Ministry of Mines
National Mineral Exploration Trust

Minutes of the 33rd Technical-cum-Cost Committee (TCC) meeting held on 9th and 10th September, 2021 through videoconferencing at Geological Survey of India, DGCO, A-II Pushpa Bhawan, New Delhi

The 33rd 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 9th and 10th September, 2021 at GSI, DGCO, A-II Pushpa Bhawan, New Delhi through videoconferencing. The TCC members and representatives of Exploration Agencies [EAs] participated through their respective VC nodes. The list of participants is at **annexure-1**.

Dr. L. P. Singh, Director, GSI and Member Secretary, TCC-NMET, welcomed Shri Janardan Prasad, ADG, GSI & Chairman, TCC; Members of the TCC, participants representing various EAs. He briefly outlined the project proposals submitted by EAs and conveyed that total 12 new project proposals [MECL (6) and CMPDI (6)] have been kept for discussion of 33rd TCC meeting.

Shri Janardan Prasad, ADG, GSI and Chairman, TCC welcomed the participants. He reiterated about the OM dated 24.8.2021 of NMET, and conveyed that the proposals for exploration of minerals with bedded deposits will only be considered up to G3 level by NMET on the recommendation of State Government and for limestone & Iron Ore will be considered on demand and availability of minerals in the state. He desired that the project proposals may be submitted by EAs in accordance to the recent amendments notified by the Ministry and guidelines of project formulation issued in 18th EC held on 17.2.2021. He further opined that the admissibility of the project proposals needs to be evaluated at the NMET Secretariat thereafter, only admissible project proposals may be forwarded to TCC Secretariat for further transmission to TCC members for evaluation and deliberation in the TCC meeting. The proceeding of meeting was initiated as per circulated agenda.

Agenda-wise discussions are summarised as follows.

33.1: Technical evaluation of new project proposals:

33.1.1. Preliminary exploration (G3) for gold and associated minerals in Chikka Honnakuni block, Raichur-Deodurg Schist Belt, District- Raichur, Karnataka. [Implementing Agency: MECL]

a) It has been submitted that GSI has carried out investigation for Gold in the Chikka Honnakuni area, Deodurg-Raichur schist belt during F.S. 2017-18. Large scale mapping was carried out over an area of 100 sq km on 1:12,500 scale around Chikkan-Honnakuni in parts of Toposheet No. 56D/15 and 56H/03 along with detailed mapping [1:1000 scale] over an area of 1.02 sq km in part of Toposheet No. 56D/15. Samples collected from three trenches show encouraging analytical results. Three mineralized zones were delineated on the basis of analyses of trench, bedrock and borehole samples. A total of 468m drilling has been achieved by drilling three scout boreholes. However, encouraging values were not obtained in the three scout boreholes. GSI had recommended to test the anomalies by close space drilling.

b) In view of the above, MECL has proposed to take up the G3 stage preliminary exploration to delineate the three identified mineralized zones at close spaced 100 m

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interval to cover entire 1.02 sq km Chikka Honnakuni Block area by deploying total 2770 m drilling in 15 boreholes to intersect up to vertical depth of 100m.

c) The project proposal submitted by MECL was sent to GSI for their comments on duplication, if any. In response to this GSI has submitted that the further exploration in this area is in continuation under the concept based Regional Mineral Targeting [RMT] project of GSI and suitable strategy for future exploration will be recommended at the end of RMT project. GSI also submitted that the current proposal of MECL will amount to duplication of work, if implemented at this stage.

Keeping the above in view, the committee suggested not to take up this project to avoid duplication of efforts and expenditure.

33.1.2. Preliminary exploration (G3) for copper ore in Singhana-Muradpur West Intervening Block, District- Jhunjhunu, Rajasthan. [Implementing Agency: MECL]

a) The proposal on preliminary exploration (G3) for copper ore in Singhana-Muradpur West intervening Block, District- Jhunjhunu, Rajasthan was discussed in the 29th and 30th TCC meeting wherein some modifications in the proposal were suggested by the committee. After incorporating necessary modifications, now MECL has resubmitted the proposal.

b) The committee opined that as this proposal is for G3 stage of exploration, a certificate from State Government is required for necessity of G3 stage exploration in accordance with the recent amendments and OM dated 24.8.2021. The DGM, Rajasthan has conveyed that the requisite letter will be issued shortly.

c) It has been conveyed that no magnetite bands exist in the area, however, the amphiboles contain magnetite grains. In view of this, MECL has proposed to analyze 20 samples from every borehole across the mineralized zone of gold and magnetite bearing amphibolite.

d) The committee opined that total 10 boreholes can be drilled in the block along with detail mapping of 1.25 sq km area on 1:2,000 scale. In first phase only five boreholes [1, 2, 3, 4 and 5 with 200m strike spacing and intersection of mineralized zone at an around 250m RL] with a total of 750m drilling may be carried out thereafter the outcome of analyses of samples will be reviewed. Based on the analytical results the decision on further five boreholes [6, 7, 8, 9, and 10] will be taken up.

e) Committee suggested that the MECL will bring all the analytical data of initial four boreholes drilled after five months for review.

The Committee recommended the proposal for approval by EC, subject to receipt of requisition from state government Rajasthan, of Preliminary exploration (G3) for copper ore in Singhana-Muradpur West Intervening Block, District- Jhunjhunu, Rajasthan with estimated cost of Rs. 343.03 Lakh including GST in time schedule of 13 months for carrying out the proposed work and submission of report as per Annexure-2A & 2B.

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33.1.3. Reconnaissance survey (G4) for Emerald in Tikki-Gaon Gura block (259.00 sq. km), District- Rajsamand, Rajasthan. [Implementing Agency: MECL]

and

33.1.4. Reconnaissance survey (G4) for emerald in Bubani-Rajgarh block (258 sq. km), District- Ajmer, Rajasthan. [Implementing Agency: MECL]

On evaluation of the two project proposals on Emerald the following observations have been suggested by the Committee:

a) The gemstone investigation is a specialized type of work and needs to be deployed judiciously for fruitful results.

b) The prime areas for possible gemstone occurrences may be identified by deploying suitable strategy. The alteration zone mapping may be deployed over the identified potential zones.

c) Geophysical components may not be helpful in deciphering the potential zones for Emerald.

d) The proposed area of about 250 sq km in each project may be too large for this type of survey and may end up without any significant findings.

e) The project proposals submitted by MECL were sent to GSI for their comments on duplication, if any. In response to this GSI has conveyed that the project titled "Reconnaissance survey for emerald in Kalaguman Dhaneen Nathela area Rajsamand District Rajasthan (G4)" is in progress in current FY 2021-22 on request of DGM Rajasthan during the SGPB meeting.

f) Besides this two more blocks Kunthal and Thoriya are also under consideration for implementation during FY 2022-23 by GSI.

g) GSI has also submitted that proposed blocks of MECL are entirely overlapping with the GSI's ongoing (FY 2021-22) and proposed blocks (FY 2022-23).

Keeping the above in view, the committee suggested not to take up this project to avoid duplication of efforts and expenditure.

33.1.5. Reconnaissance survey (G4) for copper in Knakagiri block (135.76 sq km), District- Koppal, Karnataka. [Implementing Agency: MECL]

a) The project proposal submitted by MECL was sent to GSI for their comments on duplication, if any. In response to this GSI has submitted that the proposed block area falls well within the RMT project of Hungund-Kushtagi schist belt. The nature of work proposed by MECL will overlap with that of ongoing RMT project.

b) It is pertinent to mention that the RMT project have been taken up by GSI which aimed to carry out integrated studies and carry out scout drilling in selected zones/ area for identifying potential mineralisation. Based on the outcome of RMT project the block may be proposed for G4/G3 stage of exploration.

c) GSI has suggested that the project may not be taken up by MECL as of now to avoid duplication.

Keeping the above in view, the committee suggested not to take up this project to avoid duplication of efforts and expenditure.

33.1.6. Reconnaissance survey (G4) for Nickel, Cobalt, PGE and Gold in Rangapura block (21.55 sq. km) District- Hassan, Karnataka. [Implementing Agency: MECL]

a) The project proposal on Reconnaissance survey (G4) for Nickel, Cobalt, PGE and Gold in Rangapura block (21.55 sq. km) District- Hassan, Karnataka was sent to GSI for their comments on duplication, if any.

b) In response to this GSI has submitted that a project titled "Preliminary investigation for PGE in mafic-ultramafic rocks of Nuggihalli schist belt, Hassan district Karnataka (G4 stage) was carried out by GSI during FY 2010-12 and technical report for the said project is available in website of GSI. The proposed block area of MECL falls well within the GSI's investigation block.

