum cost evaluation by the committee.

Shri Vivek Kumar Sharma, Director, NMET welcomed Chairman, TCC; Members of the TCC and participants representing various EAs. He conveyed that the Ministry aims to enhance the pace of exploration by considering maximum number of projects through NMET fund.

Shri Janardan Prasad, ADG, GSI, and Chairman, TCC welcomed the members and other participants from various EAs. He further desired that the EAs should focus on formulating proposals on battery minerals. He further expressed that presently the energy requirement is being supplemented by hydrocarbons, however, the battery minerals like lithium and cobalt will be important minerals in days to come for this endeavour. The proceeding of the meeting was initiated as per the circulated agenda.

Agenda wise discussions are summarised as follows.

47.1. Technical evaluation of new project proposals:

47.1.1. Preliminary exploration (G3) for graphite in Lamer Panga Graphite block-B (12.994 sq. km), District: Kalahandi, Odisha. [Implementing Agency: OMECL]

a) The OMECL had submitted two proposals over Lamer-Panga block-B and C during 45th TCC meeting. The proposals were reviewed by the committee and it was suggested to submit the revised proposal after combining two blocks (B and C) and excluding the south-western part of the block- C wherein Khondalite bodies are not

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exposed. Now OMECL has submitted revised proposal after excluding the south western part of block C.

b) Geologically the area is exposed by Eastern Ghats Supergroup represented by khondalite and charnockite groups of rocks with associated pegmatites and quartz veins. Khondalite group of rock is represented by quartzites, garnetiferous-quartzites, garnet-feldspar-biotite-sillimanite± graphite gneiss / schist, calc granulite and migmatites whereas the charnockite group of rock is represented by porphyroblastic granite gneiss. In the proposed block the graphite is associated with meta-sedimentaries as quartz-graphite schist.

c) It has been conveyed that the block area was explored by GSI during 1983-84 for graphite in Balangir, Phulbani and Kakahandi districts. The lithounits present within the block are granite gneiss, calc granulite, pyroxene granulite (Basic charnockite), khondalite and quartzite. GSI had demarcated one prominent Barabandha - Loharsada graphite zone around Barabandha village. Further, within the Barabandha - Loharsada zone GSI had delineated 8 graphite mineralization patches in and around Barabandha village which comes within this proposed block.

d) It has been submitted that the graphite samples collected from the mineralized zones by GSI shows Fixed Carbon ranging from 3.94% to 16.48%. OMECL has also made preliminary visit of the area and the analyses of the samples indicates Fixed Carbon-7.56%.

e) OMECL has proposed to take up G3 stage exploration by deploying geological mapping (1:4,000 scale), Topographic survey (1: 4000), geophysical survey i.e., Self-Potential (SP), Trenching and drilling.

f) Based on detailed deliberations the committee suggested to take up G3 stage exploration by deploying 900m drilling through 15 boreholes (6 boreholes in southern and 9 boreholes in northern side of the block) with 30m vertical depth. The committee suggested to take up Self Potential (SP: 30 L km) over potential zone, trenching (100 cu. m).

g) Outcome of BRS and trench sample analyses and SP survey will be reviewed after six months.

The committee recommended the proposal for approval of EC for Preliminary exploration (G3) for graphite in Lamer Panga Graphite Block-B (12.994 sq. km) District: Kalahandi, Odisha with an estimated cost of Rs. 216.61 Lakh (including GST) in time schedule of 14 months for carrying out the proposed work and submission of report as per annexure- 2A & 2B.

47.1.2. Reconnaissance survey (G4) for zinc and associated minerals in Jamua area District: Giridih, Jharkhand. [Implementing Agency: CMPDI]

a) Geologically the area is exposed by the Archean-Proterozoic gneissic rock of Chhotanagpur Gneissic Complex (CGC). The oldest rocks exposed in the area are Archean unclassified metamorphics which include amphibolite/hornblende schist,

quartz mica schist, quartzite and calc- silicate rocks. Archean-Proterozoic rocks are intruded by pegmatite, quartz veins and dolerite dykes.

b) Some of the old working and favorable geological setting for sulphide mineralization have been reported around Mananpur and Giridih districts by GSI. Further regional geochemical mapping over toposheet no. 72L/2, 3, & 4 has also recorded anomalous values of Zn (526ppm to 1030ppm).

c) CMPDI has proposed to take up reconnaissance survey over 120 sq. km by deploying geological mapping on 1:12,500 scale, geochemical sampling, survey, pitting /trenching and petrological studies.

d) Based on detailed deliberations the committee suggested to take up G4 stage exploration by deploying geological mapping, BRS/Soil/ Stream sample collection and pitting/ trenching (50 cu. m). The outcome of the project will be reviewed after six months.

The committee recommended the proposal for approval of EC for Reconnaissance survey (G4) for zinc and associated minerals in Jamua area, District: Giridih, Jharkhand with an estimated cost of Rs. 47.40 Lakh (including GST) in time schedule of 12 months for carrying out the proposed work and submission of report as per annexure- 3A & 3B.

47.1.3. Research project on genesis of BIF-hosted high grade Iron ores in Chhattisgarh State with special reference to geological controls on mode of occurrence of Ore Beneath ore and implications on future game changing exploration in India. [Implementing Agency: NMDC]

a) The project proposal was discussed in 37th TCC meeting wherein the Committee suggested to submit detailed cost sheet as per the standard SoC of NMET in the next TCC enabling finalization of the cost vis-à-vis NQT. Thereafter, the TCC in its 38th meeting recommended the proposal for consideration and approval of EC in February 2022 and also opined that this is a different type of project and EC may take a view on the funding of this specialized research project.

b) Based on recommendations of TCC, the proposal was discussed in 23rd EC meeting held in March 2022 wherein the EC suggested that it is a research project and NMDC already has its mining operations in the area, the project may be taken up by NMDC with its own fund.

c) Now, NMDC has resubmitted proposal with inclusion of additional two areas with same objectives and without cost escalation.

d) It has been conveyed that the project proposal is aimed to study genesis of Banded Iron Formation [BIF] hosted high-grade iron ores of the Bailadila deposits with special emphasis to geological control on mode of occurrence of ore-body and to establish concealed iron ore deposits.

e) It has been conveyed that the ore bodies of hypogene hydrothermal origin may continue at great depth and may occur as hidden ore bodies beneath unmineralized

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BIF cover and the grade of ore may increase down depth. The hypogene process of ore genesis model may predict possible hidden iron ores beneath the barren BIF patches and extension of ore bodies at greater depth.

f) Based on detailed deliberations the committee opined that the project has potential for identification of deep seated hypogene hydrothermal BIF deposits and is suitable for consideration of NMET funding.

g) Committee also opined that the NMDC needs to take prior permission of TCC before publishing the outcome /data of project. The outcome of the project will be reviewed after 12 months.

The committee recommended the proposal for approval of EC for Research project on genesis of BIF-hosted high grade Iron ores in Chhattisgarh State with special reference to geological controls on mode of occurrence of Ore Beneath ore and implications on future game changing exploration in India with an estimated cost of Rs. 86.59 Lakh (including GST) in time schedule of 24 months for carrying out the proposed work and submission of report as per annexure- 4A & 4B.

47.1.4. Reconnaissance survey (G4) for phosphorite, gold and associated minerals in Jalkia-Ram Ka Munna block (110.53 sq. km) District: Banswara, Rajasthan. [Implementing Agency: MECL]

a) Geologically the area is exposed by the rocks of Lunavada Group [Kalinjara and Wagidora formations] of Aravalli Supergroup at the base and Deccan Traps at the top. The Kalinjara Formation is the oldest rock formation exposed in the area and is represented by the rocks of phyllite, quartzite, mica-schist, meta-greywacke.

b) Occurrences of phosphorite in the form of thin bluish grey stringers near Ram-ka-Munna area was reported by GSI in 1969. The thickness of phosphatic horizon varies from 2-3m and traceable up to 120m-630m. The P_2O_5 content varies between 5%-15%.

c) GSI has also reported geochemical anomaly for gold and silver around Lakai, Pipli-Khundini and Jher-Hadia. In bedrock samples geochemical values for gold ranging from 50ppb to 350ppb in Lakai area. In addition to this, lead copper, silver and gold was also reported from the sample collected from the Hadia village.

d) Based on signature of occurrences of phosphorite, gold and associated minerals in area, MECL has proposed to take up G4 stage exploration by deploying geological mapping (1: 12,500 scale), trenching (330 cu. m), sampling and 500m drilling.

e) The proposal was sent to GSI for their considered comments, in response to this, GSI has submitted that there is overlapping of block area. A G4 stage project for Basemetal and Gold in Lakai-Handia-Piplai area was taken up during FS: 2021-22 and falls within the proposed block of MECL. A G4 stage project has been proposed by GSI for FS: 2023-24 for phosphorite investigation in Rupgarh area and also overlaps the eastern portion of the proposed block of MECL. A G3 stage project in Shivpura area for

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phosphorite investigation is under execution in current for FS: 2022-23, this Shivpura block falling within the proposed block of MECL.

f) Keeping in view the overlapping of proposed area with GSI, the committee suggested to exclude the overlapping portion of block and considered the proposal for exploration of phosphorite over 40 sq. km area in western side of the proposed block. Accordingly, MECL has modified the proposal.

g) The committee suggested to take up G4 stage exploration by deploying geological mapping, geochemical sampling over the Ram Ka Munna area for phosphorite investigation. The project will be reviewed after five months.

