Ministry of Mines
National Mineral Exploration Trust

Minutes of the 29th Technical-cum-Cost Committee (TCC) meeting held on 11th and 12th March, 2021 through videoconferencing at Geological Survey of India, DGCO, A-II Pushpa Bhawan, New Delhi

The 29th meeting of Technical-cum-Cost Committee [TCC] 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 11th and 12th March, 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-I**.

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 and new TCC member Shri B. Saravanan, Additional Director, Atomic Mineral Directorate for Exploration and Research, DAE, Hyderabad. He briefly outlined the project proposals submitted by EAs for consideration of 29th TCC meeting.

Shri Janardan Prasad, ADG, GSI and Chairman, TCC welcomed the participants and new TCC member Shri B. Saravanan, Additional Director, AMDER, DAE, Hyderabad. Subsequently, the proceeding of meeting was initiated as per circulated agenda.

The agenda-wise discussion followed.

29.1: Technical evaluation of new project proposals:

29.1.1. (i) Preliminary Exploration (G3) for Copper ore and associated mineralisation in Bodal block, District- Rajnandgaon, Chhattisgarh.

(ii) Preliminary Exploration (G3) for Copper ore in Hiddar block, District- Rajnandgaon, Chhattisgarh.

a) It has been conveyed that, the major copper ore deposits of India mainly occur as copper porphyry in granite such as Malanjkhand Copper Deposit of Madhya Pradesh (Balaghat, districts) and as hydrothermal deposits associated with Proterozoic metasedimentary rocks such as Singhbhum Copper Belt, Jharkhand and Khetri Copper Belt, Rajasthan.

b) GSI had reported sulphide mineralisation in the Bailadila, Nandgaon and Chhattisgarh groups of rocks in parts of Rajnandgaon, Durg and Bastar Districts, Chhattisgarh in the geological reports published in 1981, 1983, 1995. Subsequently, Mineral Resource Department (MRD), Chhattisgarh has identified five potential areas viz. Belongi-Urgarhi, Gilgichha-Ettepal, Kotri, Chichola-Chandi Dongri, Karmasera-Khursipar for prospecting of copper, nickel, lead, PGE and associated metallic minerals. The Kotri area covering 4,960 sq. km is one of the expected potential area falling in parts of Rajnandgaon, Balod, Kanker, Kondagaon districts of Chhattisgarh.

27/05/21

c) In 2006, based on geochemical exploration over an area of 481.25 sq. km by Mobile Metal Ion technology, M/s Mira Exploration Private Limited had delineated an area of about 100 sq. km for further prospecting of Copper, Nickel, Lead, PGE and associated minerals, including Bodal (21.75 sq. km), Dumartola (28.10 sq. km), Hiddar (28.60 sq. km) and Bhagwantola (26.90 sq. km).

d) Based on the detailed deliberations the following recommendations have been made by the committee which needs to be attended before resubmitting the proposal to the committee:

i. The geological/ geochemical map of 481.25 sq km and delineated 100 sq. km area within it with all sampling points be incorporated in the proposal.

ii. It is mentioned that 17 sample points of Bodal Block and 16 sample points of Hiddar Block indicated more than 2000 ppb of copper. Those sampling points may be shown on the map.

iii. Kattapar Shear Zone needs to be shown on map along with the sample location points wherein analytical values of Pb (0.15% to 1.5%) and Ag (0.1ppm to 0.5ppm) have been reported. Besides these, the trench locations also required to be marked in the map along with analytical results of the samples for ready reference.

iv. The NGCM map of GSI needs to be checked and verified whether results from M/s Mira Pvt Ltd are in congruence with the NGCM results of GSI. A comparative statement needs to be included in the proposal.

v. The committee opined that neither of the two blocks [Bodal and Hiddar] warrant any G3 stage investigation on the basis of presented geoscience data. Committee further suggested to take up a G4 stage program by amalgamating all the four blocks [Bodal, Dumartola, Hiddar and Bhagwantola] over an area of 100 sq. km. If there is no plan of taking up Dumartola and Bhagwantola in future then area of Bodal Block and Hiddar Block may be taken up together to prepare a programme for G4 stage investigation.

vi The committee suggested to include all the data generated through survey work by M/s Mira Pvt Ltd and GSI as background information in the project proposal.

vii. Committee also suggested to go through the RP Report of M/s Meera Exploration Ltd. to check whether any other component has been attempted except geochemical work by the agency to accomplish G4 stage of investigation.

The committee suggested to resubmit a fresh project proposal for G4 stage exploration covering all the four blocks [Bodal, Dumartola, Hiddar and Bhagwantola] over an area of 100 sq. km on 1: 25,000 scale by including all geoscience data generated by different agencies.

27/05/21

29.1.2. General Exploration (G2) for copper ore in Dhanota Block, Southern Khetri Copper Belt, District- Jhunjhunu, Rajasthan.

a) It has been submitted that the area is represented by the rocks of Alwar Group, Ajabgarh Group and intrusives of post Delhi Supergroup and copper mineralisation is confined to amphibole quartzite, garnetiferous amphibolites and albitised fault zone.

b) Exploration carried out by GSI has revealed that the Khetri Copper Belt extends towards northeast under alluvium cover from Singhana to Muradpur and Pacheri area over a strike length of about 12 km. The rock types exposed in the area includes felspathic quartzite, amphibole-biotite quartzite, amphibolite-magnetite rock, silicified basic rocks, carbonate rock, volcanic breccia, andalusite-biotite schist, biotite schist, phyllite with inter-layers of massive quartzite, carbon phyllite and flaggy sericitic quartzite.

c) The Dhanota area was mapped/explored by GSI during FS: 1960-63. It has been informed that the borehole intersected the oxidized mineralized zones at 350m RL however, the core recovery was very poor (~20%) due to the nature of shear zone. The block was taken up again during FS: 2009-10 by GSI and two boreholes were drilled with very poor core recovery pointing to very low level of confidence in establishing mineral occurrence/ore zones. No significant resources could be established.

d) It has been informed that the Dhanota area with old workings is a wide zone of Gossan which can be traced over a distance of 730 m with maximum width of 240m. Various iron oxides, limonite, pseudomorphs of pyrite have been occasionally found in the area. Two surface samples collected from limonitic material yielded 0.36% to 0.37% Cu. Two grab samples collected from extreme southwestern end of the gossan showed 0.13% and 0.07% Cu. A limonitic sample collected at a depth of 55 m from a deep old working near in the south-western hill yielded 0.61% Cu.

e) Based on the deliberations and discussion, the committee suggested to take up the project for G3 stage of exploration. Further, as GSI map on 1:2,000 scale is available then the topographical survey and mapping component may be removed from the proposal. The committee suggested to include five bore holes [PBH 1, PBH 2, PBH 5, PBH 10 and PBH 11] and two conditional boreholes [PBH 6 and PBH 7].

