Ministry of Mines

National Mineral Exploration Trust

Minutes of the 35th Technical-cum-Cost Committee (TCC) meeting held on 29th and 30th November, 2021 through videoconferencing at Geological Survey of India, DGCO, A-II Pushpa Bhawan, New Delhi

The 35th Technical-cum-Cost Committee [TCC] meeting of National Mineral Exploration Trust [NMET] was held under the chairmanship of Shri Janardan Prasad, Additional Director General, Geological Survey of India [ADG, GSI], and Chairman, TCC, NMET on 29th and 30th November, 2021 at GSI, DGCO, A-II Pushpa Bhawan, New Delhi through videoconferencing. The TCC members and representatives of Exploration Agencies [EAs] participated through their respective VC nodes. The list of participants is at **annexure-1**.

Dr. L. P. Singh, Director, GSI and Member Secretary, TCC NMET, welcomed Shri Janardan Prasad, ADG, GSI & Chairman, TCC; Members of the TCC, participants representing various EAs. He briefly outlined the project proposals submitted by EAs on various mineral commodities.

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

Agenda-wise discussions are summarised as follows.

35.1: Technical evaluation of new project proposals:

35.1.1. Deep Crustal Mapping using Deep Seismic Reflection Survey (DSRS) and Magneto Telluric (MT) Survey across the Western & Eastern Dharwar craton and Cuddapah basin, for searching concealed and deep-seated mineral deposits under Southern Transect, Project: UNCOVER. [Implementing Agency: GSI]

a) The project DSRS and MT survey in Southern Transect of GSI was discussed in 31st TCC meeting held in July, 2021. During the meeting, the committee suggested to take the Northern Transect of Project: Uncover as pilot project for DSRS and MT Survey. The cost estimate may be arrived through EOI and RFP. A brainstorming session comprising of experts and stakeholders may be organised for deciding the various parameters of MT and DSRS survey. Operational feasibilities need to be assessed. A DPR for the DSRS and MT survey in southern transect needs to be submitted.

b) Now GSI has resubmitted the revised proposal for the same. However, the recommendations of the 31st TCC are yet to be incorporated in the revised proposal.

c) Based on the detailed deliberations the committee, in principle agreed, that the project of DSRS and MT survey in Southern Transect has potential to study the mineral potentiality at deeper level. However, the implementation of this project is a major challenge.

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d) The committee opined that a detailed feasibility study for successful implementation of the project and brainstorming session for finalisation of various technical parameters are of paramount importance and needs to be done before execution of the project.

e) The committee opined that the outcomes of the DSRS and MT survey in Northern Transect may act as guiding elements for this project.

f) Regarding cost of the project, the committee suggested to arrive the cost through EOI and RFP. DPR needs to be submitted along with the proposal.

The Committee suggested to resubmit the proposal after incorporating all the above suggestions in next TCC meeting.

35.1.2. Reconnaissance Survey (G4) for Copper, Lead, Zinc, Graphite and associated minerals in Bagwari-Sukwari area (157.60 sq. km), District: Sidhi, Madhya Pradesh. [Implementing Agency: MECL]

a) The proposal was discussed in the 30th TCC meeting held in June, 2021, wherein the committee suggested to drop the project to avoid duplication citing the reason that the proposed block has 60% overlapping area with the ongoing project of GSI. Now MECL has resubmitted the proposal after excluding the overlapping area.

b) After detailed deliberations, following observations have been made by the committee:

(i) The Mahakoshal group of rocks are to be mapped thoroughly for identification of graphite mineralisation, if any, as the graphite is reported from the Mahakoshal Group in the adjoining area.

(ii) The area covered by the Vindhyan may be excluded, however, the contact zones of Mahakoshals with Vindhyans need to be mapped. Further, considering the prominent anomalies reported along the shear zone, through earlier investigation by GSI, it may be prudent to take up reconnaissance survey for base metals in the area especially in the gneissic parts. Mahakoshals may also be searched for gold mineralisation.

(iii) After excluding the Vindhyan part the modified block area will remain at 141.75 sq km.

(iv) The outcome and findings of the project will be reviewed after nine months.

The Committee recommended the proposal for approval by EC for Reconnaissance Survey (G4) for Copper, Lead, Zinc, Graphite and associated minerals in Bagwari-Sukwari area (141.75 sq. km), District: Sidhi, Madhya Pradesh with estimated cost of Rs. 181.21 Lakhs including GST in time schedule of 12 months for carrying out the proposed work and submission of report as per Annexure-2A & 2B.

