

**Minutes of the 14th meeting of
State Geological Programming Board
25th September, 2014, Raipur.**

14.1 14th meeting of SGPB Chhattisgarh was held at New Circuit House, Raipur on 25th September 2014 with members and dignitaries of SGPB, Deputy Director General, Geological Survey of India, Chhattisgarh unit. Representatives of Geological Survey of India, Chhattisgarh unit, Indian Bureau of Mines, Atomic Mineral Directorate, Central Mine Planning and Design Institute, National Mineral Development Corporation, Chhattisgarh Mineral Development Corporation, Forest Department, Central Ground Water Board, Raipur, Central Institute of Mining and Fuel Research, Chhattisgarh Council of Science & Technology, Pandit Ravishankar Shukla University, Raipur, Chhattisgarh Environment Conservation Board, Raipur, Department of Industries and Directorate of Geology and Mining, Chhattisgarh participated in the meeting (List of Participants is enclosed).

14.2 Shri Jayant Pashine, Additional Director, welcomed all the dignitaries from various departments. Dr D. R. Patel, Joint Director welcomed the Member Secretary of the forum. In inaugural address of Shri Anbalagan P., Director, Geology and Mining and Member Secretary said that this meeting provides an opportunity to the state agencies as well as central agencies to discuss about their achievements and future geological field programs which are to be carried out during coming field season. He said that the basic concept of this meeting is to exchange geological information and data sharing of various organizations working in the state and avoid duplicating of work being carried out by them. Member Secretary gave a brief account of the investigation work carried out during the last field season and also the work proposed during the forthcoming field season.

Shri Subodh Kumar Singh, Secretary, Govt. of Chhattisgarh, Mineral Resources Department and Chairman of SGPB was busy in important meeting at New Delhi, so Shri M. Shridhar, Dy. D.G. GSI. presided the meeting.

14.3 The minutes of the 13th meeting of the SGPB held on 12th September, 2013 placed before the house for approval and the same was unanimously approved by the members without any modifications.

14.4 Shri Jayant Pashine, Additional Director, DGM (CG) was requested for presenting their Geological activities in the State.

14.5 Geological Survey of India, Chhattisgarh Unit, Raipur

Mr. M Shridhar, Dy Director General, GSI informed that GSI will host the 36th International Geological congress 2020 at New Delhi. The proposed theme for IGC 2020 will be “**Geosciences-The Basic Science For Sustainable Future**” Shri M. Shridhar, Dy Director General, GSI informed the house that GSI has taken up different projects under five missions in Chhattisgarh during the period. GSI is concentrating only on two mission that is mapping and exploration.

14.5.1 Mission 1A: Mapping:- Specialized thematic mapping of Amgaon-Nandgaon-Khairagarh Belt in Rampur, Thakurtola-Chhuikhadan area, Rajnandgaon distt:- 525 sq km area was mapped on 1:25,000 scale in Toposheet no. 64 C/13 and 14 in Rajnandgaon distt. In the mapped area Rocks of Chilpi Group and Khairagarh Group are present. A brecciated Rhyolite group (fault breccias) was observed which is directly overlain by

ferruginous sandstone of Chandrapur Group. Folds are observed in the Chilpi Group of rocks showing plunge migration. Three hematite bands are observed in the form of lenses and small bands at the periphery of Chilpi group.

14.5.2 Specialized thematic mapping in Bilaspur-Raigarh-Surguja metamorphic belt in Brijnagar-Dhamini area, Surguja distt. on 1:25000 scale, T. S. No. 64-M/5:- This area is the western continuation of Chhota Nagpur granites-gneiss and metasediments. Total 350 sq km area mapped on 1:25,000 scale. The litho units found are schistose quartzite, quartz mica schist, garnetiferous quartz-mica-sillimanite, andalusite schist. Granitization of the metasediments has resulted into the migmatitic variety.

14.5.3 Project NGCM :- The main purpose of this project to prepare geochemical data base of India that can be used in different purpose viz. mineral exploration, forestry, agriculture, health hazard etc. Shri Mishra, Director, GSI Raipur informed the house that under this project one sample collected per sq km and one composite sample have to be taken at 2x2 sq km grid and analyzed for 64 elements.