The Committee recommended the proposal for approval of Preliminary Exploration (G3) for copper ore in Dhanota Block, Southern Khetri Copper Belt, District- Jhunjhunu, Rajasthan, with estimated cost of Rs. 402.79 Lakh including GST in time schedule of 12 months for carrying out the proposed work and submission of report as per Annexure-IIA & IIB.

29.1.3. Preliminary Exploration (G3 Level) for copper ore in Singhana – Muradpur West intervening Block, District- Jhunjhunu, Rajasthan.

a) The proposed block is situated near the Singhana Extension Block – II which was explored by MECL and multiple prominent lodes have been established at 225mRL to -25mRL. Keeping in view the fact proposed block is adjacent to the already explored

25/07/21

potential block, an area of about 1.215 sq. km have been proposed by MECL for G3 stage exploration.

b) It has been conveyed that GSI has explored the 12 km long Singhana-Muradpur-Pacheri segment during FS: 1975-76 to FS: 1980-81 by drilling 51 boreholes with total meterage of 18471.25m. A total of 3.6 km strike length in Singhana block, 2 km strike length in Muradpur block and 100 m strike length in Pacheri block was covered either by close spaced or wide spaced boreholes.

c) Detailed exploration work was already carried out by GSI in the Singhana [west, central and east] blocks and copper resource of 3.06 MT with 0.83% Cu grade at 0.5% Cu cut-off and 0.49 MT with 1.11% Cu was established in the Singhana central sub block.

d) It is pertinent to mention that the resource was already estimated for the adjoining two blocks and it has been informed that the two blocks are very small and are not been auctioned yet.

e) The committee suggested that a study for suitability of auction of adjoining blocks of this area needs to be done by MECL in consultation with the state government of Rajasthan thereafter a revised proposal may be submitted, if deemed fit.

The committee suggested to resubmit the proposal in the next TCC meeting after carrying out study on suitability of auction of all three blocks in the area.

29.1.4. Reconnaissance survey (G4) for copper in Mincheri block (81.615 sq.km area) District- Ballari, Karnataka.

a) The proposal was discussed during the 28th TCC meeting wherein the Committee suggested to resubmit the proposal by incorporating all available geoscience data indicating signatures of copper mineralization in the area.

b) Now MECL has submitted revised proposal by including all available geoscience data available for the area.

c) After detailed deliberations the committee suggested to take up the G4 stage exploration with 1:12,500 scale mapping, extensive surface sampling and 500m scout drilling over a period of twelve months.

d) It has been decided that the progress of work will be reviewed after six months.

The Committee recommended the proposal for approval of Reconnaissance survey (G-4 stage) for copper in Mincheri block (81.615 sq.km area) District- Ballari, Karnataka with estimated cost of Rs. 203.48 Lakh including GST in time schedule of 12 months for carrying out the proposed work and submission of report as per Annexure-IIIA & IIIB.

29.1.5. Detailed exploration (G1) for tungsten in Khobna Block, District- Nagpur, Maharashtra.

a) The Khobna Tungsten block is located on the north-western margin of Sakoli Basin. The rocks of Sakoli Group comprise meta-sediments of Middle Proterozoic age with

27/05/21

phases of felsic and basic plutonism and volcanism. The rocks are highly deformed with three phases of folding and are extensively mylonitised, sheared and silicified. The Sakoli Group shows a regional framework of rare metallogeny of W, Nb, Ta, Sn. Various small to medium sized deposits have been identified at Kuhi, Khobna, Agargaon related to acid magmatism and scheelite mineralisation at Ranbori-Bhaonri-Kolari hosted in mafic volcanism with sphalerite and chalcopyrite.

b) It has been conveyed that the area is covered by 3-4 m thick laterite capping and does not exhibit any surface rock exposure. The quartz chlorite mica schist with porphyroblasts of garnet and magnetite is the host rock, which is affected by granitic activity leading to the formation of 15 m to 65 m thick greisen zones. These greisen zones are conformable to the schistosity.

c) The Khobna prospect (strike length of 1100m) was discovered by GSI in 1978 and explored by trenching and drilling (F.S. 1982-85). The work carried out includes detailed mapping of 0.7 sq. km on 1:2,000 scale, 16 boreholes involving 3311.70 m of drilling at 100 m spacing over a strike length of 600m. Furthering this a follow up detailed exploration was carried out by MECL and BRGM. A prefeasibility report is also in place. The resource has been estimated for a strike length of 400m and vertical depth of 150m.

d) The main lenses have been explored by close spaced drilling i.e. at 50m interval and those are tested by 3 deep pits to establish the relation between oxidized and primary zones and to collect large quantity of bulk sample for pilot scale ore beneficiation studies.

e) It is pertinent to mention that the MEMC guideline states that for vein type and lensoidal bodies of mineralization the exploration with 50m strike interval of boreholes can be categorized as G1 stage of investigation. Therefore this area doesn't warrant any further exploration by drilling.

The committee recommended not to take up further detailed exploration (G1) for tungsten in Khobna Block, District- Nagpur, Maharashtra.

29.1.6. Detailed exploration (G1) for Tungsten ore in Agargaon block, District- Nagpur, Maharashtra

(a) GSI has carried out exploration work in this block from 1965 to 1977. Afterwards this work was categorized under G3 stage of MEMC rule. The exploration carried out by GSI involved 24 boreholes with 3050.16m drilling, crosscut, shaft, drive, beneficiation study of one tonne shaft sample and four tonnes trench samples. Continuity of ore was established up to the depth of 121 m.

(b) Subsequently, the G2 stage work was carried out by MECL along 320m strike length of the zone through geological mapping over 3.0 sq km area on 1:1000 scale, with 7 boreholes and beneficiation studies.

(c) Presently MECL proposed to carry out drilling along the 320 m strike length with 25 m strike spacing. MECL has proposed to carry out 7,960 m drilling in 47 nos. of boreholes with 200 m vertical depth at every 30 m vertical depth of intersection.

27/05/21

(d) The committee suggested that as per MEMC rules there is no scope for further exploration in the proposed block.

The committee recommended not to take up further detailed exploration (G1) for Tungsten ore in Agargaon block, District- Nagpur, Maharashtra.