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35.1.3. General Exploration (G2) for Gold in Sindauri-East block (0.30 sq. km), District: Ranchi, Jharkhand. [Implementing Agency: MECL]

a) The project General Exploration (G2) for Gold in Sindauri-East blockwas discussed in 31st TCC meeting held in July, 2021 wherein the committee observed that the proposed drilling area of MECL (approx. 3.0 sq. km) is overlapping with the block area where GSI has completed G2 stage exploration in past. Committee felt that there may be duplication of work, hence may not be taken for exploration through NMET funding.

b) Now, MECL has submitted the revised proposal in the further east of the GSI's G2 block. This project was again sent to GSI for their considered comments regarding duplication of work, if any.

c) In response to this GSI has conveyed that the MECL's proposed block is at east of the GSI's G2 Sindauri East block. However the data provided in the proposal of MECL do not support it.

d) Keeping the above in view the committee opined that MECL should collect all the exploration data of the Sindauri block from GSI and a separate block for G2 exploration in further east of Sindauri East block with a different block name, which deserves G2 stage exploration, may be proposed by MECL.

The Committee suggested to resubmit the proposal after incorporating all the requisite information of the block with separate identity in the next TCC meeting.

35.1.4. Reconnaissance Survey (G4) for Copper, Lead, Zinc and Gold in Sanori block (167.00 sq. km) District: Lalitpur, Uttar Pradesh. [Implementing Agency: MECL]

a) It has been submitted that the main lithological units in the area are pink and grey granites forming a part of the Bundelkhand Granitoid Complex. The area exposes enclaves and xenoliths of gneisses, migmatites, amphibolites schist within the granitic rock. Large enclaves of amphibolites belonging to Older Metamorphic Group are exposed in midst of the younger granites. The late phase of igneous activity is manifested by the intrusion of large bodies of quartz reef and dolerite dykes intruding the granitoids. Dykes of ultramafic, gabbro and veinlets of carbonatite and syenite are also present.

b) It has been conveyed that during F.S. 2016-2018, GSI had carried out Hyperspectral / Multispectral Remote Sensing Mapping for demarcation of alteration / mineralized zone. They have marked probable alteration zones of the area using Landsat 8 OLI data. During ground validation by GSI (F.S. 2016-18) in the area, advance argillic zone like Pyrophyllite mineral was observed from Bridha and Sanori villages. Apart from above, the sulphide minerals like pyrite, chalcopyrite, chalcocite and covellite have also been observed near Sanori and Birdha villages.

c) Further, thin section studies carried out by GSI indicated the occurrence of chalcopyrite in quartz near Sanori, Birdha, Baron Tarichar Khurd, Parara and Laron. Thin section studies reveal that chalcopyrite may have emplaced along with secondary sericite and quartz bearing vein.

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d) Based on detailed deliberations the committee opined that, though the presence of basemetal minerals have been observed by the indirect methods in the area, the confirmation of possible mineralisation through few sample analyses is essential for taking up of reconnaissance survey. The committee suggested that atleast some of the bed rock samples need to be analysed for basemetals before conceiving the proposal.

The committee suggested to resubmit the proposal in next TCC after incorporating some of the analytical results to strengthen the proposal for exploration of basemetals and gold.

35.1.5. Reconnaissance Survey (G4) for basemetal in Oblapuram block (53.0 sq. km), District: Davangere, Karnataka. [Implementing Agency: KIOCL]

a) The project proposal was sent to GSI for their comments on duplication or overlapping of the area with ongoing or proposed exploration blocks of GSI, if any. In response to this GSI has submitted that the proposed Oblapuram block of KIOCL has a 100% overlap with the GSI RMT block proposed for FS 2022-23. The proposed block will be the duplication of RMT project which has been proposed to be taken up in FS 2022-23 covering the proposed area.

b) Further, Chairman TCC and HoD, SR, GSI has conveyed that the proposed block will be left out by GSI and the RMT project will accordingly be modified. In view of this project was considered for further discussion.

c) Geologically the area is exposed by the rocks of Peninsular gneiss, cross bedded quartzite, hornblende schist and meta basalts, talc-tremolite schist, manganiferous cherty and granite, in ascending order which are intruded by gabbro dykes, dolerite dykes and quartz veins.

d) It has been conveyed that a band of highly oxidized quartzite was identified by GSI during FS 1982-83 in partly cultivated area of Oblapuram block. The quartzite band is about 5 to 6m in width and continues for about 1 km strike length, within the country rocks of hornblende schist and gneiss.The quartzite band is found to be potential.

e) It has been conveyed that the entire quartzite band of the area was mapped by GSI on 1:1000 scale and the sample analyses have indicated copper [120 ppm to 0.15%], lead [120ppm to 0.35%] and silver [5ppm to 12ppm].

f) The Committee suggested that the National Geochemical Mapping [NGCM] and National Geophysical Mapping [NGPM] data need to be superimposed on geological map.

g) Further, KIOCL has submitted that few other quartzite bands are also observed in the area and may be potential for basemetals.

h) Based on the detailed deliberations the committee opined that the project proposal may be considered for reconnaissance survey (G4) with scout drilling of 500m and other associated parameters mentioned in the relevant annexure. The decision on drilling will be taken up after review of sample analyses and progress of work.