Geochemical mapping carried out in Bastar Craton and Chhattisgarh basin, Toposheet no. 64 L/2 & 5 distt. Mahasamund of 1200 sq km area on 1:50,000 scale. Various type of Geochemical samples were collected from this area. 1200 no. stream sediments/slope wash, 300 no. of composite, 15 no. of soil "C" horizon, 15 no. of Regolith, 18 no. of water and 16 no. other duplicate samples were collected. The area is predominantly occupied by Dongargarh Granitoids.

14.5.4 Geochemical mapping in Amgaon-Nandgaon-Khairagarh Belt, Durg- Rajnandgaon-Khairagarh district, Toposheet no. 64 C/12, 16 and 15 (part):- Geochemical mapping of 800 sq km area was carried out on 1:50,000 scale. Various type of Geochemical samples were collected from this area. 800 no. stream sediments/slope wash, 200 no. of composite, 10 no. of soil "C" horizon, 10 no. of Regolith, 10 no. of water and 10 no. of duplicate samples were collected. The eastern part of the area is occupied by Gunderdehi shale while the central part of the area is occupied by Charmuria limestone. Dongargarh Granitoids were observed in the north western part of Toposheet no. 64 C/16.

14.5.5 Geochemical mapping in Amgaon-Nandgaon-Khairagarh Belt, Durg- Rajnandgaon-Khairagarh district, Toposheet no. 64 C/13, 14 and 15 (part):- Geochemical mapping of 800 sq km area was carried out on 1:50,000 scale. Various type of Geochemical samples were collected from this area. 800 no. stream sediments/slope wash, 200 no. of composite, 10 no. of soil "C" horizon 10 no. of Regolith, 10 no. of water and 10 no. of duplicate samples were collected. The Granitoids of Dongargarh granite formation, basalt of Sitagota formation and sandstone of Bortalab Formation of Khairagarh Group and stromatolitic and dolomitic limestone of Chhattisgarh Supergroup were observed in the area.

14.5.6 Geochemical mapping in Bilaspur-Raigarh-Surguja metamorphic belt, Bilaspur and Korba distt. (Toposheet no.. 64 J/6, 10 & 7 (part)). Geochemical mapping of 800 sq km area was carried out on 1:50,000 scale. Various type of Geochemical samples were collected from this area. 800 no. stream sediments/slope wash, 200 no. of composite, 10 no. of soil "C" horizon, 07 no. of Regolith, 10 no. of water, 02 no. Humus and 10 no. of duplicate samples were collected. The area in Toposheet 64 J/10 exposes rocks of Chhota Nagpur gneissic complex and Gondwana Supergroup.

14.5.7 Geochemical mapping in Bilaspur-Raigarh-Surguja metamorphic belt, Bilaspur and Korba distt. (Toposheet no.. 64 J/5, 9 & 7 (part). Geochemical mapping of 800 sq. km area was carried out on 1:50,000 scale. Various type of Geochemical samples were collected from this area. 800 no. stream sediments/slope wash, 200 no. of composite, 10 no. of soil "C" horizon, 10 no. of Regolith, 10 no. of water and 10 no. of duplicate samples were collected. The litho unit encountered in the area of Toposheet 64 J/5 are Granitoids porphyritic I type and tourmaline mica bearing S type. Sedimentary formations of Gondwana Supergroup with coal patches/ horizons are seen.

During discussion member Secretary Shri Anbalagan P, informed the house that Govt. of Gujarat has initiated project to carry out geochemical survey of entire state within a period of three years. State recruit geoscientists, RQP on contract basis for implement this project. He suggested to GSI that same model of survey can also be adopt in Chhattisgarh for such type of investigation.

14.5.8 Mission II A Economic Geology:-

14.5.9 Search for kimberlite clan rocks in Dhamtari, Kanker and Durg districts (Economic Geology Project) Toposheet no.. 64 H/10,11 :- Reconnaissance mapping and PGRS studies of 700 sq. km. is done on 1:50000 scale. 150 no. of stream sediments samples, 21 no. of PS, 20 no. PCS, 150 no. HMS 20 no. chemical analysis samples have been collected for indicator mineral studies. Presence of garnet, ilmenite, magnetite, spinel, rutile and other opaques are revealed in the samples.