29.1.7. Preliminary Exploration (G3) for Rare Metals and REE in Bisariya-Bansaruli-Jamtoli Area, District- Ranchi, Jharkhand.

a) The project proposal was discussed during the 28th TCC meeting wherein CMPDI was suggested to resubmit the proposal after including the recommendations /suggestions of the committee. Now CMPDI has resubmitted the proposal for deliberation of TCC.

b) It is pertinent to mention that during FS:1999-2000, GSI had surveyed the area covering Kotam, Kutru, Bisariya, Sundil, Itihasa, Kita, Paharsingh, Kasidih, Losera, Ajaygarh, Ranudaru, Tati and Dublaberatoli in parts of toposheet nos. 73 E/11 and 73E/15 to identify the area for REE and RM mineralisation in pegmatite and related rocks.

c) Based on the indicative mineralisation, GSI had carried out exploration in and around Kotam-Kutru area in 2010-12 to assess RM and REE potentiality and the presence of minerals like allanite, apatite, beryl, columbite, epidote, fluorite, garnet, ilmenite, pollucite (?) and tourmaline were confirmed.

d) The Kotam-Bisariya area falls in southern part of Chhotanagpur Gneissic Complex (CGC) terrain and western part of the E-W trending North Purulia Shear Zone (NPSZ). The area is represented by moderate to gentle undulating topography. Most of the area is soil covered with limited exposures of thin pegmatite and aplite, quartz veins, quartzite, granite gneiss, meta-sedimentaries and meta-basic rocks.

e) Committee suggested to prepare a map of the area with detailed data on lithology and structure in 1:4,000 scale.

f) It has been conveyed that the bedrock samples from Pegmatite bodies has shown mineralisation of REE and RM in the area. The Pegmatite bodies need to be demarcated through surface exposures and trenching.

g) A thick soil cover of 3-5m has been observed in the area, therefore pits may not help to expose total soil section and the bedrock lying below it. Instead by augur drilling through the section of soil cover along with the talus and scree zones samples may be collected for analyses. A few selective short boreholes may be planned to drill the bedrock below which are doubted as contributor of some REE minerals and Rare Metals. Sample length may be maintained at maximum one metre.

h) Committee also suggested to work in close coordination with GSI as the proposed block is adjacent to the block of GSI.

i) The progress of work will be reviewed after eight months.

The Committee recommended the proposal for approval of **Preliminary Exploration (G3) for Rare Metals and REE in Bisariya-Bansaruli-Jamtoli Area, District- Ranchi,**

27/05/21

Jharkhand *with estimated cost of Rs. 398.91 Lakh including GST in time schedule of 18 months for carrying out the proposed work and submission of report as per Annexure-IVA & IVB.*

29.1.8. Proposal for Implementation of National Geoscience Data Repository (NGDR)

a) As per the proposal, National Geoscience Data Repository (NGDR) is a flagship initiative conceptualized by Ministry of Mines as a part of National Mineral Exploration Policy (NMEP), 2016. It was envisaged in NMEP 2016 that all geological, geochemical, geophysical and mineral exploration data will be made available in public domain on a single GIS compatible digital platform. Accordingly, NGDR was envisaged which will collate all baseline and mineral exploration information generated by various central and state govt. agencies, mineral concession holders and maintain in a geospatial database. This database will be made available in public domain with appropriate mechanism (NGDR portal) for free access. Accordingly, GSI was entrusted to set up the NGDR.

b) Keeping in view the positive cascading effect of NGDR in the field of mineral exploration, GSI has proposed to establish the NGDR at an estimated cost of Rs. 33.00 Cr within a time period of 18 months which includes the cost of IT-infrastructure. The project includes cost of IT H/W (CAPEX), Network cost (CAPEX), S/W (CAPEX), S/W (Year 0 to year 6.5), O&M, Bandwidth cost, Development cost, Digitization cost, Database creation and standardization.

c) GSI has conveyed that the NGDR application initially shall be made operational on NIC/ MeitY IT Infrastructure [MEGHRAJ] and all the technologies shall be on cloud as per the guideline and specifications of MeitY.

d) It is pertinent to mention that the exploration projects comprise various scientific methods of searching and locating mineral concentrated by natural geological processes and specifically aimed at finding mineral commodities. NGDR will collate all geoscience data and maintain in a geospatial database wherein post exploration activities including data are likely to be hosted.

e) The issue of admissibility of proposal on NGDR for discussion in TCC was also deliberated as it essentially constitutes development and implementation of IT ecosystem on a geospatial platform. In this regard the following facts have been considered:
   (i) NGDR was conceptualized by the Ministry of Mines and forms part of the policy statement of NMEP 2016.
   (ii) The successful implementation of NGDR has potential to have a path breaking effect on exploration ecosystem and will have cascading effect in mineral exploration activities and may attract investment in exploration domain.

f) Keeping this in view, the proposal was considered for discussion in 29th TCC meeting and following observations have been made:
   i. The NGDR does not have either the policy backing or the regulatory control to make the data sharing enforceable for the Central/State Govt. organizations and private exploration agencies. It is not obligatory for the exploration agencies, either Government or otherwise, to share or submit the exploration data and report to NGDR. There is need of policy guidelines for mandatory sharing of exploration data in totality with NGDR for all public and private exploration agencies.

ii. GSI has informed that the NGDR will be implemented by an autonomous scientific society, named 'BISAG (N). Responding to this, the members were unanimous that for NMET, GSI is the primary implementing agency and not BISAG (N), therefore, the onus of successful implementation of the project lies solely on GSI. If required, GSI may take necessary steps for selecting an agency to accomplish the project following the GFR -2017 provisions and GoI rules and procedures.

iii. The committee also opined that as this project involves complex IT process, the onus of ensuring the robustness of requisite technology, hardware, software rests with GSI as technical intricacies of the process is beyond the scope of TCC.

iv. The estimated cost of project [Rs 33 Cr.] includes Rs. 27.5 Cr plus applicable taxes for project and Rs. 5.5 Cr plus applicable taxes for Contingency @ 20%. TCC reiterated that it has no instrument to evaluate the reasonableness of IT-intensive cost. However, TCC observed that the provision for Contingency @ 20% is on higher side and it should be reduced to 5% (Rs.1.375 Cr). Hence the estimated cost of project should be restricted to Rs 28.875 Cr by including 5% contingency. Further, GSI should ascertain the reasonableness of cost.

v. In case SFC/EFC appraisal is warranted, same should be processed by GSI, as per laid down procedure. After completion of statutory clearances, the project proposal may be put up in EC for approval.

vi. The mineral exploration data available with different agencies is not in the required Mineral Exploration Reporting Template (MERT), hence the available data with public and private agencies be converted in the prescribed MERT format for sharing in NGDR.

vii. A steering committee, comprising IT experts and other technical members from GSI etc. needs to be in place to monitor and oversee the progress of the NGDR project during implementation phase and also to ensure smooth transition with proper knowledge transfer after six and half years.

viii. The NGDR will host all geoscience data including sensitive digital data, therefore, the data security protocols needs to be ensured by GSI while placing geoscience data in a Cloud Infrastructure.

ix. However, one of the TCC member Dr. Anjani Kumar opined that the proposal submitted by GSI pertained to capacity building / infrastructure development (although IT related) and beyond the Terms of Reference / Mandate of the TCC.

The National Geoscience Data Repository (NGDR) is a 'Cabinet Approved' initiative by Ministry of Mines as a part of National Mineral Exploration Policy (NMEP), 2016. In keeping with the international best practices of providing pre-competitive baseline geoscience data to the stakeholders, Ministry of Mines has designated Geological Survey of India as the nodal agency for the implementation of NGDR to collate all baseline and mineral exploration information generated by various central and state government agencies and also mineral concession holders and maintain these on a geospatial database. The creation and operationalization NGDR need not be viewed as GSI's internal project but as a ***'National Exploration Endeavor'*** and this does not essentially involve building up of large scale physical capital infrastructure, but only creation of geospatial baseline and exploration database for the benefit of all

27/05/21

the stake holders.