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The Committee recommended the proposal for approval by EC for Reconnaissance Survey (G4) for basemetal in Oblapuram block (53.0 sq. km), District: Davangere, Karnataka with an estimated cost of Rs. 165.43 Lakhs including GST in time schedule of 12 months for carrying out the proposed work and submission of report as per Annexure-3A & 3B.

35.1.6. Preliminary exploration (G3) for coal along with 2D seismic survey in Ulia-Gamhardih Block, East of Bisrampur Coalfield, District: Surguja, Chhattisgarh. [Implementing Agency: CMPDI]

a) The project proposal was discussed in 34th TCC meeting held in October, 2021 wherein the committee suggested to resubmit the proposal in the next TCC meeting after finalisation of quantum of resistivity component.

b) Now CMPDI has finalised the quantum of resistivity component to 80 Vertical Electrical Sounding (VES) points with AB/2 = 1 km.

The Committee recommended the proposal for approval by EC for Preliminary exploration (G3) for coal along with 2D seismic survey in Ulia-Gamhardih Block, East of Bisrampur Coalfield, District: Surguja, Chhattisgarh with an estimated cost of Rs. 231.23 Lakhs including GST in time schedule of 12 months for carrying out the proposed work and submission of report as per Annexure-4A & 4B

35.2. Review of ongoing projects:

35.2.1. General Exploration (G2) for copper in Mundadevta Darkhuli-South Jharia Copper Block District: East Singbhum, Jharkhand.

a) MECL has conveyed that drilling of 4482m in 20 boreholes has been completed so far and the drilling in remaining 3 boreholes could not be initiated due to agricultural activity in the area. However, drilling will be completed by January, 2022.

b) It has been conveyed that there will be additional drilling of 177m against the approved drilling of 4935m due to shift of some of the boreholes and additional drilling to intersect the base of limestone.

c) MECL has requested for additional drilling of 177m, which was agreed by the committee.

The Committee suggested to complete the exploration work and drilling along with the samples collections. The additional work component and cost will be approved after completion of the exploration work.

35.3. Timeline extension of projects:

35.3.1. General exploration for limestone in Tangeda Limestone Block, Dachepalli (M), District: Guntur, Andhra Pradesh.

a) MERIT, AP informed that all the field components of Tangeda Limestone block has been successfully completed and geological report has been submitted for the external peer review.

b) The schedule timeline of project has 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) The analyses of samples were delayed due to COVID-19. In view of this the MERIT, AP sought a timeline extension till 31st December, 2021.

Keeping above in view, the committee recommended for approval of timeline extension of 2 months (31st December 2021) for completion of the said project without any financial impact by Executive Committee.

35.3.2. General exploration for limestone in Mutyalampadu-Tangeda Limestone Block, Dachepalli (M), District: Guntur, Andhra Pradesh.

a) MERIT, AP informed that all the field components of Mutyalampadu-Tangeda Limestone block has been successfully completed and geological report has been prepared for the external peer review. The geological report will be submitted to NMET Secretariat by first week of December, 2021.

b) The schedule timeline of project has 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) The analyses of samples were delayed due to COVID-19. In view of this the MERIT, AP sought a timeline extension till 31st December, 2021.

Keeping above in view, the committee recommended for approval of timeline extension of 2 months (31st December 2021) for completion of the said project without any financial impact by Executive Committee.

List of TCC members attended 35th Technical-cum-Cost Committee (TCC) meeting of NMET held on 29th and 30th November, 2021 through videoconferencing.

