PROPOSAL FOR HELIBORNE SURVEYS

OVER IDENTIFIED FOLLOW UP AREAS FROM
LEGACY AEROGEOPHYSICAL DATA INTERPRETATION

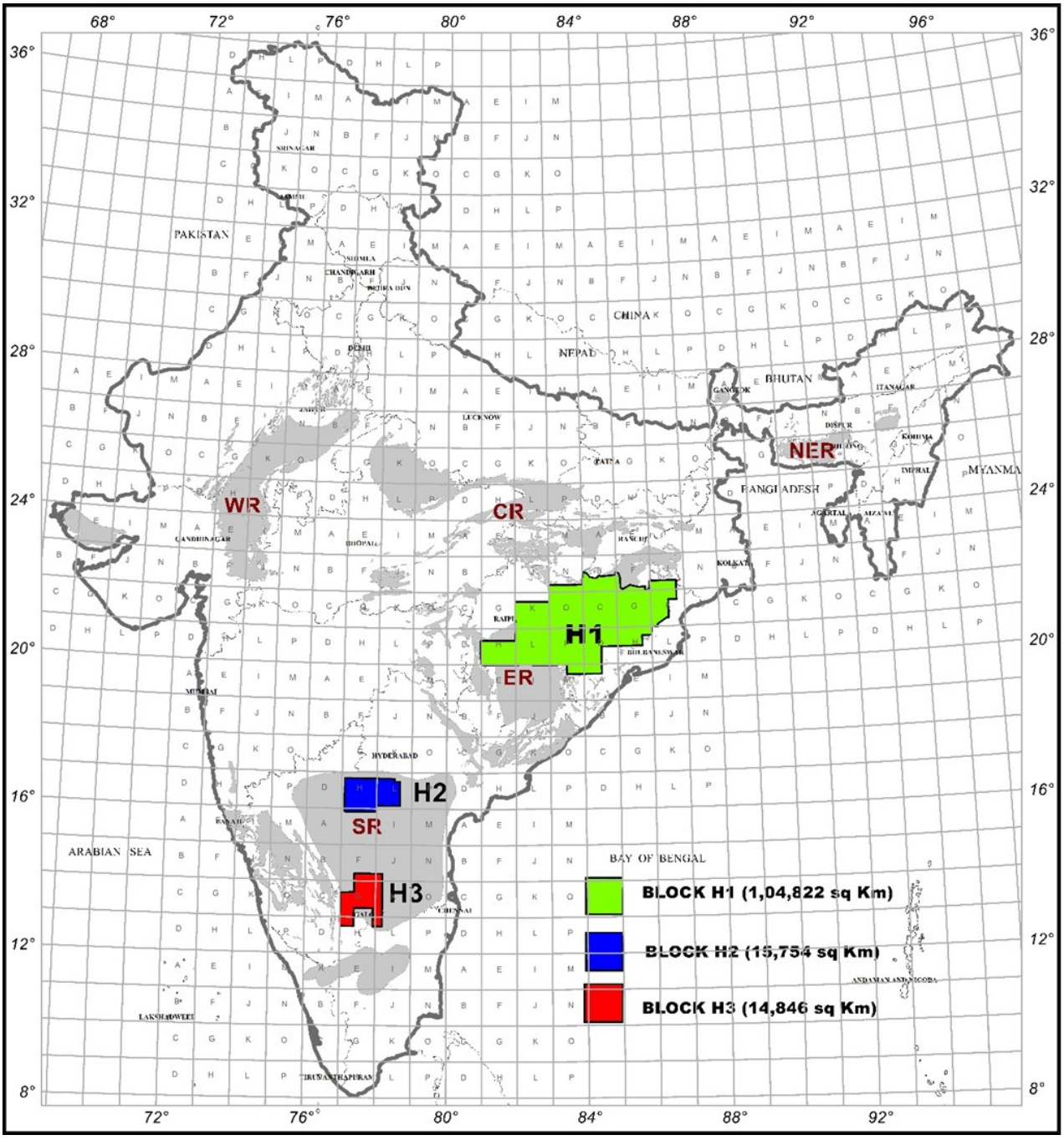
OVER THE STATES OF ODISHA, CHHATTISGARH, TELANGANA,
KARNATAKA AND ANDHRA PRADESH

January 2020

Proposal for Heliborne surveys

In this project, legacy data from previous airborne geophysical surveys (GSI TOASS and Government of Odisha), along with geology and ground geophysical and geochemical data were, integrated to identify the blocks which can be taken up for further mineral investigation using the Time-domain Electromagnetic (TDEM) method, which would enable to target the mineral resources in the identified mineral potential areas for further exploration. Magnetic data collected from the same platform will greatly improve the resolution of structure. Certain mineral deposits will display a magnetic signature in addition to a TDEM response.

The following figure shows the study area over the states of Odisha and Chhattisgarh for Block H1, Telangana and Karnataka for block H2, Karnataka and Andhra Pradesh for block H3.



The TDEM method locates conductive material to depths of several hundred meters (depth penetration varies depending on the system employed and geological condition). TDEM is especially important to locate sulphide minerals that are directly associated with certain mineral deposit types (e.g. copper, nickel), as well as having indirect associations (e.g. gold). The survey will provide a basis, particularly with the drilling control, to distinguish anomalies associated with graphite occurrences (already reported) in these areas. EM surveys are particularly effective within granite bodies, which may be expected to be relatively resistive. In addition, an EM survey may provide means to identify new mineralized structural associations which is not resolved by the magnetic data. The goal is to map the complex in greater detail both to better define the extent and stratigraphy of the ultramafic complexes and other host rocks, and further develop and constrain the individual targets.

The proposed airborne surveys have been broken into two phases. Phase I will utilize heliborne TDEM and Magnetic surveys to concentrate on the highest priority targets. This will form a pilot program to verify and improve all components of the program, including:

1. Contracting a helicopter from an Indian air operator.
2. Import/export protocols of the TDEM and ancillary equipment.
3. Permitting for the equipment, aircraft and flight personnel.
4. Helicopter flight operations.
5. Suitability of the TDEM system for Indian climatic, geological and regolith conditions, and detectability of the targets.
6. Utility of the specified deliverables, especially the modelling and interpretation of the TDEM data.

Once the preliminary results are available from the Phase I program, GSI anticipates proceeding with Phase II and incorporating “lessons learned” to improve efficiency and results.

Therefore two phases of follow up projects as recommended are

Phase I : Heliborne TDEM/Magnetic
Phase II : Fixed wing TDEM and other blocks of Heliborne TDEM along with magnetic surveys

Both heliborne and fixed wing TDEM surveys include the acquisition of magnetic data. The main advantages of the two survey types are:

Heliborne (TDEM & Magnetic) : greater spatial resolution due to sensor height (30 m vs 80 m for fixed wing), lower speed and better contouring of the terrain, more variations in the systems (transmitter and receiver configurations), more transmitter power and bandwidth that translates to greater depth penetration, more PIAs engendering greater competition

Fixed wing (TDEM & Magnetic): significantly lower cost, higher production rate, better suited for large surveys

All proposed survey blocks over H1, H2 and H3 area:

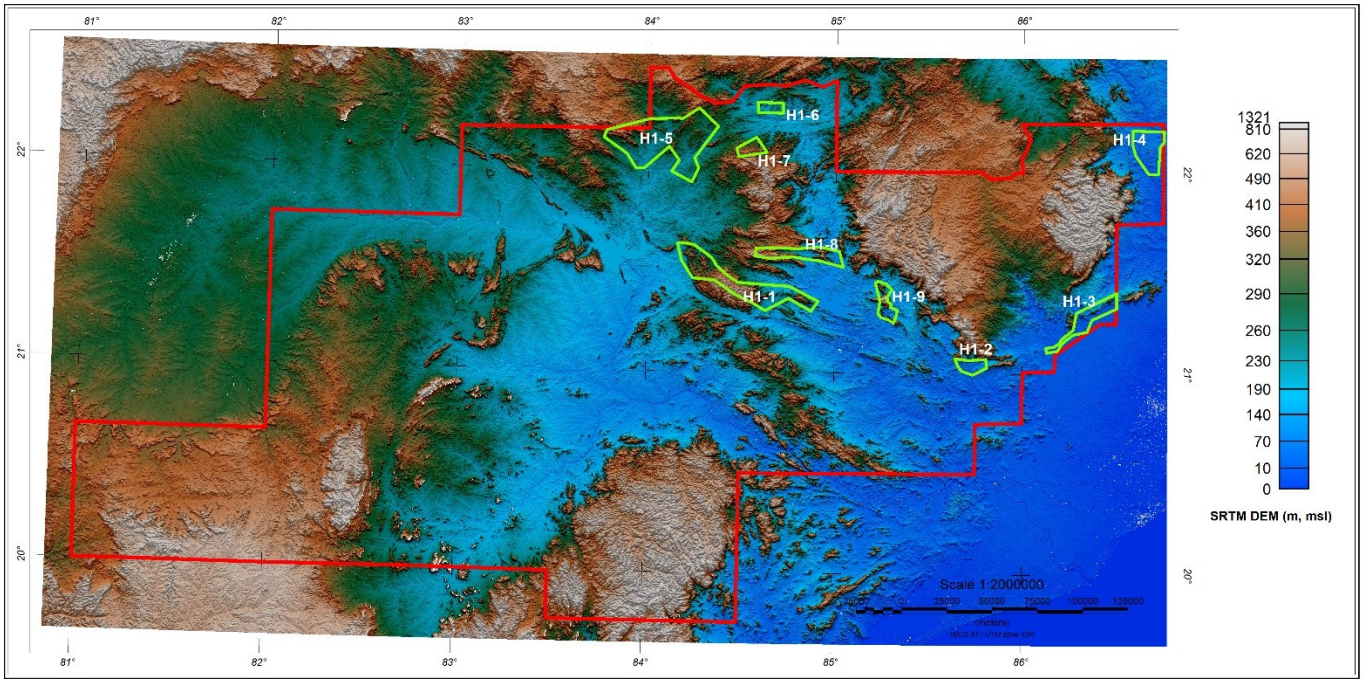
A total of 48 target areas were identified from the legacy data interpretation (annexure A). These areas are merged and proposed as 23 blocks. The following table shows the estimated line-km of all proposed survey blocks at the line spacing of 150 m.

				Line-km			Line Direction	
Block	**Priority**	**Type**	**Area (km2)**	**Traverse**	**Control**	**Total**	**Traverse**	**Control**
H1-1	1	Heli TDEM	782.6	5,225.0	524.0	**5,749.0**	0° / 180°	90° / 270°
H1-2	1	Heli TDEM	108.1	732.0	78.0	**810.0**	0° / 180°	90° / 270°
H1-3	2	Heli TDEM	269.6	1,788.0	179.0	**1,967.0**	0° / 180°	90° / 270°
H1-4	1	Heli TDEM	311.7	2,063.0	209.0	**2,272.0**	0° / 180°	90° / 270°
H1-5	1	FW Mag	1,252.4	8,517.0	863.0	**9,380.0**	0° / 180°	90° / 270°
H1-6	2	FW Mag	79.5	538.0	56.0	**594.0**	0° / 180°	90° / 270°
H1-7	2	FW Mag	99.7	752.0	80.0	**832.0**	0° / 180°	90° / 270°
H1-8	1	FW Mag	286.9	2,001.0	215.0	**2,216.0**	0° / 180°	90° / 270°
H1-9	1	FW Mag	146.5	1,112.0	117.0	**1,229.0**	0° / 180°	90° / 270°
H2-1	1	Heli TDEM	140.0	942.0	95.0	**1,037.0**	60° / 240°	150° / 330°
H2-2	1	Heli TDEM	798.6	5,335.0	535.0	**5,870.0**	0° / 180°	90° / 270°
H2-3	1	Heli TDEM	1,202.6	8,044.0	806.0	**8,850.0**	0° / 180°	90° / 270°
H2-4	2	Heli TDEM	386.2	2,604.0	278.0	**2,882.0**	0° / 180°	90° / 270°
H2-5	2	Heli TDEM	865.9	5,777.0	579.0	**6,356.0**	0° / 180°	90° / 270°
H2-6	2	Heli TDEM	180.9	1,212.0	122.0	**1,334.0**	0° / 180°	90° / 270°
H2-7	2	FW Mag/Spec	88.5	647.0	70.0	**717.0**	0° / 180°	90° / 270°
H2-8	2	FW Mag/Spec	156.3	1,147.0	119.0	**1,266.0**	0° / 180°	90° / 270°
H2-9	2	FW Mag	927.3	6,190.0	622.0	**6,812.0**	0° / 180°	90° / 270°
H3-1	1	Heli TDEM	1,468.4	9,811.0	987.0	**10,798.0**	60° / 240°	150° / 330°
H3-2	2	Heli TDEM	937.8	6,293.0	644.0	**6,937.0**	60° / 240°	150° / 330°
H3-3	2	Heli TDEM	351.2	2,361.0	246.0	**2,607.0**	90° / 270°	0° / 180°
H3-4	2	Heli TDEM	93.8	669.0	76.0	**745.0**	90° / 270°	0° / 180°
H3-5	1	Heli TDEM	52.1	357.0	38.0	**395.0**	0° / 180°	90° / 270°
	Total	Heli TDEM	7,949.3	53,213.0	5,396.0	**58,609.0**		
	Total	FW Mag/Spec	244.9	1,794.0	189.0	**1,983.0**		
	Total	FW Mag	2,792.3	19,110.0	1,953.0	**21,063.0**		