All other members either supported the view that the project cannot be construed as an infrastructure building project and was done to develop an IT ecosystem for management and sharing of geological data across the complete mining industry or did not submit any dissent on the matter.

As NGDR has potential to create a much desired ecosystem for ease of doing business in the field of high risk endeavor of mineral exploration, EC may consider approval of the project at an estimated cost of* Rs. 3407.25 *Lakhs including 18% GST provided by GSI in time schedule of 18 months as per Annexure VA and VB. Further, the reasonableness of the proposed cost may be ascertained by GSI as per extant provisions at the time of implementation of project.

29.2. Review of exploration work for the ongoing/completed projects

29.2.1. Review of the final report of Multi Sensor Aero-geophysical Survey Blocks 1 to 4.

a) The work carried out by GSI under Multi Sensor Aero-geophysical Survey over Blocks 1 to 4 has been reviewed by the committee. The technical members of Executive Committee have also attended the meeting during the review of the said NAGMP project.

b) RSAS, GSI made a brief presentation on outcome of aero-geophysical survey over blocks 1 – 4. It has been informed that about 110 potential blocks have been identified on the basis of NAGMP data interpretation over these four blocks.

c) Furthering this, GSI has conveyed that a pilot project is being launched to check the effectiveness of aero-geophysical data acquired through NAGMP survey.

d) After detailed deliberation the expert members have suggested following recommendations for implementation of NAGMP survey:

   i. GSI needs to correlate the aero geophysical data with the known mineralised zones or established mines for verification of effectiveness of data.

   ii. The depth of penetration of gravity and magnetic signals needs to be mentioned in the project proposal for Air-borne /Heliborne survey for clear interpretation of aero-geophysical data.

   iii. A detail development plan for identified 110 blocks needs to be prepared and submitted to EC. A national program covering all the 110 blocks may be prepared/ launched for further exploration. A standard operating procedure may be developed for further progress of work.

   iv. Phase I, which includes the aero-geophysical data acquisition should subsequently be covered with Phase II Heliborne data acquisition and further G4/G3 stage of exploration. In this regard a strategy needs to be finalised.

   v. All the data acquired through NAGMP survey may be placed in geospatial domain for easy access of stakeholders which may eventually be sued for interpretation and research.

27/05/21

vi. The NAGMP data indicating Uranium mineralisation needs to be shared with AMD for further exploration. AMD may be taken on board for further planning of projects in identified prospective zones.

The committee noted the outcome of the NAGMP project and its outcome over blocks 1-4 and suggested to attend the recommendations mentioned at preceding paragraphs.

29.2.2. Review of the final report of interpretation of airborne legacy data.

a) The outcome of the report and data interpretation of airborne legacy data have been presented by RSAS, GSI. It has been conveyed that total of 48 target areas were identified from the legacy data interpretation. These areas are merged and proposed as 23 blocks for further follow up surveys.

b) It has been informed that about 18,588 lkm covering 2,428 sq km area has been carved out for heliborne survey to conduct heliborne time domain EM along with magnetic survey over 8 mineral target blocks.

The outcome of data interpretation of airborne legacy data were discussed and committee suggested to submit the technical report along with recommendations for further stage of heliborne survey /exploration to NMET.

29.2.3. Reddipalaiyam limestone amalgamated Block [G3/G2], District- Ariyalur, Tamil Nadu [Implementing agency: KIOCL].

a) It has been conveyed that the assigned target have been successfully achieved and a resource of 124.89 MT have been established with average 49.19% CaO, 0.76% MgO, 4.23% SiO2 and 1.52% Al2O3. **The block is ready for auctioning**.

b) KIOCL has informed that an additional drilling of 203.5m have been carried out to establish the resource and an additional expenditure of Rs 20,07,362/- [including GST] have been incurred against the drilling, GI core boxes and core sampling party days.

The committee noted the outcome of the project and congratulated KIOCL for establishing the actionable limestone block in the state which will enhance the mineral wealth and generate employment in the state. The Committee also approved additional cost of Rs 20,07,362/- [including GST] which is 7.7% of actual approved cost of the project. The committee suggested DGM, Tamil Nadu to initiate the auctioning process for the said block.

29.2.4. Neerbudhihal limestone Block- East, [G4 stage] District- Bagalkote, Karnataka [Implementing agency: KIOCL].

a) It has been informed that the Neerbudhihal Limestone and Dolomite Block -East, was taken up for G4 level of mineral exploration to quantify and categorize limestone and dolomite resources. All the assigned targets have been successfully achieved by KIOCL.

b) Based on the BRS analysis, five potential zones have been identified in the area. The average CaO and MgO content of five zones is recorded to 26.19% and 3.09% respectively.
c) Limestone and dolomite deposits with CaO and MgO values lower than the threshold values as prescribed by IBM have been encountered in the block. Hence, no resource estimation have been carried out and no further exploration is recommended in the Block.

The Committee noted the outcome of the project and advised to submit the report to NMET.

29.2.5. Neerbudhihal limestone Block- West, [G4 stage] District- Bagalkote, Karnataka [Implementing agency: KIOCL].

a) It has been informed that the Neerbudhihal Limestone and Dolomite Block -West, was taken up for G4 level of mineral exploration to quantify and categorize limestone and dolomite resources. All the assigned targets have been successfully achieved by KIOCL.
b) Based on the BRS analysis, four potential mineralised zones have been delineated which yielded average CaO and MgO percentages of 35.54% and 10.85% respectively.
c) A total resource of 46.57 MT have been established at an average CaO and MgO content of 42.10% and 3.19 % respectively. The resource to overburden ratio of the borehole is 2.64.
d) KIOCL has informed that the active cement industries are operational in the area which depends on the limestone resources of Kaladgi-Bhima and Badami basins. Keeping this in view, KIOCL has requested to take up G3 stage exploration in the area for ensuring sustainable and legitimate mining.
e) The committee suggested to correlate the limestone and dolomite data for all the bore holes in the block. As the silica percentage is much higher, hence the resource may be used after suitable blending. High Magnesia bands needs to be marked in the map.

The committee noted the outcome of the project and suggested to submit the report to NMET after including suggestions /recommendation in the final report.

29.2.6. Review of geophysical survey work (G4) for manganese in Kumaipalli Block, District- Balangir, Odisha [Implementing agency: MECL].

a) The project on reconnaissance survey (G4) for manganese in Kumiapali Block, District-Bolangir, Odisha was approved in 17th EC meeting with estimated cost of Rs. 237.99 Lakhs including GST in time schedule of 12 months.
b) The geophysical survey has been carried out in the area and mineralised body of 120m dimension has been identified at an expected depth of 60 -120m.
c) MECL has requested the committee to take up the outsourced work through in-house resources and the cost of project may be revised.

