

Minutes of the 2nd meeting of CGPB- Committee Group IX Geoscientific Investigations, held on 14th December, 2009 in the Conference Room of V.K.S. Vardan Auditorium, GSI, Lucknow

The 2nd meeting of the reconstituted Central Geological Programming Board (CGPB), -Committee Group-IX on Geoscientific Investigations (geotechnical investigations, natural hazards, climate change, environmental geology, shallow subsurface geology and subsurface hydrology) was held on , 14th December 2009 at the conference room of the V. K. S. Vardan Auditorium in the Vasundhara Complex of the Geological Survey of India, Northern Region, Lucknow under the Chairmanship of Shri R.K. Singh, Convener & Additional Director General, Northern Region, GSI. Dr. P. Pande, Dy. Director General, Informational Technology, CHQ, Geological Survey of India and Shri Sumant Gupta, Dy. Director General, Op. U.P. & Uttarakhand, Geological Survey of India, Lucknow were also present to provide valuable suggestions to the group.

Following members, permanent invitees of outside organisations and officials of the GSI NR, Lucknow attended the meeting:

Shri R.K.Singh	Adl..Director General & Convener	GSI, NR, Lucknow
Shri Sumant Gupta	Dy.Director General, Op. U.P.& Uk & Mission -IV	GSI, Lucknow
Dr. Prabhas Pande	Dy.Director General(IT)	CHQ, Kolkata
Dr. A.K. Bhandari	Advisor, MOM	MOM, New Delhi
Dr. S.K. Wadhawan,	Director Monitoring-IV	GSI,PSS-P&M CHQ, Kolkata
Shri M. Raju	Director Monitoring -I	GSI,PPM,CHQ Kolkata.
Shri Harsh Gupta,	Director & Member Secretary	Earthquake Geol. Div., GSI, NR, Lucknow
Shri V.C.Srivastava	Director Tech. Coordination -I,	GSI, NR. Lucknow
Shri S.P.Bhartiya	Director Technical Coordination-II	GSI,NR Lucknow
Shri AK.Malaviya	Director TC-II, Op. P.H&HP,	GSI, Faridabad
Shri A.K.Saha	Director	GSI. ER, Salt Lake Kolkata
Shri. D.N.Bhattacharya	Director Mission -IV,	GSI,ER, Kolkata
Shri.G.C.Bhambry	Director Engg. Geol. -II,	GSI,Punjab&Haryana,Chandigarh
Shri. M.Chakradhar	Director Engg. Geol.	GSI,SR, Hyderabad.
Shri. E.Balasubramanian	Director Proj. Landslides,OpTNPk,	GSI,SR, Chennai
Shri.Binod Kumar	Director Op. Bihar& Jharkhand,	GSI,ER, Patna
Shri.Shekhar Sarkar	Director Landslide	GSI, CR, Pune
Shri.U.K.Mishra	Director	NEC, Shillong
Dr.Abrar Hussain	Regional Director	CGWB, Lucknow
Dr. D.S. Pandey	Scientist-D	CGWB, NR, Lucknow
Dr. Vikas Ranjan	Scientist-B	CGWB, NR, Lucknow
Dr. K.K.Singh	Scientist -D	CGWB, NR, Lucknow
Dr.P.N.Shah	Head ERD	RSAC-UP, Lucknow
Shri.Nisar Ahmad	Geologist	DGM, Jammu & Kashmir
Dr. Surya Prakash	Asso. Professor	NIDM, New Delhi.
Dr.K.D.Joshi	Principal Scientist	DCFR ,Bhimtal
Shri. R.M.Tripathi	Joint Director	U.P.Jal Nigam, Lucknow
Shri.Kesar Kr.Luitel	Asstt. Geologist	Deptt.of Mines,Minerals&Geology, Sikkim
Shri.T.S.Pangtey	Director Engg.Geol. -I	GSI,NR, Chandigarh
Shri.Sanjiv Sharma	Director	LHIM &EPE,GSI, N.Delhi
Dr.Indra Prakash	Director	GSI,NER, Shillong
Shri.N.K.Dhir	Director	GSI,NER,Shillong
Shri R. L. Shahu	Director Project Engg. Geol.,	GSI, CR, Bhopal
Shri.Zafiruddin Iqbal	Director EQG.Divn.	GSI, WR, Jaipur
Shri. G.K.Pancholi	Director Engg.Geol.Divn.	GSI, WR, Jaipur
Shri. Prabal Rakshit	Director	GSI, WR.Jaipur
Shri.S.K.Ghildyal	Director HGD,	GSI, NR, Lucknow
Shri.V.P.Mishra	Director	GSI, Lucknow
Shri.S.P.Nim	Director	GSI, Lucknow