Keeping the above in view, the committee suggested not to take up this project to avoid duplication of efforts and expenditure.

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

a) The project proposal was discussed in the 32nd TCC meeting and after detailed deliberations, it was observed that about 60% area of the block is covered by the rocks of Chhotanagpur Granite Gneissic Complex [CGGC]. In view of this it was suggested that the five proposed boreholes [P7, P8, P9, P11 and P12] need to be dropped by discarding the area covered by CGGC.

b) CMPDI has submitted the revised proposal after discarding the area covered by CGGC and proposed to take up the project with seven boreholes with 3470m drilling.

c) The committee suggested that the six boreholes [2770m] may be taken up as of now and the decision for seventh boreholes [700m] will be taken up after review of the output of initial six boreholes drilled and exploration work after four months.

The Committee recommended the proposal for approval by EC for Preliminary exploration (G3) for coal in West of Chano-Rikba Coal Block, North Karanpura Coalfield, District- Hazaribagh, Jharkhand with estimated cost of Rs. 374.86 Lakh including GST in time schedule of 12 months for carrying out the proposed work and submission of report as per Annexure-3A & 3B.

33.1.8. Reconnaissance Survey (G4) for coal in North West of Madheri Extension block, Wardha Valley Coalfield, District-Wardha, Maharashtra. [Implementing Agency: CMPDI]

a) The proposal was discussed in the 32nd TCC meeting and it was decided that the decision on recommendation of this project proposal will be taken only after discussion with DGM, Maharashtra.

b) The project proposal was discussed with DGM, Maharashtra and it was conveyed that the area is lacking for any data even at G4 level of investigation, hence the proposal may be taken up to decipher the potentiality of the block, if any.

c) It has been observed that, in the adjoining area, the coal seams are found approximately at 350m to 400m depth with seam thickness of about 0.3m to 1m.

d) The committee opined that the two boreholes i.e. P-03 and P-05 with 1250m drilling may be taken up to check thickness and continuity of coal seams of the block. It was also decided that the outcome and findings of the exploration work will be reviewed after completion of two boreholes and the decision on further stage of exploration will be taken up accordingly.

The Committee recommended the proposal for approval by EC for Reconnaissance Survey (G4) for coal in North West of Madheri Extension block, Wardha Valley Coalfield, District-Wardha, Maharashtra with estimated cost of Rs. 123.53 Lakh including GST in time schedule of 9 months for carrying out the proposed work and submission of report as per Annexure-4A & 4B.

33.1.9. Detailed exploration (G1) for coal in Pipraul block, Tatapani-Ramkola Coalfield, District- Balrampur (surguja), Chhattisgarh. [Implementing Agency: CMPDI]

The committee opined that as per the decision of OM No. 6/4/2015-NMET/100 of NMET dated 24.8.2021 the coal/lignite exploration projects up to G4 and G3 stage may be considered through NMET funding. Keeping this in view the proposal for G1 stage of exploration may not be considered for NMET funding.

33.1.10. Preliminary exploration (G3) for bauxite in the Maduapat-1 block, District-Lohardaga, Jharkhand. [Implementing Agency: CMPDI]

a) Bauxite deposits of the area around Lohardaga district, Jharkhand were reported in the report titled "Report on the bauxite deposits near Lohardaga area Ranchi District, Bihar now Jharkhand" published in 1963.

b) The principal rock formation of this area comprises Chotanagpur Granite Gneiss comprising various types of granite gneiss, porphyritic granite, granulitic rocks, quartz veins and pegmatites. Laterite and bauxite in this area rest over the Chotanagpur Granite Gneiss.

c) It has been submitted that the occurrence of bauxite in the lateritic sequence is mainly boulder/pocket type, consists of bauxite boulders, cobbles and pebbles with inter binding material of ferruginous laterite, morrum and clays. Occasionally, the bauxite with boulder contact are also seen. Lensoidal, pinch & swell types of structures are observed in the cross section nearby Serendag west block, Lohardaga district. The occurrence of bauxite in the area is erratic in nature.

d) CMPDI has submitted that the Maduapat-I block is NW-SE trending plateau. About 1.5m-3m of bauxite of various grades is exposed in the quarries worked out by Minerals & Minerals Ltd. (N. Majumdar, 1963). The bauxite is pinkish or grey in colour and bouldery in nature.

e) DGM, Jharkhand conveyed that the block is devoid of any geoscientific data even at G4 stage of exploration, in view of this the exploration at G3 stage will help to find out potentiality of the block.

f) Based on discussion the committee suggested that as per MMDR Amendment Act 2021, for exploration of bauxite G3 stage in one hundred hectare area three boreholes are permitted and in more than 100 hectare area five boreholes are permitted, therefore the project with 1.5 sq km area may be taken up by deploying five boreholes with average 20m depth for individual borehole up to lithomarge and a

total of 100m drilling. It was suggested that the samples may also be analysed for REE with special care for the lithomarge.

g) The committee suggested that a requisition from State Government Jharkhand may be submitted to the NMET for requirement of G3 stage exploration.

The Committee recommended the proposal for approval by EC for **Preliminary exploration (G3) for bauxite in the Maduapat-1 block, District- Lohardaga, Jharkhand** *with estimated cost of Rs. 42.98 Lakh including GST in time schedule of 12 months for carrying out the proposed work and submission of report as per Annexure-5A & 5B.*

33.1.11. Preliminary exploration (G3) for bauxite in the Garhpat block, District-Lohardaga, Jharkhand. [Implementing Agency: CMPDI]

After detailed deliberations, the committee opined that about 50% area of the proposed block is covered with the Chhotanagpur Granite Complex rocks and is devoid of any laterite/bauxite material. In view of this, the committee suggested not to take up exploration in the Garhpat block.

33.1.12. Preliminary exploration (G3) for coal along with 2D seismic survey in North of Labji Pusla Block, Sonhat Coalfield, District- Korea, Chhattisgarh. [Implementing Agency: CMPDI]

a) North of Labji Pusla block is located in the central part of Sonhat Coalfield covering an area of about 13.38 sq km. The block is mostly covered with a layer of 0.5-0.6m soil except in the western part, however, weathered Barakar sandstone exposures are found at some places. Dolerite intrusion have been recorded in some of the boreholes drilled in Labji Pusla block. The Dolerite, Talchirs and metamorphics are exposed in the south. About 2.26 sq km area of the proposed block is under forest cover.

b) CMPDI has proposed to take up coal exploration at G3 stage in the block by deploying 3000 m drilling in 4 boreholes at 1600m x 1600 m grid pattern.

c) It has been conveyed that in adjacent Labji Pusla block, coal is restricted to Barakar Formation of Lower Gondwana sequence wherein 14 coal seams/ carbonaceous shales have been established. The thickness of coal seam/zone varies from 0.04m to 1.9m and only one coal seam is of thickness of about 8.48m. The quality of coal seams varies from SC-I to G17 grade.

d) After detailed deliberations the committee opined that the project can be taken up with four boreholes with 3000m drilling at an interval of 1600m x 1600 m grid pattern over an area of 13.38 sq km.

The Committee recommended the proposal for approval by EC for Preliminary exploration (G3) for coal in North of Labji Pusla Block, Sonhat Coalfield, District-Korea, Chhattisgarh with estimated cost of Rs. 311.79 Lakh including GST in time schedule of 12 months for carrying out the proposed work and submission of report as per Annexure-6A & 6B.

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33.2. Timeline extension of projects.

33.2.1. Reconnaissance Survey (G4) for prospect evaluation of the sporadic occurrences of Molybdenite, South of Karimnagar (56 N/4), District- Siddipet and Karimnagar, Telangana. [Implementing Agency: TSMDC]

a) The project was approved in the 16th EC meeting held on 25th February, 2020 with time schedule of 12 months.

b) In view of prevailing pandemic situation, the TCC in its 24th meeting recommended for time overrun of 6 months for ongoing project and approved in 17th EC meeting held on 5th November 2020. The schedule date of completion of the project is 27th September, 2021.

c) TSMDC requested for the time extension for another nine months to complete the exploration work and submit the geological report.

d) Based on review of the work carried out so far by the TSMDC, Committee granted for completion of work and submission of report with nine months i.e. 27th June 2022.

The Committee recommended for time extension to complete the exploration work and submit the geological report by 27th June, 2022.

