

MINUTES OF THE 13th MEETING OF CGPB GROUP-VII (AIRBORNE SURVEY & REMOTE SENSING) , HELD AT RSAS, GSI, BANGALORE ON 18.09.2017

CGPB VII.13.0.0	Welcome address: Shri M.K. Rao, Director PSS, RSAS, and member Secretary welcomed Dr. Dinesh Gupta, ADG & NMH-IB, GSI, Kolkata, J.A.N. Rao, DDG (GP) & HOD, RSAS and Dr. M. Mohanty, Dy. DG (G), Shri A.K. Gupta, Dy. DG, DGCO, Shri J.S. Mehta, Director, CGPB Secretariat Shri P.K. Mukhopadhyay Director, PSS-P & M - 2, CHQ, representatives from member Organisations viz. ONGC, AMD, NGRI, KRSRAC, NRSC-Ahmadabad, Singareni Collieries, DGMs of Karnataka & MP and Directors from other Regions of GSI. He wished for fruitful discussions and requested the Chairman and also ADG, NMH-IB to make their opening remarks.
CGPB VII.13.0.1	Self-introduction by Delegates: All the members/participants introduced themselves to the house.
CGPB VII.13.0.2	Opening remarks by the Chairman: Shri J.A.N. Rao, Dy. DG & HOD, RSAS, Chairman welcomed all the members and expressed his happiness for good attendance by the members from different organisations. He thanked the member organisations for showing keen interest in the working of RSAS. Chairman added that the main objective of this meeting is to review the programs of RSAS and requested the member organisations and regions to present their views so that the deliberations will result in important agenda items for presentation in main CGPB meeting. He also stated that the review of work by members will help in avoiding duplication of the work.
CGPB VII.13.0.3	Opening Remarks by ADG & NMH-IB: Dr. Dinesh Gupta, ADG & NMH-IB welcomed all the colleagues from GSI and representatives from different organisations on behalf of DG, GSI and expressed his gratitude for all the member organisations for deputing the representatives for the meeting. He emphasized that importance of airborne geophysics is paramount and plays a vital role in identifying more and more potential blocks for exploration of different commodities. He said that the main objective is to uncover the deep-seated minerals and Govt. of India has initiated Airborne Geophysical Surveys over OGP areas initially with 300 m line spacing and 80m flight altitude with the state of the art instruments/sensors. He briefed the house regarding the present status of prestigious project of GSI- Aero-geophysical Survey over OGP area. He informed that the pilot project was inaugurated On 7 th April, 2017 by Shri Piyush Goyal, Hon'ble Minister of State (Independent Charge), Power, Coal, New and Renewable Energy and Mines, Govt. of India, and a total of 86800 L.km. has been covered in Block-IV. Initially 4 blocks will be covered. The work in these blocks has been stopped due to rains and will commence again in October. The ADG&NMH-IB also requested the members to arrive at concrete recommendations to put forth in the main CGPB to be held in February, 2018. He informed that on 25 th October, 2017, a Brain Storming Session is proposed to be held in Kolkata for discussions regarding requirement of separate sensors and satellite for geoscientific studies which can help in not only for mineral exploration, but for flood control, irrigation, ground water studies, natural disaster management etc. He also informed that internationally the geophysical data are available in public domain which can be freely downloaded by user agencies. But in India approval by the MoD is necessary for uploading raw data in public domain for free accessibility. MOD at the instance of Ministry of Mines has permitted to upload in public domain 1 mgal and 5 nanotesla (nT) data of non restricted areas. As all the data need to be put in public domain, he requested all sister organisations to share the data. He further added that the GSI's data comprising geological, geochemical, geophysical maps are already available in public domain i.e. GSI's OCBIS.
CGPB VII.13.1	Confirmation of the minutes of the 12th CGPB and Action Taken Report: After brief discussions the minutes of the 12 th CGPB was ratified by the house.