14.5.10 Search for kimberlite clan rocks in Dhamtari and Kanker districts (Economic Geology Project) Toposheet no. 64 H/14,15 :- Reconnaissance mapping and PGRS studies of 700 sq. km. is done on 1:50000 scale. 158 no. of stream sediments samples, 29 no. of PS, 23 no. PCS, 158 no. HMS, 20 no. chemical analysis samples have been collected.

14.5.11 Search for kimberlite clan rocks in Gariyaband distt. (Economic Geology Project) Toposheet no.. 64 L/1 & L/2 :-A PGRS study of 700 sq. km area was carried out on 1:50000 scale. The area constitute granites of Bundeli Granitoids and mafic dykes are exposed in the area.

14.5.12 Assessment for iron ore in Bhalapuri, Chelikama block, Kabirdham distt. (Toposheet no. 64 G/1) Thick iron ore band is proved up to 60 m vertical depth through drilling. Average Fe content of samples so far is 64.94%.

Mr Mahesh Babu, Joint Director asked to GSI can DGM CG take up geochemical survey for Nickel and PGE in Mohla-Bhagwantola area of Rajnandgaon district where ultramafics bodies existed having length of 6 km. GSI replied that they have no. objection if DGM CG carry out such work.

(Action DGM CG)

Mr, Anurag Diwan, Joint Director asked to GSI about the study of thickness of lithosphere in Chhattisgarh state as the same program was being carried out by GSI in collaboration with De Beers in south India.

Mr. Sridhar replied that study of lithosphere thickness is associated with Kimberlite occurrence. This programme can be chalked out and definitely be taken up.

(Action DGM/GSI)

GSI asked DGM to provide details of RP, PL, ML, status map for all the mineral for finalization of future investigation program.

(Action DGM)

14.5.13 Project Geoinformatics:-

14.5.14 Compilation of new series (Second edition) of Geological Quadrangle Maps on 1:250000 scale.

14.5.15 Maintenance of LAN/WAN and uploading of unpublished reports onto GSI portal. LAN/WAN of GSI, CG. Unit Raipur is working properly for transmission and retrieving of data and remote printing from one end to different user ends and vice versa.

14.5.16 Publication of GSI records, news and other publications

14.6 Coal Wing, Geological Survey of India, Kolkata:- During the period regional and promotional exploration program for coal were continued in Chhattisgarh in the Mahanadi Valley basin (Mand Raigarh Coalfield & Hasdo-Arand Coalfield) and Son Valley basin (Tatapani-Ramkola Coalfield).

14.6.1 Mand Raigarh Coalfield

(I) **Samarsingha block:-** was commenced on 1-12-11 and was continued with 2768.20m drilling in seven boreholes. 12 no. of regional coal seams and a few local coal seams ranging in thickness from 0.59m to 10.75m have been intersected.

(II) **Amlidhonda Block** was commenced in May, 2012. During the period under review a total of 4610.70m drilling is done in twelve boreholes. Six regional coal seams and a few local coal seams ranging in thickness from 0.77m to 13.66m have been intersected.

(III) **Nawagaon block, Raigarh Distt.** During the period under review, a total of 3519.15 m. drilling was carried out in eleven boreholes. Twelve no. of regional Barakar coal seams (seam I to XIII in ascending order) were intersected between 11.96m and 406.15m depths and the thickness of seams varies between 1.27 to 20.44m (cumulative). Of these the important seams are I, IV, VI, VII and VIII . The continuity of coal seams has been established over 10 km in strike direction and 12 km along dip direction.

(IV) **Teram Block:-** During the period under review, a total of 2124.50 m. drilling was carried out in five boreholes. Ten regional Barakar coal seams (seam I to X in ascending order) were intersected between 132.90 m and 729.10 m depths and the thickness of seams varies between less than a metre to 12.55 m. The continuity of coal seams has been established over 5 km along strike direction, 3.5 km along dip direction.