33.2.2. Veeranam Block-III & IV, Neyveli Lignite field, District-Cuddalore, Tamil Nadu. [Implementing Agency: MECL]

a) The exploration for lignite in Veeranam Block was approved in 4th EC meeting held on 21st February, 2017 at the cost of ₹6763.44 Lakhs (excluding tax). The work commenced on 22nd February, 2017 with a time schedule of 36 months i.e. to be completed by 21st February, 2020.

b) TCC in its 6th meeting held on 2nd and 3rd December 2016 suggested that the block should be divided in 4 sub-blocks and initially the work should be taken up in two sub-blocks with cost revision. On the recommendation of 6th TCC meeting, the EC in its 5th meeting held on 6th October, 2017 accorded in-principle approval for entire block.

c) In 22nd TCC meeting held on 13th and 14th November 2019, the revised cost estimates of ₹67.43 Cr and timeline for each sub-block was recommended and approved in 15th EC meeting held on 28th November 2019. The details are given below-

Sub-blocks	Cost (₹ In Crores)	Timeline
Sub-block-I	₹17.89 Cr	31st March 2020
Sub-block-II	₹16.38 Cr	31st July 2020
Sub-block-III	₹9.91 Cr	31st July 2021
Sub-block-IV	₹23.25 Cr	30th April 2022
Total	**₹67.43 Cr.**	

d) MECL has informed that the exploration work in sub-block-I and II have been completed and geological reports have been submitted to the NMET Secretariat.

e) The exploitation work in sub-block-III and IV are in progress. A total of 4936m in 24 boreholes and further 11644m needs to be drilled in 50 boreholes in sub-block-III. MECL informed that to complete the drilling target, another 12 months are required i.e. till 31st July, 2022 for Verranam sub-block-III.

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f) The drilling in sub-block-IV is also in progress. A total of 5,975m drilling has been completed in 24 boreholes and further 31,195m drilling needs to be drilled in 118 boreholes. To complete the drilling target, it will require another 12 months i.e. 30th April, 2023.

The Committee recommended for time extension to complete the exploration work in Veeranam sub-block-III for 12 months [31st July, 2022] and suggested that MECL to carry out the exploration work in Veeranam sub-block-IV as the timeline for the block is till 30th April, 2022. The target vis-à-vis achievements of the project will be reviewed after 30th April, 2022.

33.3. Modification of work-component/Additional Sampling

33.3.1. Consultant for interpretation of airborne legacy data for follow-up heliborne surveys by GSI. [Technical Supervision & Quality Control (TS-QC) for 55,000 line km]

a) GSI had submitted the proposal to NMET in July 2018 requesting "Engaging a consultant for interpretation of its existing airborne legacy data and data acquired by Govt. of Odisha for follow-up Heliborne Geophysical Survey by GSI"

b) The financial sanction for the project "Interpretation of legacy data and TS-QC consultancy" for four work components was approved in 9th EC meeting held on 8th August, 2018 at an estimated cost of Rs. 3,37,90,251/-. The four components are given below:

S. No.	Description	Amount (in Rupees)
1	Interpretation of the Legacy data (1,35,422 sq. km.)	98,85,806/-
2	Preparation of final Detailed Project Report (DPR)	17,00,000/-
3	Tender Management	15,50,000/-
4	Technical Supervision & Quality Control (TS-QC) for 55,000 line km.	1,55,00,000/-
	Total	2,86,35,806/-
	GST @ 18%	51,54,445/-
	Sub-Total	**3,37,90,251/-**

c) GSI has conveyed that there was typographical error in the fourth work component of the said proposal i.e. Technical Supervision and Quality Control (TSQC) for 55,000 line km in place of TSQC for 50,000 line km was advertently written and same was forwarded to NMET Secretariat for financial sanction. Accordingly the financial sanction was accorded for TSQC of 55,000 line km at an estimated cost of Rs. 1,55,00,000/-.

d) Now GSI has requested that the figure of TSQC of 55,000 line km need to be revised to 50,000 line km at the cost of Rs. 1,55,00,000/-.

The committee suggested to submit all the documentary evidences to NMET Secretariat for modification in the quantum of work i.e. 50,000 line km in place of 55,000 line km and subsequent approval by EC.

33.3.2. Preliminary exploration (G3) for potash in Lakhasar-sub basin, North-Western part of Rajasthan, District- Bikaner, Rajasthan. [Implementing agency: MECL]

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

b) It has been submitted that about 6,015m drilling in 8 closed and 2 running boreholes have been completed against the set target of 10,040m in 15 boreholes. The drilling, sampling and analytical work is in progress.

c) MECL has submitted that the analyses of 300 external check samples for 9 radicals was approved at the rate of Rs. 4,155/- per sample [as per MoM, SoC]. However, after market survey, the rate of external check sample analyses was received at the rate of Rs. 7500/- per samples. Now MECL has requested for additional cost approval at the rate of Rs. 7,500/- per sample.

The committee opined that the project proposal was approved in accordance to the SoC rates of MoM and the rate of individual work components of preapproved projects cannot be escalated to the new SoC of NMET. In view of this, the committee suggested to carry out the analytical work in the preapproved rate i.e. Rs. 4,155/- per sample.

33.3.3. Preliminary exploration (G3) for potash in Bharusari sub-basin, North Western part of Rajasthan, District- Hanumangarh, Rajasthan. [Implementing agency: MECL]

a) The project for potash exploration was approved in 17th EC meeting held in November, 2020 at an estimated cost of Rs. 1,754.23 lakh and time schedule of 18 months.

b) It has been conveyed that 2,336m drilling in four boreholes have been completed against the set target of 8,600m in 12 boreholes. The work is in progress as per schedule.

c) In the pre-approved project, the analyses of potash samples [3000 primary samples and 450 check samples] for 9 radicals was approved through "rapid geochemical analyses by AAS" at the rate of Rs. 3,846/- per sample. Now, MECL has requested for analyses of these samples under "analyses of phosphate rock" at the rate of Rs. 9,846/-.

The committee opined that the analyses through the rapid geochemical analyses by AAS and analyses of phosphate rock will not have any significant impact on resource assessment of potash, therefore the analyses may be done through the pre-approved "rapid geochemical analyses by AAS" only.

33.3.4. Approval of drilling after review of Geological Mapping & Geophysical Survey for project "Reconnaissance survey (G4) for graphite and manganese ore in Rengali Graphite block. (including expired lease hold area of M/s. B. K. Agarwal and M/s T. Pradhan) (9.41 sq.km area) District- Balangir, Odisha". [Implementing agency: MECL]

a) The project was recommended in 24th TCC meeting held on 7th, 8th and 9th October, 2020 and approved in 17th EC meeting held on 5th November, 2020 with estimated cost of Rs. 411.30 Lakhs including GST in time schedule of 12 months.

b) MECL informed that Geological Mapping & Geophysical Survey have been completed and based on potential zone, scout drilling for 500m has been proposed.

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c) The committee reviewed the exploration work carried out and suggested for scout drilling for 500m in proposed boreholes.

The committee suggested for scout drilling of 500m in proposed borehole location.

33.3.5. Approval of Geological Report writing charges for Preliminary exploration (G3) for Iron and Manganese ore in Jamda-Koira Valley Iron Ore Belt in Silpunji Block, District- West Singhbhum, Jharkhand. [Implementing agency: MECL]

a) The project was recommended in 19th TCC meeting held on 18th and 19th January, 2019 with estimated cost of Rs. 97.23 Lakh in time schedule of 6 months and approved in 14th EC meeting held on 9th September, 2019.

b) TCC recommended that after the completion of Phase-I work, an interim report is to be submitted and based on which the subsequent drilling will be done.

c) MECL has concluded the project after completing the Phase-I components viz., geological mapping, geochemical mapping and geophysical survey and submitted the Interim report in July, 2021.

d) Now MECL has requested to release the geological report writing charges i.e. Rs 1,20,000/- as per the SoC, MoM.

After detailed discussion, the committee opined that only geological, geochemical and geophysical components have been completed without drilling, hence the geological report does not qualify the criteria of final report of G3 stage exploration. Further, the committee opined that no cost for report writing can be reimbursed for the abandoned projects.

It was decided that the project report will be reviewed in the next TCC meeting to assess the achievement of project and its final categorisation into G4 and/ or G3 stage report.