Shri.G.N.Dwivedi	Director LHZ,	GSI, NR, Lucknow
Shri. G.K.Gupta	Director M&C, Op. UP &UK,	GSI, Lucknow
Shri.Dinkar Srivastava	Director Petrology Divn.	GSI, NR, Lucknow
Shri.N.H.Faruqui	Director Env. Geol., Op. UP& UK,	GSI, NR, Lucknow
Shri C.V.Sangewar	Director Glaciology Division,	GSI, NR. Lucknow
Shri V.N.Parcheta	Director (G.C) Chemical Division,	GSI, NR. Lucknow
Dr.Rajan Singh	Director (G.C) Chemical Division,	GSI, NR. Lucknow
Shri A.K.Johari	Director Drilling Division,	GSI, NR. Lucknow
Shri Anwar Hakim	Director Geophysics Division,	GSI, NR. Lucknow
Shri H.P. Mishra	Director Geophysics Division,	GSI, NR. Lucknow
Shri Kumud Sharma	Director E. G. Div., UP&UK,	GSI, NR. Lucknow
Shri G.K.Gupta,	Director Geoinformatics, Op. UP & UK,	GSI, Lucknow
Shri A.U. Khan	Director Project Quaternary Geology	O.P.U.P. GSI, Lko.
Shri Deonath	Director STM Project, Op U.P&UK,	GSI, NR, Lucknow
Shri.M.P.Gaur	Sr. Geologist CGPB Secretariat ,	GSI, New Delhi
Shri.Ashok Kumar	Sr. Geologist Engg.Geol. NR,	GSI, NR, Lucknow
Shri G.C.Kandpal,	Sr. Geologist Earthquake Geol.Divn.	GSI, NR. Lucknow
Shri K.C.Joshi	Sr. Geologist EQG. Divn.	GSI, NR, Lucknow
Shri S.K.Kar	Sr. Geologist Tech.Coord.Op UP&UK ,	GSI, NR. Lucknow
Shri Vikram Rai	Sr. Geologist Tech. Coordination -I ,	GSI, NR. Lucknow
Shri.Manoj Kumar	Sr.Geologist Engg.Geol.	GSI, Chandigarh
Shri Alok Kumar	Jr. Geologist Petrology Division,	GSI, NR. Lucknow
Shri Prem Prakash	Jr.Geologist Tech. Coord.Divn. -II.,	GSINR, Lucknow
Shri Rajnish Misra	Astt. Geologist EQG Divn.	GSI, NR. Lucknow

Shri Harsh Gupta, Member Secretary, Director Earthquake Geol.Divn. GSI, NR. Lucknow welcomed the members of the Committee.

1.0 At the outset, Chairman, Shri R.K. Singh, Convenor & Additional Director General, Northern Region, expressed serious concern over the thin attendance of the members especially representatives from different organizations, who had been repeatedly and painstakingly invited by the organizers. In his opening remarks he suggested that the DGMs of the states of the North Eastern Region may be invited through North Eastern Council (NEC), Shillong for a better communication. In order to improve the attendance he further suggested that the Directorates of Geology & Mining of various States may be contacted through the GSI offices in the respective States. He also reminded the members to submit a five year Rolling Plan.