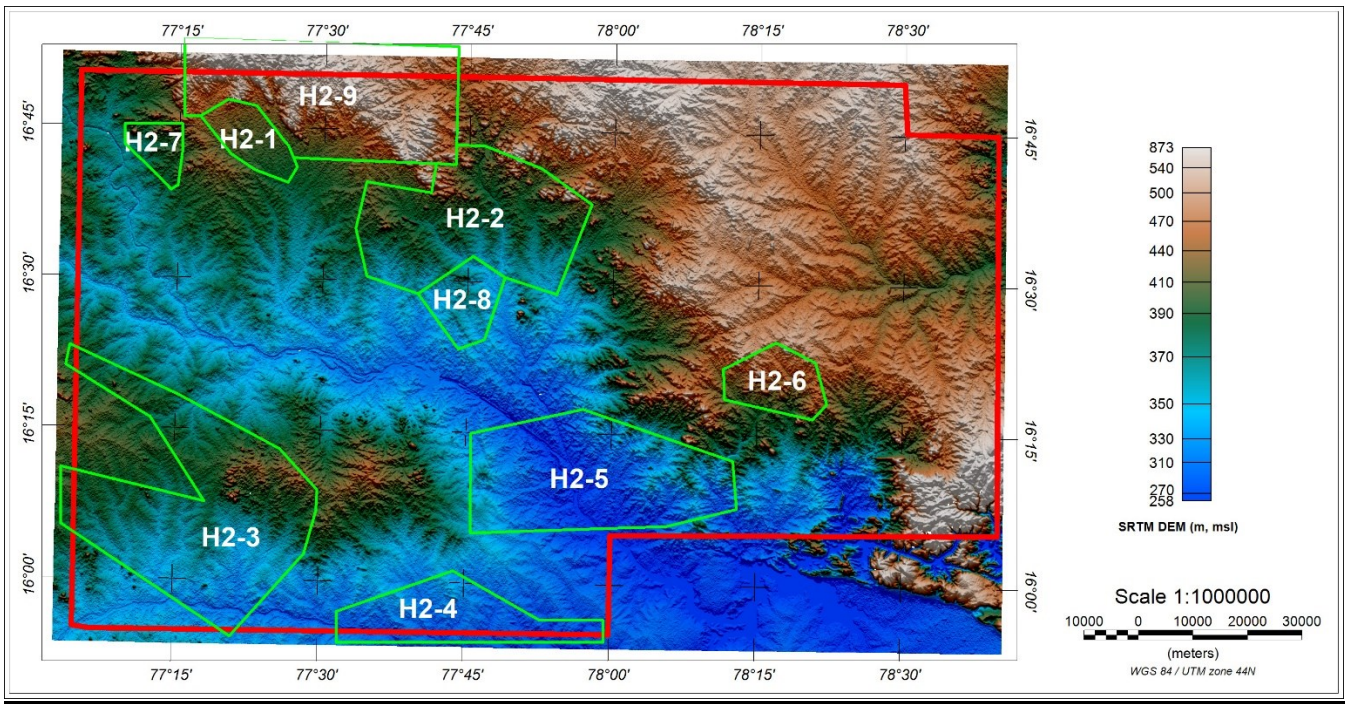
Heli TDEM – Heliborne time-domain electromagnetic
FW Mag/Spec – Fixed wing magnetic gradiometer and gamma-ray spectrometer
FW Mag – Fixed wing magnetic gradiometer

The following figures show the all proposed survey blocks over the H1, H2 and H3 areas.

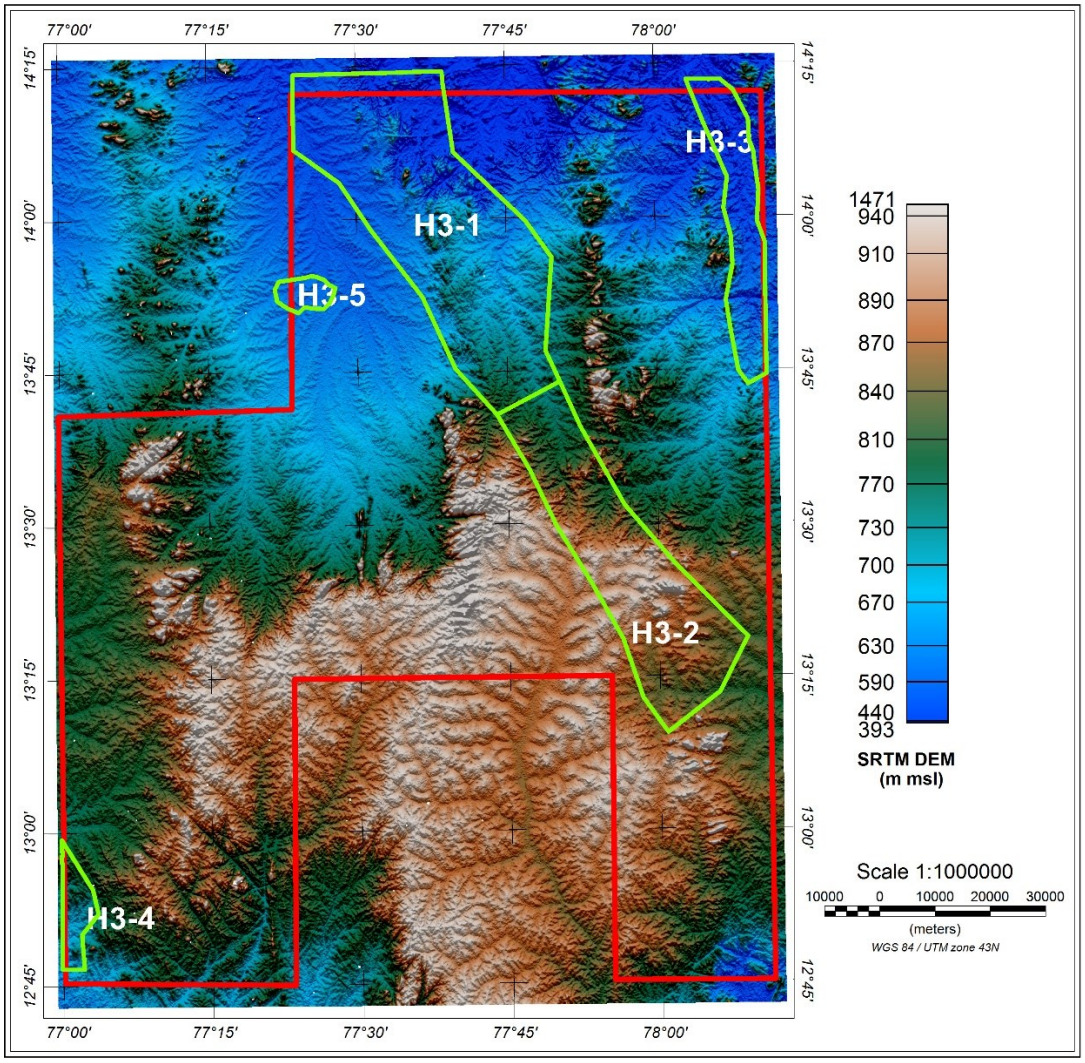
Block H1



Block H2



Block H3


77°00'
77°15'
77°30'
77°45'
78°00'
14°15'
14°00'
13°45'
13°30'
13°15'
13°00'
12°45'
H3-1
H3-2
H3-3
H3-4
H3-5
1471
940
910
890
870
840
810
770
730
700
670
630
590
440
393
SRTM DEM
(m msl)
Scale 1:1000000
10000 0 10000 20000 30000
(meters)
WGS 84 / UTM zone 43N

PHASE - I

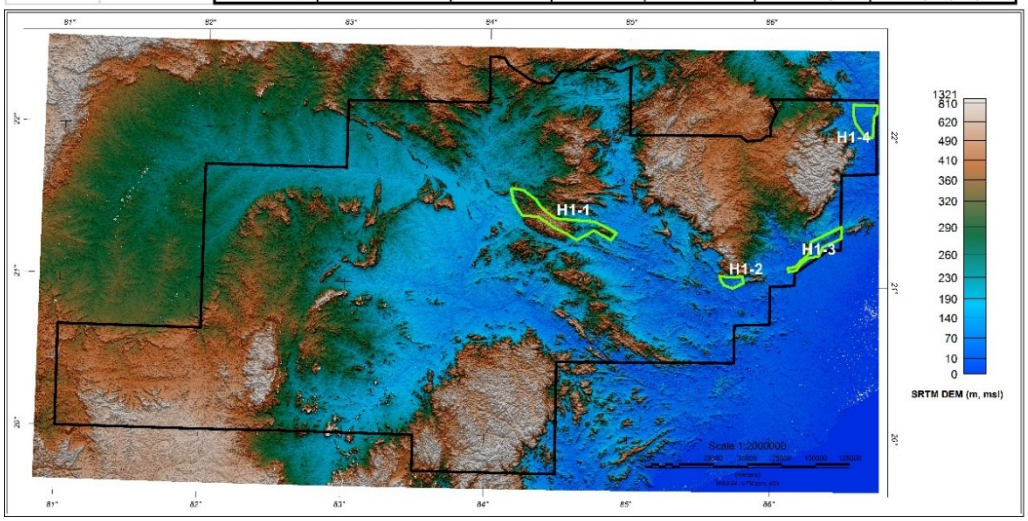
Proposed blocks for Phase I Heliborne survey programme

It is further decided to propose the following blocks for Phase I of the survey and the remainder for Phase II. The proposed Phase 1 blocks are recommended for Heliborne Time-domain Electromagnetic (TDEM) surveys along with magnetic surveys.