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	On leave
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	On Leave
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-1

List of participants attended 35th Technical-cum-Cost Committee (TCC) meeting of NMET held on 29th and 30th November, 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 PradiptaTarafdar, DDG (Retd.) GSI	tarafdar.pradipta@gmail.com	9503088847	Member, TCC
3	Dr.Manoranjan Mohanty, DDG (Retd.) GSI	manoranjanmoha@gmail.com	9483511287 8249014425	Member, TCC
4	Dr. J. V. Ramarao, DDG (GP) (Retd.) GSI	rarajammi@gmail.com	9440691284	Member, TCC
5	Dr. Anjani Kumar, DGM(Retd.), MECL	anjanikumar1957.ak@gmail.com	9975350576	Member, TCC
6	Shri Naeem Ahmed, EM(Retd.), CMPDI	ahmadnaeem17@yahoo.co.in	8588092153	Member, TCC
7	Shri B. Saravanan, AMD, Hyderabad	addldir-op1.amd@gov.in	8987571606	Member, TCC
8	Dr. L. P. Singh, Director, GSI	nmet-tcc@gov.in	9490748249	Member Secretary, TCC
9	Shri P. K. Maharana, DGM (F), NALCO, Bhubaneshwar	pmaharana@rediffmail.com	8500669500	Member, TCC
10	Shri Ravi Kumar Gupta, DGM (F), HCL, Kolkata	ravi_g@hindustancopper.com	9433274328	Member, TCC
11	Shri Vinay Pal, ACAO, GSI	palvinay009@gmail.com	8527368161	Member, TCC
12	Shri Hemraj Suryavanshi, Dy.DG and NM-II	hodm2@gsi.gov.in	9425603674	GSI, Nagpur
13	Shri M. L. Dora, Director, RMH-II, SR	rmh2.sr@gsi.gov.in	9404952283	GSI, Hyderabad
14	Dr. Deshraj Trivedi, Senior Geologist	nmet-tcc@gov.in	9419244294	NMET
15	Shri Subhash Kumar, Senior Geologist	nmet-mines@gov.in	9868302624	NMET
16	Shri M. Baskaran, GM, (Exploration)	gm-exploration@mecl.co.in		MECL, Nagpur
17	Shri V. K. Srivastava, GM, (Exploration)	gm.exploration.cmpdil@gmail.com		CMPDI, Ranchi
18	Shri V. Koteswara Raju, Joint Director	ceo.merit@gmail.com	9100688115	MERIT, AP
19	Shri Shiva Kumar M, SM (ME)	bmed@kioclltd.in	9481444686	KIOCL
20	Sri Yuvaraj, Senior Geologist Min (Incharge)	mlsdmg1@gmail.com		DGM Karnataka
21	Shri S. K. Sinha, Director (Mines)	director-mines@jharkhandmail.gov.in		DGM, Jharkhand
22	Shri R. P. Singh, Geologist	rps1173@gmail.com	9621045793	DGM, UP

Annexure-2A

Estimated cost for Reconnaissance Survey (G4) for Copper, Lead, Zinc, Graphite and associated minerals in Bagwari-Sukwari area (141.75 sq. km), District: Sidhi, Madhya Pradesh.

Total block area- 141.75 sq. km; Nos. of Borehole- 5; Borehole depth range- 100m avg; Schedule 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, Sampling & Survey Days**						
1.1	Satellite imagery/Aerial photo interpretation studies						
	a) Charges for procurement of satellite imageries	Nos	1.1.a	0	0	-	If required; will be reimbursed as per actual
	b) Geologist man days for interpretation (HQ)	days	1.1.b	9,000	0	-	
1.2	Large scale (LSM) Geological mapping/ Trenching/ Drilling						
	a) Geologist man days for Geological Mapping/Trenching/Drilling (Field)	days	1.2	11,000	150	16,50,000	-
	b) Labour Mapping/Trenching/Drilling (Field) (2 workers per geologist)	per worker	5.7	427	300	1,28,100	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner (Rs. 427/- per day) or respective State Govt. whichever is higher
	c) Geologist man days (1 No.) for geological map & Report (HQ)	days	1.2	9,000	60	5,40,000	
	d) Sampling man days -1 Sampler (Geochemical /Trenching/Drilling) Labour charge not included	day	1.5.2	5,100	100	5,10,000	
	e) 4 labours/ party (Rs 427/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	427	400	1,70,800	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner (Rs. 427/- per day) or respective State Govt. whichever is higher
					Sub Total- A	**29,98,900**	

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2.0	**Mineral Investigation**						
2.1	Trenching/Pitting						
	a) Excavation of trenches & pits	per cu m	2.1.1	3,330	100	3,33,000	
					Sub Total- B	**3,33,000**	
3.0	**Drilling**						
3.1	a) Drilling up to 300m Rigs) (Hard Rock)	per m	2.2.1.4 a	11,500	500	57,50,000	
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	1200	43,200	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	
3.6	a) Drilling camp setting (2 rigs)	per drill	2.2.9a	2,50,000	1	2,50,000	
3.7	b) Drilling camp winding (2 rigs)	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 and Road Making Charges will be reimbursed accordingly.
3.9	Drill core preservation	per m	5.3	1590	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		20000	5	1,00,000	Amount will be reimbursed as per actual or max. Rs. 20000 per BH with certification from local authorities
3.11	Demarcation Fixation 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- C	**73,13,700**	
4.0	**Laboratory Studies**						
4.1	Chemical Analysis						
	i) Surface sampling (Bed Rock Samples/Soil/Stream Sediment)						
	a) 34 element Package analysis by ICP-MS for	per sample	4.1.14	7,731	200	15,46,200	