27/05/21

The committee notes the work progress of the project. Regarding revision of work components through in-house resources, the committee suggested that a revised cost sheet needs to be submitted as per the extant guidelines of NMET for consideration of TCC in next TCC meeting.

29.3. Timeline extension of ongoing projects.

29.3.1. Lurena Bauxite (G3) Block, District- Surguja, Chhattisgarh [Implementing agency: DGM, Chhattisgarh].

DGM, Chhattisgarh informed that there is local law and order issue in the area and there is strong resistance from local peoples. Keeping this in view, six months extension up to 30.9.2021 have been sought for completion of project.

The committee noted the issue and recommended to approve six month extension up to 30.9.2021 for completion of project and submission of report.

29.3.2. Chendradadar Bauxite (G3) Block, District- Kabirdham, Chhattisgarh [Implementing agency: DGM, Chhattisgarh].

DGM, Chhattisgarh submitted that the assigned field components have been successfully completed and the analyses of REE samples is pending at laboratory. A time extension has been sought by DGM, Chhattisgarh for finalisation of report.

The committee noted the outcome of the report and recommended a timeline extension till 31.5.2021 for finalisation of report.

29.3.3. Gopaltola Iron Ore (G4) Block, District- Rajnandgaon, Chhattisgarh [Implementing agency: DGM, Chhattisgarh].

The DGM, Chhattisgarh informed that the field work could not be initiated due to requirement of forest clearance and requested to allow six month timeline extension for completion of project.

The committee suggested to initiate the field work and recommended a timeline extension of six month i.e. 30.9.2021 for finalisation of report.

29.3.4. (a) Mandipadu Limestone Block, Dachepalli (M), District- Guntur, Andhra Pradesh [Implementing agency: MERIT, AP].

(b) Mutyalampadu- Tangeda Limestone Block, Dachepalli (M), District- Guntur, Andhra Pradesh [Implementing agency: MERIT, AP].

(c) Tangeda Limestone Block, Dachepalli (M), District- Guntur, Andhra Pradesh [Implementing agency: MERIT, AP].

(d) Ramapuram Limestone Block, Dachepalli (M), District- Guntur, Andhra Pradesh [Implementing agency: MERIT, AP].

a) MERIT, AP informed that all the field components in all four blocks have been successfully completed.

25/05/21

b) The schedule timelines of these 4 projects have been delayed as the exploration block areas are covered with seasonal crops like red chilli and cotton crops in private patta lands and the farmers were strongly resisting to deploy drilling machines during crop season.

c) It has been informed that about 4000 samples are pending for analyses at RCA, laboratory, Kolkata. The analyses of samples have been delayed as the laboratory is situated in one of the COVID-19 hotspot and remained closed for considerable time period. In view of this the MERIT, AP sought a timeline extension of nine months.

After detailed deliberations and keeping in view the pendency of sample analyses, the Committee recommended for timeline extension up to 31.7.2021 for completion of pending work and finalisation of report for all the four blocks.

29.4. The meeting ended with vote of thanks by Director and Member Secretary, TCC, NMET.

27/05/21

List of TCC members attended 29th Technical-cum-Cost Committee (TCC) meeting of NMET held on 11th and 12th March, 2021 through videoconferencing at Geological Survey of India, DGCO, A-II Pushpa Bhawan, New Delhi

S. No.	Name/Designation	Status	Remarks
1	Shri Janardan Prasad, ADG & HoD, SR, GSI, Hyderabad	Chairman, TCC, NMET	Attended via videoconference
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	
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	Dr. L. P. Singh, Director, Geological Survey of India, DGCO, New Delhi	Member Secretary, TCC, NMET	Attended in person
10	Shri Amit Saran, Director, NMET, MoM	TCC Member	Attended via videoconference
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

Annexure-I

List of participants who attended 29th Technical-cum-Cost Committee (TCC) meeting of NMET held on 11th and 12th March, 2021 through videoconferencing / in person at Geological Survey of India, DGCO, A-II Pushpa Bhawan, New Delhi

S. No.	Name/Designation	Email ID	Contact No	Organisation
1	Shri Janardan Prasad, ADG & HoD, SR, GSI, Hyderabad	janardan.prasad@gsi.gov.in	7763800788	Chairman, TCC
2	Shri Ranjan Kumar Sinha, Controller General (Retd.) IBM, Noida	sinhark57@rediffmail.com	9421777637	Member, TCC
3	Shri Pradipta Tarafdar, DDG (Retd.) GSI, Kolkata	tarafdar.pradipta@gmail.com	9503088847	Member, TCC
4	Shri Manoranjan Mohanty, DDG (Retd.) GSI, Bhubaneshwar	manoranjanmoha@gmail.com	9483511287 8249014425	Member, TCC
5	Dr. J. V. Ramarao, DDG (GP) (Retd.) GSI, Hyderabad	rarajammi@gmail.com	9440691284	Member, TCC
6	Shri Anjani Kumar, (Retd.), MECL, Nagpur	anjanikumar1957.ak@gmail.com	9975350576	Member, TCC
7	Shri B. Saravanan, Additional Director, AMD, Hyderabad	addldir-op2.amd@gov.in	8987571606	Member, TCC
8	Shri Amit Saran, Director & HoD, NMET	amit.saran@nic.in	9717647259	Member, TCC
9	Dr. L. P. Singh, Director, GSI, New Delhi	nmet-tcc@gov.in	9490748249	Member Secretary, TCC
10	Shri P. K. Maharana, DGM (F), NALCO, Bhubaneshwar	pmaharana@rediffmail.com	8500669500	Member, TCC
11	Shri Vinay Pal, ACAO, GSI, New Delhi	palvinay009@gmail.com	8527368161	Member, TCC
12	Dr. Ranjit Rath, Director General, GSI	dg.gsi@gov.in	9818673530	GSI
13	Dr. B. K. Sahu, Dy.DG (G)	b.sahu@gsi.gov.in	9437568969	GSI, RSAS, Bengaluru
14	Shri Ashit Saha Dy.DG (G)	ashit.saha@gsi.gov.in		GSI
15	Shri Basab Mukhopadhyay, Dy.DG (G)	basab.mukhopadhyay@gsi.gov.in		GSI
16	Shri P. C. Dash, Dy.DG (G)	p.dash@gsi.gov.in	9903906363	GSI
17	Dr. Deshraj Trivedi, Senior Geologist	nmet-tcc@gov.in	9419244294	NMET
18	Shri Subhash Kumar, Senior Geologist	nmet-mines@gov.in	9868302624	NMET
19	Shri J. N. Moorthy, HOD, (Exploration)	gm-exploration@mecl.co.in		MECL, Nagpur
20	Smt. Ujjwala Sharma, Sr. Geologist	nmet-mines@gov.in	8957806004	MECL
21	Mr. Kailash Dongre, Joint Director (Geology)	kailashdongre.kd@gmail.com	9424282791	DGM, Chhattisgarh
22	Dr A. K. Panda, GM (Exploration)	gmexpl.cmpdi@coalindia.in	8987788782	CMPDI
23	Dr R. P. Singh, Mnager (Geology)	gm.exploration.cmpdil@gmail.com	8987789047	CMPDI
24	Shri Shiva Kumar M, SM (ME)	bmed@kioclltd.com	9481444686	KIOCL
25	Shri V. Koteswara Raju, Joint Director	ceo.merit@gmail.com		MERIT, AP
26	Shri Amit Sarkar	cmdcraipur@gmail.com	9748294212	CMDC, Raipur
27	Smt. Sukanya Chakarborty	cmdcraipur@gmail.com	8902288772	CMDC Raipur