2.0 Followed by the opening remarks by the Chairman, members introduced themselves.

3.0 Shri Sumant Gupta, Dy. Director General, Op. U.P. & Uttarakhand observed that the response of DGMs of Uttar Pradesh and Uttarakhand has also been very poor.

4.0 On a query, Shri Harsh Gupta, Member Secretary informed that only few member organizations / departments have sent the list of reports of last 5/10 years.

Confirmation of the minutes

5.0 Minutes of the 1st meeting held on 29th & 30th June, 2009 were placed before the House. The house confirmed the minutes unanimously.

Follow up action on the recommendations of the 1st meeting.

6.0 Regarding a query on para 7.0 of the minutes of last meeting wherein Shri G. C. Srivastava, Director, Chemical Division, GSI, NR, Lucknow was entrusted with the work of standardisation of the methodology to analyse Arsenic(As³⁺/ As⁵⁺), Mr V.N. Pracheta, Director, Chemical Division, GSI, NR, Lucknow replied that it had not been accomplished yet. Chairman asked him to comply immediately.

6.1 Dr. Rajan Singh, Director, Chemical Division, GSI, NR, Lucknow told that preparation of the document will be completed by the end of January 2010, . Mr N.H. Faruqui, Director, Environmental Geology

Division, Op. UP & Uttarakhand was asked to get the document on the standard methodology for the analysis and hand over the copy of the same to member secretary for wide circulation.

(Action V.N. Pracheta & N.H. Faruqui)

6.2 In the same context, the Chairman advised, Dr. Rajan Singh to submit a proposal for the procurement of the instrument for the analysis of both the forms of Arsenic, viz. As³⁺ & As⁵⁺.

7.0 Regarding para 12 of the minutes of last meeting the member secretary informed that Dr. R.K. Singh, scientist, Central Pollution Control Board has not submitted the said proposal on the collaborative project in writing.

Draft Base documents on various themes of the sub-committee were placed before the house for discussions

8.0 Dr. S.K. Wadhawan, Director, Monitoring, Mission IV, CHQ, Kolkata raised the issue of new fields of studies related to Subsurface Geology and Subsurface Hydrology being taken up by the GSI and inquired from the representatives of the CGWB whether there was any possibility of collaboration in these fields between GSI and their department and also if it could impart the necessary training to the officers of the GSI.

8.1 It was decided that to achieve this, the relevant GSI Mission H.Q. at Faridabad may interact with the CGWB headquarters there and work towards an appropriate collaboration.

(Action: Mr.A.K. Malaviya, Dir. TC,GSI, Faridabad)

8.2 In the same context Dr. P. Pande interjected that the ground water input is important for carrying out the Seismic Microzonation studies and so data pertaining to subsurface hydrology from the CGWB would greatly benefit such studies – one such study Seismic Microzonation of Jalandhar Urban Agglomerate is being taken up by the GSI in the current field season 2009-10.

9.0 On a query from CGWB representatives regarding their expectations from collaboration with the GSI, Dr. Abrar Hussain, Director, CGWB, Lucknow expressed interest in getting help in identification of the Arsenic bearing source minerals and also study of depositional environment of different aquifers. Besides, he said that the District Resource Maps (DRM) published by GSI would be of great help in their routine work.

9.1 Dr. S.K. Wadhawan asked Dr. Abrar Hussain to formally send the total requirement of the CGWB to the GSI headquarters at Kolkata.

(Action: Dr. A.Hussain,CGWB, Lucknow)

10 Chairman enquired from Shri A.K. Saha, Director, Earthquake Geology Division, ER, GSI, Kolkata, about the status of the Seismic Microzonation of Patna city. Shri. Saha told that it could not be taken up because of lack of manpower. He was, however, advised to take up this item on priority.