The following figures show the proposed Phase 1 Heliborne TDEM survey blocks over the H1, H2 and H3 areas.

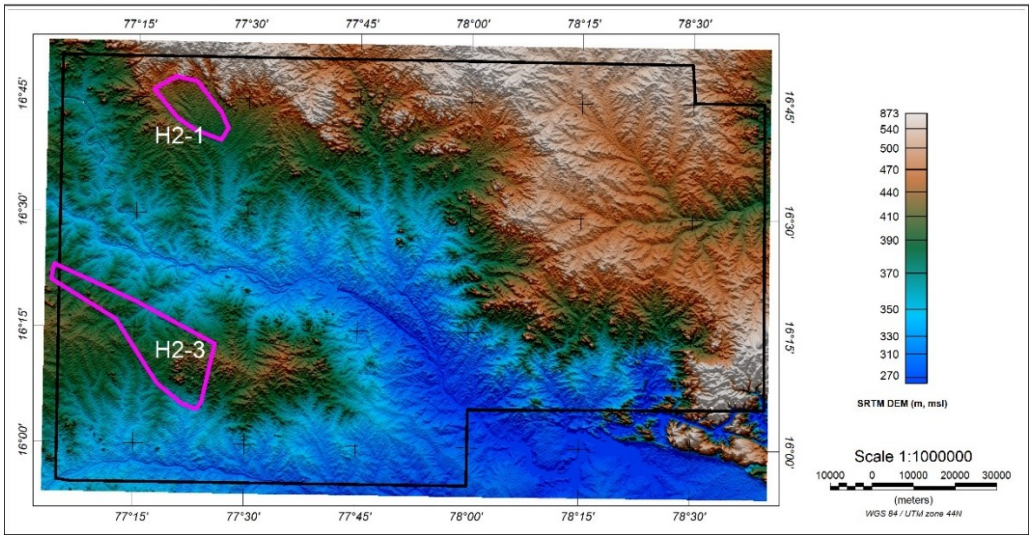
Block H1

	Line Direction			Line-km			Cost (Approx)	
Block	Traverse	Control	Area (km2)	Traverse	Control	Total	Cost per Km	Total cost
H1-1	0° / 180°	90° / 270°	782.6	5,486.3	524.0	**6,010.3**	9,850	5,92,00,963
H1-2	0° / 180°	90° / 270°	108.1	768.6	78.0	**846.6**	9,850	83,39,010
H1-3	0° / 180°	90° / 270°	269.6	1,877.4	179.0	**2,056.4**	9,850	2,02,55,540
H1-4	0° / 180°	90° / 270°	311.7	2,166.2	209.0	**2,375.2**	9,850	2,33,95,228
		Total	1,472.0	10,298.4	990.0	**11,288.4**	**9,850**	**11,11,90,740**



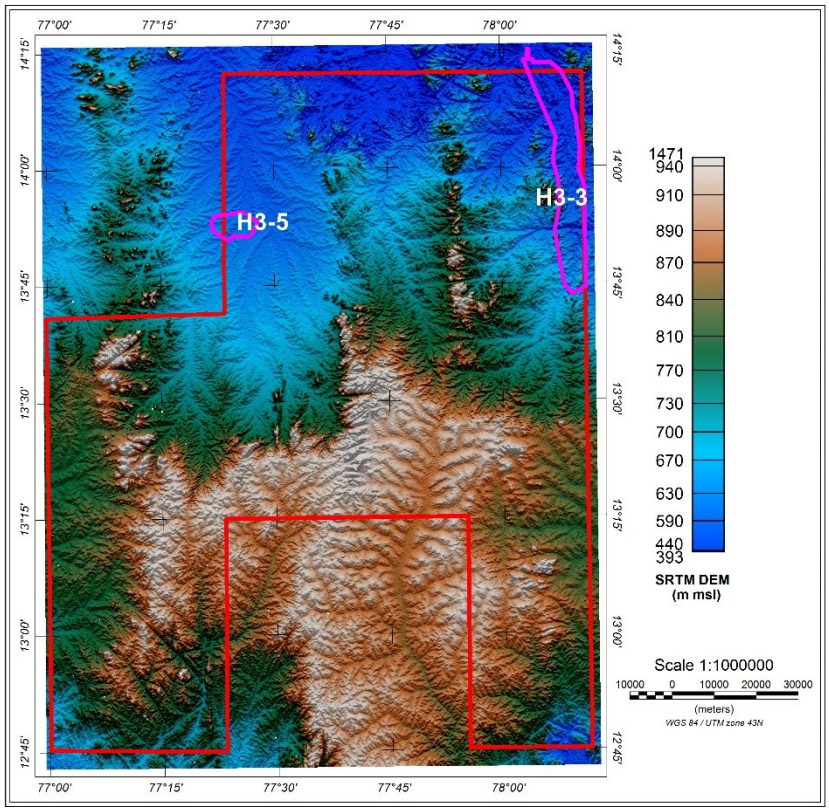
Block H2

	Line Direction			Line-km			Cost (Approx)	
Block	Traverse	Control	Area (km2)	Traverse	Control	Total	Cost per Km	Total cost
H2-1	60° / 240°	150° / 330°	140.0	989.1	95.0	**1,084.1**	9,850	1,06,78,385
H2-3	0° / 180°	90° / 270°	413.2	2,810.9	267.0	**3,077.9**	9,850	3,03,16,823
		Total	553.2	3,800.0	362.0	**4,162.0**	**9,850**	**4,09,95,208**



Block H3

	Line Direction			Line-km			Cost (Approx)	
Block	Traverse	Control	Area (km2)	Traverse	Control	Total	Cost per Km	Total cost
H3-3	90° / 270°	0° / 180°	351.2	2,479.1	246.0	**2,725.1**	9,850	2,68,41,743
H3-5	0° / 180°	90° / 270°	52.1	374.9	38.0	**412.9**	9,850	40,66,573
		Total	403.2	2,853.9	284.0	**3,137.9**	**9,850**	**3,09,08,315**



The summary of total costs estimated for the Phase I Heliborne TDEM and Magnetic surveys are as follows:

	Line Direction			Line-km (150m spacing)			Cost (Approx)	
Block	Traverse	Control	Area (km2)	Traverse	Control	Total	Cost per Km	Total cost
H1-1	0° / 180°	90° / 270°	782.6	5,486.3	524.0	6,010.3	9,850	5,92,00,963
H1-2	0° / 180°	90° / 270°	108.1	768.6	78.0	846.6	9,850	83,39,010
H1-3	0° / 180°	90° / 270°	269.6	1,877.4	179.0	2,056.4	9,850	2,02,55,540
H1-4	0° / 180°	90° / 270°	311.7	2,166.2	209.0	2,375.2	9,850	2,33,95,228
H2-1	60° / 240°	150° / 330°	140.0	989.1	95.0	1,084.1	9,850	1,06,78,385
H2-3	0° / 180°	90° / 270°	413.2	2,810.9	267.0	3,077.9	9,850	3,03,16,823
H3-3	90° / 270°	0° / 180°	351.2	2,479.1	246.0	2,725.1	9,850	2,68,41,743
H3-5	0° / 180°	90° / 270°	52.1	374.9	38.0	412.9	9,850	40,66,573
		Total	2,428.4	16,952.3	1,636.0	**18,588.3**	**9,850**	**18,30,94,263**

PHASE II

Proposed blocks for Phase II survey programme

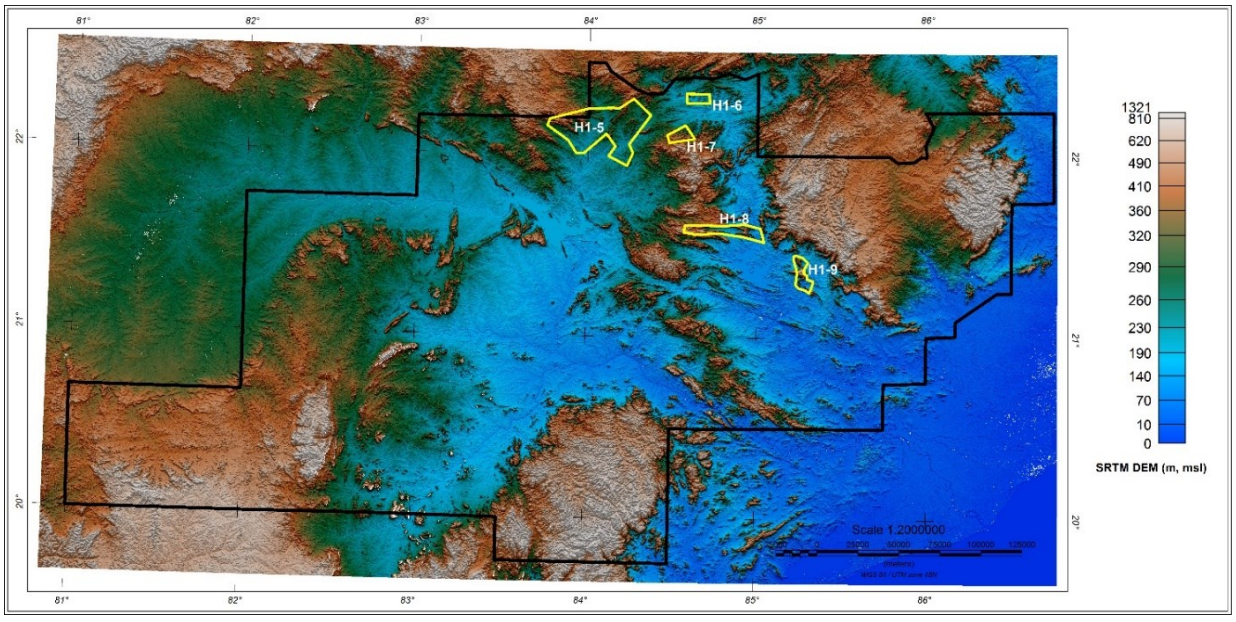
The blocks remaining after the Phase I programme are proposed for Phase II. They include heliborne TDEM and fixed wing magnetic and magnetic/radiometric surveys, incorporating a horizontal magnetic gradiometer configuration for the fixed wing platform.

The summary of total costs estimated for the Phase II surveys, at the line spacing of 150 m, are as follows:

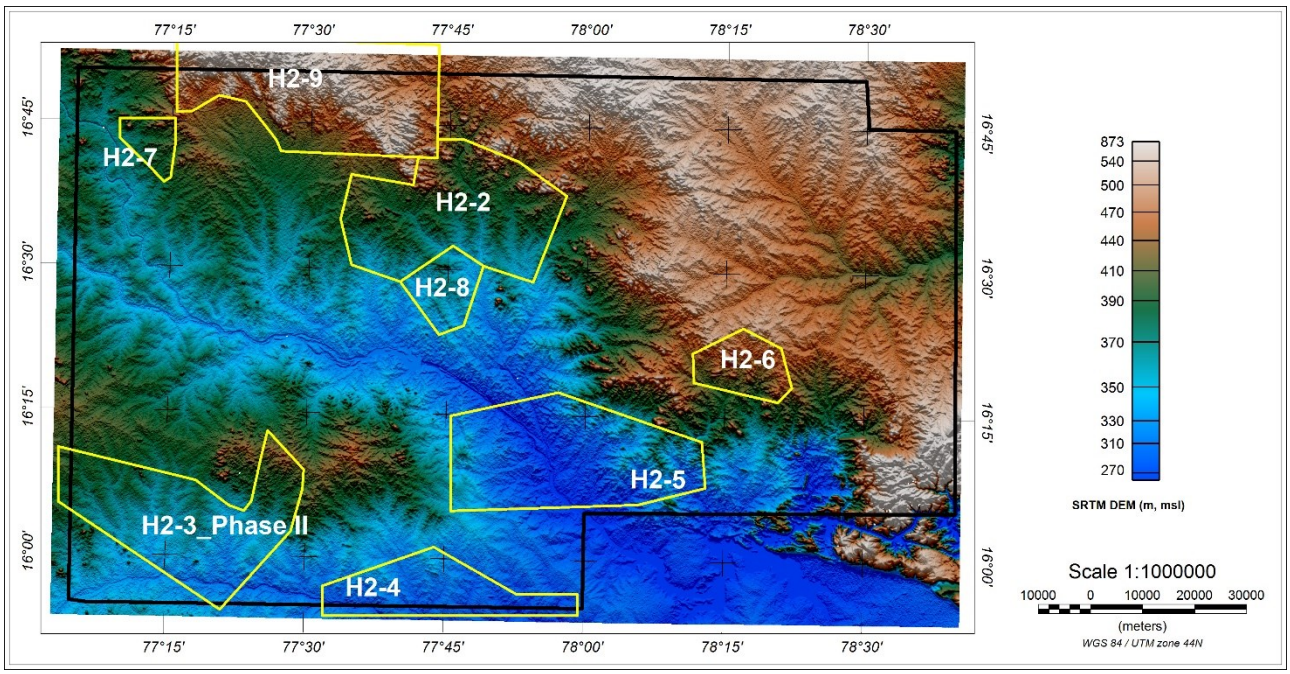
		Line Direction			Line-km			Cost (Approx)	
Block	**Type**	**Traverse**	**Control**	**Area (km2)**	**Traverse**	**Control**	**Total**	**Cost per Km**	**Total cost**
H1-5	FW Mag	0° / 180°	90° / 270°	1,252.4	8,942.9	863.0	**9,805.9**	2,000	1,96,11,700
H1-6	FW Mag	0° / 180°	90° / 270°	79.5	564.9	56.0	**620.9**	2,000	12,41,800
H1-7	FW Mag	0° / 180°	90° / 270°	99.7	789.6	80.0	**869.6**	2,000	17,39,200
H1-8	FW Mag	0° / 180°	90° / 270°	286.9	2,101.1	215.0	**2,316.1**	2,000	46,32,100
H1-9	FW Mag	0° / 180°	90° / 270°	146.5	1,167.6	117.0	**1,284.6**	2,000	25,69,200
H2-2	Heli TDEM	0° / 180°	90° / 270°	798.6	5,601.8	535.0	**6,136.8**	9,850	6,04,46,988
H2-3_ Phase II	Heli TDEM	0° / 180°	90° / 270°	789.4	5,546.1	528.3	**6,074.4**	9,850	5,98,32,840
H2-4	Heli TDEM	0° / 180°	90° / 270°	386.2	2,734.2	278.0	**3,012.2**	9,850	2,96,70,170
H2-5	Heli TDEM	0° / 180°	90° / 270°	865.9	6,065.9	579.0	**6,644.9**	9,850	6,54,51,773
H2-6	Heli TDEM	0° / 180°	90° / 270°	180.9	1,272.6	122.0	**1,394.6**	9,850	1,37,36,810
H2-7	FW Mag/Spec	0° / 180°	90° / 270°	88.5	679.4	70.0	**749.4**	2,200	16,48,570
H2-8	FW Mag/Spec	0° / 180°	90° / 270°	156.3	1,204.4	119.0	**1,323.4**	2,200	29,11,370
H2-9	FW Mag	0° / 180°	90° / 270°	927.3	6,499.5	622.0	**7,121.5**	2,000	1,42,43,000
H3-1	Heli TDEM	60° / 240°	150° / 330°	1,468.4	10,301.6	987.0	**11,288.6**	9,850	11,11,92,218
H3-2	Heli TDEM	60° / 240°	150° / 330°	937.8	6,607.7	644.0	**7,251.7**	9,850	7,14,28,753
H3-4	Heli TDEM	90° / 270°	0° / 180°	93.8	702.5	76.0	**778.5**	9,850	76,67,733
			Heli TDEM	5,520.9	38,832.2	3,749.3	**42,581.5**	**9,850**	**41,94,27,283**
			FW Mag/Spec	244.9	1,883.7	189.0	**2,072.7**	**2,200**	**45,59,940**
			FW Mag	2,792.3	20,065.5	1,953.0	**22,018.5**	**2,000**	**4,40,37,000**