The committee recommended the proposal for approval of EC for Reconnaissance survey (G4) for phosphorite in Ram Ka Munna area (40 sq. km) District: Banswara, Rajasthan with an estimated cost of Rs. 49.23 Lakh (including GST) in time schedule of 12 months for carrying out the proposed work and submission of report as per annexure- 5A & 5B.

47.1.5. Reconnaissance Survey (G4) for tin and associated minerals in Pendra block (110.362 sq. km), District: Bilaspur, Chhattisgarh. [Implementing Agency: MECL]

a) Geologically the area lies to the north of Tan Shear Zone and is predominantly comprise of unclassified granites and gneisses of Chhotanagpur Gneissic Complex (CGC). CGC is unconformably overlain by platform sediments of Gondwana Supergroup, Lameta Group, Deccan Traps and laterite deposits.

b) The Chotanagpur Gneissic Complex [CGC], covering about 90% area of the proposed block, occur as a basement. The supracrustal rocks of CGC possess the gneisses and variety of granitoids. Outcrops of foliated pink granite, grey granite gneiss, foliated grey granite, porphyric pink and grey granite, tourmaline bearing pink granite are exposed at different locations.

c) It has been submitted that the anomalous values of Tin (0.50ppm to 29.22ppm) have been observed in the area by GSI through geochemical mapping in FY: 2018-19. GSI has reported that S-type granitoids are characterized by concentration of metals like tin, tungsten, uranium and thorium while A-type granitoids are characterized by concentration of metals like tin, molybdenum, tungsten, lithium and REE.

d) The anomalous values of above-mentioned elements from the area may be considered as the indicative signatures and a comparative study of granitoids may be taken-up to classify and find the economical potentiality of strategic minerals, if any.

e) On the basis of anomalous NGCM values reported by GSI, a G4 stage project has been proposed by MECL by deploying geological mapping (1:12,500 scale), geochemical sample collection, pitting/trenching, drilling, petrological /mineralogical studies.

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f) After detailed deliberations the committee suggested to take up G4 stage exploration in the proposed block by deploying geological mapping, geochemical sample collection (200 nos.), pitting/ trenching, drilling (auger drilling), petrological / mineralogical studies. Committee opined that the progress of work along with analytical results of surface samples will be reviewed after six months.

The committee recommended the proposal for approval of EC for Reconnaissance Survey (G4) for tin and associated minerals in Pendra block (110.362 sq. km), District: Gaurela-Pendra-Marwahi [Bilaspur], Chhattisgarh with an estimated cost of Rs. 119.79 Lakh (including GST) in time schedule of 12 months for carrying out the proposed work and submission of report as per annexure- 6A & 6B.

47.1.6. Reconnaissance Survey (G4) for copper in Damoh-Parsahi block (40.0 sq. km), District: Balaghat, Madhya Pradesh [Implementing Agency: MECL]

a) Geologically the area is represented by the Basement Gnessic complex, followed by Dongargarh Supergroup (Chilpi Ghat Group) and Deccan Trap. The Chilpi Ghat group is comprised of phyllite, quartzite, slaty shale, conglomerate/grit, laterite/alluvium and soil cover.

b) It has been submitted that the limited field survey by GSI during 1988-90 has indicated favourable geological set-up for copper mineralization around Damoh, Parsahi and Kabrotala area.

c) The committee reviewed the proposal of MECL and opined that the substantial analytical results of stream/ soil samples and /or bedrock samples from the area are required to be incorporated in proposal in support of favorable geological set-up.

d) The committee suggested to collect and analyze few bedrock/ stream/ soil samples from the area and in case of encouraging results, the proposal may be resubmitted.

The committee suggested to collect and analyze few samples from the proposed block and proposal may be resubmitted in case of encouraging results.

47.1.7. Reconnaissance survey (G4) for copper in Dudhi block (103.0 sq. km), District: Balaghat, Madhya Pradesh [Implementing Agency: MECL]

a) The proposed block is situated in the north of Damoh-Parsahi block.

b) The proposal was sent to GSI, in response to this, it has been submitted that most of the area proposed by MECL was already explored by GSI at various stages of exploration.

c) Keeping the above in view, the committee suggested not to take up exploration in the Dudhi block to avoid duplication of efforts.

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As the proposed block was already explored by GSI, the committee suggested not to take up exploration in the Dudhi block to avoid duplication.

47.1.8. Reconnaissance survey (G4) for manganese ore in Taljuri-Gunchadihi block (83.0.00 sq. km), District: Balangir, Odisha. [Implementing Agency: MECL]

a) The proposal was discussed in 46th TCC meeting held in October 2022 wherein the committee suggested to submit a revised proposal after excluding overlapping area in consultation with GSI, Bhubaneswar and Directorate of Geology, Odisha.

b) The exploration area lies in the northern part of the Eastern Ghats Supergroup of rocks belonging to the meta-sedimentary sequence of Precambrian Khondalites. The sequence is comprised of peltic, psammitic and calcareous formations, representing Khondalite, quartzite and calc-silicate rocks.

c) It is pertinent to mention that the proposed Taljuri-Gunchadihi block falls in the north and north-west of pre-explored Babja, Thakurpali & Uchhabpali, Dandapani, Rengali, Tabalbanji, Antapali, Kumiapali, Biarpali, Dungaripali and Khagsabahal cluster of manganese blocks. Resource of manganese and graphite was already established in the 12 blocks. MECL has established 3.53 MT manganese resource with average grade of 22.56% Mn at 18% cut-off and 9.01 MT Mn resource at 17.35% Mn at 10% Mn cut-off. Besides this, 1.33 MT graphite resource was also established at 4.17% Fixed Carbon (FC) in the said blocks.

d) It is expected that the similar geological set-up will continue in the proposed block. Keeping this in view, MECL has proposed to take up G4 stage exploration over an area of 83.0 sq. km in Taljuri-Gunchadihi block.

e) It has been submitted that manganese ore bodies occur as bands, lenses, pockets, veins, tabular bodies and disseminations within the khondalite group of rocks. It has been submitted that the MECL has collected seven bedrock samples from Taljuri, Gunchadihi, Thelkuchhapar, Barhajhula and Dandapani villages. The analyses of these bedrock samples show >10% Mn with range from 16.21% to 37.17% of Mn. Float ore of manganese are also reported form the area.

f) Based on detailed deliberation the committee suggested to take up G4 stage exploration after modification of block boundary by deploying Geophysical survey (SP and magnetic- 20 L km), geological mapping, 500m drilling in eight boreholes with 60m average depth, and trenching (100 cu. m). The outcome of project will be reviewed after six months.

The committee recommended the proposal for approval of EC for Reconnaissance survey (G4) for manganese ore in Taljuri-Gunchadihi block (80.0 sq. km), District: Balangir, Odisha with an estimated cost of Rs. 166.60 Lakh (including GST) in time schedule of 14 months for carrying out the proposed work and submission of report as per annexure- 7A & 7B.

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47.1.9. Reconnaissance Survey (G4) for manganese and associated minerals in Katori-Jhiriya block (140.22 sq. km), District: Balaghat, Madhya Pradesh [Implementing Agency: MECL]

a) It has been submitted that the proposed block lies in the east of Miragpur and Pindkapur area. The area was in leasehold under the M/s. Central India Mining Company, however after release of 10(A)2(B) the area is lease free.

b) Geologically the area is represented by the south-western continuation of the Balaghat-Ukwa manganese ore belt occurring within the intensely folded and metamorphosed rocks of Sausar Group. The geological formations of the area consist mainly of (1) Pink and Grey Gneisses and Migmatites with enclaves of high grade metamorphites and gneiss represented by Archaean aged Amgaon Gneissic Complex/ Tirodi Gneissic Complex and (2) Quartz-Muscovite Schist, Muscovite-Biotite Schist, quartzo feldspathic Gneiss and Sericite Schist etc. belonging to the Mansar Formation of Sausar Group.

c) It has been submitted that the occurrences of manganese mineralization have been reported from the Mansar Formation of the Sausar Group, and form major deposits like Ukwa, Bharweli, Ramrama, Tirodi and Sukli-Sitapathore. These deposits are considered as metamorphosed syngenetic type based on their association and co-folding with the quartz muscovite schists of Mansar Formation.

d) The manganese mineralisation in the study area is expected to be associated with the muscovite schist of Mansar formation. The Mn values recorded in the collected samples shows <10% Mn (hand held XRF analysis) which indicates good potentiality of Mn in area.

e) Based on detailed deliberations the committee suggested to take up G4 stage exploration by deploying geological mapping (1:12,500 scale), magnetic survey (450 station), trenching (100 cu. m) and 500m drilling (8 boreholes). The outcome of project will be reviewed after six months.

The committee recommended the proposal for approval of EC for Reconnaissance survey (G4) for manganese and associated minerals in Katori-Jhiriya block (140.22 sq. km), District: Balaghat, Madhya Pradesh with an estimated cost of Rs. 167.82 Lakh (including GST) in time schedule of 14 months for carrying out the proposed work and submission of report as per annexure- 8A & 8B.