14.6.2 Son Valley Coalfield (East) Chhattisgarh:-(Tatapani-Ramkola Coalfield, Surguja Distt.)

(I) **Vijaynagar-Giddhi block:-** Surguja distt. This project was commenced on 06-10-2011 and concluded in October, 2013. During the period under review a total 1262.45m. drilling is done in this block in four boreholes. 13 regionally persistent coal seams (I to

XIII in ascending order) ranging in thickness from 0.66m to 10.79m and ten local seams were intersected in this block. Depth of occurrence was 76.50m to 521.90m. Seam no. III, IV, VI, VIII, XI, XII and XIII are important for their thickness and regional persistency. The continuity of coal seams has been established over 6 km along strike direction 1.5 km along dip direction.

(II) **Pipraul Block:-** This project was commenced on 08-11-2013 and is continuing till date. During the period under review a total 1565.20m. drilling is done in this block in four boreholes. 03 regionally coal seams (I to III in ascending order) ranging in thickness from 0.64m to 14.11m and few local seams were intersected in this block. Depth of occurrence was 38.10m to 548.54m. The exploration will be continued.

14.7 Indian Bureau of Mines, Nagpur:-

14.7.1 Mr. R. Majumdar, Sr. Mining Geologist, IBM, Nagpur, informed that 73 mines were inspected in Chhattisgarh for implementation of MCDR 1988 and for approval of Mining plan and scheme of mining. The mines inspected were of minerals Bauxite, Dolomite, Iron ore, Limestone, Quartz & Quartzite in different distt. of the state. 04 mining plans were approved. 02 mining plans were approved for renewal and 04 no. of modified plans were approved. One case of FMCP was processed and approved. 37 cases of schemes of mining were approved. During the year 2013-14, 25th Mines Environmental and Mineral Conservation Week was organized under the jurisdiction of Nagpur Regional Office. During the 2013-14 total 14 applications for fresh grant and 02 applications for renewal of persons from the Chhattisgarh were received & processed for recognition as RQP for preparation of Mining Plan/Scheme of Mining and granted recognition in all the cases.

Total 11 mines have been covered during the RMDS study out of which 5 mines are in Chhattisgarh.

Fruitful discussion were made on boundary pillars in working mines, DGPS survey, violation under rule 58 of MCDR 1988 and compounding penalties suspension and termination of leases under rule 13(2) and rule 45 of MCDR.

DGM asked IBM to give inspection report on use of some suitable limestone deposits (high grade) of Bastar area for cutting and polishing purpose as the matter is pending for last four years proposed under rule 59 of MCDR.

(Action IBM)

14.8 Atomic Mineral Directorate of Exploration and Research-

Mr. S. Shrinivasan, Dy Regional Director, & Shri A.K. Verma Scientific Officer AMD, Nagpur elaborated the Geological activities of the field season 2013-14 and proposals for the next field season in Chhattisgarh. He informed that three prominent Mesoproterozoic basins (Chhattisgarh Basin, Khairagarh Basin and Chilpi) have been identified as most promising areas for Uranium exploration in Chhattisgarh state. In addition to these shear zones in rock of Surguja crystalline are also being investigated. Apart from Uranium Work for RMRE minerals are also carried out.

14.8.1 Uranium investigation-

- (I). Chhattisgarh Basin and Chilpi Group:- Radiometric survey carried out along north-west margin of Chhattisgarh basin which brought to light radioactivity associated with phyllites of Chilpi Group around Pipradhar in Kawardha distt.
- (II) Khairagarh Basin:- Reconnoitry drilling of 24 boreholes (3698.60m) at Nalpani and Bhimdo area indicated significant uranium mineralization hosted in conglomerates of Bortalao formation (Khairagarh Group) and Pitepani metabasics of Nandgaon Group. 4468.00m drilling progress was achieved by drilling 22 boreholes.
- (III) Surguja Shear Zone:- Detailed Geological mapping, detailed radiometric checking and systematic sampling in Surguja crystalline were carried out to establish sub-surface continuity of shear controlled 'vein type' uranium mineralization. Drilling in 18 boreholes (total 5741.80m) was done. Significant uranium mineralization was intercepted in association with shear zone rocks.

14.8.2 Rare Metal Rare Earth (RMRE) Investigations-

These investigation include reconnaissance survey detailed evaluation and assessment of Columbite-Tantalite along with recovery operations in parts of Bastar and South Bastar Distt. Xenotime recovery operations in Siri River area, Jashpur distt. has been resumed. All the assignments taken up during field season 2013-14 would be continued during the field season 2014-15 based on the results of this year.