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	surface samples						
	b) For Au & Ag by Fire Assay	per sample	4.1.5a	4,760	25	1,19,000	
	c) For Graphite (Proximate Analysis)	per sample	4.1.16	3,000	30	90,000	
	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	30	2,31,930	
	b) For Au & Ag by Fire Assay	per sample	4.1.5a	4,760	4	19,040	
	c) For Graphite (Proximate Analysis)	per sample	4.1.16	3,000	5	15,000	
4.2	**Pit & Trench, Primary Samples**					-	
	a) 34 element Package analysis by ICP-MS for surface samples	per sample	4.1.14	7,731	50	3,86,550	
	b) For Au & Ag by Fire Assay	per sample	4.1.5a	4,760	10	47,600	
	c) For Graphite (Proximate Analysis)	per sample	4.1.16	3,000	20	60,000	
	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	8	61,848	
	b) For Au & Ag by Fire Assay	per sample	4.1.5a	4,760	2	9,520	
	c) For Graphite (Proximate Analysis)	per sample	4.1.16	3,000	3	9,000	
4.3	**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	200	5,01,200	
	b) For Au & Ag by Fire Assay	per sample	4.1.5a	4,760	20	95,200	
	c) For Graphite (Proximate Analysis)	per sample	4.1.16	3,000	20	60,000	
	ii) Check Samples - 5% Internal & 10% External						
	a) For Cu, Pb, Zn, Co, Mo	per sample	4.1.7b	2,506	30	75,180	
	b) For Au & Ag by Fire Assay	per sample	4.1.5a	4,760	3	14,280	
	c) For Graphite (Proximate Analysis)	per sample	4.1.16	3,000	3	9,000	
	iii) Composite Samples - 5% Internal & 10% External						
	a) For Cu, Pb, Zn, Co, Mo	per sample	4.1.7b	2,506	15	37,590	
	b) For Au & Ag by Fire Assay	per sample	4.1.5a	4,760	15	71,400	
	c) For Graphite (Proximate Analysis)	per sample	4.1.16	3,000	15	45,000	
4.4	**Petrological / Mineralographic studies**						
	a) Preparation of thin section	per sample	4.3.1	2,353	20	47,060	
	b) Study of thin section for petrography	per sample	4.3.4	4,232	20	84,640	
	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	

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	Sub-Total D					**36,96,848**	
5.0	**Total (1.0 to 5.0)**					**1,43,42,448**	
6.0	**Geological Report Preparation**	Nos	5.2	For the projects having cost up to exceeding Rs.50 Lakhs but less than 150 Lakhs: A Minimum of Rs. 2.5lakhs or 5% of the work whichever is more and Rs. 3000/- per each additional copy.	1	**7,17,122**	For the projects having cost up to exceeding Rs.150 Lakhs but less than 300 Lakhs: A Minimum of Rs. 7.5lakhs or 3% of the work whichever is more and Rs. 3000/- per each additional copy.
7.0	**Preparation of Exploration Proposal**	**Nos**	**5.1**	2% of the project cost or Rs 3.8 lakh whichever is lower	**1**	**2,86,849**	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**	**10,000**	**1**	**10,000**	
9.0	**Total Estimated Cost without GST (7+8+9)**					**1,53,56,419**	
10.0	**Provision for GST (18%)**					**27,64,155**	GST will be reimburse as per actual and as per notified prescribed rate
11.0	**Total Estimated Cost with GST**					**1,81,20,575**	**Or Say 181.21 Lakhs**
	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. Rates are calculated as per NMET SOC issued on 31st March 2020 without escalation. Although billing for subsequent financial years will be done as per the actual escalations as per RBI Indices.						

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Annexure-2B

Time schedule for Reconnaissance Survey (G4) for Copper, Lead, Zinc, Graphite and associated minerals in Bagwari-Sukwari area (141.75 sq. km), District: Sidhi, Madhya Pradesh.