The following figures show the recommended Phase II blocks over the H1, H2 and H3 areas.

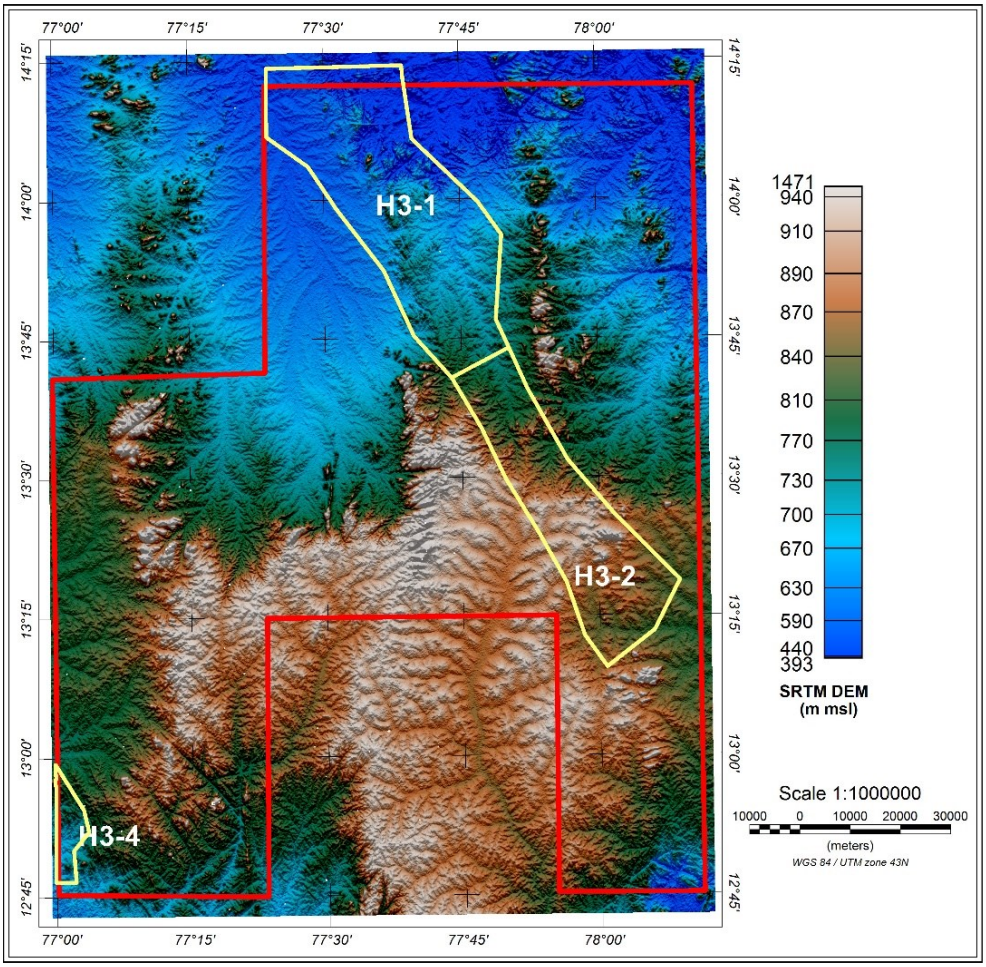
<u>Block H1</u>



Block H2



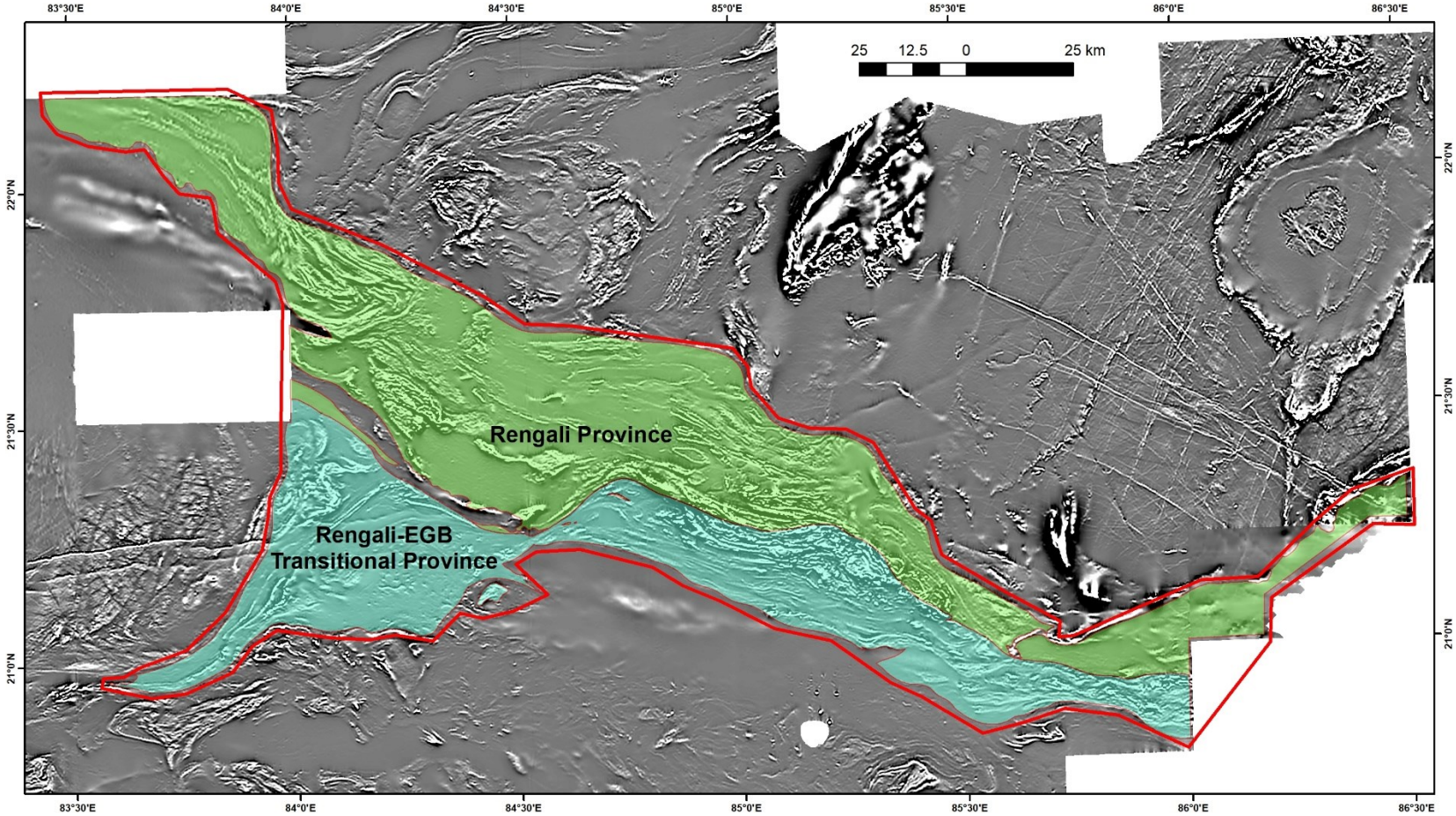
Block H3



Additional Consideration – Rengali Province Survey

An additional survey under consideration would be a fixed wing TDEM survey of the entire Rengali Province. The figure below shows the Rengali Province and the Rengali-Eastern Ghats Belts (EGB) Transitional Province interpreted from the geophysical data, superimposed on the first vertical derivative of the pole-reduced magnetic field from Area H1. The basic parameters for a fixed wing TDEM survey are:

Area (red outline in image below) – 14,327 km^2 (could be extended to the southeast and/or northwest where justified by mapped geology)
Line-km estimate at 200 m line spacing – 78,799 line-km
Cost estimate at 6,500 INR/line-km – 51,21,93,500 INR



ANNEXURE A

Summary of the proposed target areas for follow-up work programs over block H1

Number	Commodity	Target Description	Province	Recommended Follow-up	Depth	Priority	Area (km^2)
1	Copper	Shear/fault hosted mineralization associated within subsidiary structures within the rigid Badarama block along the high-strain Rairokol Shear Zone	Rengali Province	EM survey	0 to 75 m	Priority 1	366.20
2	Copper	Shear zone hosted mineralization along the margin of the rigid Badarama block	Rengali Province	EM survey	0 to 50 m	Priority 2	77.51
3	Copper	Shear zone hosted mineralization along the margin of the rigid Badarama block	Rengali Province	EM survey	0 to 75 m	Priority 2	96.63
4	Copper	Shear zone hosted mineralization along a high magnetic gneiss within the Badarama block	Rengali Province	EM survey	0 to 75 m	Priority 2	16.20
5	Gold, ?copper, ?lead	Saddle reef and fold hinge zone pressure shadow hosted mineralization associated with massive quartzite units	Rengali Province	Detailed field mapping and High-resolution magnetic survey	0 to 50 m	Priority 2	92.26
6	Gold, ?copper, ?lead	Saddle reef and fold hinge zone pressure shadow hosted mineralization associated with massive quartzite units	Rengali Province	Detailed field mapping and High-resolution magnetic survey	0 to 25 m	Priority 2	25.26
7	Gold, ?copper, ?lead	Saddle reef and fold hinge zone pressure shadow hosted mineralization associated with massive quartzite units	Rengali Province	Detailed field mapping following up Au alluvial occurrence and High-resolution magnetic survey	0 to 50 m	Priority 1	43.97
8	Gold, ?copper, ?lead	Saddle reef and fold hinge zone pressure shadow hosted mineralization associated with massive quartzite units	Rengali Province	Detailed field mapping following up Au alluvial occurrence and High-resolution magnetic survey	0 to 75 m	Priority 1	25.04
9	Gold, ?copper, ?lead	Saddle reef and fold hinge zone pressure shadow hosted mineralization associated with massive quartzite units	Rengali Province	Detailed field mapping and High-resolution magnetic survey	0 to 25 m	Priority 2	41.33
