

Multi-Sensor Aero-geophysical Surveys over Obvious Geological Potential areas of India, Blocks-6 and 8.

Regional multi-sensor aero-geophysical surveys are being considered as a vital tool to scan large areas to demarcate favorable geological environments for concealed and deep seated mineral resources. Analysis of potential field (Gravity and Magnetic) data is one of the most common and cost effective ways of inferring subsurface geology. High quality aeromagnetic data available over most of the already explored areas of many parts of the world such as Australia, Canada, South Africa etc. have resulted in locating many new concealed mineral deposits.

National Aerogeophysical Mapping Program (NAGMP) has been planned to acquire uniform aerogeophysical data initially over the Obvious Geological Potential (OGP) and its adjoining areas followed by the coverage of whole country in a fixed time frame and to prognosticate suitable areas for mineral targeting. This will ultimately enhance the exploration activities in the country and attract foreign investments in the mineral sector.

In order to achieve this objective, a consultant (Paterson, Grant and Watson, Canada along with International Geosciences Services, UK and Elmekci Consultants (India) was engaged to prepare the Detailed Project Report (DPR), floating of EOI, manage the tendering process and identify the suitable PIA's to execute the project.

Accordingly, GSI submitted a proposal for acquisition of Multi Sensor Aero-Geophysical data like magnetic-gradiometry and radiometric data over 7.92 lakh sq. km Obvious Geological Potential (OGP) and adjoining areas of the country, divided into 12 blocks (Block-1 to 4), (Block-5 to 8) and (Block-9 to 12). The proposal was approved by Ministry of Mines.

The survey is being carried out by flying fixed wing aircraft at height of 80 m above ground level with a line spacing of 300 m and control lines spacing of 3000 m. The equipment used for the data acquisition are Magnetic gradiometer sensor and Spectrometric Sensors. The objectives of Multi Sensor Aero-Geophysical Survey are-

1. Acquire high resolution baseline aero-geophysical data,
2. Identify new target areas for mineral prognostication,
3. Understanding subsurface geological and structural set up.

For Technical Supervision and Quality Control (TS-QC), independent Internationally reputed agencies are being hired through a separate tender.

The details of the different blocks for the data acquisition of Multi Sensor Aero-Geophysical Survey are given below-

S. No.	Blocks	Total Area (sq. km)	Total target (Line km)	Revised Target (Line km)	Target Achieved (Line km)
1	1 to 4	1,94,131	7,11,813	6,61,933	6,61,933
2	5 to 8	3,11,846	11,43,435	11,43,435	--
3	9 to 12	2,86,268	10,49,649	10,41,666	3,23,603
Total		7,92,245	29,04,897	28,47,034	9,85,536

Accordingly, GSI submitted proposals for Multi Sensor Aero-Geophysical Survey and Executive Committee (EC) approved the projects for NMET funding. The details of the Multi Sensor Aero-geophysical Survey blocks approved by for NMET funding are given below-

S. No.	Block	Total Area (sq. km)	Total target (Line km)	Revised Target (Line km)	Target Achieved (Line km)	Remarks
1	Block-1	52,700	1,97,468	1,93,234	1,93,234	Completed
2	Block-2	43,822	2,05,198	1,60,680	1,60,680	Completed
3	Block-3	39,144	1,44,657	1,43,530	1,43,530	Completed
4	Block-4	44,861	1,64,490	1,64,490	1,64,490	Completed
5	Block-5	3,11,846	11,43,435	--	--	Under litigation
9	Block-9	71,132	2,60,817	--	--	Work order given
10	Block-10	91,801	3,36,604	--	--	Work order given
11	Block-11	89,583	3,28,471	--	3,20,488	Data acquisition completed
12	Block-12	33,752	1,23,757	--	3,115	Work in progress

Data acquisition for blocks-1 to 4 (Phase-I) have been completed with total coverage of 6,61,933 Line km (1,94,131 sq. km area). The final reports and all deliverables data of blocks 1, 2, 3 and 4 have been reviewed and submitted to NMET Secretariat.

Based on integration of these aero-geophysical data with archived geophysical, geological and known mineralization data, a total of 110 potential blocks have been identified for further exploration brought out prospective mineral potential target with recommendations for further follow up actions as mentioned below.

