



**GOVERNMENT OF KARNATAKA**



No.DMG/NMET-III/2022-23

4798

Office of the Director,  
Dept of Mines and Geology,  
No.49, Khanija Bhavan, R.C.  
Road, Bangalore-560001.  
Dated: 07.07.2022.

11 JUL 2022

**To:**

The Director,  
National Mineral Exploration Trust (NMET),  
Ministry of Mines,  
F-114, 1<sup>st</sup> Floor,  
Shastri bhawan,  
New Delhi-110001

**Sir,**

**Sub:** Proposal for financial assistance from NMET funds to procure machinery/ laboratory equipment/instruments etc. aimed at enhancing the exploration activities-reg.

**Ref:** Your office letter No: F.No. 6/9/2015-NMET/71, dated: 08.06.2022.

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With respect to the above subject and as directed in your letter at reference, we are hereby submitting this proposal seeking one-time financial assistance from NMET funds to strengthen technical infrastructure of State DMGs viz. procurement of machinery/ laboratory equipment / instruments/ hardware/ software and other necessary infrastructure, aimed at capacity building of the State DMGs for enhancing the exploration activities.

It is to mention that State Government has allocated Rs.5.00 Crores to strengthen the Exploration wing of the department in the year 2021-22 and as a part of this program department has already initiated the upgradation/ renovation of Head Office Laboratory at the cost of Rs.2.00 crores. Further, Rs.2.00 crores has been earmarked to procure advanced Instruments for the laboratory.

Department intends to procure the 4KW capacity WD-XRF instrument from the earmarked State budget, as this instrument is very much required for our departmental regular Iron ore analysis and other commodities analysis and proposes to procure the following equipment, software etc., which also includes some of the allied equipment that are essential for the operation of WD-XRF.

SL No.	Name of the Instruments /Software	Unit	Approximate cost in Lakhs	Lifetime	Justification for Procurement
1	Inductively coupled plasma Mass spectrometer (ICP-MS)	1	200.00	With present SOC charges of NMET, the investment on this instrument can be recovered within 5 years.	<p>ICP-MS has multi-element capability, which allows multiple elements to be measured simultaneously in a single analysis.</p> <p>It is used for estimation of base metals, REE, RM and other commodities having the detection levels up to PPT.</p> <p>Karnataka being one of the important resource bearing State in the Country having PGE, base metals, REE deposits will be benefitted by having this instrument to carry out the analysis much faster and this will also elevate the standards of our department laboratory.</p> <p>This instrument will augment the requirement of other exploration agencies as well.</p>
2	Fusion bead machine	1	45.00	This being the supplementary instrument to prepare the samples for WD-XRF the estimated recovery period on the investment will be 3 years as per the present SOC rates of NMET.	<p>State DMG will be procuring the WD-XRF instrument through its State allocated budget and this instrument is very much required for functioning of the said instrument for sample preparation.</p> <p>This will be a supplementary sample preparation machine for analyzing the mineral samples in instruments like WDXRF and ICP-MS or AAS etc.,</p> <p>The fusion bead method is an effective sample preparation technique for accurate XRF analysis as the same eliminates heterogeneity due to grain size &amp; mineralogical effect.</p> <p>Due to shortage of State fund to procure WD-XRF and its accessories together, department is proposing supporting components under this scheme.</p>

3	<b>Press pellet machine</b>	1	15	This being the supplementary sample preparation machine for WDXRF, the estimated recovery period on the investment will be 3 years as per the present SOC rates of NMET.	This is one of the supplementary instrument to support the sample preparation for <b>WD-XRF</b> . This will enable us to prepare pellet from powdered sample to analyze the same in XRF. An automatic pellet press sample preparation with automatic ejection removes user handling errors and speeds up production of samples. Since there is shortage of funds to procure all these supportive instruments with WD-XRF under state budget, we are proposing this procurement under NMET.
4	<b>Microwave Digestive System</b>	1	20.00	This is the accessories to support the functioning of proposed instruments like ICP-MS. Hence, recovery time period can't be mentioned precisely.	Microwave digestion is a common technique used to dissolve heavy metals in the presence of organic molecules prior to analysis using Inductively Coupled Plasma Mass Spectrometry (ICP-MS). This technique is usually accomplished by exposing a sample to a strong acid in a closed vessel and raising the pressure and temperature through microwave irradiation. Once the heavy metals are in solution, it is possible to quantify the sample through elemental techniques. This instrument being one of the important component to support the functioning of ICP-MS, department is proposing to procure this equipment.
5	<b>Vibratory Cup Mills</b>	2	20.00	These being the accessories to support the sample preparation, lifetime can't be mentioned precisely.	Due to shortage of funds in the State budget, these instruments are being proposed under this scheme. Vibratory Cup Mill helps to grind the extremely hard, brittle materials to laboratory fineness and make it convenient to carry out the analysis using instruments like XRF.
6	<b>Geosoft Oasis montaj</b>	1	100.00	This will expedite the analytical process of exploration wing and being the supportive tool to enhance our exploration works lifetime can't be	This software will enable our exploration team to carry out many analytical activities including 2D and 3D modelling and analysis of raw geological, geochemical and geophysical data. This helps in rapid assessment of large data sets in real time, running numerous filters and processes, spatially align all data with real-time coordinate projection.

				estimated.	<p>This has the feature of importing, overlay and work with more than 50 common formats from CAD to GIS. Also useful in directly importing data from many online geoscience repositories.</p> <p>Hence, Department proposes to procure this software to aid and assist our exploration team. It is to mention that department is presently having Arc GIS advance version.</p>
7	<b>Rock cutting Polishing and mounting unit</b>	1	50.00	As per the present SOC of NMET, the investment on this instrument can be recovered within 3 years.	<p>NMET has recently approved the procurement of optical Microscope to State DMG and this equipment are very much essential in preparing the samples to carryout Petrological and Mineralogical Studies using the said Microscope.</p> <p>This equipment is necessary for preparing thin glass slides of rock/mineral samples. It has the capabilities to prepare thin sections from hard rocks, weathered materials, loose sand, silt etc.</p> <p>This helps in preparation of normal (unpolished) and polished rock sections and grain mounts for petrographic studies and EPMA analysis and preparation of wafers for fluid inclusion studies.</p>
<b>Total</b>			<b>450 Lakhs</b>		

Hence, kindly approve the above proposal of worth **Rs. 450 Lakhs** and grant the funds under NMET at the earliest and support our initiative of strengthening our exploration wing and take up more exploration activities including capacity building of the DMG, Karnataka.

Thanking you,

Yours faithfully,



**Director**

**Department of Mines & Geology**

**Copy to:** The Secretary to Government (MSME, Mines), Commerce & Industries Department, Vikasa Soudha, Bangalore for information.