10	Gold, ?copper, ?lead	Saddle reef and fold hinge zone pressure shadow hosted mineralization associated with massive quartzite units	Rengali Province	Detailed field mapping and High-resolution magnetic survey	0 to 25 m	Priority 2	21.91

11	Gold, ?copper, ?lead	Saddle reef and fold hinge zone pressure shadow hosted mineralization associated with massive quartzite units	Rengali Province	Detailed field mapping and High-resolution magnetic survey	0 to 50 m	Priority 2	23.19
12	Nickel, chrome, PGE	Layered ultramafic intrusive complexes	Cratonic margin domain	EM survey	0 to 75 m	Priority 1	108.09
13	Nickel, chrome, PGE	Layered ultramafic intrusive complexes	Cratonic margin domain	EM survey	0 to 100 m	Priority 2	219.68
14	Nickel, chrome, PGE	Layered ultramafic intrusive complexes	Cratonic margin domain	High resolution ground magnetic survey (50m line spacing), follow up EM	25 to 75 m	Priority 2	21.77
15	Nickel, chrome, PGE	Layered ultramafic intrusive complexes	Cratonic margin domain	High resolution ground magnetic survey (50m line spacing), follow up EM	0 to 100 m	Priority 2	11.78
16	Lead, zinc, silver	Shear zone hosted mineralization along the margin of a rigid syn-tectonic granitoid	Rengali Province	High-resolution magnetic survey	0 to 200 m	Priority 1	244.29
17	Copper, gold	Shear zone hosted mineralization within the pressure shadows of syn-tectonic granitoids	Singhbhum Mobile Belt	High-resolution magnetic survey	0 to 75 m	Priority 2 designated based on ground conditions and access	79.51
18	Copper, gold	Shear zone hosted mineralization within the pressure shadows of syn-tectonic granitoids	Singhbhum Mobile Belt	High-resolution magnetic survey	0 to 75 m	Priority 2 designated based on ground conditions and access	113.89
19	Copper, gold	Shear zone hosted mineralization within the pressure shadows of syn-tectonic granitoids	Singhbhum Mobile Belt	High-resolution magnetic survey	0 to 25 m	Priority 2 designated based on ground conditions and access	99.72
20	Copper, gold	Shear zone hosted mineralization within the pressure shadows of syn-tectonic granitoids	Singhbhum Mobile Belt	High-resolution magnetic survey	0 to 75 m	Priority 1:	408.51
21	Copper, gold	Shear zone hosted mineralization within the pressure shadows of syn-tectonic granitoids	Singhbhum Mobile Belt	High-resolution magnetic survey	0 to 75 m	Priority 2 designated based on ground conditions and access	95.65
22	Iron	Concealed iron ore within the synformal central axis	Singhbhum Province	Profile modelling of tie line data of existing magnetic survey	0 to 150 m	Priority 1	958.90
23	Diamond	Discrete points sources within the Chhattisgarh Basin	Chhattisgarh Supergroup	Field checking with follow up ground magnetic survey	0 to 50 m	Priority 2	22.00
24	Diamond	Known pipe locations targeting associated pipes within possible clusters	Baster Craton	Field mapping followed by high resolution ground magnetic survey (50-25m line spacing)	0 to 50 m	To be designated based on ground conditions and access	7.40