14.9 Central Institute of Mining and Fuel Research, Bilaspur Unit

Dr. Awadhesh Sharma, Senior Principle Scientist & OIC, CIMFR Bilaspur elaborated the Laboratory activities carried out during the year 2013-14 as given below :-

- 14.9.1** Borehole coal core:- During the period under review 11,512 metre coal core samples were received from 30 block/area spread over seven coal fields of CG, MP, UP, and Orissa.
- 14.9.2** Geological Survey of India: Total 505.50m coal core of Chhattisgarh has been received from GSI coal wing.
- 14.9.3** CMPDIL-RI-V:- Total 9374m coal core has been received by this unit from CMPDIL covering the coalfields of Mand-Raigarh, Korba and Bistrampur.
- 14.9.4** Sponsored Work:- Lab based beneficiation study of ROM coals from Chotia Mines, Hasdeo-Arand Coalfields sponsored by M/s. Prakash Industries Ltd is done.

14.10 Central Mine Planning and Design Institute-RI-V Bilaspur

Shri Subhashish Pal, Chief Manager (Geology) CMPDIL, RI-V- Bilaspur informed the house about the activities of Coal Exploration in Korba, Mand-Raigarh, Bistrampur, Hasdeo-Arand, Sonhat and Ramkola-Tatapani Coalfields. The work carried out through departmental resources and outsourcing. Total of 212710 m drilling was carried out. 19 coal blocks/mines were selected for this purpose. Prospecting report of Bijari, Porda, and Chira north block of Mand-Raigarh coalfield and Tulsi block B of Bistrampur

coalfield is finalized during 2013-14. Coal reserves proved in this block are 1116.78 million tonne. During coming field season (2014-15) proposed drilling for coal by CMPDI is 223000m in Chhattisgarh State. Six Geological Reports are proposed to be completed during the coming field season.

14.11 National Mineral Development Corporation Ltd.

Shri Vivek Kumar Shrama, Manager (Geology) NMDC informed the house that exploratory drilling work carried out in the existing mining leases of Bailadila area for quality control and additional reserve proving. Total 5487m drilling is done. Besides NMDC has filed 2 PL applications for iron ore in Dantewara distt. One ML application for dolomite and one revised application for iron ore is filed during the period. Joint field inspection of area by team of NMDC, along with forest and Mining department is completed on 09-01-2014.

NMDC proposes to drill 6990m for Iron ore during coming F.S. 2014-15.

14.12 Central Ground Water Board

Shri O.N. Tiwari, Regional Director, CGWB Raipur, elaborated on ground water exploration & Monitoring in Chhattisgarh State. During the period under review aquifer mapping in three dimension is initiated by the board. Initially Raigarh, Surguja and Korba districts are selected for this project. Under ground water exploration a total of 24 bore wells have been constructed during the period. These wells are constructed in Surguja, Korba, Raigarh and Raipur districts. Under the head monitoring of wells are done in 1007 monitoring stations.

Shri Tiwari of CGWB, requested to GSI to provide locations of high Arsenic and Fluorine contaminated area in the Chhattisgarh state. Mr. Mishra, Director, GSI replied that analysis of water sample is required for locating such areas. During discussion member secretary suggested that occurrence of Arsenic, fluorine and Iron in ground water is serious health related problem. Better co-ordination between different agencies is needed in this regard since it is an important social matter. He suggested for optimum utilization of groundwater and conservation measures should be taken to prevent the over drawl of ground water.

Shri Anurag Diwan, Joint Director requested to GSI and CGWB for joint evaluation of exploration data of each other for detecting source of contamination of health hazard element like Arsenic and fluorine.

Shri M. Sridhar Dy D.G. GSI replied that it has to launch specific investigation to evaluate the source by generating sub surface data and findings would be notified in the public domain.

(Joint action GSI and CGWB)

14.13 Chhattisgarh Mineral Development Corporation

Geologist of CMDC elaborated the mineral exploration activities of CMDC. In the year 2013-14 CMDC carried out investigation for Bauxite, through DGM. In Dandkesra area in Surguja distt. and Darai area in Kabirdham distt. Exploration work for bauxite is being done by DGM and the work is under progress.