47.1.10. Procurement of Geophysical Instruments for Capacity Enhancement in Ground Gravity-Magnetic mapping of GSI. [Implementing Agency: GSI]

a) GSI has submitted that there is a need for fast-tracking the baseline data generation through gravity-magnetic survey for demarcation of promising areas. NMET has already approved outsourcing of ground gravity-magnetic survey in 2099 toposheets (13.50 lakh sq. km) in 3 years under NGPM program for completion of mapping work in the country in September, 2021.

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b) GSI endeavors to complete NGPM work in priority area of about 3.50 lakh sq. km under 500 toposheets in first phase through outsourcing by March, 2024. However, the response of vendors is very poor and.

c) In view of this, GSI has envisaged to cover additional 1.15 lakh sq. km priority area by increasing its in-house capacity, which necessitates deployment of 35 additional instruments for NGPM survey. However, remaining area will be covered through outsourcing.

d) To achieve the additional target of 1.15 lakh sq. km, GSI require 24 additional set of gravimeter, magnetometer and DGPS to augment its existing capacity to complete the survey in priority areas. In view of this, GSI has proposed to procure 24 additional set of gravimeter, magnetometer and DGPS at an estimated cost of Rs. 7020.0 Lakh

e) Committee suggested for optimum utilization of available /procured machine capacity of GSI and was of the view that procurement of additional instruments may increase the pace of data acquisition.

f) On slow pace of procurement and outsourcing, the committee advised to speed up the procurement and outsourcing process so as to complete the NGPM project in schedule time.

The committee recommended the proposal for approval of EC for procurement of geophysical instruments for capacity enhancement in ground gravity-magnetic mapping of GSI by procuring 24 set of gravimeter, magnetometer and DGPS at an estimated cost of Rs. 7020.0 Lakh (including GST) in time schedule of 12 months.

The committee opined that due process of procurement as per extant Government of India Financial rules be followed by GSI in consent with the competent authority of Department /Administrative Ministry/ IFD, Ministry of Mines.

Shri Vivek Kumar Sharma, Director, NMET conveyed that the NMET secretariat has received estimated cost of machinery/ laboratory equipment/ instruments from GSI and IBM. The estimated cost received from GSI/IBM will be kept as the basis for cost evaluation of the projects for financial assistance for procurement of machinery/ laboratory equipment/ instruments etc., to the State Government/ IBM.

Based on the estimated cost received from GSI and IBM, committee evaluated the projects and in-principally agreed proposals for approval of EC towards procurement of equipment's/software's reviewed during 45th and 46th TCC meeting held on 26th - 27th September 2022 and 27th - 28th October, 2022 respectively.

A total of 5 projects [IBM (2 nos.), DMG, Karnataka (1 no.), DGM, Maharashtra (1 no.) and DGM, Assam (1 no.)] have been recommended by TCC in-principally for approval of EC.

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47.1.11. Financial assistance for procurement of laboratory scale mineral processing equipments, characterization and analysis instruments for modern mineral processing laboratory, IBM, Nagpur. [Implementing Agency: IBM]

a) The proposal was discussed in 45th TCC meeting held on 26th and 27th September, 2022 and the Committee in-principally agreed to recommend the proposal for approval of EC. The following equipment's have been recommended by the committee the estimated cost given below:

1. Laboratory Scale Mineral Processing Equipment's

   (i) Wet High Intensity Magnetic Separator (WHIMS) [Rs. 140.0 Lakh]
   (ii) Air Jig for Dry Separation [Rs. 100.0 Lakh]
   (iii) Flotation Column [Rs. 50.0 Lakh]
   (iv) Air Pulsated Batac Jig (for wet separation) [Rs. 50.0 Lakh]
   (v) Leach Column [Rs. 30.0 Lakh]
   (vi) Electrostatic Separator [Rs. 60.0 Lakh]
   (vii) High Intensity Disc Magnetic Separator (Dry) [Rs. 30.0 Lakh]
   (viii) Electrophoretic Cell for Zeta Potential [Rs. 50.0 Lakh]
   (ix) Slurry Rheometer [Rs 30.0 Lakh]
   (x) BET Surface Area Analyzer [Rs. 40.0 Lakh]
   (xi) LAARMANN Flotation Cell with External Air Supply (for Roughing and Cleaning) [Rs. 40.0 Lakh]

2. Mineralogy- Characterization Instrument

   (i) Field Emission Scanning Electron Microscope with Energy Dispersive Spectrometer (FE-SEM with EDS) along with Carbon Coating Machine and ancillary units [Rs. 300.0 Lakh]
   (ii) Digital X-Ray Diffractometer with Solid State Detector, Search Match Software, PDF-4 Mineral Data and ancillary units [Rs. 200.0 Lakh]

3. Chemical Laboratory- Analysis Instruments

   (i) Fire Assay Assembly along with accessories [Rs. 25.0 Lakh]
   (ii) Proximate Analyzer along with accessories [Rs. 35.0 Lakh]

The Committee agreed to recommend the proposal for approval of EC towards procurement of equipment's/software's for Indian Bureau of Mines with estimated cost of Rs. 1180.0 Lakh as detailed at para (a) above, to strengthen the beneficiation activities in the country.

The Committee opined that due process of procurement as per extant Government of India Financial rules be followed by IBM, Nagpur in consent with the competent authority of Department /Administrative Ministry/ IFD, Ministry of Mines.

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47.1.12. Financial assistance for procurement of laboratory scale mineral processing equipment's, characterization and analysis instruments for Regional Mineral Processing Laboratory, Bengaluru. [Implementing Agency: IBM]

a) The proposal was discussed in 46th TCC meeting held on 27th and 28th October, 2022 and the Committee in-principally agreed to recommend the proposal for approval of EC. The following equipment's have been recommended by the committee the estimated cost given below:

1. Mineral processing equipments
   (i) High Intensity Magnetic Separator Induced Roll "Lift Type" Laboratory Model: Rs. 35.0 lakh
   (ii) High Temperature Furnace 1600° C with gas inlet provision: Rs. 30.0 lakh
   (iii) Hindered Bed Separator with feed pump and necessary accessories: Rs. 40.0 lakh
   (iv) Electrostatic Plate Separator: Rs. 35.0 lakh
   (v) Spiral HG and MG configuration (each 1 No.): Rs. 30.0 lakh
   (vi) Hydro-cyclone test rig assembly to test with different types of hydrocyclones with product and tailing handling pumps with different cyclone arrangements: Rs. 95.0 lakh
   (vii) Leaching circuit with autoclave for pressure leaching and solvent extraction unit: Rs. 20.0 Lakh
   (viii) Column Flotation Cells: Rs. 40.0 lakh
   (ix) Flotation Cells - Rougher 3 cells (0.5 m^3 each) and Scavenger 1 cell (0.5 m^3) circuit with feed pumps, 2 conditioning tanks with agitator, along with flotation product and tailing pumps, reagent dosing system and pilot scale filtration system for concentrator and tails: Rs. 175.0 lakh (*For Replacement of existing facilities*)

2. Mineralogy instrument & equipments
   (i) Thermogravimetry and Differential Thermal Analyser (TG-DTA): Rs. 90.0 lakh
   (ii) Rock Cutting-cum-Automatic Thin Section Preparation equipment along with accessories and ancillary units: Rs. 45.0 lakh (*For Replacement of existing facilities*)

3. Chemical analysis instruments
   (i) Inductively Coupled Plasma Optical Emission Spectrophotometer (ICP-OES) with microwave digesting system: Rs. 90.0 lakh
   (ii) Carbon and Sulphur Analyzer: Rs. 35.0 lakh

The Committee agreed to recommend the proposal for approval of EC towards procurement of equipment's/software's for Indian Bureau of Mines with estimated cost of Rs. 760.0 Lakh as detailed at para (a) above, to strengthen the beneficiation activities in the country.

The Committee opined that due process of procurement as per extant Government of India Financial rules be followed by IBM, Nagpur in consent with the competent authority of Department /Administrative Ministry/ IFD, Ministry of Mines.

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47.1.13. Financial assistance from NMET funds to procure machinery/ laboratory equipment/instruments etc. aimed at enhancing the exploration activities. [Implementing Agency: DMG, Karnataka]

a) The proposal was discussed in 45th TCC meeting held on 26th and 27th September, 2022 and the Committee in-principally agreed to recommend the proposal for approval of EC. The following equipment's were recommended by the committee:

(i) ICP-MS (1 no.)
(ii) Fusion head machine (1 no.)
(iii) Press pellet machine (1 no.)
(iv) Vibratory cup Mills (1 no.)
(v) Rock cutting polishing and mounting unit (1 no.)

b) Now, DMG, Karnataka has requested to revise the proposal for procurement of following instruments through NMET fund:

(i) ICP-MS (1 no.) Rs. 170.0 lakh
(ii) WD-XRF (including water chiller, standards, gas cylinders & fitting, software and other accessories) (1 no.) Rs. 215.0 lakh
(iii) Rock cutting polishing and mounting unit (1 no.) Rs. 32.0 lakh

The Committee agreed to recommend the proposal for approval of EC towards procurement of equipment's/software's for DMG, Karnataka with estimated cost of Rs. 417.0 Lakh as detailed at para (b) above, to strengthen the mineral exploration activities in the State.