33.4. Review of ongoing projects [Implementing Agency: OMECL]

a) It is pertinent to mention that the project under review were approved in the 10th and 11th EC meeting as detailed below:

S. No.	Name of project	Commodity	Date of Approval
1	Khandadhar Iron Ore Block (50.91 sq. km), District- Sundergarh, Odisha (G4).	Iron Ore	10th EC 30.10.2018
2	Khandadhar Iron Ore Block (2.93 sq. km), District- Sundergarh, Odisha (G2).	Iron Ore	
3	Khandadhar Iron Ore Sub Block-A (4.03 sq. km), District- Sundargarh, Odisha (G2).	Iron Ore	11th EC 7.02.2019
4	Keluamali Bauxite Block (11.292 sq km), District- Kalahandi, Odisha (G3).	Bauxite	
5	Majhingamali Bauxite Block (4.479 sq km), District- Rayagada & Kalahandi, Odisha (G3).	Bauxite	
6	Tarhapani (west) Bauxite Block (4.322 sq km), District- Koraput, Odisha (G3).	Bauxite	
7	Nunapaimali Bauxite Block (4.282 sq km), District- Rayagada, Odisha (G3).	Bauxite	

8	Karnapodikonda Bauxite Block (9.062 sq km), Tehsil- Narayanpatna, District- Koraput, Odisha (G3).	Bauxite	

b) OMECL has conveyed that the exploration work in all the above blocks have been delayed due to forest clearance.

c) The geological mapping and chemical analyses in Khandadhar Iron Ore (G4) block (50.91 sq. km), District- Sundergarh, Odisha has been completed. Forest clearance for 500m of drilling in forest area is received on 14.07.2021.

d) Geological Mapping and surface sampling in both the G2 Iron ore blocks i.e. Khandadhar Iron Ore (G2) block (2.93 sq. km), District- Sundergarh, Odisha and Khandadhar Iron Ore (G2) Sub Block-A (4.03 sq. km), District- Sundargarh, Odisha have been completed. Forest clearance to carry out the core drilling has been applied and is under progress.

e) OMECL has conveyed that in Nunapaimali Bauxite G3 Block (4.282 sq km), District- Rayagada, Odisha, the geological mapping, topographic survey, core drilling, logging, sampling & analyses have been completed and geological report writing in progress. The bauxite mineralization is formed by in-situ chemical weathering of underlying hard parent rock, Khondalites and mineralization is predominantly of gibbsite formed by the weathering and desilicification of clay minerals in Khondalite. The resource estimated by polygonal area method is 12.20 MT. The estimated mineral resource may be assigned as indicated mineral resource (332). The grade of bauxite is given below:

Bauxite Grade	Thickness (m)	Resource (MT)	Avg. Al_2O_3%	Avg. SiO_2%
Metallurgical Grade Bauxite (MGB)	51.30	4.20	42.63	2.54
Low Grade Bauxite (LGB)	70.40	5.88	40.48	5.76
Beneficiable Grade Bauxite (BGB)	30.50	2.12	32.80	5.48
Total	**152.20**	**12.20**	**39.67**	**4.62**

f) For blocks Keluamali Bauxite Block (11.292 sq km), District- Kalahandi, Odisha (G3); Tarhapani (west) Bauxite Block (4.322 sq km), District- Koraput, Odisha (G3) and Karnapodikonda Bauxite Block (9.062 sq km), Tehsil- Narayanpatna, District- Koraput, Odisha (G3) OMECL has submitted that the detailed geological mapping at 1:4,000 scale, surface sampling and chemical analysis have been completed. Forest clearance (both Stage I & II) for drilling has been obtained. Drilling will be initiated after resolving local disputes in the area.

g) In block Majhingamali Bauxite Block (4.479 sq km), District- Rayagada & Kalahandi, Odisha (G3) exploration will be initiated after resolving local disputes in the area.

h) NMET Secretariat requested to submit the forest clearance certificate and technical report of work done along with bills for the reimbursement.

The committee noted the work done till date for all the 8 projects [3 nos. of Iron Ore and 5 nos. of Bauxite blocks] by OMECL and suggested to complete the exploration work as per the approved work plan in schedule time. It was also suggested to submit the geological report for external peer review.

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

List of TCC members attended 33rd Technical-cum-Cost Committee (TCC) meeting of NMET held on 09th and 10th September, 2021 through videoconferencing.

S. No.	Name/Designation	Status	Remarks
1	Shri Janardan Prasad, ADG & HoD, SR, GSI, Hyderabad	Chairman, TCC, NMET	Attended in person
2	Shri Ranjan Kumar Sinha, Controller General (Retd.) Indian Bureau of Mines, Noida	TCC Member	Attended via videoconference
3	Shri P. Tarafdar, Dy. Director General (Retd.) Geological Survey of India, Kolkata	TCC Member	Attended via videoconference
4	Dr. Manoranjan Mohanty, Dy. Director General (Retd.) Geological Survey of India, Bhubaneshwar	TCC Member	Attended via videoconference
5	Shri Naeem Ahmad, General Manager-Exploration (Retd.), CMPDI Ltd., Aligarh	TCC Member	Attended via videoconference
6	Dr. Anjani Kumar, Dy. General Manager (Exploration) & HoD-Planning (Retd.), MECL, Nagpur	TCC Member	Attended via videoconference
7	Dr. J. V. Ramarao, Dy. Director General (GP) [Retd.], Geological Survey of India, Hyderabad	TCC Member	Attended via videoconference
8	Shri B. Saravanan, Additional Director, Atomic Minerals Directorate for Exploration and Research, Hyderabad	TCC Member	Attended via videoconference
9	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

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Annexure-1

List of participants attended 33rd Technical-cum-Cost Committee (TCC) meeting of NMET held on 09th and 10th September, 2021 through videoconferencing.

S. No.	Name/Designation	Email ID	Contact No	Organisation
1	Shri Janardan Prasad, ADG & HoD, SR, GSI	janardan.prasad@gsi.gov.in	7763800788	Chairman, TCC
2	Shri Ranjan Kumar Sinha, Controller General (Retd.) IBM	sinhark57@rediffmail.com	9421777637	Member, TCC
3	Shri Pradipta Tarafdar, DDG (Retd.) GSI	tarafdar.pradipta@gmail.com	9503088847	Member, TCC
4	Dr. Manoranjan Mohanty, DDG (Retd.) GSI	manoranjanmoha@gmail.com	9483511287 8249014425	Member, TCC
5	Dr. J. V. Ramarao, DDG (GP) (Retd.) GSI	rarajammi@gmail.com	9440691284	Member, TCC
6	Dr. Anjani Kumar, DGM(Retd.), MECL	anjanikumar1957.ak@gmail.com	9975350576	Member, TCC
7	Shri Naeem Ahmed, EM(Retd.), CMPDI	ahmadnaeem17@yahoo.co.in	8588092153	Member, TCC
8	Shri B. Saravanan, AMD, Hyderabad	addldir-op1.amd@gov.in	8987571606	Member, TCC
9	Shri Amit Saran, Director & HoD, NMET	amit.saran@nic.in	9717647259	Member, TCC
10	Dr. L. P. Singh, Director, GSI	nmet-tcc@gov.in	9490748249	Member Secretary, TCC
11	Shri P. K. Maharana, DGM (F), NALCO, Bhubaneshwar	pmaharana@rediffmail.com	8500669500	Member, TCC
12	Shri Ravi Kumar Gupta, DGM (F), HCL, Kolkata	ravi_g@hindustancopper.com	9433274328	Member, TCC
13	Shri Vinay Pal, ACAO, GSI	palvinay009@gmail.com	8527368161	Member, TCC
14	Shri Debkumar Bhattacharyya, Dy. Director General	debkumar@gsi.gov.in	9830031059	GSI, RSAS
15	Dr. Deshraj Trivedi, Senior Geologist	nmet-tcc@gov.in	9419244294	NMET
16	Subhash Kumar, Senior Geologist	nmet-mines@gov.in	9868302624	NMET
17	Shri K. K. Kaushik, HOD, (Exploration)	gm-exploration@mecl.co.in	9422805475	MECL, Nagpur
18	Dr. R. P. Singh, Manger (Geology)	gm.exploration.cmpdil@gmail.com	8987789047	CMPDI
19	Shri K. Rajasekhar Reddy General Manager, TSMDC	tsmdcltd@gmail.com	8008558580	TSMDC
20	Shri G. S. Nirwan, Sup. Geo. Bikaner	adgbikaner.mg@rajasthan.gov.in	9460923965	DGM Rajasthan
21	Shri Raj Kumar Sharma, Sup. Geo. (Tribal) Udaipur	supgeotrib.uda@rajasthan.gov.in	9509815666	DGM Rajasthan
22	Shri Alok Prakash Jain, Sup. Geo. Jaipur	supgeo.jaipur@rajasthan.gov.in	9413301260	DGM Rajasthan
23	Shri Sunil Kumar, Sup. Geo. Ajmer	supgeo.ajmer@rajasthan.gov.in	9414248396	DGM Rajasthan
24	Mr. Kailash Dongre, Joint Director (Geology)	kailashdongre.kd@gmail.com	9424282791	DGM, Chhattisgarh
25	Smt. Anjali Nagarkar, Director (Geology)	director@mahadgm.gov.in		DGM, Maharashtra
26	Shri S. K. Sinha, Director (Geology)	director-mines@jharkhandmail.gov.in		DGM, Jharkhand
27	Shri Shailendra Sinha, General Director (Exploration)	omecloffice@gmail.com	9937388703	OMECL
28	Dr. P. K. Nayak, Sr. Manager (Geology)	omecloffice@gmail.com	6372651516	OMECL