25	Diamond	Known pipe locations targeting associated pipes within possible clusters	Baster Craton	Field mapping followed by high resolution ground magnetic survey (50-25m line spacing)	0 to 25 m	To be designated based on ground conditions and access	6.73
26	Diamond	Known pipe locations targeting associated pipes within possible clusters	Baster Craton	Field mapping followed by high resolution ground magnetic survey (50-25m line spacing)	0 to 25 m	To be designated based on ground conditions and access	12.73
27	Diamond	Known pipe locations targeting associated pipes within possible clusters	Baster Craton	Field mapping followed by high resolution ground magnetic survey (50-25m line spacing)	0 to 50 m	To be designated based on ground conditions and access	19.24
28	Diamond	Known pipe locations targeting associated pipes within possible clusters	Baster Craton	Field mapping followed by high resolution ground magnetic survey (50-25m line spacing)	0 to 25 m	To be designated based on ground conditions and access	12.56
29	Diamond	Known pipe locations targeting associated pipes within possible clusters	Baster Craton	Field mapping followed by high resolution ground magnetic survey (50-25m line spacing)	0 to 50 m	To be designated based on ground conditions and access	32.95
30	Diamond	Known pipe locations targeting associated pipes within possible clusters	Baster Craton	Field mapping followed by high resolution ground magnetic survey (50-25m line spacing)	0 to 100 m	To be designated based on ground conditions and access	24.27
31	Copper, gold, silver	Mineralization hosted within shear zones within and around the nose of a syn-tectonic granitoid	Cratonic margin domain	EM survey	25 to 100 m	Priority 1	311.69

Summary of the proposed target areas for follow-up work programs over Block H2

Number	Commodities	Target Description	Host Rock	Recommended Follow-up	Depth	Area (km^2)	Priority
1	Copper, gold, ?iron, ?uranium	IOCG - gravity anomaly, amphibolite in the vicinity, extended W to incorporate major shear and fault intersections	PENINSULAR GNEISSIC COMPLEX-II - grey biotite granite	EM survey	0 to 75 m	180.9	2
2	Copper, gold, ?iron, ?uranium	IOCG - gravity and semi-coincident magnetic anomalies, amphibolite in the vicinity	PENINSULAR GNEISSIC COMPLEX-II - migmatite gneiss	EM survey	0 to 75 m	140.0	1
3	Diamond	Encompasses three mapped kimberlites (Palaeoproterozoic), no magnetic response	CLOSEPET GRANITE - grey biotite granite	High-resolution magnetic survey	0 to 100 m	62.6	2
4	Diamond	Encompasses three mapped kimberlites (Mesoproterozoic) in Narayanpet kimberlite field plus others to the north, no aeromagnetic response, one mapped pegmatite, BIF in W, amphibolite in W (IOCG?), extensive ground surveys over kimberlites by GSI plus De Beers exploration	PENINSULAR GNEISSIC COMPLEX-II - migmatite gneiss	High-resolution magnetic survey	0 to 75 m	927.3	2
5	Diamond	Encompasses eight mapped kimberlites (Palaeoproterozoic) along a linear (kimberlite dyke?), no magnetic response	CLOSEPET GRANITE - grey granite	High-resolution ground magnetic survey	0 to 50 m	4.9	2
6	Gold, silver, arsenic, copper, lead, zinc, molybdenum	On-strike with gold occurrences to NW, metavolcanic belt defined by high magnetic and low gravity responses, extensive shearing and faulting, incorporates sinistral offset of belt in SE, quartz veins	GADWAL GP - meta-basalt	EM survey	0 to 100 m	510.5	1
7	Gold, silver, arsenic, copper, lead, zinc, molybdenum	On-strike with one gold occurrence to NW, metavolcanic belt defined by high magnetic response, shearing and faulting, some quartz veins/reefs	RAICHUR GP - meta-basalt	EM survey	0 to 75 m	413.2	2
8	Gold, silver, arsenic, copper, lead, zinc, molybdenum	Metavolcanic belt defined by high magnetic response, extensive shearing and faulting, some quartz veins/reefs	GADWAL GP - meta-basalt	EM survey	0 to 100 m	386.2	2
9	Tin, tungsten, molybdenum, gold, copper, uranium	Encompasses mapped aplite field within the magnetically defined Closepet Granite, several shear zones	CLOSEPET GRANITE - grey granite	High-resolution magnetic/ radiometric survey	0 to 75 m	70.9	2

10	Tin, tungsten, molybdenum, gold, copper, uranium	Encompasses mapped pegmatite dykes within the magnetically defined granite, several shear zones (some hosting pegmatite)	PENINSULAR GNEISSIC COMPLEX-II - grey biotite granite	High-resolution magnetic/ radiometric survey	0 to 100 m	156.3	2
11	Tin, tungsten, molybdenum, gold, copper, uranium	Intersection of numerous major shears and major fault in granitic terrain, magnetic intensity varies within the granitic units	PENINSULAR GNEISSIC COMPLEX-II - grey biotite granite	EM survey	0 to 100 m	798.6	1
12	Tin, tungsten, molybdenum, gold, copper, uranium	Intersection of several major shears and major fault in granitic terrain, magnetic intensity varies within the granitic and gneiss units	PENINSULAR GNEISSIC COMPLEX-II - grey biotite granite and migmatite gneiss	EM survey	0 to 100 m	865.9	2

Summary of the proposed target areas for follow-up work programs over block H3

Number	Commodities	Target Description	Host_Rock	Recommended Follow-up	Depth	Area (km^2)	Priority
1	Gold, silver, arsenic, copper, lead, zinc, molybdenum / Diamond	Centred on SSE-striking fault zone hosting metamorphic rocks of the Dharwar Supergroup, Au occurrences just N of the block, several splays off the main fault as well as E-W shear zones and faults, diamonds located 30 km north of block	DHARWAR SUPERGROUP - mainly meta-basalt and schist, within PGC-II gneiss and granite	EM survey	0 to 100 m	1425.1	1
2	Gold, silver, arsenic, copper, lead, zinc, molybdenum	SSE extension of T1 fault zone, splays off main fault, gravity lineament coincident with main fault, may link with Au-bearing Kolar Belt to SSE	PENINSULAR GNEISSIC COMPLEX-II - grey horneblende biotite gneiss and granite	EM survey	0 to 75 m	937.8	2
3	Gold, silver, arsenic, copper, lead, zinc, molybdenum	On-strike with Au-bearing Kolar Belt to SSE, centred on gravity lineament, cut by several faults and shears oriented roughly E-W	DHARWAR SUPERGROUP - mainly metavolcanics and quartz feldspar porphyry	EM survey	0 to 75 m	351.2	2
4	Gold, silver, arsenic, copper, lead, zinc, molybdenum	On-strike with Au occurrence to NW, cut by a few faults and shears, ESE-WSW fault control and some shearing	DHARWAR SUPERGROUP - mainly meta-basalt, within PGC-I migmatite gneiss	EM survey	0 to 100 m	93.8	2
5	Copper, gold, ?iron, ?uranium	IOCG - strong magnetic anomaly and coincident gravity peak (extended W of block by gravity response), relatively high in Zn and Pb, area just to the north high in Ni, Cu and REEs	PENINSULAR GNEISSIC COMPLEX-II - grey horneblende biotite gneiss	EM survey	25 to 200 m	52.1	1