The Committee opined that due process of procurement as per extant Government of India/State Financial rules be followed by DMG, Karnataka in consent with the competent authority of Department /State Financial Wing (Division).

47.1.14. Financial assistance for procurement of machinery/laboratory equipment/ instruments etc. for enhancing the exploration activity of DGM, Maharashtra through NMET Fund. [Implementing Agency: DGM, Maharashtra]

a) The proposal was discussed in 45th TCC meeting held on 26th and 27th September, 2022 and the Committee in-principally agreed to recommend the proposal for approval of EC. The following equipment's have been recommended by the committee the estimated cost given below:

1. Geological and sample processing items/instruments-
   (i) Rock cutting machines floor mounted (1 no.) Rs. 1.80 Lakh
   (ii) Section grinding /polishing machine-double disc (1 no.) Rs. 1.80 Lakh
   (iii) Section mounting Press-spring type (1 no.) Rs. 0.165 Lakh
   (iv) Core cutting machine (1 no.) Rs. 1.70 Lakh
   (v) Pol Trinocular Research Microscope with imaging system and Pelcon automatic point counter (1 no.) Rs. 25.20 Lakh
   (vi) XMET8000 Expert Geo handheld XRF Analyzer (1 no.) Rs. 30.0 Lakh

2. Chemical laboratory instruments-
   (i) ICP-MS (1 no.) Rs. 170.0 Lakh
   (ii) Crusher (1 no.) Rs. 10.0 Lakh
   (iii) Vibratory cup mill (1 no.) Rs. 10.0 Lakh
   (iv) Pulveriser (1 no.) Rs. 10.0 Lakh

3. Drilling activities instruments/items-
   (i) Drilling rig Truck Mounted (600m capacity) (1 no.) Rs. 80.0 Lakh
   (ii) Drilling rig Tractor mounted (1 no.) Rs. 50.0 Lakh
   (iii) Reciprocating pump set (trolly mounted) (1 no.) Rs. 10.0 Lakh
   (iv) Centrifugal pumping set (Multi stage 2 cylinder) (2 nos.) Rs. 1.80 Lakh
   (v) NQ drill rode 3 m long (225 nos.) Rs. 33.75 Lakh
   (vi) 6" casing plug to NW box (20 nos.) Rs. 2.0 Lakh
   (vii) NQ core barrel 3m long (10 nos.) Rs. 3.5 Lakh
   (viii) NX Casing Diamond bit (30 nos.) Rs. 0.9 Lakh

The Committee agreed to recommend the proposal for approval of EC towards procurement of equipment's/software's for DGM, Maharashtra with estimated cost of Rs. 442.615 Lakh as detailed at para (a) above, to strengthen the mineral exploration activities in the State.

The Committee opined that due process of procurement as per extant Government of India/ State Financial rules be followed by DMG, Maharashtra in consent with the competent authority of Department /State Financial Wing (Division).

47.1.15. Financial assistance from NMET funds to procure machinery/ laboratory equipment/instruments etc. aimed at enhancing the exploration activities. [Implementing Agency: DGM, Assam]

a) The proposal was discussed in 46th TCC meeting held on 27th and 28th October, 2022 and the Committee in-principally agreed to recommend the proposal for approval of EC. The following equipments have been recommended with estimated cost-

   (iv) DSLR Camera with lens (3 nos.) Rs. 1.50 Lakh
   (v) Digital toposheets (6 nos.) Rs. 5.0 Lakh
   (vi) GIS software (1 no.) Rs. 13.0 Lakh
   (vii) Magnetic Susceptibility meter with analysis software (1 no.) Rs. 3.50 Lakh
   (viii) Handheld XRF (2 nos.) Rs. 60.0 Lakh
   (ix) Portable Core Drilling Machine (Bagpack) (3 nos.) Rs. 8.0 Lakh
   (x) DGPS set (1 no.) Rs. 16.0 Lakh

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The Committee agreed to recommend the proposal for approval of EC towards procurement of equipment's/software's for DGM, Assam with estimated cost of Rs. 107.0 Lakh as detailed at para (a) above, to strengthen the mineral exploration activities in the State.

The Committee opined that due process of procurement as per extant Government of India/ State Financial rules be followed by DMG, Assam in consent with the competent authority of Department /State Financial Wing (Division).

47.2. Review of the Geological report/Ongoing projects

47.2.1. Preliminary exploration (G3) for coal in West of Chano-Rikba Coal Block, North Karanpura Coalfield, District- Hazaribagh, Jharkhand. [Implementing Agency: CMPDI]

a. The project was recommended in 33rd TCC meeting held on 9th and 10th September, 2021 and approved in 24th EC meeting held on 18th May, 2022 with estimated cost of ₹374.86 lakh for a time period of 12 months.

b. CMPDI informed that as per initial proposal, drilling and geophysical logging was proposed to carry out through departmental resources. However, due to operational reasons and local conditions it is proposed to outsource drilling and geophysical logging. The other works such as geological field work, laboratory analysis and Geological Report (GR) preparation will be carried out through in house departmental resource.

c. The Committee agreed to carry out drilling and geophysical logging through outsourcing without any additional cost. The cost for drilling and geophysical logging work will be reimbursed as per the actual or SoC of NMET.

The committee agreed and approved to carry out drilling and geophysical logging through outsourcing without any additional cost.

47.3. The meeting ended with concluding remarks of the chairman and vote of thanks by the Director and member secretary, TCC, NMET.

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List of TCC members attended 47th Technical-cum-Cost Committee (TCC) meeting of NMET held on 28th and 29th November, 2022 in hybrid mode at Geological Survey of India, Field Training Centre, Zawar, Udaipur, Rajasthan

Attended via VC (P. K. Maharana) DGM (Finance), NALCO Member, TCC, NMET	Not attended (R. K. Gupta) DGM (Finance), HCL Member, TCC, NMET	Not attended (Vinay Pal) Cost Account Officer, GSI Member, TCC, NMET
29/11/22 (Dr. Anjani Kumar) DGM (Exploration) & HoD-Planning (Retd.), MECL Member, TCC, NMET	Not attended (Naeem Ahmad) GM (Exploration) (Retd.) CMPDI Ltd. Member, TCC, NMET	Attended via VC 29.11.2022 (Ranjan Kumar Sinha) Controller General (Retd.) Indian Bureau of Mines Member, TCC, NMET
Not attended (Hemraj Suryavanshi) Addl. Director General (Retd.) Geological Survey of India Member, TCC, NMET	Attended via VC (S. K. Adhikari) Chief Mining Geologist Indian Bureau of Mines Member, TCC, NMET	29/11/2022 (M. K. Patel) Dy. Director General (G) Geological Survey of India Member, TCC, NMET
Not attended (B. Saravanan) Additional Director (Operations-I), AMD Member, TCC, NMET	Attended via VC (V. K. Sharma) Director, NMET Ministry of Mines Member, TCC, NMET	29/11/22 (Suresh Chander) Director (G) Geological Survey of India Member Secretary, TCC, NMET

29/11/22
(Janardan Prasad)
Addl. Director General & HoD, SR,
GSI and Chairman, TCC, NMET

Annexure-1

List of participants attended 47th Technical-cum-Cost Committee (TCC) meeting of NMET held on 28th and 29th November, 2022 in hybrid mode at Geological Survey of India, Field Training Centre, Zawar, Udaipur, Rajasthan

S. No.	Name/Designation	Email ID	Contact No	Organisation
1	Shri Janardan Prasad ADG & HoD, 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	Dr. Anjani Kumar DGM (Retd.), MECL	anjanikumar1957.ak@gmail.com	9975350576	Member, TCC
4	Shri Manoj Kumar Patel DDG and RMH-II, GSI	m.patel1@gsi.gov.in	9040011231	Member, TCC
5	Shri Santosh Kumar Adhikari Chief Mining Geologist, IBM	skadhikari@ibm.gov.in	7588690545	Member, TCC
6	Shri Vivek Kumar Sharma Director, NMET	vksharma.ofb@gov.in	7024570055	Member, TCC
7	Shri P. K. Maharana, DGM (F), NALCO	pmaharana@rediffmail.com	8500669500	Member, TCC
8	Shri Suresh Chander Director, GSI	suresh.chander@gsi.gov.in	9493860963	Member Secretary, TCC
9	Shri Rajinder Kumar Dy. Director General (G)	nmh1a@gsi.gov.in	9313502359	GSI
10	Dr. Pankajmala Bhattacharya Director (GP)	nmh1a@gsi.gov.in		GSI
11	Dr. Deshraj Trivedi Senior Geologist	nmet-tcc@gov.in	9419244294	NMET
12	Shri Subhash Kumar Senior Geologist	nmet-mines@gov.in	9868302624	NMET
13	Dr. Abhijeet Mukherjee General Manager	abhijeetmukherjee64@gmail.com	9490760004	NMDC
14	Dr. C. B. Verma, Sr. Manager			NMDC
15	Dr. R. P. Singh, Manger (Geology)	gm.exploration.cmpdil@gmail.com	8987789047	CMPDI
16	Shri Bikash Sahoo DDG, OMECL	omecloffice@gmail.com	7978604906	OMECL
17	Dr. P. K. Nayak Sr. Manager (Geology)	omecloffice@gmail.com	6372651516	OMECL
18	Shri P. Ravindran, DGM (Exploration)	gm-exploration@mecl.co.in	7907649392	MECL, Nagpur
19	Shri Swarup Dhara Manager (Geology)	gm-exploration@mecl.co.in	9630307282	MECL, Nagpur
20	Shri Sayandeep Chakraborty Senior Geologist	gm-exploration@mecl.co.in	9038956935	MECL, Nagpur
21	Shri Kailash Dongre Joint Director (Geology)	dgmgeology@gmail.com	9424282791	DGM, Chhattisgarh
22	Shri S. N. Dodia Additional Director	adgudaipur.mg@rajasthan.gov.in	9414737417	DGM, Rajasthan
23	Shri Udayaravi	geology.dgm@mp.gov.in		DGM, MP
24	Dr. Dillip R. Kanungo Director (OD)I/c	codo@ibm.gov.in	8237047897	IBM, Nagpur
25	Shri H. P. Harish, Deputy Director (Plan)	dir-mines@karnataka.gov.in	9611951313	DGM, Karnataka
26	Smt. Barnalee Nath, Joint Director (Geology)	dgmassam@gmail.com	9435104508	DGM, Assam
27	The Deputy Director, Geology	director@mahadgm.gov.in		DGM, Maharashtra
28	Shri Arvind Kumar, GSI, FTC Zawar, Udaipur			GSI