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Annexure-2A

Estimated cost for Preliminary exploration (G3) for copper ore in Singhana-Muradpur West Intervening Block, District- Jhunjhunu, Rajasthan.
Total Area- 1.215 sq km; Nos. of Borehole - 10; Borehole depth range- 150m to 250m; Completion Time- 13 Months

S. No.	Item of Work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates as per SoC	Qty.	Total Amount (Rs)	
A	**GEOLOGICAL WORK**						
1	**Borehole logging & sampling & report writing**						
a	Charges for one Geologist per day at HQ	per day	1.3	9,000	60	5,40,000	
b	Charges for one Geologist per day at field	per day	1.3	11,000	150	16,50,000	
c	Labour Charges, Base rate - Rs.431/per labour day	per day	5.7	431	300	1,29,300	Amount will be reimbursed 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	Per Point of observation	1.6.2	19,200	10	1,92,000	
b	Surveyor Charges	one surveyor per day	1.6.1a	8,300	60	4,98,000	
c	Labour Charges, Base rate - Rs.431/per labour day	per day	5.7	431	240	1,03,440	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
d	Charges for one Sampler per day	one sampler per day	1.5.2	5,100	25	1,27,500	
e	Labour Charges, Base rate - Rs.431/per labour day	per day	5.7	431	100	43,100	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
					Sub Total- A	**32,83,340**	

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B	DRILLING						
1	Drilling up to 300m (Medium Hard Rock)	m	2.2.1.3a	10,100	2,000	2,02,00,000	
2	Borehole deviation Survey by Multishot Camera	m	2.2.6	330	2,000	6,60,000	
3	Land / Crop Compensation (in case the BH falls in agricultural Land)	per BH	5.6	20,000	10	2,00,000	Amount will be reimbursed as per 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	10	20,000	
5	Transportation of Drill Rig & Truck associated per drill	Km	2.2.8	36	2,300	82,800	
6	Monthly Accommodation Charges for drilling Camp (up to 1 Rigs)	month	2.2.9	50,000	4	200,000	
7	Drilling Camp Setting Cost	Nos	2.2.9a	2,50,000	1	2,50,000	
8	Drilling Camp Winding up Cost	Nos	2.2.9b	2,50,000	1	2,50,000	
9	Road Making (Flat Terrain)	Km	2.2.10a	22,020	5	110,100	Road Making will be considered as per the requirement and Road Making Charges will be reimbursed accordingly.
10	Drill Core Preservation	per m	5.3	1,590	400	6,36,000	This amount will be reimbursed after successful delivery of the cores to concerned libraries/authorities.
					Sub Total- B	**2,26,08,900**	
C	**LABORATORY STUDIES**						
1	**Chemical Analysis**						
i)	**Primary samples**						
	a. for Cu, Ni, Mo & W and for Fe, Al2O3, SiO2, LOI & P	Nos	4.1.15a & 4.1.15b (for 4 elements)	5,884	200	11,76,800	

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ii)	**Check samples Internal (5%) and External (10%)**						
	for Cu, Ni, Mo & W and for Fe, Al2O3, SiO2, LOI & P	Nos	4.1.15a & 4.1.15b (for 4 elements)	5,884	30	1,76,520	
iii)	**Composite Samples**						
	a) Fire Assay for Au+Ag	Nos	4.1.5a	4,760	30	1,42,800	
	b) Fe, Al2O3, SiO2, S, LOI & P and 4 radicals-Cu, Co, Ni, Mo & W	Nos	4.1.15a & 4.1.15b (for 4 elements)	5,884	30	1,76,520	
					Sub Total- C1	**16,72,640**	
2	**Petrological samples (Surface & Bh Core Samples)**						
i	Preparation of thin section	Nos	4.3.1	2,353	20	47,060	
ii	Study of Thin Section	Nos	4.3.4	4,232	20	84,640	
					Sub Total- C2	**131,700**	
3	**Mineragraphic Studies (Surface & Bh Core Samples)**						
a	Preparation of polished section	Nos	4.3.2	1,549	20	30,980	
b	Study of Polished Section	Nos	4.3.4	4,232	20	84,640	
c	Digital Photographs	Nos	4.3.7	280	20	5,600	
					Sub Total- C3	**1,21,220**	
4	**Specific Gravity Determination**						
	Specific Gravity Determination	No.	4.8.1	1,605	10	16,050	
	Sub-Total - C 4					**16,050**	
					Sub Total- C	**19,41,610**	
D	**Miscellaneous Charges**						
i	Peer review Charges		**As per EC decision**	10,000	**1**	10,000	
ii	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.

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					Sub Total- D	3,90,000	
					Total- A to D	28,223,850	
E	Geological Report Preparation		5.2	For project exceeding Rs. 150 lakh but less than Rs. 300 Lakh - to A minimum Rs. 7.5 lakh or 3% of the value of work whichever is more		8,46,716	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
F					Total Estimated Cost without GST	2,90,70,566	
G	Provision for GST (18% of F)	%				52,32,702	GST will be reimbursed as per actual and as per notified prescribed rate
H					Total Estimated Cost with GST	3,43,03,267	***say Rs. 343.03 Lakhs***
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-2B

Time schedule/plan for Preliminary exploration (G3) for copper ore in Singhana-Muradpur West Intervening Block, District- Jhunjhunu, Rajasthan.

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

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Annexure-3A

Estimated cost for Preliminary exploration (G3) for coal in West of Chano-Rikba Coal Block, North Karanpura Coalfield, District- Hazaribagh, Jharkhand. Total Area- 11.85 sq km; Nos. of Borehole - 7; Borehole depth range- 265m to 700m; Completion Time- 12 Months

S. No	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs.)	Qty.	Amount (Rs.)	Remarks
I- Field operations								
A	**DRILLING**							
1	Drilling (As per MoC Rate 2020-21)	2.2.1.1b	m	5,619	5,619	3,470	1,94,97,930	Copy of MoC approved Rate is required
B	**GEOPHYSICAL STUDIES**							
1	Borehole Geophysical logging (As per MoC Rate 2020-21)	MoC Rates - Pls. refer note 4		656	697	3,470	24,18,590	Copy of MoC approved Rate is required
II- Field Studies								
A	**GEOLOGICAL WORK**							
1	Survey Work	1.6.1b	Day	8,300	8,300	45	3,73,500	
2a	Geological days-Field (Mapping, Field work)	1.5.1b	Day	11,000	11,000	90	9,90,000	
2b	Geological days- HQ	1.5.1b	Day	9,000	9,000	45	4,05,000	
						Sub Total- A	**17,68,500**	
B	**GEOPHYSICAL STUDIES**							
2a	Geophysicist days-Field (Bh Logging)	3.19	Day	11,000	11,000	12	1,32,000	
2b	Geophysicist days-HQ	3.19	Day	9,000	9,000	7	63,000	
						Sub Total- B	**1,95,000**	
						Sub Total - Field Studies (A + B)	**19,63,500**	
III-Laboratory Studies								
1	**Band By Band Analysis**							
a	Ash+Moisture	4.2.6	per sample	700	700	1,400	9,80,000	
b	House Keeping	4.2.1	per sample	115	115	1,400	1,61,000	
2	**Overall analysis**							
a	Proximate analysis	4.2.7	per sample	935	935	350	3,27,250	
b	Moisture at 60% RH & 40C	4.2.8	per sample	1,010	1,010	120	1,21,200	