CGPB VII.13.2	<p>Project on Aerogeophysical surveys over OGP areas – the current status: Dr. M. Mohanty, Dy. DG, RSAS presented in detail the status of the prestigious project on Aerogeophysical surveys over OGP areas. He informed the house that the mapping done by GSI during the last 166 years has covered the whole country and is available in GSI PORTAL on 1:50,000 scale and is considered as the first basic geological data. He said that NGCM data at 1km. interval is also available. Initially 813000 km² area of high geological potential for mineral exploration will be covered by Aerogeophysical surveys. This area is divided into 12 blocks and a pilot project is already on in first 4 blocks. He presented the current status of the project in detail which was discussed in detail by the house. The progress and the objectives of the project were well appreciated by the member organisations.</p> <p>Shri P.K. Mukhopadhyay, Director, PSS & P&M-2 added that the mineral potential area can be explored in a fast track method by aerogeophysical mapping.</p>
CGPB VII.13.3	<p>To carry out survey over North of Godavari Valley Coal Field –GVCF- (agenda item by M/s Singareni Collieries Co. Ltd.): ADG & NMH IB informed the house that it is not possible from Aerogeophysical survey to delineate any coal seams but basin boundary can be demarked. He informed the house that at present priority is for locating metallic minerals and coal exploration is in a low priority.</p>
CGPB VII.13.4	<p>Sharing of Aerogeophysical data present status and future plans: The ADG & NMH-IB requested the all sister organisations to share the data. He said that the central data reposition has been entrusted to GSI and all the sister organisations are requested to join hands. The data on ground, geochemical, geophysical, geological maps of GSI are already in public domain and GSI expect that all sister organisations will share data of the prioritised areas.</p> <p>Dr. M. Mohanty informed that as per the Govt. policy GSI was very much restricted in sharing the data until the new data sharing policy was adopted in 2015.</p> <p>AMD: All the raw data can be put in public domain. We are putting in ST format on 1:50,000 scale. The data interpretation at 50 m grid will be very useful as it gives lot of information.</p> <p>ONGC: ONGC representative informed that Total Count data is treated as raw data (dataset) and suggested that instead of selling raw data, processed data of greater potential blocks may be put in public domain. The maps with ½ km line spacing and 100- 120 m height only can be given in the public domain at free of cost. For this ADG&NMHIB said that the blocks may be identified by superimposing all sets of data. GSI will put all data into public domain including raw data as per the new policy adopted by the govt.</p> <p style="text-align: right;">(Action: AMD/ONGC/NGRI/CGWB/GSI/ISRO)</p>
CGPB VII.13.5	<p>AGP-OGP Project of GSI: Dr. M.Mohanty said that the RSAS has taken up the projects of AGP and OHR in the year 1965, and twin otter since 1986. The RSAS has not taken up the Indogangetic plain and Himalayas as different type of sensors are needed for that. The RSAS has initiated a pilot project during 2016-17 to carry out multisensor aerogeophysical surveys (Magnetic, Gradiometer and Radiometric) over Obvious Geological Potential(OGP) areas and adjoining area of India over an area of 8,13,000 sq.km. over a period of three years. The primary purpose of this project is to collect high quality data to support the identification of target areas for exploration for metaliferous minerals. The area will be taken in three phases:</p> <p>1st year - blocks - 1 to 4 - 2, 06,024 sq.km. 2nd year - blocks - 5 to 8 - 3, 16,836 sq.km. 3rd year - blocks - 9 to 12- 2, 90,740 sq.km.</p> <p>The quality control for the data has to be of international standard. An international expert committee constituted consisting personnel from Defence, Canada, one of the international leading UKIGS and Geosoft. There are TS-QC companies for validation of the data to confirm international standards.</p> <p>The tender documents were given only for specific survey and DGCA is checking the instrument as per the Australian and Canadian standards. By 31st March 2018 GSI may be able to submit the data of all the four blocks of the pilot project.</p> <p>At present RSAS could obtain 70,000 sq.km high resolution data of Orissa state from DMG and will be made available in public domain.</p> <p>Dr. Mohanty also informed that Chandrapur-Raipur blocks are being surveyed by M/s McPhar</p>