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Annexure-2A

Estimated cost for Preliminary exploration (G3) for graphite in Lamer Panga Graphite Block B (12.994 sq. km) Kalahandi district Odisha.

S. No.	Item of Work	Unit	Rate as per NMET SoC 2020-21		Estimated cost of proposal		Remarks
			SoC item Sl. No.	Rate as per SoC (in Rs)	Quantum of Work	Total Amount (Rs.)	
A	**GEOLOGICAL WORK**						
1	Charges for One Geologist - Field	per day	1.3	11,000	120	13,20,000	
2	Charges for One Geologist - HQ	per day	1.3	9,000	30	2,70,000	
3	Labour Charges for Geological mapping (2 Nos.) Base rate- 443/-	per day	5.7	443	240	1,06,320	Amount will be reimbursed as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
4	Charges for one Sampler	per day	1.5.2	5,100	40	2,04,000	
5	Labour Charges for sampling work (4 Nos.) Base rate- 443/-	per day	5.7	443	160	70,880	Amount will be reimbursed as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
6	Charges for 1 Surveyor (1 Party)	one surveyor per day	1.6.1a	8,300	30	2,49,000	
7	Labour charges for Survey (4 Nos.) Base rate- 443/-	per day	5.7	443	120	53,160	Amount will be reimbursed as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- A	**22,73,360**	
B	**TRENCHING**						
1	Trenching	Cu. m	2.1.1	3,330	100	3,33,000	30 Trenches
					Sub Total- B	**3,33,000**	

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C	**DRILLING (outsourced)**						
1	Surface Drilling	per m	2.2.1.4	11,500	900	1,03,50,000	
2	Land/Crop compensation	Per Bore hole	5.6	20,000	15	3,00,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities
3	Construction of concrete pillar (12"x12"x30")	Per Bore hole/Pillar	2.2.7a	2,000	15	30,000	
4	Drill core preservation	Per m	5.3	1,590	270	4,29,300	
					Sub Total- C	**1,11,09,300**	reimbursement of outsource component will be made as per Para 3 of NMET-SoC
D	**GROUND GEOPHYSICAL SURVEY (outsourced)**						
1	Self-potential / Charged Potential	Line Km	3.3a	29,600	30	8,88,000	
					Sub Total- D	**8,88,000**	reimbursement of outsource component will be made as per Para 3 of NMET-SoC
E	**LABORATORY STUDIES (outsourced)**						
1	**Chemical Analysis**						
	i) Primary samples and Check samples for Graphite (Core Samples)						
	a) Primary samples for Proximate Analysis (Ash, Moisture, V.M. and F.C.)	Nos	4.1.16	3,000	325	9,75,000	core sample (250 m) + 100 channel sample+50 grab sample
	b) Check sample Proximate Analysis (Ash, Moisture, V.M. and F.C.)	Nos	4.1.16	3,000	35	1,05,000	
	c) REE	Nos	4.1.13	5,380	10	53,800	
	ii) Composite Samples for Graphite (Core Samples)						
	a) Proximate Analysis (Ash, Moisture, V.M. and F.C.)	Nos	4.1.16	3,000	20	60,000	
2	**Physical Analysis**						
i)	X-RD Studies	Nos	4.5.1	4,000	5	20,000	5 core samples + 5 grab samples
ii)	Preparation of thin section	Nos	4.3.1	2,353	10	23,530	
iii)	Petrographic studies	Nos	4.3.4	4,232	10	42,320	
iv)	Bulk density	Nos	4.10	3,540	10	35,400	
					Sub Total- E	**13,15,050**	reimbursement of outsource component will be made as per Para 3 of NMET-SoC

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				Total A+B+C+D+E	**1,59,18,710**	
F	**Tender preparation, publishing & finalisation**	one time	2.3	2% of the approved project cost or 5 lakh whichever is lower will be paid one time to exploration agency.	**3,18,374**	will be reimbursed when copy of signed agreement/tender for outsourced component will be submitted.
G	**GEOLOGICAL REPORT PREPARATION**	One Number (5 Hard copies) along with soft copy	5.2	Project cost 150 to 300 Lakh: A minimum of Rs 9 lakh of 3% of the work whichever is more and Rs 3000/- per each additional copy	**7,50,000**	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
H	**PEER REVIEW**		As per EC decision		**10,000**	
I	**PREPARATION OF EXPLORATION PROPOSAL**	One Number (5 Hard copies) along with soft copy	5.1	2% of approved project cost or 3.8 lakh whichever is lower	**3,18,374**	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.
J	**OPERATIONAL CHARGES**		6.0 iii	In case total outsourced cost more than Rs. 1 Crore	**10,40,618**	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
				Total F+G+H+I+J	**24,37,366**	
				Total A+B+C+D+E+F+G+H+I+J	**1,83,56,076**	
				GST 18%	**33,04,094**	GST will be reimbursed as per actual and as per notified prescribed rate
				Grand Total	**2,16,60,170**	***Or say Rs. 216.61 Lakh***

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Annexure-2B

Scheduled time for Preliminary exploration (G3) for graphite in Lamer Panga Graphite Block B (12.994 sq. km) Kalahandi district Odisha.

S. No.	Item of Work	unit	1	2	3	4	5	6	Review	7	8	9	10	11	12	13	14
1	Camp Setting	month															
2	Geological Mapping	sq. km															
3	Geological days	Party days															
4	Trenching	Cu. M															
5	Geophysical Survey (Self-potential)	Line Km															
6	Geophysical Report Preparation	Month															
7	Surface Drilling	m															
8	Sampling days	Party days															
9	Laboratory Studies	Nos.															
10	Camp Winding	Months															
11	Report Writing with Peer Review	Months															

Note:

1: Commencement of project may be reckoned from the day the exploration acreage is available along with all statutory clearance.
2: Time loss on account of monsoon/ agricultural activities/forest clearance/local law and order problem/lockdown etc. will be additional to above timeline.

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Annexure-3A

Estimated cost for Reconnaissance survey (G4) for Zinc and associated minerals in Jamua area Giridih district Jharkhand.

Sl. No	Item Work	Item no in SoC	Unit	Rates as per SoC of NMET	Total		Remarks
					Qty.	Amount (Rs) In Lakh	
A	**GEOLOGICAL WORK**						
1a	Geological Party days (1 party) Field	1.2	Day	11,000	150	16,50,000	
1b	Geological Party days (1 party) HQ	1.2	Day	9,000	60	5,40,000	
1c	2 labours/ party (Rs 477/day/labour), As per rates of Central labour Commission)	5.7	Day	477	300	1,43,100	Amount will be reimbursed as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
				Sub Total- A		**23,33,100**	
B	**Sampling**						
2a	Sampling - 1 sampler without Labour	1.5.2	Day	5,100	30	1,53,000	
2b	4 labours/ party (Rs 477/day/labour, as per rates of Central labour Commission)	5.7	Day	477	120	57,240	Amount will be reimbursed as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
				Sub Total- B		**2,10,240**	
C	**PITTING-TRENCHING**						
	PITTING/TRENCHING (1m x 1m x1m)- 50 no	2.1.2	Cu m	3,800	50	1,90,000	
				Sub Total- C		**1,90,000**	
D	**Laboratory Studies**						
	Chemical Analysis/ ICPS Studies						
I	**BRS Samples**						
i	Primary Sample for 5 radicals (Cu, Pb, Zn, Cr & Ni)	4.1.7a	Per sample	2,506	100	2,50,600	
ii	Internal (5%) & External (10%) Check samples of 5 radicals	4.1.7a	Per sample	2,506	15	37,590	
iii	Analysis of Gold by Fire assay	4.1.5a	Per sample	2,380	5	11,900	
	ICP-MS studies for REE (34 element)- i.e. (Mn, Co REE etc.)	4.1.14	Per sample	7,731	10	77,310	