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c	GCV	4.2.11	per sample	1,505	1,505	350	5,26,750	
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	350	2,78,250	
3	**Special Test**							
a	Ultimate analysis	4.2.17	per sample	9,945	9,945	35	3,48,075	
b	Total Sulphur	4.2.14	per sample	1,900	1,900	35	66,500	
c	Distribution of Sulpher	4.2.15	per sample	3,695	3,695	35	1,29,325	
d	Phosphorus	4.2.21	per sample	2,480	2,480	35	86,800	
e	HGI including sample preparation	4.2.18	per sample	3,805	3,805	35	1,33,175	
f	AFT (Ash Fusion Temperature)	4.2.20	per sample	2,745	2,745	35	96,075	
g	Ash analysis	4.2.25	per sample	325	325	35	11,375	
h	Ash sample preparation 800°C from coke for analysis	4.2.5	per sample	875	875	35	30,625	
i	Roga Index(Instead of caking Index)	4.2.22	per sample	5,365	5,365	35	1,87,775	
j	Swelling Index	4.2.23	per sample	2,745	2,745	35	96,075	
k	LTGK coke type	4.2.24	per sample	4,550	4,550	35	1,59,250	
4	**Petrographic analysis**							
a	Pellet preparation	4.3.14a	per sample	1,160	1,160	25	29,000	
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25,000	25,000	25	6,25,000	
c	Microlithotype Analysis (with photomicrography)	4.3.14g	per sample	25,000	25,000	25	6,25,000	
d	Determination of Rank (VRO random %)	4.3.14i	per sample	16,345	16,345	25	4,08,625	
e	Determination of Rank (VRO Min. % and Max.)	4.3.14h	per sample	21,025	21,025	25	5,25,625	
				Sub Total III - Laboratories Studies			**59,52,750**	
IV. Miscellaneous Charges								
a	DGPS Survey of boundary, borehole points (7 boreholes & 18 boundary point)	1.6.2	per point	19,200	19,200	25	4,80,000	

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b	Land crop compensation	5.6	Per bh	20,000	20,000	7	1,40,000	Amount will be reimbursed as per actuals or max. Rs. 20,000 per BH with certification from local authorities
c	Preparation of Exploration Proposal	5.1	lump sum	3,80,000	3,80,000	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.
d	Peer review			10,000	10,000	1	10,000	
					Sub Total IV - Miscellaneous Charges		**10,10,000**	
					Total (I to IV)		**3,08,42,770**	
VI	Geological Report preparation (3% of work value)	5.2		For project exceeding Rs. 150 lakh but less than Rs. 300 Lakh - to A minimum Rs. 7.5 lakh or 3% of the value of work whichever is more			9,25,283	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
					VII - Total Cost of the project without GST		**3,17,68,053**	
VIII					Provision for GST (@18%)		57,18,250	GST will be reimburse as per actual and as per notified prescribed rate
					IX- Total Cost of the project with GST		**3,74,86,303**	***say Rs. 374.86 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) Above rate of drilling, GPL, Chemical, Physicomechanical are budgeted rates.							
	3) There are numerous items in chemical analysis. The CIMFR rates will be applied for actual payment.							
	4) For Physicomechanical studies, a lumpsum provision has been made. Actual may vary as per requirement. MoC approved rates will apply.							
	5)For Drilling & Geophysical the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.							
	6) GPL rates is Rs 697/- per meter as per MoC Rates for minimum 8 parameters, the break up is as follows-							

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	Sl. No.	Probe	MoC approved Rate 2020-21 (in Rs)	
	1	Base Log		162
	2	Dual Density		110
	3	Natural Gamma		96
	4	Caliper		20
	5	SPR		41
	6	Sonic		131
	7	Deviation		96
	8	Resistivity		41
		Total		**697**
	7) Lumpsum amount of Rs. 10,000 has been considered for Peer Review.			
	8) Rate for Rs. 2500000/- is budgeted rate for 3D ore body modelling using Mines Software.			

Annexure-3B

Time schedule/plan for Preliminary exploration (G3) for coal in West of Chano-Rikba Coal Block, North Karanpura Coalfield, District- Hazaribagh, Jharkhand.

S. No.	Activities	Months											
		1	2	3	4		5	6	7	8	9	10	11	12
1	Mobilising													
2	Drilling (Nos of rigs- 2 rigs)													
3	Borehole Geophysical logging													
4	Survey days													
5	Geologist days, Field													
6	Geophysicist days, Field													
7	Laboratory Studies (Band By Band)													
8	Laboratory Studies (Overall)													
9	Laboratory Studies (Special , Petrography)													
10	Geologist days, HQ													
11	Geophysicist days, HQ													
12	Report Writing & Peer Review													
	Note: Please add activities accordingly and timelime (months)													
	Total Time Period of Completion of Project-12 months from Sanction of Project													

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Annexure-4A

Estimated cost for Reconnaissance Survey (G4) for coal in North West of Madheri Extension block, Wardha Valley Coalfield, District-Wardha, Maharashtra. Total Area- 47.86 sq km; Nos. of Borehole - 2; Borehole depth range- 550 to 700m; Completion Time- 9 Months

S. No.	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs.)	Qty.	Amount (Rs.)	Remarks
I- Field operations								
A	**DRILLING**							
1	Drilling (As per MoC Rate 2020-21)	2.2.1.1b	m	5,619	5,619	1,250	70,23,750	Copy of MoC approved Rate is required
B	**GEOPHYSICAL STUDIES**							
1	Borehole Geophysical logging (As per MoC Rate 2020-21)	MoC Rates - Pls. refer note 4		656	697	1,250	8,71,250	Copy of MoC approved Rate is required
					Sub Total I - Field Operations		**78,95,000**	
II- Field Studies								
A	**GEOLOGICAL WORK**							
1	Survey Work	1.6.1b	Day	8,300	8,300	15	1,24,500	
2a	Geological days-Field (Mapping, Field work)	1.5.1b	Day	11,000	11,000	60	6,60,000	
2b	Geological days-HQ	1.5.1b	Day	9,000	9000	30	2,,70,000	
					Sub Total- A		**10,54,500**	
B	**GEOPHYSICAL STUDIES**							
2a	Geophysicist days-Field (Bh Logging)	3.19	Day	11,000	11,000	7	77,000	
2b	Geophysicist days-HQ	3.19	Day	9,000	9,000	5	45,000	
					Sub Total- B		**1,22,000**	
					Sub Total II - Field Studies (A + B)		**11,76,500**	
III-Laboratory Studies								
1	**Band By Band Analysis**							
a	Ash+Moisture	4.2.6	per sample	700	700	40	28,000	
b	House Keeping	4.2.1	per sample	115	115	40	4,600	
2	**Overall analysis**							
a	Proximate analysis	4.2.7	per sample	935	935	18	16,830	
b	Moisture at 60% RH & 40C	4.2.8	per sample	1,010	1,010	18	18,180	

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c	GCV	4.2.11	per sample	1,505	1,505	18	27,090	
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	18	14,310	
3	**Special Test**							
a	Ultimate analysis	4.2.17	per sample	9,945	9,945	7	69,615	
b	Total Sulphur	4.2.14	per sample	1,900	1,900	7	13,300	
c	Distribution of Sulpher	4.2.15	per sample	3,695	3,695	7	25,865	
d	HGI including sample preparation	4.2.18	per sample	3,805	3805	7	26635	
e	AFT (Ash Fusion Temperature)	4.2.20	per sample	2,745	2,745	7	19,215	
f	Ash analysis	4.2.25	per sample	325	325	7	2,275	
4	**Petrographic analysis**							
a	Pellet preparation	4.3.14a	per sample	1,160	1,160	3	3,480	
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25,000	25,000	3	75,000	
c	Microlithotype Analysis (with photomicrography)	4.3.14g	per sample	25,000	25,000	3	75,000	
d	Mean Ro%	4.3.14i	per sample	16,345	16,345	3	49,035	
				Sub Total III - Laboratories Studies			**4,68,430**	
IV. Miscellaneous Charges								
A	Land crop compensation	5.6	Per bh	20,000	20,000	2	40,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities
b	Preparation of Exploration Proposal	5.1	lump sum	3,80,000	3,80,000	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.
c	Peer review			10,000	10,000	1	10,000	
				Sub Total IV- Miscellaneous Charges			**4,30,000**	
					Total (I to IV)		**99,69,930**	

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VI	Geological Report preparation (3% of work value)	5.2		For project exceeding Rs. 50 lakh but less than Rs. 150 Lakh - to A minimum Rs. 2.5 lakh or 5% of the value of work whichever is more			4,98,497	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
				Total Cost of the project without GST			**1,04,68,427**	
VIII				Provision for GST @18%			18,84,317	GST will be reimburse as per actual and as per notified prescribed rate
IX- Total Cost of the project with GST							123,52,744	***say Rs. 123.53 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) Above rate of drilling, GPL, Chemical, Physicomechanical are budgeted rates.							
	3) There are numerous items in chemical analysis. The CIMFR rates will be applied for actual payment.							
	4) For Physicomechanical studies, a lumpsum provision has been made. Actual may vary as per requirement. MoC approved rates will apply.							
	5)For Drilling & Geophysical the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.							
	6) GPL rates is Rs 697/- per meter as per MoC Rates for minimum 8 parameters, the break up is as follows-							

	S. No.	Probe	MoC approved Rate 2020-21 (in Rs)
	1	Base Log	162
	2	Dual Density	110
	3	Natural Gamma	96
	4	Caliper	20
	5	SPR	41
	6	Sonic	131
	7	Deviation	96
	8	Resistivity	41
		Total	**697**
	7) Lumpsum amount of Rs. 10,000 has been considered for Peer Review.		