Annexure-IIA

Estimated cost of Preliminary Exploration (G3) for Copper Ore in Dhanota Block, Southern Khetri Copper Belt, Jhunjhunu District, Rajasthan. Block area - 0.70 sq km; Nos. of Borehole- 07; Borehole depth range- 225m to 340m; Total Drilling- 2120m; 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-S. No.	Rates as per SoC	Qty.	Total Amount (Rs)	
A	**Geological work**						
1	**Borehole logging & sampling & report writing**						
a	Charges for one Geologist per day at HQ	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.427	day	5.7	427	240	1,02,480	Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
2	**Survey (on 1:2000 Scale)**						
a	Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes by DGPS and 4 points of Block Boundary	Per Point of observation	1.6.2	19,200	7	1,34,400	
b	Charges of one Surveyor (1 Party)	one surveyor per day	1.6.1a	8,300	10	83,000	
c	Labours (4 Nos.) Base rate - Rs.427	day	5.7	427	160	68,320	Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
d	Charges for one Sampler per day (1 Party)	one sampler per day	1.5.2	5,100	40	2,04,000	
e	Labours (4 Nos.) Base rate - Rs.427	day	5.7	427	160	68,320	Amount will be reimburse as per the notifiec rates by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- A	**25,20,520**	

B	**Borehole Geophysical Logging**						
1	Base log	Per m	3.11a	151	2,120	3,20,120	
2	Induced Polarization (I.P)	Per m	3.11p	93	2,120	1,97,160	
3	Resistivity	Per m	3.11c	39	2,120	82,680	
4	SP	Per m	3.11b	39	2,120	82,680	
					Sub Total- B	**6,82,640**	
C	**Drilling**						
1	Drilling (Medium Hard Rock)	m	2.2.1.4a	11,500	1,950	2,24,25,000	
	Drilling between depth of 301-600m	m	2.2.1.4b	12,420	170	21,11,400	
2	Borehole deviation Survey by Multishot Camera	m	2.2.6	330	2,120	6,99,600	
3	Land / Crop Compensation (in case the BH falls in agricultural Land)	per BH	5.6	20,000	7	1,40,000	Amount will be reimbursed as per actuals 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	7	14,000	
5	Transportation of Drill Rig & Truck associated per drill	Km	2.2.8	36	4,600	1,65,600	certification in this regard is required to be provided
6	Monthly Accommodation Charges for drilling Camp (up to 2 Rigs)	month	2.2.9	50,000	8	4,00,000	certification of deployment of drill rigs are required
8	Drilling Camp Setting Cost	Nos	2.2.9a	250,000	2	5,00,000	
9	Drilling Camp Winding up Cost	Nos	2.2.9b	250,000	2	5,00,000	
10	Road Making (Flat Terrain)	Km	2.2.10a	22,020	15	3,30,300	Road Making will be considered as per the requirement but not more than the provided kms in the cost sheet. Road Making Charges will be reimbursed accordingly.
11	Drill Core Preservation	per m	5.3	1,590	500	7,95,000	
					Sub Total- C	**2,80,80,900**	
D	**Laboratory studies**						
1	**Chemical Analysis**						
i)	**Primary samples**						
	a. For Cu, Ni & Co	Nos	4.1.7a	2,506	250	6,26,500	
	b. For W	Nos	4.1.7a	2,506	50	1,25,300	

	c. For Au (Gold) and Ag by Fire Assay	Nos	4.1.5a	4,760	50	2,38,000	The rate for Au (Gold) by Fire Assay is Rs. 2380/-
ii)	**Check samples Internal (5%) and External (10%)**						
	a. For Cu, N & Co	Nos	4.1.7a	2,506	38	93,975	
	b. For W			2,506	8	18,795	
	c. For Au (Gold) by Fire Assay	Nos	4.1.5a	4,760	8	35,700	The rate for AU(Gold) by Fire Assay is Rs. 2380/-
iii)	**Composite Samples**						
	a) For 5 Radicals (Cu, Ni, Co , W Mo)	Nos	4.1.7a	2,506	25	62,650	
2	**Petrological samples (Surface & Bh Core Samples)**						
i	Preparation of thin section	Nos	4.3.1	2,353	20	47,060	
ii	b) Study of Thin Section	Nos	4.3.4	4,232	20	84,640	
3	**Mineragraphic Studies (Surface & Bh Core Samples)**						
a	Preparation of polished section	Nos	4.3.2	1,549	20	30,980	
b	Study of Po shed Section	Nos	4.3.4	4,232	20	84,640	
c	Digital Photographs	Nos	4.3.7	280	20	5,600	
4	**Specific Gravity Determination**						
	Specific Gravity Determination	No.	4.8.1	1,605	15	24,075	
					Sub Total- D	**14,77,915**	
					Total A + B + C + D	**3,27,61,975**	
E	**Geological Report Preparation**	5 Hard copies with a soft copy	**5.2**	For the projects having cost more than Rs. 300 lakhs- A minimum of Rs. 9 lakhs or 3% of the value of work whichever is		**9,82,859**	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.

				more subject to Max. Rs. 20 lakhs			
F	**Peer review Charges**		**As per EC decision**			**10,000**	
G	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**	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.
H	**Total Estimated Cost without GST**					**3,41,34,834**	
I	**Provision for GST (18% of H)**					**61,44,270**	GST will be reimburse as per actua and as per notified prescribed rate
J	**Total Estimated Cost with GST**					**4,02,79,104**	***Or Say Rs. 402.79 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.							