	<p>International Ltd. with their own aircraft. They have already covered about 50% in one block. Dr.J.S.Mehta, Director, CGPB, DGCO expressed that the ultimate aim must be in identifying blocks of about 100 sq km for detailed ground survey. For this ADG & NMHIB said that the global consultant will be able to prioritize such blocks.</p>
CGPB VII.13.6.1	<p>National Spectral Geological Mapping (NSGM): Shri V. Singaraju, Director, PGRS, CHQ briefed about the NSGM stating that the idea is to map 16,000 toposheets using Aster Multispectral Remote Sensing Data, with the following objectives:</p> <ul style="list-style-type: none"> (i) Preparation of alteration zone/mineral maps on 1:50,000 using multispectral (ASTER) and Hyperspectral Data with field validation (ii) Preparation of image based structural map on 1:50,000 scale (iii) Preparation of spectral library data base on representative litho variants and minerals using standard field Spectroradiometer in the range of 350nm to 2,500 nm and Fouried Transform Infrared Radiometer (FTIR). <p>ADG&NMHIB suggested that about 25 persons can be trained to take more projects in PGRS Div. and organise programmes for training people from different background.</p>
CGPB VII.13.6.2	<p>Dedicated sensor satellite requirements - Users perspective; The Director, PGRS, CHQ informed that GSI is now trying to find out whether a satellite with dedicated sensors for geoscientific studies is required to be developed. He requested the user agencies for their comments and feedback. He also informed the house that it will take more than 2 years to develop a sensor, test it on aircraft and then mount it on the satellite. He requested all the organisations to come out with their suggestions for putting up a concrete proposal in this regard to Govt. of India.</p> <p>Representative from AMD informed that at present they do not use hyperspectral data and use only Aster data for their studies. He requested GSI to share the spectral signature if any for radioactive minerals and that AMD is ready to share their similar data on other minerals during the course of their investigations.</p> <p>The representative from NRSC, Ahmedabad said that the proposed sensors in their future launch projects may give data useful for geological studies and invited GSI to approach them for any training requirements in this regard.</p> <p>Representative from ONGC informed that for their exploration for hydrocarbon, hyperspectral data has got very limited application.</p> <p style="text-align: right;">(Action: AMD/ONGC/NGRI/CGWB/ISRO)</p>
CGPB VII.13.7	<p>Proposals for 2018-19 and suggestions: Various organizations and regions of GSI briefly mentioned regarding their project proposal for 2018-19 period.</p> <p>RSAS (i). TOASS : 2 items in aeromagnetic survey in parts of Rajasthan (ii). AGP over OGP will continue (iii) PGRS- 2 items (iv) Hypersepectral – one item (v) ADA & D – one item</p> <p>PGRS, CHQ (RS Division):</p> <ul style="list-style-type: none"> (i) Application of SAR – continued item (ii) Application of multispectral and hyperspectral remote sensing towards mapping of alteration/mineralised zones of parts of Udaipur, Rajasman districts, Rajasthan (iii) Remote sensing based macro scale 1:50,000 landslide susceptibility mapping in parts of NW Himalayas, Chamba, Lahul etc., of Himachal Pradesh. – new item (iv) Mapping of surface exposures of rock phosphate using earth observations, geochemical and field observations in Hirapur block, MP – sponsored item by Department of fertilizer. (v) Compilation of data of spectral signature of rocks/minerals from different regions of GSI. <p>Central Region- 4 toposheets have been taken for Bundelkhand area, a continuing item. Eastern Region, GSI – one item Northern Region- One item NER – One service item</p>