OGP Block No.	Metal mineral Blocks	Industrial mineral Blocks	Fuel mineral Blocks	Other mineral (Diamond)	Total prospective mineral Blocks
Block-1	11	2	Nil	Nil	13
Block-2	11	2	1	4	18
Block-3	40	8	Nil	2	50
Block-4	18	6	5	Nil	29
Total	80	18	6	6	110

The OGP Blocks- 5 to 8 (Phase-II) could not be initiated due to legal complications and cases pending in Karnataka High Court. However, after clearances for Blocks 6 & 8 by the Hon'ble High Court of Karnataka on 16.12.2020, due process of tendering is completed and approval for sanction of amount quoted by the bidders is awaited from NMET.

The OGP Blocks 5 and 7 has not been cleared by Hon'ble high court of Karnataka and judgment is expected shortly.

The OGP Blocks-9 to 12 (Phase-III) were approved by EC in its 9th meeting held on 08th August, 2018. The survey work and data acquisition in block-11 has been completed and the final report will be submitted by 31st March, 2021.

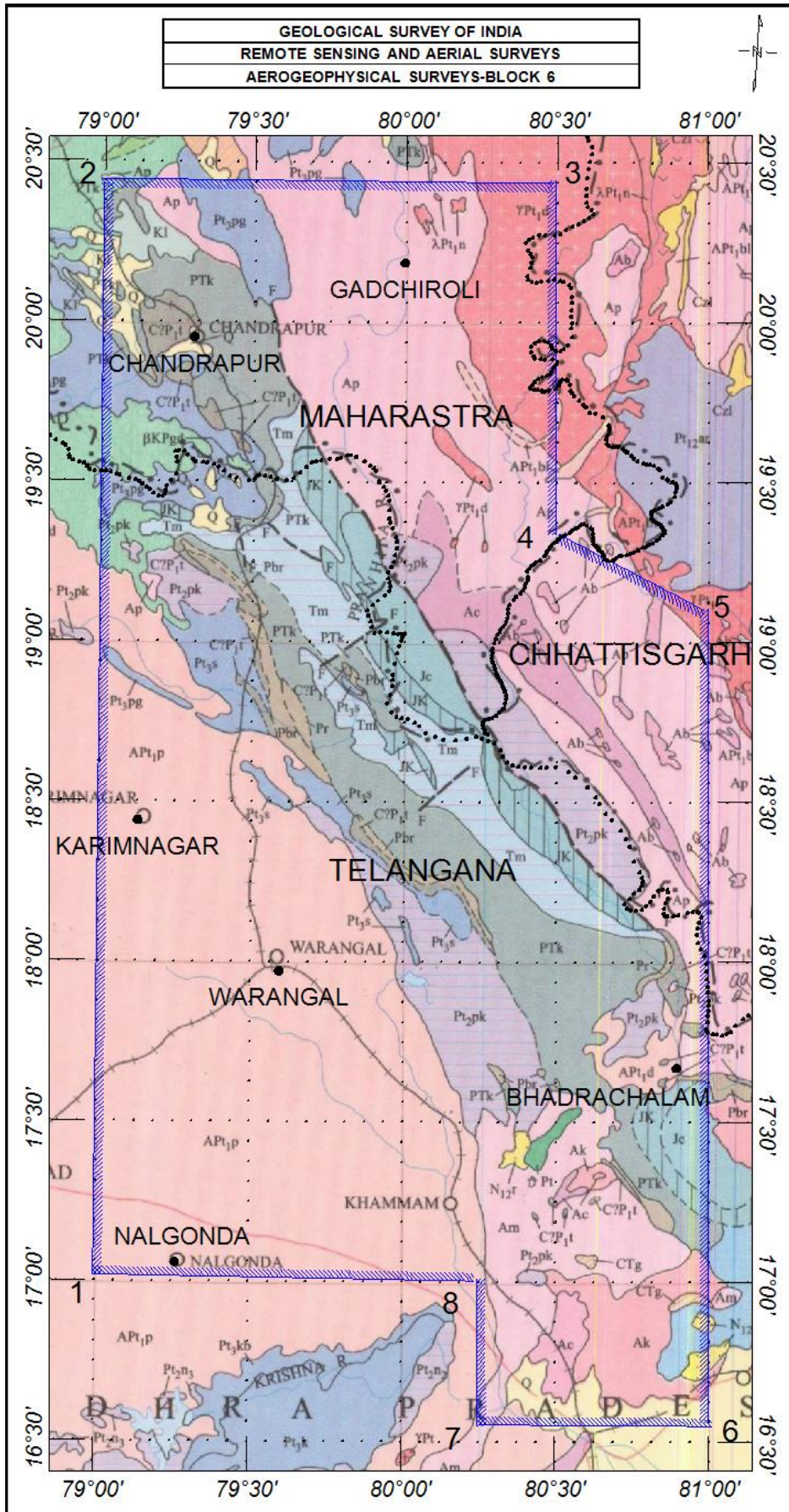
As the consortium partner of the OGP Block-9 withdrew from the projects after the CORONA pandemic, approval is awaited from the competent authority for change of consortium partner after which due process will follow.

