

Project Summary

Title: Regional Mineral Targeting and integrated mineral system studies for identification of prospective blocks for Graphite, Niobium, REE and associated mineralisation in Yellikod-Azhikod areas, near Achankovil shear zone, Southern Granulite Terrain, Kerala and Tamilnadu States. (999 Sq km)

	Features	Details
	Block ID	RMT/KL-TN/GMSPL/001/2025
	Exploration Agency	GEO MARINE SOLUTIONS PVT LTD
	Commodity	REE, GRAPHITE, NIOBIUM
	Mineral Belt	ACHANKOVIL SHEAR ZONE (AKSZ) & KHONDALITE BELT (KKB)
	Budget & Time schedule to complete the project	4,92,49,702/- (incl. 18% GST) Timeline: 24 Months
	Objectives	To identify: (i) The mineral systems south of Achankovil shear zones in Keral Khondalite Belt (KKB), Trivandrum Block, Southern Granulite Terrain (ii) Potential mineral targets for detailed (G-4 and G-3) exploration.
	Whether the work will be carried out by the proposed agency or through outsourcing and details thereof. Components to be outsourced and name of the outsource agency	Work will be carried out by Geo Marine Solutions Pvt. Ltd.
	Name/Number of Geoscientists	Six geoscientists
	Expected Field days	14 months
1.	Location	Thiruvananthapuram Dist. (Kerala), Kanyakumari Dist. (Tamil Nadu)
	Latitude and Longitude	Boundary coordinates are given in the Annexure-1
	Villages	Not Applicable (several villages)

	Tehsil/Taluk	Nedumangad, Neyyantinkara and Trivandrum Taluks of Thiruvananthapuram dist, Kerala; Kuzhittura and Takkalai Taluks of Kanyakumari dist. Tamil Nadu.
	District	Thiruvananthapuram, Kerala; Kanyakumari, Tamil Nadu
	State	Kerala, Tamil Nadu
2.	Area (hectares/ square kilometres)	
	Block Area	999 Sq Km.
	Forest Area	50-60 sq km.
	Government Land Area	Not Applicable
	Charagaha	Not Applicable
	Private Land Area	Not Applicable
3.	Accessibility	
	Nearest Rail Head	Thiruvananthapuram South
	Road	Trivandrum – Nagercoil High way
	Airport	Thiruvananthapuram International Airport
4.	Hydrography	
	Local Surface Drainage Pattern (Channels)	Karamana River (Karamanayar) and Killi River (Killiyaar) is flowing through this block Dendritic pattern and structural control for major channel
	Rivers/ Streams	Karamana River (Karamanayar), Killi River (Killiyaar)
5.	Climate	Tropical climate characterized by warm temperatures and significant rainfall throughout the year
	Mean Annual Rainfall	The average annual rainfall in Thiruvananthapuram district is around 2035mm. In Kanyakumari district, the average annual rainfall varies, with estimates ranging from 826 to 1456 mm.
	Temperature:	In Thiruvananthapuram, minimum temperature is 23.4°C (August) and maximum temperature is 33.7°C (April). In Kanyakumari, average daily maximum temperature is 32.9°C and average daily minimum temperature is 23.5°C
6.	Topography	

	Toposheet Number	Toposheet No. 58D/14, 58D/15, 58H/2, 58H/3, 58H/4, 58H/6, 58H/7, 58H/8
	Morphology of the Area	Morphology of the area falling under Thiruvananthapuram and Kanyakumari districts: The area has three distinct topographical units: 1. Lowlands: Narrow coastal plains with beaches and cliffs. 2. Midlands: Undulating terrain with valleys and hillocks (covers 60% of the district). 3. Highlands: Rugged with steep slopes, narrow valleys, and rocky cliffs (up to 1869m elevation) of Western Ghats. Each unit has unique features shaped by marine, fluvial, and denudational processes. (District survey report of minor minerals.,2016)
7.	Availability of baseline geoscience data	
	Geological Map (1:50K/25K)	1: 50000 scale Geological map is available. The proposal is based on the published literature mentioned in the references. Geological inputs pertaining to the area falling in toposheets 58D/14, 58D/15, 58H/2, 58H/3, 58H/4, 58H/6, 58H/7, 58H/8 are available and referred while preparing the write up.
	Geochemical Map	NGCM data of GSI is available and has been referred.
	Geophysical Map (Aeromagnetic, ground geophysical, Regional as well as local scale GP maps)	Only very low resolution aero geophysical maps collected by NRSC for GSI (1981- 1994) is available. This data is very coarse for interpreting features related to mineralization, since the data collection was done by flying at 2100 m above ground and at 4000m line interval. The report on the ground geophysical survey (NGPM) conducted is NOT available as on date.
8.	Justification for taking up Preliminary Exploration	Review of the existing literature pertaining to geology, tectonic set-up, geochemistry & geochronology, structure & metamorphism and different thematic maps points out about the existence of four distinctive mineral systems in the region. The preliminary mineral exploration carried out by the Geological Survey of India indicated

		incidences of (i) graphitic mineralization in khondalites, (ii) Chrysoberyl (semi-precious) minerals in Pegmatites (iii) pneumetaolitic REE and RM mineralization mainly in syenite and pegmatites and (iv) Phologopites in the contact zone of calc silicates with Charnockites.
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