Annexure-IIB

S. No.	Activities	MONTHS											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Camp Setting												
2	Core Drilling (2 rigs)												
3	Borehole Geophysical Studies												
4	Survey Party days												
5	Geologist Party days (1 Party)												
6	Sampling Party days, Core Sampling (1 Party)												
7	Camp Winding												
8	Laboratory Studies												
9	Geologist Party days (1 Party), HQ												
10	Report Writing												

Annexure-IIIA

Estimated cost for Reconnaissance Survey (G4) for Copper (Cu) in Mincheri Block, Ballari District, Karnataka. Total block area- 81.615 sq km; 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- S. No.	Rates as per SoC	Qty.	Total Amount (Rs)	
1.0	**Geological Mapping, Other Geological Work**						
	a) Geologist man days (1 No) for Geological Mapping (Field)	days	1.2	11,000	150	16,50,000	
	b) Labour (field) for Geological mapping work (2 workers per one geologist)	per worker	5.7	427	300	1,28,100	Amount will be reimburse as per the notified rates 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	5,100	75	3,82,500	
	d) Labour for Sampling work	day	5.7	427	300	1,28,100	Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- A	**22,88,700**	
2.0	**Mineral Investigation**						
2.1	Trenching/Pitting						
	a) Excavation of trenches & pits	per cu m	2.1.1	3,330	200	6,66,000	
					Sub Total- B	**6,66,000**	
3.0	**Drilling**						
3.1	a) Drilling up to 300m (1 Rig) (Medium Hard Rock)	per m	2.2.1.4 a	11,500	500	57,50,000	drilling will be done after the review of the geological work
3.2	Borehole deviation survey	per m	2.2.6	330	500	1,65,000	
3.3	Borehole pillaring						
	a) construction of concrete pillar (12"x12"x30")	per borehole	2.2.7.a	2,000	5	10,000	
3.4	Transportation of drill rigs & truck associated per drill (To & Fro from HQ)	per km	2.2.8	36	1,800	64,800	certification in this regard is required to be provided
3.5	Monthly accommodation charges for drilling camp	monthly	2.2.9	50,000	5	2,50,000	certification of deployment of drill rigs are required
3.6	a) Drilling camp setting (1 rig)	per drill	2.2.9a	2,50,000	1	2,50,000	

3.7	b) Drilling camp winding (1 rig)	per drill	2.2.9b	2,50,000	1	2,50,000	
3.8	Approach road making in rugged- hilly terrain (Partly rugged-hilly terrain)	per km	2.2.10b	32,200	5	1,61,000	Road Making will be considered as per the requirement but not more than the provided km in the cost sheet. Road Making Charges will be reimbursed accord ngly.
3.9	Drill core preservation	per m	5.3	1,590	150	2,38,500	This amount will be reimbursed after successful delivery of the cores to concerned libraries/authorities
3.10	Land/crop compensation	per borehole		20,000	5	1,00,000	Amount will be reimbursed as per actuals or max. Rs 20000 per BH with certification from local authorities
3.11	Demarcation Fxation of borehole and determination of co-ordinates & Reduced Level (RL) of the boreholes by DGPS (including charges for labours deployed for the work)	Per point of observation	1.6.2	19,200	5	96,000	the area surrounding mineralized zones (ore bodies)/potential area will be contoured
					Sub Total- B	**73,35,300**	
4.0	**Laboratory Studies**						
4.1	Chemical Analysis						
a	**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	300	23,19,300	
	b) For Au & Ag (Gold) by Fire Assay	per sample	4.1.5a	4,760	60	2,85,600	
	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	45	3,47,895	
	b) For Au & Ag (Gold) by Fire Assay	per sample	4.1.5a	4,760	9	42,840	
b	**Pit & Trench, Primary Samples**					-	
	a) 34 element Package analysis by ICP-MS for surface samples	per sample	4.1.14	7,731	200	15,46,200	
	b) For Au & Ag (Gold) by Fire Assay	per sample	4.1.5a	4,760	30	1,42,800	
	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	30	231,930	
	b) For Au & Ag (Gold) by Fire Assay	per sample	4.1.5a	4,760	5	21,420	
c	**ii) BH Core Sampling, Primary & Check samples (5% internal +10% External)**						
	a) For Cu, Pb, Zn, Co, Mo	per sample	4.1.7b	2,506	50	125,300	
	b) For Au & Ag (Gold) by Fire Assay	per sample	4.1.5a	4,760	10	47,600	
	ii) Check Samples- 5% Internal & 10% External						
	a) For Cu, Pb, Zn	per sample	4.1.7b	2,506	5	12,530	
	b) For Au & Ag (Gold) by Fire Assay	per sample	4.1.5a	4,760	5	23,800	
4.2	**Petrological / Mineralographic studies**						
	a) Preparation of thin section	per sample	4.3.1	2,353	10	23,530	
	b) Study of thin section for petrography	per sample	4.3.4	4,232	10	42,320	
	c) Preparation of polished section	per sample	4.3.2	1,549	10	15,490	
	d) Study of polished section for mineragraphy	per sample	4.3.4	4,232	10	42,320	
	e) Digital photomicrograph of thin polished section	per sample	4.3.7	280	10	2,800	
					Sub Total- D	**52,73,675**	
5.0	**Geologist man days (1 No.) for (HQ)**	**days**	1.2	**9,000**	**60**	**5,40,000**	
					Total- (A + B + C + D)	**1,61,03,675**	
6.0	**Geological Report Preparation**	Nos	5.2	For the projects having cost more than Rs. 150 lakhs but less than Rs. 300 Lakh - A minimum of Rs. 7.5 lakhs or 3% of the value of work whichever is more.	1	**7,50,000**	EA has to submit 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**	**3,80,000**	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.
8.0	**Report Peer Review Charges**	**lumpsum**	**As per EC decision**	**10000**	**1**	**10,000**	
					Total	**1,72,43,675**	
					GST (18%)	**31,03,862**	GST will be reimburse as per actual and as per notified prescribed rate
					Total	**2,03,47,537**	***Or Say 203.48 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.							

Annexure-IIIB

Time Schedule for Reconnaissance Survey (G4) for Copper (Cu) in Mincheri Block, Ballari District, Karnataka.

S. No.	Activities	MONTHS										
		1	2	3	4	5	6	7	8	10	11	12
1	Camp setting											
2	Geological mapping & Sampling(1 Party days)											
3	Sample preparation (1 Party days)											
4	Analytical work											
5	Exploratory mining for trenching											
6	Geologist for Trenching											
7	Sample preparation (Trench samples)											
8	Analytical work											
9	Drilling 500m											
10	Geologist party days for drilling and sampling work											
11	Sample preparation for Drill core samples											
12	Survey work for area surrounding mineralized zones											
13	Camp winding											
14	Analytical work dril core samples											
15	Geologist at HQ											
16	Geological report											
17	Peer Review											

Annexure-IVA

Estimated cost for Preliminary Exploration for Rare Metal and REE in Bisariya- Bansaruli-Jamtoli block, Ranchi District, Jharkhand.