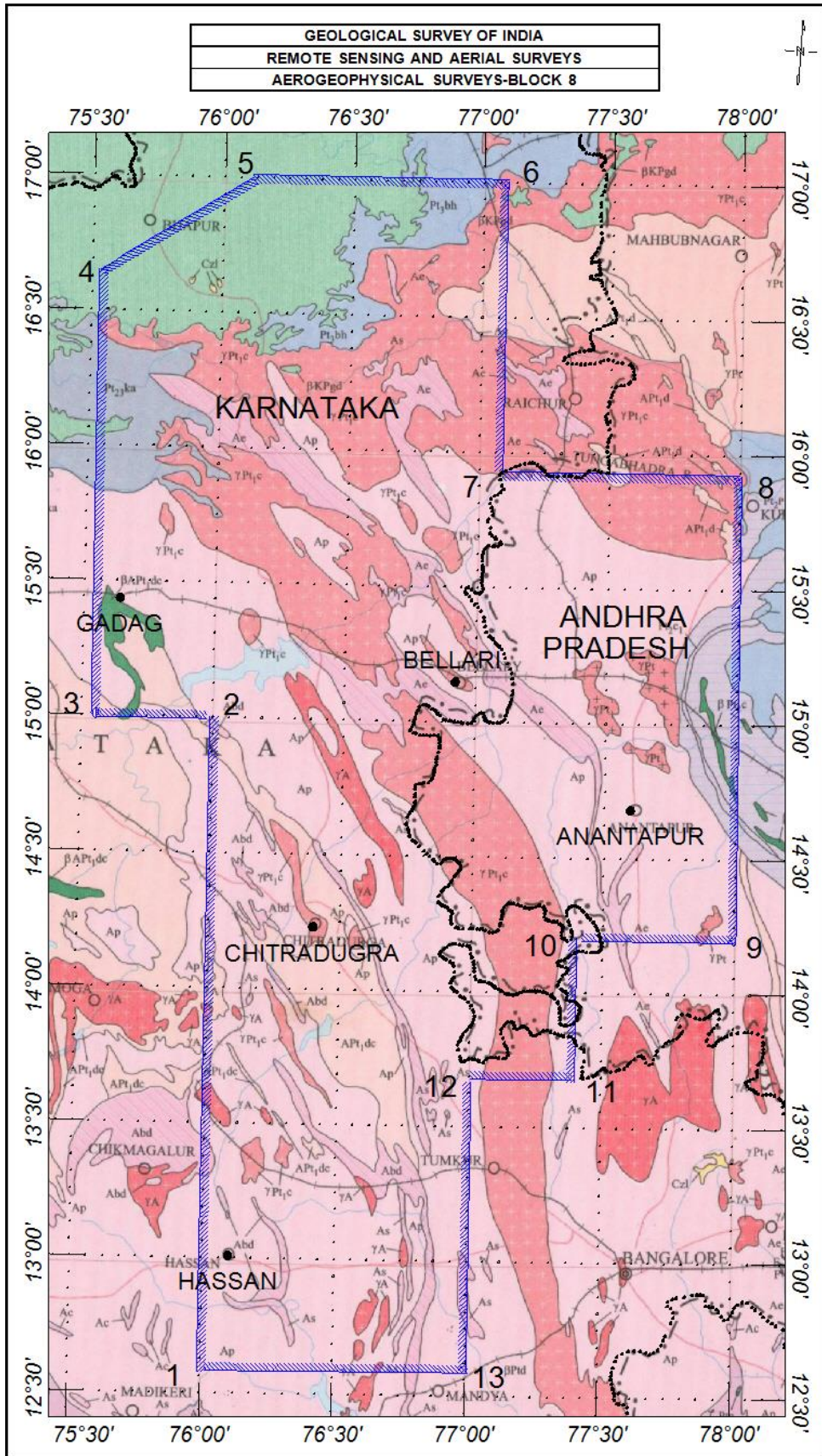
For Blocks-10 and 12, the PIA of M/s Alphageo (India) Limited has withdrawn from the contract after the CORONA pandemic and may be retendered shortly after obtaining the approval from the competent authority.