(Action Director, Earthquake Geology ER.GSI,Kolkata)

11. Sanjiv Sharma, Director, LHIM &EPE, GSI, N. Delhi informed the members that, off late, he had not received the landslide investigation reports from any office except a few from Northern Region.

11.1 On this members were asked to send such reports to him regularly.

(Attention all concerned GSI Directors)

11.2 Mr Surya Prakash from National Institute of Disaster Management (NIDM) suggested that there should also be dissemination of landslide investigation data to the regional offices.

11.3 Mr. Surya Prakash was requested to provide all the data on landslide, etc that is available with NIDM to the GSI at its Central Headquarters. Mr. Surya Prakash told that all such data is available at the NIDM's website.

11.4 In the same context Dr.P.N. Saha from UPRSAC informed that Their data of several collaborative projects, except those of Defense Projects, can be shared with GSI. On this the convener requested him to send such data to Mr. Harsh Gupta, Member Secretary

(Action : Dr.P.N.Saha ,UPRSAC)

12. Dr. Abrar Hussain, CGWB, Lucknow presented a detailed account of activities of CGWB. In his presentation, with particular reference to Ganga –Yamuna Doab. Among other things, he also informed that the first aquifer upto 30m depth is extremely strained due to over withdrawal., The 2nd and 3rd aquifers down to 100 and 150m depths respectively are being actively explored by the CGWB. He also shared the finding that the 1st and 2nd aquifers are not connected.

- 12.1 Dr. Abrar Hussain also informed that though CGWB has attempted roof top rain water harvesting in 10 government office buildings to recharge the groundwater, attempt has not shown any perceptible change in groundwater level.
- 12.2 The committee was of the view that such efforts should be intensified for schools, other govt. buildings etc. to make a significant impact on the groundwater harvesting programme. He was requested to explore the possibility of collaboration in this particular area also.
- 12.3 Dr. Pande suggested for a collaborative project between the two organisations for finding out the causes for the frequent development of ground fissures due to the excessive withdrawal of ground water.
- 13.0 Dr. Nissar from DGM, Jammu & Kashmir in his presentation informed about the initiation of landslide and earthquake studies in J&K and therefore had to go in for augmentation of manpower, training of their officers and establishment of geotechnical lab. The Chairman advised him to visit GSI website for information on training programmes, which is free of cost for State Government personnels. For collaborative projects and establishing a Geotechnical Lab their Department may come with a formal proposal to the DG, GSI.
(Action Dr. Nissar, DGM, J&K)
- 14.0 Dr. Surya Prakash, NIDM in his oral presentation described the fields of activities of NIDM and informed that all the information including data, papers, reports, etc. is available on their website whose address is nidm.gov.in. He was requested to submit in detail their total requirement for GSI in collaboration, if any.
(Action Surya Prakash, NIDM)
- 14.1 Dr. Surya Prakash requested that the data on monitoring/disaster history of landslides may be provided to them by the GSI.
- 14.2 On a request to provide their landslide data to the GSI, Dr. Surya Prakash informed that such an arrangement already existed under an MOU between GSI and NIDM.
- 14.3 Dr. Pande DDG (IT) advised Mr Sanjiv Sharma, Director, LHIM& EPE, GSI to oversee that the landslide studies are done according to the format provided by the NDMA to avoid any duplication or insignificant work. The Director, LHIM will be in contact with NIDM.
(Action: Director LHIM &EPE, GSI, N.Delhi)
- 15.0 Dr. P.N.Shah - UPRSAC informed that under the NRIS programme, maps of different levels and themes can be generated. He was requested to provide the GSI with the *snow cover maps* and *data and geo-hazard maps*.
(Action Dr.P.N.Shah , UPRSAC)
- 15.1 Dr.Shah from UPRSAC was also requested for collaboration in the chemical analysis as they were having a very good chemical laboratory.
(Action: Director, Chemical Divn., Lucknow)
- 16.0 The members asked to acquire the Proceedings of IGCP workshop on 'Landslides and Climate Change', from NIDM.
- 17.0 Mr. H.P. Misra, Director, Geophysics Division, GSI, NR made a power point presentation on the geophysical studies done for the Seismic Microzonation of Jammu Urban Agglomeration.
- 18.0 Mr.Kesar, Kr. Luitel ,DGM, Sikkim informed that they wanted a collaboration with the GSI in the fields of Glaciological and Landslide studies. He was advised to send a specific request for this to the GSI.
(Action Mr.Luitel ,DGM, Sikkim.)
- 18.1 The committee decided that while the landslide investigations in Sikkim are studied by the Engineering Geology Division of Eastern Region at Kolkata, minor geotechnical problems may be attended by the GSI office located at Gangtok.
- 19.0 M/s. Pangti and Manoj Kumar from Chandigarh office of GSI made a power point presentation on the geotechnical investigations of 'Sainj Hydro-electric Project', being carried out by their office.