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II	**Pit/Trench Sample**						
i	Primary Sample for 5 radicals (Cu, Pb, Zn, Cr & Ni)	4.1.7a	Per sample	2,506	50	1,25,300	
ii	Internal (5%) & External (10%) Check samples of 5 radicals	4.1.7a	Per sample	2,506	8	20,048	
iii	Analysis of Gold by Fire assay	4.1.5a	Per sample	2,380	3	7,140	
iv	ICP-MS studies for REE (34 element)- i.e. (Mn, Co REE etc.)	4.1.14	Per sample	7,731	5	38,655	
III	**Soil/ Stream Sediment**						
i	Primary Sample for 5 radicals (Cu, Pb, Zn, Cr & Ni)	4.1.7a	Per sample	2,506	80	2,00,480	
ii	Internal (5%) & External (10%) Check samples of 5 radicals	4.1.7a	Per sample	2,506	12	30,072	
iii	Analysis of Gold by Fire assay	4.1.5a	Per sample	2,380	5	11,900	
iv	ICP-MS studies for REE (34 element)- i.e. (Mn, Co REE etc.)	4.1.14	Per sample	7,731	8	61,848	
				Sub Total- D		**872843**	
E	**Physical & Petrological Studies**						
i	Preparation of thin section	4.3.1	per sample	2,353	10	23,530	
ii	Complete Petrographic studies	4.3.4	per sample	4,232	10	42,320	
iii	Preparation of polished section	4.3.2	per sample	1,549	10	15,490	
iv	Complete mineragraphic study report	4.3.4	per sample	4,232	10	42,320	
v	SEM Studies	4.4.2	Per hour	2,940	5	14,700	
				Sub Total- E		**1,38,360**	
				(Total A to E)		**37,44,543**	
F	**Miscellaneous Charges**						
i	Preparation of Exploration Proposal (2% of approved Project cost or 3.8 lakh whichever is lower)	5.1	lump sum	2% of approved Project cost or 3.8 lakh whichever is lower	1	74,891	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.
ii	Geological Report Preparation (1.5 lakh or 5% of total work value whichever is more)	5.2		1.5 lakh or 5% of total work value whichever is more	1	1,87,227	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
iii	Peer Review Charges			10000	1	10,000	
				Sub Total		**40,16,661**	
				GST (@18%)		**7,22,999**	GST will be reimbursed as per actual and as per notified prescribed rate
				Grand Total		**47,39,660**	***or say Rs. 47.40 Lakh***

1) Minimum Wages of Unskilled Labour @Rs 477/- as per Central Labour Commission as per notification dated 28.9.22
2) Rs 10000/- for Peer review is budgeted rate

Annexure-3B

Scheduled time for Reconnaissance survey (G4) for Zinc and associated minerals in Jamua area Giridih district Jharkhand.

S. No	Activities														
		Months	1	2	3	4	5	6	Review	7	8	9	10	11	12
1	Mobilizing	Months													
2	Geologist days, Field	Days													
3	Survey days	Days													
4	Sampling	Days													
5	Laboratory Studies	Nos.													
6	Geologist days, HQ	Days													
7	Report Writing & Peer Review	Months													
	Note: Please add activities accordingly and time lime (months)														
	Total Time Period of Completion of Project- 12 months from Sanction of Project														

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Annexure-4A

Estimated cost for Research project on genesis of BIF-hosted high grade Iron ores in Chhattisgarh State with special reference to geological controls on mode of occurrence of Ore Beneath ore and implications on future game changing exploration in India.

S. No.	Item of Work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal (FY 2022-23)		Remarks
			SoC-Item-S. No.	Rates as per SoC	Qty.	Total Amount (Rs)	
A	**GEOLOGICAL WORK**						
a	Charges for Geologist per day at HQ for monitoring, data processing etc.	day	1.3	9,000	60	5,40,000	
b	Charges for Geologist per day at field for mapping, channel sampling and logging	day	1.3	11,000	120	13,20,000	
c	Labours Charges Base rate - Rs. 437/-	day	5.7	437	240	1,04,880	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- A	**19,64,880**	
B	**LABORATORY STUDIES**						
i	Preparation of thin section	Nos	4.3.1	2,353	124	2,91,772	
ii	SEM/EDS (40 Nos. of samples) 4 hrs for 1 samples	Per Hour	4.4.2	2,940	160	4,70,400	
iii	XRF	Nos	4.1.15a	4,200	100	4,20,000	
iv	EPMA (40 Nos. of samples)	Per Hour	4.4.1	8,540	120	10,24,800	
v	ICP-MS	Nos	4.6.3	8,540	60	5,12,400	
vi	LA-ICP-MS	Nos	4.6.3	8,540	40	3,41,600	
vii	MC-ICP-MS	Nos	4.6.3	8,540	40	3,41,600	
viii	Sulphur/carbon isotope analysis by Mass Spectrometer per sample	Nos	4.6.1	25,340	30	7,60,200	

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ix	Carbon/oxygen isotopic analysis by Mass Spectrometer per sample	Nos	4.6.2	24,360	30	7,30,800	
					Sub Total- B	**48,93,572**	
					Total A to B	**68,58,452**	
C	**Preparation of Exploration proposal**	**5 Hard copies with a soft copy**	**5.1**	2% of the approved project cost or 3.8 Lakh whichever is lower		**1,37,169**	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.
D	**Geological Report Preparation**	**5 Hard copies with a soft copy**	**5.2**	For the projects having cost up to exceeding Rs. 50 Lakhs but less than 150 Lakhs: A Minimum of Rs. 2.5 lakhs or 5% of the work whichever is more and Rs. 3000/- per each additional copy.		**3,42,923**	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
E	**Total Estimated Cost without GST**					**73,38,544**	
F	**Provision for GST (18%)**					**13,20,938**	GST will be reimbursed as per actual and as per notified prescribed rate
	Total Estimated Cost with GST					**86,59,481**	***or Say Rs. 86.59 Lakh***
NOTE-							
1	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.						
2	NEA has to take permission before publishing any geoscientific work data in any scientific publication.						

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Annexure-4B

Reconnaissance survey (G4) for Genesis of BIF-hosted high grade iron ores of the Bailadila Deposits with special reference to geological controls on mode of occurrence of Ore-Beneath-Ore and implications on future game changing exploration in India.

S. No.	Activities	First Year Months													Second Year Months											
		1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12
1	Remote sensing													REVIEW												
2	Field work																									
3	Core Sampling																									
4	Geologist days in field																									
5	Study of Cross Section &Sliceplans																									
6	Sample Prepration																									
7	Thin section prepration& studies																									
8	Ore Microscopic Studies																									
9	Laboratory Studies (sample preparation, analysis)																									
10	Analysis (EPMA, ICP-MS, LA -ICP)																									
11	Isotope Analysis																									
12	Geologist days in HO																									
13	Geological Report Preparation																									

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Annexure-5A

Estimated cost for Reconnaissance survey (G4) for phosphorite in Ram Ka Munna area (40 sq. km) District: Banswara, Rajasthan.

S. No.	Item of Work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal for FY 22-23		Remarks
			SoC-Item -Sl No.	Rates as per SoC	Qty.	Total Amount (Rs)	
A	**GEOLOGICAL WORK**						
1	**Mapping (1:10,000), Borhole logging, sampling & report writing**						
a	Charges for one Geologist per day at HQ for monitoring, data processing etc.	day	1.3	9,000	60	5,40,000	
b	Charges for Geologist per day at field for mapping, channel sampling and logging.	day	1.3	11,000	120	13,20,000	
c	Labour Charges (4 Nos) for two Geologist; Base rate - Rs. 443/ per day	day	5.7	443	240	1,06,320	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher Calculated on the basis of 2 party's
d	Charges for Sampler (1 party)	one sampler per day	1.5.2	5,100	20	1,02,000	
e	Labour Charges (4 Nos) for Sampling Work; Base rate - Rs. 437/ per day	day	5.7	437	80	34,960	Amount will be reimbursed as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- A	**21,03,280**	
B	**LABORATORY STUDIES**						
1	**Chemical Analysis**						
i	**Primary samples (BRS/Channel)**						
	a. For 5 radicals i.e. P2O5, SiO2, Al2O3, Fe2O3 and LOI	Nos	4.1.3	9,805	150	14,70,750	
ii	**Check samples Internal (5%) and External(10%)**						
	a. For 5 radicals i.e. P2O5, SiO2, Al2O3, Fe2O3 and LOI	Nos	4.1.3	9,805	23	2,25,515	

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iii	**Petrographic Study**						
a	Preparation of thin section	Nos	4.3.1	2,353	10	23,530	
b	Study of Thin Section	Nos	4.3.4	4,232	10	42,320	
		Nos					
iv	Digital Photographs	Nos	4.3.7	280	10	2,800	
v	Whole rock analysis (Major oxides)	No.	4.1.15a	4,200	5	21,000	
					Sub Total- B	**17,85,915**	
					Sub Total- A + B	**38,89,195**	
C	Geological Report Preparation		5.2	For the projects less than Rs. 50 Lakhs: A Minimum of Rs. 1.5 lakhs or 5% of the work whichever is more	1	**1,94,460**	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
D	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	1	**77,784**	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.
E	Peer review Charges		As per EC decision			**10,000**	
F	Total Estimated Cost without GST					**41,71,439**	
G	Provision for GST (18% of GST)	%				**7,50,859**	GST will be reimbursed as per actual and as per notified prescribed rate
H	Total Estimated Cost with GST					**49,22,298**	***or say Rs. 49.23 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.							