As the Hon'ble High Court of Karnataka has cleared the litigation for Blocks-6 and 8, GSI after due process of tendering submitted the proposal for approval by EC.

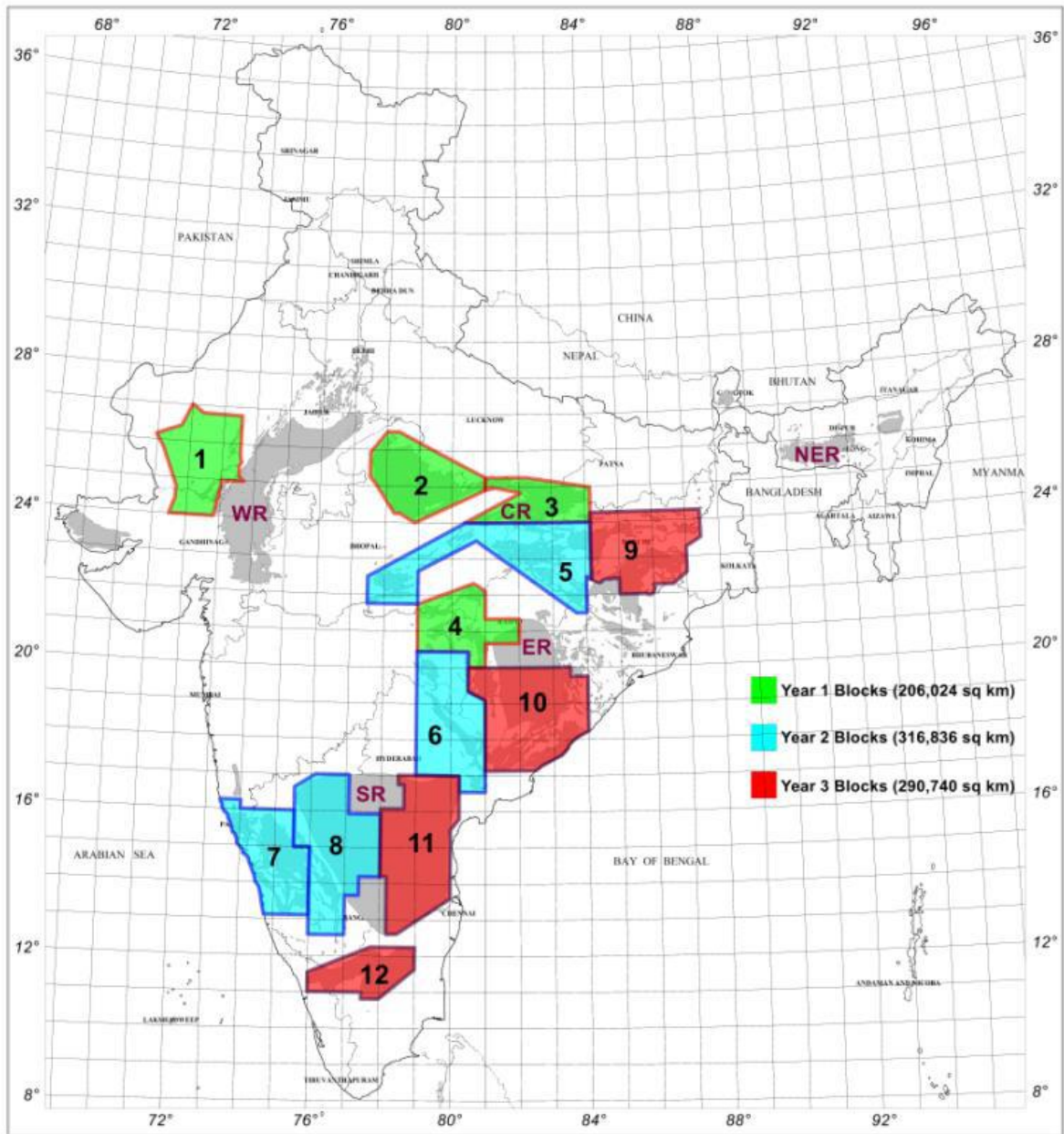
The details of Blocks-6 and 8 (Phase-II) are given below-