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Annexure-4B

Time schedule/plan for Reconnaissance Survey (G4) for coal in North West of Madheri Extension block, Wardha Valley Coalfield, District-Wardha, Maharashtra.

S. No	Activities		Months								
			1	2	3	4	5	6	7	8	9
1	Tendering										
2	Mobilising	Months									
3	Drilling	Months									
4	Borehole Geophysical logging	Days									
5	Survey days	Days									
6	Geologist days, Field	Days									
7	Geophysicist days, Field	Days									
8	Laboratory Studies (Band By Band)	Nos.									
9	Laboratory Studies (Overall)	Nos.									
10	Laboratory Studies (Special &, Petrography)	Nos.									
11	Geologist days, HQ	Days									
12	Geophysicist days, HQ										
13	Report Writing & Peer Review	Months									
	Note: Please add activities accordingly and timelime (months)										
	Total Time Period of Completion of Project- 12 months from Sanction of Project										

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Annexure-5A

Estimated cost for Preliminary exploration (G3) for bauxite in the Maduapat-1 block, District- Lohardaga, Jharkhand.
Total Area- 1.50 sq km; Nos. of Borehole - 5; Borehole depth range- 15m to 20m; Completion Time- 12 Months

S. No.	Item Work	Item no in SoC	Unit	Rates as per SoC of NMET	Qty.	Amount (Rs) In Lakh	Remarks
I	***Outsourced Component***						
1	**Mineral Investigation (Outsourced)**						
1a	Core drilling (2 rig)	2.2.1.1b	m	5,619	100	5,61,900	Copy of MoC approved Rate is required
1b	Approach road making drill site (Hilly terrain)	2.2.10b	per km	32,200	2	64,400	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.
1c	Borehole Pillaring – Construction of Con- Pillar	2.2.7a	Per bh	2,000	5	10,000	
				Sub Total- 1		**6,36,300**	reimbursement of outsource component will be made as per Para 3 of NMET-SoC
2	**Laboratory Studies (Outsourced)**						
a	**Chemical Analysis**						
i	Primary Sample for 5 radicals (Al_2O_3, SiO_2, Fe_2O_3, TiO_2 & LOI)	4.1.15a	Per sample	4,200	30	1,26,000	
ii	Internal (5%) & External (10%) Check samples of 5 radicals	4.1.15a	Per sample	4,200	3	12,600	
iii	Composite samples for 7 radicals, viz. Al_2O_3 , SiO_2 , Fe_2O_3, TiO_2, V_2O_5, P_2O_5 & LOI)	4.1.15a & 4.1.15b	Per sample	5,042	5	25,210	
iv	b) Composite Core samples (14 radicals, viz. Al_2O_3 , SiO_2 , Fe_2O_3 , TiO_2 , V_2O_5 , P_2O_5 , LOI, MnO, CaO, MgO, K_2O, Na_2O, SO_3 & Organic carbon	4.1.15a & 4.1.15b	Per sample	7,989	5	39,945	

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v	Combined determination of TMH, MHA & Reactive silica	4.1.17a	Per sample	6,700	5	33,500	
vi	Determination of bond Work index	4.1.17e	Per sample	10,000	5	50,000	
b	**Physical & Petrological Studies**						
i	X-RD Studies on composite	4.5.1	per sample	4,000	5	20,000	
ii	ICP-MS studies (REE analysis of Saprolite zone)	4.1.13	per sample	5,380	50	2,69,000	
iii	Preparation of thin section	4.3.1	per sample	2,353	5	11,765	
iv	Complete Petrographic studies	4.3.4	per sample	4,232	5	21,160	
v	Preparation of polished section	4.3.2	per sample	1,549	5	7,745	
vi	Complete mineragraphic study report	4.3.4	per sample	4,232	5	21,160	
c	**Geotechnical Laboratory**						
i	Specific gravity of rock sample	4.8.1	per sample	1,605	5	8,025	
ii	Determination of in situ bulk density	4.1	per sample	3,540	5	17,700	
	Sub Total- 2					**6,63,810**	
				Total (outsourced component)- 1 & 2		**13,00,110**	
II	***In-House Component***						
1	**GEOLOGICAL WORK (In House)**						
II	Survey Party days without Labour	1.6.1a	Day	8,300	45	3,73,500	
ii	4 labours/ party (Rs 431/day/labour), As per rates of Central labour Commission	5.7	Day	431	180	77,580	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
iii	DGPS (Bore hole Fixation and determination of co-ordinates & Reduced Level and Demarcation of lease hold boundary)	1.6.2	Per point	19,200	10	1,92,000	As per the actual points carried out
iv	Geological days Field	1.2	Day	11,000	60	6,60,000	
v	Geological days HQ	1.2	Day	9,000	60	5,40,000	
vi	2 labours/ party (Rs 431/day/labour), As per rates of Central labour Commission)	5.7	Day	431	120	51,720	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
	Sub Total- 1					**18,94,800**	

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2	**SAMPLING (In house)**						
i	Core Sampling - 1 sampler without Labour	1.5.2	Day	5,100	10	51,000	
ii	4 labours/ party (Rs 431/day/labour, As per rates of Central labour Commission)	5.7	Day	431	40	17,240	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
	Sub Total- 2					**68,240**	
3	**PITTING- TRENCHING**						
i	Pitting for determination of bulk density (1m x1m x1m)- 5 no	2.1.1	Cu m	3,330	2	6,660	
	Sub Total- 3					**6,660**	
4	**Miscellaneous Charges**						
i	Land crop compensation	5.6	Per bh	20,000	5	1,00,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities
ii	Peer Review Charges			10,000	1	10,000	
	Sub Total- 4					**1,10,000**	
	Total- 1 to 4					**20,79,700**	
	Total Outsourced and In-House Component (I + II)					**33,79,810**	
5	**Other Charges**						
i	Preparation of Exploration Proposal	5.1	lump sum	2% of the Cost or Rs. 3.8 Lakhs whichever is lower	1	67,596	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	Outsourcing process cost	2.3	lump sum	2% of the outsourced component Cost or Rs. 5;Lakhs whichever is lower	1	26,002	will be reimbursed when copy of signed agreement/tender for outsourced component will be submitted.

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iii	Geological Report Preparation	5.2		For projects up to Rs. 50 lakh- A minimum Rs. 1.5 lakh or 5% of the value of work	1	1,68,991	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
	Total - A to H					**36,42,399**	
				GST @18%		**6,55,632**	GST will be reimburse as per actual and as per notified prescribed rate
				Total		**42,98,031**	***say Rs. 42.98 Lakh***

Note - If any part mentioned in the in-house component is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item no. 6 of NMET SoC. For in-house component of the project, a Certificate from the NEA regarding non outsourcing of any component/project is required.

1. The Drilling rate is Rs 5,619/- is as per approved rate of Promotional exploration MoC and is applicable for drilling in bauxite.
2. Rs 10000/- for Peer review is budgeted rate.
3. For composite Sample analysis for 7 radicals, the rate of 5 radicals/oxides as per 4.1.15 a is Rs 4200. For 2 additional radicals/oxides as per 4.1.15 bis Rs 421*2= 842. Hence total for 7 radicals= Rs 5042
4. For composite Sample analysis for 14 radicals, the rate of 5 radicals/ oxides as per 4.1.15 a is Rs 4200. For 9 additional radicals/oxides as per 4.1.15bis Rs 421*9= 3789. Hence total for 14 radicals= Rs 7989

Annexure-5B

Time schedule/plan for Preliminary exploration (G3) for bauxite in the Maduapat-1 block, District- Lohardaga, Jharkhand.