	<p>Southern Region: One item (continued) and service items Western Region: One item</p>
<p>CGPB VII.13.8</p>	<p>Other Items with the permission of the Chair: ONGC: A system can be developed for GIS cataloguing of data as raw data. High resolution details can be obtained from National Digital Elevation Map of E-III version. Lineament mapping can be taken up from the surveys elevation available in the domain of Survey of India mapped by NRSA and this can be persuaded to be developed in National level. For this, Shri Singaraju informed that state wise mineral maps have been compiled and it is in GIS platform in OCBIS portal of GSI. He also stated that GSI has one more domain of M-III which carries out data integration. Dr. Dinesh Gupta, ADG informed that in sheet 57E GSI has compiled all the seven layers and M-III is on the job. He also stated that things which are not resolved in this meeting will be taken up in the CGPB to be held in February, 2018. With respect to the map in domain of Survey of India, ADG requested to send a special agenda item to CGPB (February, 2018) so that it can be discussed in higher level. ONGC informed that they are trying to develop capacity building and wanted to know whether the field spectrometer of GSI can be given on loan basis for sample survey/ collection in the field till they acquire the instrument. The Director, PSS-P&M-2 said that on the request from ONGC, GSI will go to field and carry out the study. If required ONGC can collect the samples and the analysis of any number of samples can be done at GSI Lab on collaboration basis. The ADG&NMH-IB advised that ONGC can contact office of DG, GSI, in this regard. (Action: ONGC/GSI) Geomysore: Geomysore informed about the availability of asbestos in abundance in Mincheri area and if GSI can calculate or estimate the dimensions which can be utilized by Geomysore. For this ADG&NMH-IB said that the same may be suggested in the meeting of CGPB Group on Industrial mineral to be held at Jaipur. NRSC, Ahmadabad: Most of the data are available in GSI portal and for this some national standards are to be followed. ADG&NMH-IB said that GSI is following standard gravity and magnetic data format and data policy is available in OCBIS portal. Representative from NRSC, Ahmadabad also informed that for training in remote sensing application, they have a website called VEDAS.sat.gov.in (Visualisation of All Exploration Data Archives System) and formulated many training modules. For this ONGC said that certain minimum requirements are required for satellite data either from the Indian Satellites or International Satellites. They can develop a system of one archive with good quality raw data, repository satellite data with remote sensing and can be used by all user agencies. (Action: NRSC, Ahmadabad)</p>
<p>CGPB VII.13.9</p>	<p>Review of status of work by GSI and member organisations: PGRS, CHQ: The Director presented highlight of the work of PGRS Division, CHQ Eastern Region, GSI : The Director, PGRS presented the highlights of the work Central Region, GSI : - The Director, PGRS presented the highlights of the work NER, GSI : The Director, PGRS presented the highlights of the work Southern Region, GSI: Sr. Geologist, representing the PGRS Div. presented the highlights Western Region, GSI : The Director, PGRS presented the highlights of the work of RSAS, GSI : TOASS Surveys: Shri M.K. Rai, Suptd. Geophysicist presented the highlights of Marwar-Khetri area acquired during FS 2015-16 and 2016-17 HGSS Surveys: Shri P.C. Das, Suptd. Geophysicist presented the highlights of the 26931.km.data acquired over an area of 600 sq.km. over Shimoga Schist belt during F.S.2016-17 PGRS Div: Shri V. Sreenivasaiah, Sr. Geologist presented the work on the interpretation and integration of geological, remote sensing and aerogeophysical data over Baihar - Kutru (Extension of Malanjkhanda) area in Madhya Pradesh and Shri Ajit Singh, Geologist presented the work of interpretation and integration of geological, remote sensing and aerogeophysical data over Chandrapur-Brahmapuri area of Maharashtra. Hyperspectral Div.: Shri Santosh Kunal, Geologist presented the work of Chitradurga Schist</p>