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Annexure-5B

Scheduled time for Reconnaissance survey (G4) for phosphorite in Ram Ka Munna area (40 sq. km) District: Banswara, Rajasthan.

S. No.	Activities	Unit	MONTHS											
			1	2	3	4	5	REVIEW	6	7	8	9	10	11	12
1	Camp Mobilisation	Month													
2	Geologist Days-Field	Day													
3	Trenching	Cu. M													
4	Drilling	m													
5	Laboratory Studies	Nos.													
6	Sampling Party	day													
7	Camp Demobilisation	Month													
8	Geologist days in HQ	day													
9	Geological Report Writing with Peer review	Month													

Note: 1. Commencement of project may be reckoned from the day the exploration acreage is available along with all statutory clearances.

2. Time loss on account of monsoon/agricultural activity/forest clearance/local law & order problem may be additional to above time line.

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Annexure-6A

Estimated cost for Reconnaissance Survey (G4) for tin and associated minerals in Pendra block (110.362 sq. km), District: Gaurela-Pendra-Marwahi [Bilaspur], Chhattisgarh.

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**						
a	Charges for one Geologist per day at HQ for monitoring, data processing etc. (1 no.)	day	1.3	9,000	60	5,40,000	
b	Charges for one Geologist per day at field for mapping, channel sampling and logging (1 no./1 party)	day	1.3	11,000	150	16,50,000	
c	Labour (2 Nos) Base rate - Rs.437/-	day	5.7	437	300	1,31,100	Amount will be reimbursed as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
e	Charges for one Sampler for geochemical, channel and core samples	one sampler per day	1.5.2	5,100	50	2,55,000	
f	Labours (4 Nos) Base rate - Rs. 431/-	day	5.7	437	200	87,400	Amount will be reimbursed as per the notified rates for unskilled labor by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- A	**26,63,500**	
B	**DRILLING**						
1	Auger drilling soft strata upto 150m depth	m	2.2.2	4,760	500	23,80,000	Will be done after review of mapping, geochemical sampling & analytical work and Geophysical Survey
2	Transportation of Drill Rig & Truck associated per drill (1 rigs)	Km	2.2.8	36	1,650	59,400	1650km to & fro from Nagpur/ Rig Certification in this regard is required to be provided
3	Monthly Accommodation Charges for drilling Camp (up to 2 Rigs)	month	2.2.9	50,000	3	1,50,000	
4	Drilling Camp Setting Cost	Nos	2.2.9a	2,50,000	1	2,50,0002	

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5	Drilling Camp Winding up Cost	Nos	2.2.9b	2,50,000	1	2,50,000	
					Sub Total- B	**30,89,400**	
C	**LABORATORY STUDIES**						
1	**Chemical Analysis**						
I	**Primary & Check Samples from Surface outcrop and steam sediments**						
i)	**Primary samples**						
	a. 34 Elements of ICPMS	Nos	4.1.14	7,731	200	15,46,200	
ii)	**Internal Check Samples**						
	a. 34 Elements of ICPMS	Nos	4.1.14	7,731	10	77,310	
iii)	**External Check Samples**						
	a. 34 Elements of ICPMS	Nos	4.1.14	7,731	20	1,54,620	
III	**Primary & Check Samples from Drill Core**						
i)	**Primary samples + 15% Check**						
	a. 34 Elements of ICPMS	Nos	4.1.14	7,731	200	15,46,200	
ii)	**Internal Check Samples**						
	a. 34 Elements of ICPMS	Nos	4.1.14	7,731	10	77,310	
iii)	**External Check Samples**						
	a. 34 Elements of ICPMS	Nos	4.1.14	7,731	20	1,54,620	
2	**Physical & Petrological Studies**						
i)	Preparation of thin section	Nos	4.3.1	2,353	10	23,530	
ii)	Complete petrographic study report	Nos	4.3.4	4,232	10	42,320	
iii)	Preparation of Polished Section	Nos	4.3.2	1,549	10	15,490	
iv)	Complete Mineragraphic study report	Nos	4.3.4	4,232	10	42,320	
iii)	Digital Photographs	Nos	4.3.7	280	10	2,800	
iv)	Whole Rock Analysis (Major Oxides	Nos	4.1.15a	4,200	10	42,000	
					Sub Total- C	**37,24,720**	
					Total A to C	**94,77,620**	

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D	Geological Report Preparation	5 Hard copies with a soft copy	5.2	For the projects having cost less than Rs. 150 lakhs - A minimum of Rs. 2.5 lakhs or 5% of the value of work whichever is more and Rs 3000/- per each additional Copy		**4,73,881**	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
E	Peer review Charges		As per EC decision			**10,000**	
F	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		**1,89,552**	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.
G	Total Estimated Cost without GST					**1,01,51,053**	
H	Provision for GST (18%)					**18,27,190**	GST will be reimbursed as per actual and as per notified prescribed rate
I	Total Estimated Cost with GST					**1,19,78,243**	***or say Rs. 119.79 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.							

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Annexure-6B

Scheduled time for Reconnaissance Survey (G4) for tin and associated minerals in Pendra block (110.362 sq. km), District: Gaurela-Pendra-Marwahi [Bilaspur], Chhattisgarh.

S. No.	Activities		1	2	3	4	5	6	REVIEW	7	8	9	10	11	12
1	Camp Setting	Month													
2	Geological Mapping	Month													
3	Pitting /Trenching	Cu. m													
4	Surface Drilling (1 rig)	m													
5	Geologist days	Party days													
6	Sampling days	Party days													
7	Camp Winding	Month													
8	Laboratory Studies	Month													
9	Geologist days, HQ	Party days													
10	Report Writing with Peer Review	Month													
	* 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 and order problems will be addition to above time line.														

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Annexure-7A

Estimated cost for Reconnaissance survey (G4) for manganese ore in Taljuri-Gunchadihi block (80.0 sq. km), District: Balangir, Odisha.

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.	Amount (Rs)	
A	**GEOLOGICAL WORK (1:12,500 scale)**						
i	Charges for one Geologist- Field	day	1.2	11,000	150	16,50,000	
ii	Charges for one Geologist per- HQ	day	1.2	9,000	60	5,40,000	
iii	2 labours/ party (Rs 437/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	437	300	1,31,100	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
iv	Core Sampling -1 Samplers Labour charge not included	day	1.5.2	5,100	35	1,78,500	
v	4 labours/ party (Rs 437/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	437	140	61,180	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
				Sub Total- A		**25,60,780**	
B	**GEOPHYSICAL SURVEY**						
i	S.P. and Magnetic (8-20 km)	L. km.	3.3b	12,92,047	1	12,92,047	
ii	Charges for one Geophysicist per day at field	day	3.18	11,000	35	3,85,000	
iii	Charges for one Geophysicist per day at HQ	day	3.18	9,000	15	1,35,000	
iv	Surveyor Work	days	1.6.1a	8,300	35	2,90,500	
v	4 labours/ party (Rs 437/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	437	140	61,180	
				Sub Total- B		**21,63,727**	
C	**PITTING AND TRENCHING**						
i	Trenching (1m x 2mx 150 m)	Cu m	2.1.1	3330	100	3,33,000	
	Sub Total- C					**3,33,000**	

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D	**DRILLING**						
i	Drilling upto 300m (Hard Rock) (1 rigs)	m	2.2.1.4a	11,500	500	57,50,000	
ii	Land / Crop Compensation	per BH	5.6	20,000	8	1,60,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities
iii	Construction of concrete Pillar (12"x12"x30")	per borehole	2.2.7a	2,000	8	16,000	
iv	Transportation of Drill Rig & Truck associated per drill	Km	2.2.8	36	1,400	50,400	Certification in this regard is required to be provided
v	Monthly Accommodation Charges for drilling Camp (up to 2 Rigs)	month	2.2.9	50,000	3	1,50,000	
vi	Drilling Camp Setting Cost	Nos	2.2.9a	2,50,000	1	2,50,000	
vii	Drilling Camp Winding up Cost	Nos	2.2.9b	2,50,000	1	2,50,000	
viii	Approach Road Making (Flat Terrain)	Km	2.2.10a	22,020	4	88,080	Road Making will be considered as per the requirement and Road Making Charges will be reimbursed for max. 4 km.
Ix	Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes and corner points of block by DGPS	Nos	1.6.2	19,200	9	1,72,800	
x	One complete borehole plus mineralised core of all the remaining Bhs	m	5.3	1,590	150	2,38,500	This amount will be reimbursed after successful delivery of the cores to concerned libraries/authorities
					Sub Total- D	**71,25,780**	
E	**LABORATORY STUDIES**						
1	**Chemical Analysis**						
i	**Primary & Check samples for Manganese (BRS/Trench/Channel/Core)**						
A	Primary Samples for 6 radicals (Mn, SiO2, P2O5, Fe2O3, MnO2 and Insolubles)	Nos	4.1.7a + 7b	2,841	200	5,68,200	100 nos.- BRS/Channel/Trench & 100 nos. - Core samples
B	Internal (5%) Check samples for 6 radicals (Mn, SiO2, P2O5, Fe2O3, MnO2 and Insolubles)	Nos	4.1.7a + 7b	2,841	10	28,410	