	OGP Block - 6	OGP Block - 8
Project Implementing Agency (PIA)	M/s Sander Geophysics Limited, Canada and M/s Pan India Consultant Pvt. Ltd., New Delhi, India	M/s McPhar International Pvt. Ltd., Mumbai, India, M/s Oil Field Instrumentation (India) Pvt. Ltd., Mumbai, India and M/s Ultimate Air FZ LLC, Dubai
Geological Domain	Dharwar, Calc-alkaline Closepet Granite, comprises of Granites – greenstone terrain and Bundelkhand&Bastar, Granite Pluton and Granitic Gniess covered by younger sediments	Dharwar, Calc-alkaline Closepet Granite, comprises of Granites – greenstone terrain
States	Maharashtra, Chhattisgarh, Andhra Pradesh and Telangana	Karnataka, Andhra Pradesh and Telangana
Districts	Khammam, Warangal, Karimnagar, Allapalli	Hassan, Ananthapur, Gundakkal, Bagalkot and Yadgir
Parts of Degree sheets	55P,56M,56N,56O, 64D,65A,B,C &D.	47P,48N,56D,57A,B,C,D,E,F&G
Area (Km²)	76,049	87,914
Line Km	2,78,846	3,22,351
Project Cost	Rs.39,85,74,528.59 inclusive of 18% GST. Equivalent USD 54,33,109.3056 (Inclusive of 18% GST) (1USD=73.3603 as on price bid opening 07.10.2020)	Rs 44,92,71,483/- (Inclusive of 18% GST)
Estimated Time of execution	17 months from issue of work order	





Geological map of the survey area of OGP Block-8



Map showing Blocks to be covered in Obvious Geological Potential and adjoining area

Follow up action by GSI for the outcome of the Multi Sensor Aero-geophysical Survey Blocks-1 to 4

1. Seven FSP items have been taken by RSAS during F.S. 2019-20 and 2020-21 as follow up in recommended mineral potential areas of OGP blocks 1, 2 & 4.
2. The identified potential Blocks have been intimated to Western and Central regions of GSI for taking up new FSP items during FSP 2019-20 and 2020-21.

Region	OGP Block	Number of Items taken	Stage of Investigation	Field Season
WR	Block-1	4	G4	2020-21
		1	Regional Mineral Targeting	
CR	Block-2	3	G4	2019-20
		1	G3	
		1	Regional Mineral Targeting	2020-21
		2	G4	
RSAS	Block-1	1	Data Integration & Ground Evaluation	2019-20; 2020-21
	Block-4	2		
		2		
	Block-1	1	Heliborne EM & Mag	2020-21
	Block-2	1		
Total		19		

3. The Proposal of Heliborne magnetic and Time Domain Electromagnetic (TDEM) surveys over target areas in OGP blocks 1 and 2 has been submitted for EC approval for NMET fund allocation.

The TCC recommended the projects for Aero-geophysical survey over Blocks 6 and 8 with estimated cost of Rs. 84.78 Cr [Rs. 39,85,74,528.59/- (Block-6) and Rs. 44,92,71,483/- (Block-8)] with time schedule of 17 months.