- 19.1 Dr. Pande, DDG,(IT) informed the members about the latest directives of the National Committee on the Seismic Design Parameters for Hydro Electric Projects. The DPR units of the GSI have to ensure that the project have been subjected to seismic / seismo- tectonic investigations for design seismic parameters before clearing the DPRs.
- 20.0 Mr. Harsh Gupta, Member Secretary, gave a power point presentation on preparation of Base Document on 'Specific Projects and Initiatives' and 'General strategies'.with particular reference to R&D efforts and innovative projects in engineering geology updation of seismotectonics on 1:50,000 scale and use of latest techniques and softwares in field and labs.
- 20.1 Dr. Wadhawan said that more specialized inputs from different groups are to be incorporated in the base document.
- 20.2 Mr. Faruqui was requested to prepare a base document on the Environmental Geology and Medical Geology.
(Action: Director Env. Geol.Division, GSI, Lucknow)
21. Dr. C.V. Sangewar, Director, Glacialogy Division, NR, GSI gave a power point presentation on the glaciological studies and discussed the need for data base for the studies on 'Impact of Climate Change on Water Resources'.
- 22 Mr.A.K. Malaviya, Director, TC, GSI, Faridabad in his oral presentation emphasized the need to study aquifer characteristics to arrive at the geo-genic causes of the quality and quantity of the ground water. He pointed out that the interfluves regions should be the target areas for recharging of the groundwater.
- 22.1 Mr. Malviya was requested to prepare a document on the on the ground water recharge including the use of technology and innovative techniques in it.
(Action Mr.A.K. Malaviya)
- 22.0 Mr. A.K. Bhandari, Advisor, MOM suggested that North Eastern Region is best suited for collaborative studies and for that State Governments, DGMSs, NE Council have to be contacted and brought into collaborative fold.
- 23.0 Dr. U.K. Misra , NE Council told that a pilot study on 'Early Warning System' on floods has been taken up, which has shown very encouraging results.
- 24.0 Dr. K.D. Joshi, Principal Scientist, Cold Water Fisheries Institute, Bhimtal expressed his organisations willingness to be part of the endeavours for climate change studies.
25. 0 Mr. G.K. Pancholi, Director gave a presentation on Engineering Projects in GSI Western Region
- 26.0 Mr. Zafiruddin Iqbal, Director, Earthquake Geology Division, WR., Jaipur gave a power point presentation on the 'Seismic Microzonation of Bharuch'.
- 27.0 Mr. P.Rakshit, Director presented the work on the Calcrete Study for palaeo-climate.
- 28.0 Mr. M. Chakradhar, Director, Engineering Geology Division, SR, Hyderabad presented the highlights of the different ongoing geotechnical projects in the Region.
- 29.0 Mr. D.N. Bhattacharya, Director, Engineering Geology Division, ER, Kolkata gave the presentation on the highlights of the geotechnical items in the Region.
- 30.0 Mr. A. Saha, Director, Earthquake Geology Division, ER, Kolkata gave a power point presentation of the highlights of the items being carried out by the division.
- 31.0 Mr. Shekhar Sarkar Director, Project Landslide, CR, Op: Maharashtra, GSI gave short presentation of the work being carried out.