	<p>belt.</p> <p>ADA&D : Shri Ashish Kr. Raul, Geologist highlighted the Integrated item of Bidasar area, Rajasthan.</p>
CGPB VII.13.10.1	<p>Shri P.K. Mukhopadhyay, Director, PSS-P&M-2 in his remarks mentioned that (i) in areas of NER, where PGRS aided mapping is done in unapproachable parts attempt should be made for integration with adjacent geological map. (ii) PGRS items and alteration zone mapping may be taken up in consultation with NMH-II office as additional aid for G4 items.</p> <p style="text-align: right;">(Action: NER,GSI/All regions of GSI)</p>
CGPB VII.13.10.2	<p>Shri A.K. Gupta, Dy. Director General, DGCO in his remarks said that on the whole, very fruitful discussions have taken place during the meeting. He opined that a mechanism has to be developed where in the status of mineral exploration and mineral deposits can be accessed readily at a given time. With regard to aero geophysical surveys, he opined that as ground geological mapping has already been completed; now we have left with no other alternative than AGP for locating the deep-seated mineral bodies.</p>
CGPB VII.13.10.3	<p>Shri. J.S. Mehta, Director, CGPB, DGCO, GSI, thanked ADG & NMH-IB for valuable suggestions during the meeting. He also expressed satisfaction over the participation of more member organisations when compared to the previous CGPB meeting. He said that w.r.t sharing of data, more thought has to be given whether the EM data can be shared freely or MOU need to be made for sharing the cost.</p>
CGPB VII.13.10.4	<p>Dr. M. Mohanty Dy. Director General (G), RSAS in his closing remarks expressed his happiness for the participation of maximum members and regarding OGP-AGP project a mechanism may have to be developed for retrieving of data as per necessity.</p>
CGPB VII.13.10.5	<p>Chairman and Dy. Director General & HOD, RSAS Shri J.A.N. Rao expressed his happiness in the active participation of good number of member organizations and good inputs of this CGPB will be put forth in the main CGPB. He stated that for speedy mineral exploration the AGP over OGP has been taken up and the pilot project in 4 blocks have already started and the actions have been initiated for other 4 blocks for 2nd year and another four blocks in third year. Regarding Heliborne surveys, he informed that as per the request of Govt. of Karnataka, this year GSI has completed the surveys over Shimoga schist belt. He thanked ADG&NMHIB for making it convenient to attend the meeting and for his valuable comments and suggestions during the meeting. He also thanked all the member organizations for attending the meeting and for active participation.</p>
CGPB VII.13.10.6	<p>ADG&NMH-IB, Dr. Dinesh Gupta, on behalf of DG, GSI thanked all the members for making it convenient to attend the meeting and actively participating in the meeting. In his closing remarks he summed up the following points:</p> <ol style="list-style-type: none"> 1. The sister organizations need to work more closely with GSI, and have to have more effective interaction which will give better results. 2. He requested the sister organization to suggest agenda items with regards to aerogeophysical and remote sensing surveys to be taken up by GSI 3. With regards to SOP on aerogeophysical survey he called for suggestion from sister organization so that their expertise in the work can be incorporated. 4. He requested the member organization to actively participate in the brain storming session to be held on 25th Oct 2017 at GSI, Kolkata regarding “ necessity and specification of dedicated sensors and satellite for geoscientific studies” 5. He expressed that the member organizations need to work with more synergy to avoid duplication. 6. With regard to data sharing he said that after getting clearance from Ministry, all the data will be shared in the GSI portal. <p style="text-align: right;">(Action: AMD/ONGC/NGRI/CGWB/ISRO)</p>
	<p>The meeting ended with vote of thanks proposed by Shri S.N. Mohanty, Director & HOO, RSAS.</p>

Annexure:

List of officers attended the 13th meeting of CGPB Group-VII (Airborne Survey & Remote Sensing), held at RSAS, GSI, Bangalore on 18.09.2017

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