S. No.	Activities	MONTHS											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Camp setting												
2	Mineral Targeting by Remote Sensing												
3	Geological mapping & Sampling(1 Party days)												
4	Sample preparation (1 Party days)												
5	Analytical work												
6	Exploratory mining for trenching												
7	Sample preparation (Trench samples)												
8	Analytical work												
9	Drilling 500m												
10	Sample preparation for Drill core samples												
11	Survey work for area surrounding mineralized zones												
12	Camp winding												
13	Analytical work dril core samples												
14	Geologist at HQ												
15	Geological report												
16	Peer Review												
* Commencement of project will be reckoned from the day the exploration acreage is available along with all statutory clearances.													
*Time loss on account of monsoon/agricultural activity/forest clearance/ local law & order problems will be addition to above time line.													
* Time Line for Exploration work without Drilling is 12 months; However if results are encouraging and drilling is recommended then timeline will be extended.													

Review

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Annexure-3A

Estimated cost for Reconnaissance Survey (G4) for basemetal in Oblapuram block (53.0 sq km), District: Davangere, Karnataka.

Total block area- 53.0 sq. km; Nos. of Borehole- 5; Borehole depth range- 100-120m avg; Schedule completion Time- 12 Months

S. No.	Item of Work	Unit	Rates as per NMET SoC 2020-21		Year 2021-22			Remarks
			SOC Item No	Rates as per SOC	Qty	Amount (Rs)		
(a)	(b)	(c)	(d)	(e)	(f)	(g)=(e)*(f)		
1	**Interpretation of Aerogeophysical data and NGPM data**							
1.1	Charges towards purchase of aerogeophysical maps	nos	1.1	5,400	1	5,400	**50,400**	Reimbursement as per actual
1.2	Expert Charges for interpretation - HQ	nos	3.18	9,000	5	45,000		
2	**LARGE SCALE GEOLOGICAL MAPPING WORKS (1:12,500 scale :53.00 sq km)**							
2.1	Geologist Party days - Field	days	1.2	11,000	120	13,20,000	**28,19,440**	
2.2	Geologist Party days - HQ		1.2	9,000	60	5,40,000		
2.3	Labour charges	days	5.7	431	240	1,03,440		Amount will be reimbursed for unskilled labour as per the notified rates by the Central Labour Commissioner (Rs.431/- per day) or respective State Govt. whichever is higher.
3	**TRENCHING WORKS**							
3.1	Trenching works	cum	2.1.2	3,800	200	7,60,000		
4	**SURVEY WORKS**							
4.1	Fixation of borehole and determination of Co-ordinates and RL by DGPS (Includes Sol Base station and site base station)	days	1.6.2	19,200	5	96,000		
5	**DRILLING**							
5.1	Surface Drilling (01 rig - Hard Rock)	m.	2.2.1.4a	11,500	500	57,50,000	**68,90,550**	
5.2	Transportation of drill rigs (01 unit x 600 km one way)	km	2.2.8	36	1200	43,200		certification in this regard is required to be provided
5.3	Drilling camp setting cost	per drill	2.2.9a	2,50,000	1	2,50,000		
5.4	Monthly accommodation charges for drilling camp	monthly basis	2.2.9	50,000	3	1,50,000		

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5.5	Drilling camp winding cost		per drill	2.2.9b	2,50,000	1	2,50,000		
5.6	Approach road making for Rugged - Hilly terrain		Km	2.2.10b	32,200	3	96,600		Road making will be considered as per the requirement and Road making charges will be reimbursed accordingly.
5.7	Construction of Concrete pillar (12"X 12"X30")		per borehole	2.2.7a	2,000	5	10,000		
5.8	Borehole plugging by cement		per m	2.2.7b	150	15	2,250		
5.9	Drill Core preservation		m	5.3	1,590	150	2,38,500		
5.10	Land/Crop compensation (in case the BH falls in agriculture land)		per borehole	5.6	20,000	5	1,00,000		Amount will be reimbursed as per actual or max. Rs. 20000 per BH with certification from local authorities
6	**LABORATORY STUDIES**								
6.1	Sample processing works (663 nos)	Sampler charges	days	1.5.2	5,100	40	2,04,000	**2,72,960**	
6.2		Labour charges	days	5.7	431	160	68,960		Amount will be reimbursed for unskilled labour as per the notified rates by the Central Labour Commissioner (Rs.431/- per day) or respective State Govt. whichever is higher)
6.3	Sample analysis (34 elemental analysis)	Primary	per sample	4.1.14	7,731	300	23,19,300	**28,99,125**	
6.4		Internal Check (5%)		4.1.14	7,731	15	1,15,965		
6.5		Composite (10%)		4.1.14	7,731	30	2,31,930		
6.6		External Check (10%)		4.1.14	7,731	30	2,31,930		
6.7	Gold analysis by Fire assay method	Primary	per sample	4.1.5a	2,380	10	23,800	**30,940**	
6.8		Internal Check (5%)		4.1.5a	2,380	1	2,380		
6.9		Composite (10%)		4.1.5a	2,380	1	2,380		
6.10		External Check (10%)		4.1.5a	2,380	1	2,380		
6.11	Petro studies	Preparation of Standard Thin section	nos	4.3.1	2,353	10	23,530	**1,29,260**	
6.12		Complete Petrological	nos	4.3.4	4,232	10	42,320		