32.0 Mr. N.K. Dhir, Director T.C.NER showed concern for the lack of manpower. He said that in the absence of adequate manpower it was even difficult to conceive the projects to be taken up. He urged that the committee should emphasise on the issue of the dearth of manpower. Mr. M. Raju, Director Monitoring-I,CHQ, GSI Kolkata informed that there were only 70 engineering geology personnel in GSI all over India.

32.1 Dr. Wadhawan, however, reiterated that 5 year rolling plan in any case should be provided to the committee, which would, in turn, forward it to the CGPB.

(Action all Directors,GSI)

33.0 Shri R.K. Singh, Chairman concluded that –

- a) Committee has to highlight the shortage of manpower.
- b) The members/ member organizations should respond to modify the base document.
- c) Since 26% of total GSI items fall under this Mission, it has a big role to play in the future activities of GSI.

34.0 The meeting ended with a Vote of Thanks proposed by Shri Sumant Gupta, Dy. Director,Op.UP & UK. GSI, NR, Lucknow.

Highlights and Recommendations of the 2nd CGPB Committee

- 1.Placement of Draft Base Documents on various themes before the house for discussions
- 2.To develop detailed modules on following:

- a. Geotechnical investigation
- b. Bio-chemical and medical Geology
- c. Climate Change and eco-system.
- d. Subsurface geology and Hydrology

The committee emphasized more interactive participation among scientists of GSI for finalizing the Base Document on 'Specific Investigations & initiatives' and 'General Strategies' as it has big role to play under Mission -IV.

- 2.A document to be prepared on the standardisation of the complete method of analysis of Arsenic in ground water and submitted by Director Chemical Division, GSI,NR by 15 January 2010.
- 3.Director Environmental Geology Division, GSINR, to coordinate preparation of above document.
4. Proposal for the procurement of the instrument for chemical analysis of both the forms of Arsenic, viz. As³⁺ & As⁵⁺.
5. To identify new field of studies and possibility of collaboration in Subsurface Geology and Hydrology between GSI & CGWB.
6. To exchange know-how and inter-departmental training of officers of the GSI and CGWB.
7. DDG (IT) recommended acquisition and availability of data on subsurface hydrology from the CGWB would greatly benefit seismic microzonation studies – one such study Seismic Microzonation of Jalandhar Urban Agglomerate is being undertaken by Northern Region currently.
8. CGWB, Lucknow expressed to get help from GSI in identification of the Arsenic bearing source minerals and also study of depositional environment of different aquifers. Besides, Dr.Abrar Hussain, CGWB said that the District Resource Maps (DRM) published by GSI would be of great help in their work.
9. Chairman directed all concerned GSI Directors to submit landslide investigation reports to Director, LHIM & EPE, GSI, N. Delhi without fail regularly.
10. Director LHIM & EPE, GSI, N. Delhi to submit status report on total data collected on Landslides.
11. The DPR units of the GSI have to ensure that the projects are to be subjected to seismic / seismo- tectonic investigations for design seismic parameters before clearing the DPRs as per directives of the National Committee on the Seismic Design Parameters for Hydro Electric Projects.
12. The Sub-Committee also agreed to suggestions of Advisor, MOM that GSI, State Governments, DGMs and NE Council be brought into collaborative fold in North Eastern Region. All parties to initiate action.
13. The committee took cognizance of the concern raised by many organisational members regarding the dearth of young officers and man power in GSI.
14. Request all DGMs in Particular DGM J&K to send their requirements and details of personnel for training in earthquake geology and seismic-microzonation to GSI.

With a view to prepare/ visualise the road map of future course of activities of Mission-IV in the country, in general, and in GSI, in particular, the Sub-Committee advised all GSI Directors and representatives of other organisation to submit a 5-year rolling plan for 2009-2014.