S. No.	Activities	Months											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Mobilising	■											
2	Drilling (Nos of rigs- 2 rigs)		■	■	■	■							
3	Survey days		■	■	■	■							
4	Geologist days, Field		■	■	■	■							
5	Geophysicist days, Field		■	■	■	■							
6	Laboratory Studies (Overall)				■	■	■	■	■				
7	Laboratory Studies (Special , Petrography)							■	■				
8	Geologist days, HQ								■	■	■	■	■
9	Geophysicist days, HQ								■	■	■	■	■
10	Report Writing & Peer Review								■	■	■	■	■
Note: Please add activities accordingly and timelime (months)													
Total Time Period of Completion of Project-12 months from Sanction of Project													

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Annexure-6A

Estimated cost for Preliminary exploration (G3) for coal in North of Labji Pusla Block, Sonhat Coalfield, District- Korea, Chhattisgarh.
Total Area- 13.38 sq km; Nos. of Borehole - 4; Borehole depth range- 700m to 800m; Completion Time- 12 Months

S. No.	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs)	Qty.	Amount (Rs.)	Remarks
1 - Outsourced Component								
	I- Field operations (Outsourcing)							
A	DRILLING							
1	Drilling (As per MoC Rate 2020-21)	2.2.1.1b	m	5,619	5,619	3,000	1,68,57,000	Copy of MoC approved Rate is required
B	GEOPHYSICAL STUDIES							
1	Borehole Geophysical logging (As per MoC Rate 2020-21)	MoC Rates - Pls. refer note 5	m	656	697	3,000	20,91,000	Copy of MoC approved Rate is required
					Total cost of outsourcing component		1,89,48,000	reimbursement of outsource component will be made as per Para 3 of NMET-SoC. The copy of contract agreement for outsourced component is required to be provided.
2. In-House Component								
	I- Field Work							
A	GEOLOGICAL WORK							
1	Survey Work	1.6.1b	Day	8,300	8,300	20	1,66,000	
2a	Geological days-Field	1.5.1b	Day	11,000	11,000	90	9,90,000	
2b	Geological days-HQ (Data processing & Report Preparation)	1.5.1b	Day	9,000	9,000	30	2,70,000	
						Sub Total- A	14,26,000	
B	GEOPHYSICAL STUDIES							
2a	Geophysicist days-Field	3.19	Day	11,000	11,000	10	1,10,000	
2b	Geophysicist days-HQ (Data processing & Report Preparation)	3.19	Day	9,000	9,000	7	63,000	

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						Sub Total- B	1,73,000	
						Field Work Total (A+B)	15,99,000	
	II-Laboratory Studies							
1	**Band By Band Analysis**							
a	Ash+Moisture	4.2.6	per sample	700	700	210	1,47,000	
b	House Keeping	4.2.1	per sample	115	115	210	24,150	
2	**Overall analysis**							
a	Proximate analysis	4.2.7	per sample	935	935	160	1,49,600	
b	Moisture at 60% RH & 40C	4.2.8	per sample	1,010	1,010	80	80,800	
c	GCV	4.2.11	per sample	1,505	1,505	160	2,40,800	
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	160	1,27,200	
3	**Special Test**							
a	Ultimate analysis	4.2.17	per sample	9,945	9945	16	1,59,120	
b	Total Sulphur	4.2.14	per sample	1,900	1,900	16	30,400	
c	Distribution of Sulpher	4.2.15	per sample	3,695	3,,695	16	59,120	
d	HGI including sample preparation	4.2.18	per sample	3,805	3,805	16	60,880	
e	AFT (Ash Fusion Temperature)	4.2.20	per sample	2,745	2,745	16	43,920	
f	Ash analysis	4.2.25	per sample	325	325	16	5,200	
g	Ash sample preparation 800ºC from coke for analysis	4.2.5	per sample	875	875	16	14,000	
h	Roga Index(Instead of caking Index)	4.2.22	per sample	5,365	5,365	16	85,840	
i	Swelling Index	4.2.23	per sample	2,745	2,745	16	43,920	
j	LTGK coke type	4.2.24	per sample	4,550	4,550	16	72,800	
4	**Petrographic analysis**							
a	Pellet preparation	4.3.14a	per sample	1160	1160	16	18,560	
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	2,5000	2,5000	16	4,00,000	

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c	Microlithotype Analysis (with photomicrography)	4.3.14g	per sample	25,000	25,000	16	4,00,000	
d	Mean Ro%	4.3.14j	per sample	16,345	16,345	16	2,61,520	
5	Trace Element /REE Studies by ICPMS	4.1.14	per sample	7,731	7,731	16	1,23,696	
					Laboratory Studies Total		**25,48,526**	
	III. Miscellaneous Charges (Departmental)							
a	DGPS Survey of boundary, borehole points (4 boreholes & 14 boundary point)	1.6.2	per point	19,200	19,200	18	3,45,600	As per the actual points
b	Preparation of Exploration Proposal	5.1	lump sum	3,80,000	3,80,000	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.
c	Peer review			10,000	10,000	1	10,000	
d	Outsourcing process cost	2.3	lump sum	5,00,000	5,00,000	1	5,00,000	will be reimbursed when copy of signed agreement/tender for outsourced component will be submitted.
e	Operational charges for CMPDI	Point 3 (iii)of SOC		15,00,000	15,00,000	1	13,22,400	will be reimbursed as per point 3 of NMET-SoC after recalculation when actual cost of outsourcing component will be provided. The copy of contract agreement for outsourced component and work completion report are also required to reimburse the operational charge
						Miscellaneous charges-	**25,58,000**	
						Total cost for in-House component (I to III)	**67,05,526**	

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3 - Total Cost for outsource and in-House component (1 & 2)							**2,56,53,526**	
	Geological Report preparation (3% of work value)	5.2		For project exceeding Rs. 150 lakh but less than Rs. 300 Lakh - to A minimum Rs. 7.5 lakh or 3% of the value of work whichever is more			7,69,606	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
4 - Total Cost of the project without GST							**2,64,23,132**	
						Provision for GST (@18%)	47,56,164	GST will be reimburse as per actual and as per notified prescribed rate
5- Total Cost of the project with GST							**3,11,79,296**	***say Rs. 311.79 Lakh***
NOTEs -	**1) If any part mentioned in the in-house component is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item no. 6 of NMET SoC. For in-house component of the project, a Certificate from the NEA regarding non outsourcing of any component/project is required.**							
	2) Above rate of drilling, GPL, Chemical, Physicomechanical are budgeted rates.							
	3) There are numerous items in chemical anlysis. The CIMFR rates will be applied for actual payment.							
	4) For Physicomechanical studies, a lumpsum provision has been made. Actual may vary as per requirement. MoC approved rates will apply.							
	5)For Drilling & Geophysical the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.							
	6) GPL rates is Rs 697/- per meter as per MoC Rates for minimum 8 parameters, the break up is as follows-							

	S. No.	Probe	MoC approved Rate 2020-21 (in Rs)	
	1	Base Log		162
	2	Dual Density		110
	3	Natural Gamma		96
	4	Caliper		20
	5	SPR		41
	6	Sonic		131
	7	Deviation		96
	8	Resistivity		41
		Total		**697**
	7) Lumpsum amount of Rs. 10,000 has been considered for Peer Review.			

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Annexure-6B

Time schedule/plan for Preliminary exploration (G3) for coal in North of Labji Pusla Block, Sonhat Coalfield, District- Korea, Chhattisgarh.

S. No	Activities		Months											
			1	2	3	4	5	6	7	8	9	10	11	12
1	Outsourcing													
2	Mobilising													
3	Drilling (Nos of rigs-1 rigs)													
4	Borehole Geophysical logging													
5	Survey days													
6	Geologist days, Field													
7	Geophysicist days, Field													
8	Laboratory Studies (Band By Band)													
9	Laboratory Studies (Overall)													
10	Laboratory Studies (Special) & (Petrography)													
11	Geologist days, HQ													
12	Geophysicist days, HQ													
14	Report Writing & Peer Review													
	Note: Please add activities accordingly and timelime (months)													
	Total Time Period of Completion of Project- 12 months from Sanction of Project													

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