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		Report of rock sample							
6.13		Preparation of Polished Thin section	nos	4.32	1,549	10	15,490		
6.14		Mineragraphic studies	nos	4.3.4	4,232	10	42,320		
6.15		Digital photomicrographs of Thin section	nos	4.3.7	280	20	5,600		
7	**Peer review of report**		lumpsum				10,000	**10,000**	
8						**Sub Total**	**1,31,02,675**	**1,31,02,675**	
9	Preparation of Exploration Project Proposal		lumpsum	5.1	2% of the project cost or Rs 3.8 lakh whichever is lower	5 Hard copies along with Soft copy	**2,62,054**	**2,62,054**	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.
10	Exploration Report			5.2(iii)	For the projects having cost exceeding Rs 50 lakhs but less than Rs 150 lakhs : A Minimum of Rs. 2.5 lakhs or 5% of the value of work whichever is more and Rs.3000/- per each additional copy	5 Hard copies along with Soft copy	**6,55,134**	**6,55,134**	EA has to submit the final Geological Report in Hard Copies (5 nos) and the soft copy to NMET.
11	**GRAND TOTAL (10 to 12)**						**1,40,19,862**	**1,40,19,862**	
12	**GST 18%**						**25,23,575**	**25,23,575**	GST will be reimbursed as per actual and as per notified prescribed rate
13	**Grand Total (with GST 18%)**						**1,65,43,437**	**1,65,43,437**	**or Say 165.43 Lakhs**

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Annexure-3B

Schedule time for Reconnaissance Survey (G4) for basemetal in Oblapuram block (53.0 sq km), District: Davangere, Karnataka.

S. No.	Details of Works	Duration in months	1	2	3	4	5	6	Review of the exploration work	7	8	9	10	11	12
1	CAMP SETTING	01	■												
2	LARGE SCALE GEOLOGICAL MAPPING (Includes 53 sq km of LSM + 50 nos of BRS + 50 nos Channel/ Groove + 200 cum Trenching)	03		■	■	■									
	2.1 Geologist Party days			■	■	■									
	2.2 Laboratory Works	01				■	■	■							
3	Ground Geophysics works	01				■	■								
	3.1 Survey Party days for Ground Geophysics					■	■								
4	Surface Drilling	03						■							
	4.1 Preparatory works for drilling (Approach road making							■		■	■	■	■		
	Drilling works (01 rig - 500m)									■	■	■	■		
	4.2 Geologist Party days														
	4.3 Laboratory Works	04									■	■	■	■	
5	Survey Works														
	5.1 Survey party days fir DGPS survey (7 pts)	07 days												■	
6	Camp Winding	01													■
7	Preparation of Reports and Maps	01													■

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Annexure-4A

Estimated cost for Preliminary exploration (G3) for coal along with 2D seismic survey in Ulia-Gamhardih Block, East of Bisrampur Coalfield, District: Surguja, Chhattisgarh.

Total block area- 39.14 sq km; Nos. of Borehole- 8; Borehole depth range- 90-265m avg; Schedule 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	1,300	73,04,700	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		601	1,300	7,81,300	Copy of MoC approved Rate is required
2	Electrical Resistivity (AB/2 = 1 km)	3.5a	per station	70,650	70,650	80	56,52,000	
	Total Cost of Outsourcing Component						**1,37,38,000**	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	1.6.1a	Day	8,300	8,300	20	1,66,000	
2a	Geological Party days-Field	1.5.1b	Day	11,000	11,000	60	6,60,000	
2b	Geological Party days-HQ (Data processing & Report Preparation)	1.5.1b	Day	9,000	9,000	30	2,70,000	
						Sub Total- A	**10,96,000**	
B	**GEOPHYSICAL STUDIES**							
2a	Geophysict Party days-Field	3.19	Day	11,000	11,000	10	1,10,000	
2b	Geophysict days-HQ (Data processing & Report Preparation)	3.19	Day	9,000	9,000	20	1,80,000	
						Sub Total- B	**2,90,000**	
						Total- (A+B)	**13,86,000**	