Block area - 10.00 sq km; Nos. of Borehole- 200 (augur drilling & 40 vertical drill); Total Drilling- 600m (augur) & 400m bed rock drilling; Completion Time- 18 Months

S. No	Item Work	Item no in SoC	Unit	Rates as per SoC of NMET	Total		Remarks
					Qty.	Amount (Rs)	
1	**Geological work**						
1a	Geological Party days (1 party)-Field	1.2	Day	11,000	210	23,10,000	
1b	Geological Party days (1 party)-HQ	1.2	Day	9,000	60	540,000	
1c	2 labours' party (Rs 427/day/labour), As per rates of Central labour Commission)	5.7	Day	427	420	179,340	Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total-A	**30,29,340**	
2	**Sampling**						
2a	Sampler	1.5.2	Day	5,100	0	-	
2b	4 labours' party (Rs 427/day/labour, As per rates of Central labour Commission)	5.7	Day	427	840	3,58,680	Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- B	**3,58,680**	
3	**Survey work**						
3a	Survey Party days (1 party) without Labour	1.6.1a	Day	8,300	150	12,45,000	
3b	4 labours' party (Rs 427/day/labour), As per rates of Central labour Commission	5.7	Day	427	600	2,56,200	Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
3c	Fixation and determination of co-ordinates & Reduced Level of the borehole points by DGPS	1.6.2	Per point	19,200	40	7,68,000	Will be reimbursed for actual nos. of Bhs points
					Sub Total- C	**22,69,200**	

4	**Trenching**						
4a	Trenching (1m x 1m x 10m)- 10 no	2.1.1	Cu m	3,330	100	3,33,000	
					Sub Total- D	**3,33,000**	
5	**Drilling**						
5a	Drilling (bed rock)- 40 Bhs	2.2.1.4a	m	11,500	400	46,00,000	will be drilled after review of the work done
5b	Auger Drilling-120 points	2.2.2	m	4,760	600	28,56,000	
5c	Transportation of Drill Rig & Truck associated per drill	2.2.8	Km	36	150	5,400	certification in this regard is required to be provided
5d	Monthly Accommodation Charges for drilling Camp (up to 2 Rigs)	2.2.9	month	50,000	4	2,00,000	certification of deployment of drill rigs are required
5e	Drilling Camp Setting Cost	2.2.9a	Nos	2,50,000	1	2,50,000	
5f	Drilling Camp Winding up Cost	2.2.9b	Nos	2,50,000	1	2,50,000	
5g	Road Making (Flat Terrain)	2.2.10a	Km	22,020	10	2,20,200	Road Making will be considered as per the requirement but not more than the provided km in the cost sheet. Road Making Charges will be reimbursed accordingly.
					Sub Total- E	**83,81,600**	
6	**Geophysical studies**						
6a	Magnetic Survey	3.2a	Line km*	1,80,000	55	99,00,000	
					Sub Total- F	**99,00,000**	
7	**Laboratory Studies**						
	Chemical Analysis						
7a	Heavy mineral separation by liquid	4.3.6a	Per sample	2,380	50	1,19,000	
	Physical & Petrological Studies						
7b	X-RD Studies	4.5.1	per sample	4,000	15	60,000	
7c	ICP-MS studies- Primary samples including 10% check samples-34 elements	4.1.14	per sample	7,731	800	61,84,800	
7d	ICP-MS studies for REE (34 element)-Check sample i.e. Sc, Y, Lanthanides, Li, Cs, Sn, Nb, Ta, Be, W, Zr, Mo, U Th, Hf, Rb,	4.1.14	per sample	7,731	80	6,18,480	

	Sr, Ti, Ga, Ge and B) & Channel Sample						
7e	Preparation of thin section	4.3.1	per sample	2,353	30	70,590	
7f	Complete Petrographic studies	4.3.4	per sample	4,232	30	1,26,960	
7g	Preparation of polished section	4.3.2	per sample	1,549	0	-	
7h	SEM & EDX Studies-20 samples	4.4.2	Per hour	2,940	30	88,200	
7i	EPMA Studies-10 samples	4.4.1	Per hour	8,540	10	85,400	
8	**Geotechnical Laboratory**						
8a	Determination of in situ bulk density	4.10	per sample	3,540	5	17,700	
					Sub Total- G	**73,71,130**	
8	**Other Charges**						
8a	Land crop compensation	5.6	Per bh	20,000	40	8,00,000	
					Sub Total- H	**8,00,000**	
					Total (A + B + C + D + E + F + G + H)	**3,24,42,950**	
9	**Miscellaneous Charges**						
9a	Preparation of Exploration Proposal	5.1	Nos.	2% of the Cost or Rs. 3.8 Lakhs 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.
9b	Geological Report Preparation	5.2	Nos.	For the projects 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 a maximum amount of Rs. 20 lakh	1	9,73,288	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
9c	Peer Review Charges			10000	1	10,000	
					Total	**3,38,06,238**	
					GST (@18%)	**60,85,122**	GST will be reimburse as per actual and as per notified prescribec rate
					Total	**3,98,91,361**	***Or Say 398.91 Lakh***

* Rate of Magnetic Survey 100 points in a line km , 1800 per station , Rate of 1 L km is Rs.1,80000
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.

Annexure-IVB

Time schedule for Preliminary Exploration for Rare Metal and REE in Bisariya- Bansaruli-Jamtoli block, Ranchi District, Jharkhand.

Item	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Camp Setting	Month																		
2. Magnetic Survey	Lkm																		
3.Geophys cal Report	Months																		
4. Trenching- 10 trench)	C.u.m																		
6. Auger Drilling	C.u.m																		
7. Drilling two rigs	meter																		
8.Geologist Party days (1 Party)- Field	Party days																		
9.Survey Party days (1 Party)	Party days																		
10. Sampling (1party)	Party days																		
11. DGPS Survey	Month																		
12. Laboratory Studies	Nos.																		
13.Camp Winding	Months																		
14.Geologist Party days (1 Party)-HQ	Party days																		
15.Report Writing with Peer Review	Months																		

Annexure-VA

Estimated cost for implementation of National Geoscience Data Repository (NGDR) projected by GSI
Completion Time- 18 Months

S. No.	Item List	Cost in INR (Cr)
1.	IT H/W (CAPEX), Network Cost (CAPEX)	3.0
2.	S/W (CAPEX)	10.0
3.	S/W (Yr 0 to Yr 6.5)	1.5
4.	O&M	0.5
5.	Total Bandwidth Cost	5.0
6.	Development Cost	1.0
7.	Digitization Cost	5.0
8.	Database creation and standardization	1.5
I	**Sub-Total**	**27.5**
II	**Contingency 5 %**	**1.375**
	Total (excluding GST)	**28.875**
	GST (18%)	**5.1975**
	Total Estimated cost (including GST)	**34.0725**

Annexure-VB

Time Schedule for NGDR project

Sr. No.	Activities	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18
1	Development of Digital Infrastructure *																		
2	Software Development (core engine and platform environment development																		
3	GIS Based Decision Support																		
4	Database Standardization and Integration																		
5	User Interface design																		
6	Portal designing through UX																		
7	Metadata Search Engine																		
8	Application Development *																		
9	Integrated System Testing and Validation																		
10	Mobile Application Development																		
11	Mobile App testing and deployment																		
12	System Integration and Go live																		