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c	External (10%) Check samples from NABL Lab for 6 radicals (Mn, SiO2, P2O5, Fe2O3, MnO2 and Insolubles)	Nos	4.1.7a + 7b	2,841	20	56,820	
ii	**Primary & Check samples for Graphite**						
A	Proximate Analysis for Graphite (Ash, Moisture, V.M. and F.C.) for Primary Samples	Nos	4.1.16	3,000	50	1,50,000	25 nos. BRS/Channel/Trench & 25 nos.- Core sample
B	Proximate Analysis for Graphite (Ash, Moisture, V.M. and F.C.) for Internal (5%) Check Samples	Nos	4.1.16	3,000	3	9,000	
c	Proximate Analysis for Graphite (Ash, Moisture, V.M. and F.C.) for External (10%) Check Samples NABL Lab	Nos	4.1.16	3,000	5	15,000	
2	**Physical & Petrological Studies**						
i	Preparation of thin section	Nos	4.3.1	2,353	10	23,530	
ii	Complete petrographic study report	Nos	4.3.4	4,232	10	42,320	
iii	Preparation of polished 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	15	4,200	
vi	Whole Rock Analysis (Major oxide and 8 additional trace elements)	Nos	4.1.15a & b	7,568	10	75,680	
F					**Sub Total- E**	**10,02,065**	
					Total A to E	**1,31,85,352**	
G	Geological Report Preparation		5.2	For the projects having cost exceeding 50 lakhs and less than Rs. 150 - A minimum of Rs. 2.5 lakhs or 5% of the value of work whichever is more		**6,59,268**	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
H	Peer review Charges		As per EC decision			**10,000**	

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I	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		2,63,707.04	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.
K	**Total Estimated Cost without GST**					1,41,18,327	
J	**Provision for GST (18% of I)**					25,41,298.80	GST will be reimbursed as per actual and as per notified prescribed rate
K	**Total Estimated Cost with GST**					1,66,59,625.44	***or Say Rs. 166.60 Lakh***
Note:							
1	**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.**						

Annexure- 7B

Scheduled time for Reconnaissance survey (G4) for manganese ore in Taljuri-Gunchadihi block (80.0 sq. km), District: Balangir, Odisha.

S. No.		Months/Days	1	2	3	4	5	6		7	8	9	10	11	12	13	14
1	Camp Setting	months															
2	Geological Mapping	months															
3	Survey days	days															
2	Geophysical Work	months															
5	Trenching	cu. m															
6	Drilling (1 rig)	m															
7	Geologist days	days															
8	Sampling days, Core Sampling	days															
9	Camp winding	months															
10	Laboratory Studies	months															
11	Geologist days, HQ	days															
12	Report Writing with Peer Review	months															

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Annexure-8A

Estimated cost for Reconnaissance survey (G4) for manganese and associated minerals in Katori-Jhiriya block (140.22 sq. km), District: Balaghat, Madhya Pradesh.

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.	Amount (Rs)	
A	**GEOLOGICAL WORK (1:12,500 scale)**						
i	Charges for one Geologist- Field	day	1.2	11,000	180	19,80,000	
ii	Charges for one Geologist per-HQ	day	1.2	9,000	60	5,40,000	
iii	2 labours/ party (Rs 443/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	443	360	1,59,480	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
iv	Core Sampling -1 Samplers Labour charge not included	day	1.5.2	5,100	45	2,29,500	
v	4 labours/ party (Rs 443/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	443	180	79,740	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- A	**29,88,720**	
B	**GEOPHYSICAL SURVEY**						
i	Magnetic Survey (8-20 L Km)	Line Km	3.2a	1,800	450	8,10,000	25mx200m grid interval
ii	Charges for one Geophysicist per day at field	day	3.18	11,000	30	3,30,000	
iii	Charges for one Geophysicist per day at HQ	day	3.18	9,000	15	1,35,000	
iv	Surveyor Work	days	1.6.1a	8,300	30	2,49,000	
v	4 labours/ party (Rs 443/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	443	120	53,160	
					Sub Total- B	**15,77,160**	
C	**PITTING AND TRENCHING**						
i	Trenching (1m x 2mx 100 m)	Cu m	2.1.1	3330	100	3,33,000	
					Sub Total- C	**3,33,000**	

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D	**DRILLING**						
i	Drilling upto 300m (Hard Rock) (1 rigs)	m	2.2.1.4a	11,500	500	57,50,000	
ii	Borehole deviation Survey	m	2.2.6	330	-	-	deviation survey will be carried out at 5m interval
iii	Land / Crop Compensation	per BH	5.6	20,000	8	1,60,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities
iv	Construction of concrete Pillar (12"x12"x30")	per borehole	2.2.7a	2,000	8	16,000	
v	Transportation of Drill Rig & Truck associated per drill	Km	2.2.8	36	320	11,520	Certification in this regard is required to be provided
vi	Monthly Accommodation Charges for drilling Camp (up to 2 Rigs)	month	2.2.9	50,000	3	1,50,000	
vii	Drilling Camp Setting Cost	Nos	2.2.9a	2,50,000	1	2,50,000	
viii	Drilling Camp Winding up Cost	Nos	2.2.9b	2,50,000	1	2,50,000	
ix	Approach Road Making (Flat Terrain)	Km	2.2.10a	22,020	4	88,080	Road Making will be considered as per the requirement and Road Making Charges will be reimbursed for max. 4 km.
x	Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes and by DGPS	Nos	1.6.2	19,200	9	1,72,800	*8 Boreholes and 1 base station
xi	One complete borehole plus mineralised core of all the remaining Bhs	m	5.3	1,590	150	2,38,500	This amount will be reimbursed after successful delivery of the cores to concerned libraries/authorities
					Sub Total- D	**70,86,900**	
E	**LABORATORY STUDIES**						
1	**Chemical Analysis**						
i	**Primary & Check samples for Manganese (BRS/Trench)**						
	a. Primary Samples for 6 radicals (Mn, SiO2, P2O5, Fe2O3, MnO2 and Insolubles)	Nos	4.1.7a + 7b	2,841	325	9,23,325	225 nos. sample BRS/Trench/channel & 100 nos. Core samples

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	b-Internal (5%) Check samples for 6 radical (Mn, SiO2, P2O5, Fe2O3, MnO2 and Insolubles)	Nos	4.1.7a + 7b	2,841	16	45,456	
	c-External (10%) Check samples from NABL Lab for 6 radicals (Mn, SiO2, P2O5, Fe2O3, MnO2 and Insolubles)	Nos	4.1.7a + 7b	2,841	33	93,753	
ii	**Composite samples for Manganese**						
	a. Composite Samples for 6 radicals (Mn, SiO2, P2O5, Fe2O3, MnO2 and Insolubles)	Nos	4.1.7a + 7b	2,841	10	28,410	
2	**Physical & Petrological Studies**						
i	Preparation of thin section	Nos	4.3.1	2,353	10	23,530	
ii	Complete petrographic study report	Nos	4.3.4	4,232	10	42,320	
iii	Preparation of polished section	Nos	4.3.2	1,549	10	15,490	
iv	Complete mineragraphic study report	Nos	4.3.4	4,232	10	42,320	
v	Digital Photographs	Nos	4.3.7	280	20	5,600	
vi	Whole Rock Analysis (Major oxide and 8 additional trace elements)	Nos	4.1.15a & b	7,568	10	75,680	
					Sub Total- E	**12,95,884**	
F					**Total A to E**	**1,32,81,664**	
G	Geological Report Preparation		5.2	For the projects having cost exceeding Rs. 50 lakhs and less than Rs. 150 lakhs- A minimum of Rs. 2.5 lakhs or 5% of the value of work whichever is more		**6,64,083**	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
H	Peer review Charges		As per EC decision			**10,000**	
I	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		**2,65,633**	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.

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K	**Total Estimated Cost without GST**	**1,42,21,380**	
J	**Provision for GST (18% of I)**	**25,59,848.49**	GST will be reimbursed as per actual and as per notified prescribed rate
K	**Total Estimated Cost with GST**	**1,67,81,228.97**	***or say Rs. 167.82 Lakh***
Note:			
1	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.		

Annexure-8B

Scheduled time for Reconnaissance survey (G4) for manganese and associated minerals in Katori-Jhiriya block (140.22 sq. km), District: Balaghat, Madhya Pradesh.

S. No.		Months/Days	1	2	3	4	5	6		7	8	9	10	11	12	13	14
1	Camp Setting	months															
2	Geological Mapping	months															
3	Survey days	days															
2	Geophysical Work	months															
5	Trenching	cu. m															
6	Drilling (1 rig)	m															
7	Geologist days	days															
8	Sampling days, Core Sampling	days															
9	Camp winding	months															
10	Laboratory Studies	months															
11	Geologist days, HQ	days															
12	Report Writing with Peer Review	months															

Review

08/12/22

08/12/22