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II-Laboratory Studies								
1	**Band By Band Analysis**							
a	Ash+Moisture	4.2.6	per sample	700	700	450	3,15,000	
b	House Keeping	4.2.1	per sample	115	115	450	51,750	
2	**Overall analysis**							
a	Proximate analysis	4.2.7	per sample	935	935	120	1,12,200	
b	Moisture at 60% RH & 40C	4.2.8	per sample	1,010	1,010	120	1,21,200	
c	GCV	4.2.11	per sample	1,505	1,505	120	1,80,600	
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	120	95,400	
3	**Special Test**							
a	Ultimate analysis	4.2.17	per sample	9,945	9,945	13	1,29,285	
b	Total Sulphur	4.2.14	per sample	1,900	1,900	13	24,700	
c	Distribution of Sulpher	4.2.15	per sample	3,695	3,695	13	48,035	
d	HGI including sample preparation	4.2.18	per sample	3,805	3,805	13	49,465	
e	AFT (Ash Fusion Temperature)	4.2.20	per sample	2,745	2,745	13	35,685	
f	Ash analysis	4.2.25	per sample	325	325	13	4,225	
4	**Petrographic analysis**							
a	Pellet preparation	4.3.14a	per sample	1,160	1,160	5	5,800	
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25,000	25,000	5	1,25,000	
c	Microlithotype Analysis (with photomicrography)	4.3.14g	per sample	25,000	25,000	5	1,25,000	
d	Mean Ro%	4.3.14j	per sample	16,345	16,345	5	81,725	
						Sub Total	**15,05,070**	
III. Miscellaneous Charges (Departmental)								
a	DGPS Survey of bundary, borehole points (8 boreholes & 20 boundary point)	1.6.2	per point	19,200	19,200	28	5,37,600	
b	Preparation of Exploration Proposal	5.1	lump sum	2% or Rs. 3.8 lakh whichever is lower		1	3,32,581	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	Tender Process Cost (on outsourced component)	2.3	lump sum	2% or Rs. 5 lakh whichever is lower		1	2,74,760	Will be reimbursed when copy of signed agreement/tender for outsourced component will

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								be submitted.
e	Operational charges for CMPDI (on outsourced component)	Point 3 (iii)of SOC				1	10,61,900	Will be reimbursed as per point 3 of NMET-SoC after recalculation when actual cost of outsourcing component will be be provided. The copy of contract agreement for outsourced component and work completion report are also required to reimburse the operational charge
	Miscellaneous Charges Total						**22,16,841**	
	Total cost for in-House component (I to III)						**51,07,911**	
3 - Total Cost for outsource and in-House component (1 & 2)							**1,88,45,911**	
	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			7,50,000	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							**1,95,95,911**	
	Provision for GST (@18%)						35,27,264	GST will be reimburse as per actual and as per notified prescribed rate
5- Total Cost of the project with GST							**2,31,23,175**	**Or Say 231.23 Lakhs**

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 Drilling & Geophysical the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.
	5) GPL rates is Rs 601/- per meter as per MoC Rates for minimum 8 parameters, the break up is as follows-

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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		0
8	Resistivity	41
	Total	**601**
6) Lumpsum amount of Rs. 10,000 has been considered for Peer Review.		

Annexure-4B

Schedule time for Preliminary Exploration (G3) for coal along with 2D seismic survey in Ulia-Gamhardih Block, East of Bisrampur Coalfield, District: Surguja, Chhattisgarh.

S. No	Activities													Remarks
		Months	1	2	3	4	5	6	7	8	9	10	11	12	
1	Outsourcing	Months													3 Months
2	Mobilising	Months													1 months
3	Resistivity & Magnetic Survey	Months													80 point Resistivity
4	Drilling (Nos of rigs-1 rigs)	Months													1300 in 8 Bh
5	Borehole Geophysical logging	Days													1300 in 8 Bh
6	Survey days (1 Party)	Days													60 Days
7	Geologist days, Field (1 Party)	Days													60 Days
8	Geophysicist days, Field (1 Party)	Days													45 Days
9	Laboratory Studies (Band By Band)	Nos.													450 sample
10	Laboratory Studies (Overall)	Nos.													210 sample
11	Laboratory Studies (Special) & (Petrography)	Nos.													21 Sample & 5 Sample
12	Geologist days, HQ (1 Party)	Days													30 Days
13	Geophysicist days, HQ (1 Party)	Days													30 Days
14	Geophysical investigation Report	Months													4 Months
15	Report Writing & Peer Review	Months													4 Months

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