14.14 Directorate of Geology and Mining, Chhattisgarh

14.14.1 Regional Office Bilaspur:- Shri Kailash Dongre, Regional Head, Bilaspur elaborated the mineral exploration activities of Regional office Bilaspur. He informed that exploration work for Bauxite continued in Dandkesra area during the period. Total 1089m drilling is completed and approximately 4 lakh tonnes of bauxite deposits are estimated in the area. Exploration work in Saidu coal block, Distt. Surguja was continued during the field season. In Saidu 4 coal seams were encountered among which seam no.. IV (Dhajag) is prominently develop 872.05 m drilling is done in Saidu block. 10.5 million tonnes of coal resources are estimated in this block. During the period exploration for dolomite carried out in Pachri-Bhalwahi block of Janjgir Champa District. 1236.65m drilling is done. Reconnaissance survey over 120 sq km and detailed geological mapping over 2.10 sq km area were done. 30 million tonne dolomite resources are estimated in this block. The work is completed in this block. During the field season detailed survey for coal is also carried out in western and southern part of Mainpat plateau, Distt. Surguja. Reconnaissance survey over 1125 sq km area and detailed geological mapping over 0.50 sq. km. area were done. During the period exploration for bauxite in Kindha area of Raigarh Distt. was carried out. Reconnaissance geological survey over 120 sq km area is done. Detailed geological mapping over 2.20 sq km area is done.

Exploration for coal in Saidu block, distt Surguja and Exploration for bauxite in Dandkesra block, distt Surguja were proposed to be continued during the field season 2014-15. A new project of exploration for limestone in Dhabadih- Joroila area (notified block) of Janjgir Champa district is proposed to be taken up during the field season 2014-15.

14.14.2 Regional Office Raipur:- Shri H. D. Dhekware, Regional Head Raipur informed the house that Exploration for limestone in Kesla area distt. Raipur was continued during the period under review. During the period, total of 1065.40m drilling is done and 58.68 million tonnes resources of limestone estimated. Exploration for limestone in Tekapar-Kalkasa area of Rajnandgaon distt. was continued during the period under review. During the period, total 816.50m drilling is done and 4.64 million tonnes resources of limestone estimated. Exploration for limestone in both these block will be continued during the coming field season. Exploration for bauxite in Darai area, Distt. Kabirdham was continued. 1146.90 m drilling is done and 32,000 tonnes of resources of bauxite are estimated in this block. Exploration for bauxite in Darai block/area will be continued during the coming field season.

14.14.3 Regional Office Jagdalpur:- Shri G. R. Chauhan, Regional Head, Jagdalpur informed the house that survey and investigation for dolomite in Markel-Kurundi-Jiragaon area in Bastar distt. continued during the period. Around 5.00 lakh tonnes of dolomite under resources categories in this block. Survey and demarcation of Granite suitable for cutting and polishing around Mudpar, Bundeli and Bhanbhera area of Kanker distt. and Bhusaras-Chingavaram area of Dantewara distt. completed during the period under review. 85.58 lack cu. m. of granite and dolerite were suitable for cutting and polishing were estimated in this area. Survey for limestone in Birsatpal area of Sukma distt. completed during the period.

During the forthcoming field season 2014-15 exploration for dolomite in Kurundi-Jiragaaon-Markel area of Bastar distt, Survey and prospecting of iron ore in Narayanpur distt. and exploration for limestone in Chitapur area, distt. Bastar are proposed to be taken up.

- 14.15** The proposed field programs for 2014-15 has been approved by all the member of unanimously. As there was no. overlapping or duplication found in the field program.

On concluding remarks, Chairman Shri M. Shridhar thanked all members for a healthy and fruitful discussion and interaction among the committee members on various issues. Main stream on working pattern related to modern techniques of exploration ,exploitation, development & regulation of minerals, ground water health hazards problems and focus on geochemical survey on Gujrat Model.

The meeting concluded with vote of thanks presented by Dr. D.R. Patel, Joint Director, D.G.M. to Chairman and members of Board.

**Director
Geology and Mining,
Chhattisgarh**

List of Participants

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