

**MINUTES OF THE 35th SGPB MEETING HELD AT DGM CONFERENCE HALL
DIMAPUR, NAGALAND ON 7th August, 2015**

The 35th State Geological Programming Board Meeting was held on the 7th August 2015 chaired by Shri Bendang Longchari, IAS, Secretary to the Govt. of Nagaland, Dept. of Geology & Mining.

This auspicious annual meeting was attended by 70 (Annexure-II) delegates representing various Central and State Government departments along with DGM officials.

1. INTRODUCTORY ADDRESS

Shri S.K. Kenye, Director in his introductory address appraised on the activities of the department. He said that with change in the GoI's policy on planning and in the present state financial constraint, there has been no plan allocation to carry out the regular field activities. However the department has been carrying out groundwater activities, few mineral investigation works and geotechnical works based on demand of the public. He said that the detailed exploration of Mimi-Pyakatsu Limestone block in collaboration with MECL has been completed with probable reserve upgraded to 167.70 MT. The detailed exploration and economic feasibility studies of Moke marble/ limestone has been completed with a probable reserve of 1.713 MT in 2 (two) pocket deposits and the report is available for any user agency. He also said that the first phase of regional coal exploration of Northern Khar Coal block under guidance of CMPDIL has been completed with the second phase in continuation at Changki Block. While reflecting on signing of MoU for collaborative work between DGM and GSI, he said that no undertaking is taken up between the two organisations at present; however joint team of DGM and GSI had visited the geo-heritage site at Luthur village. With the concern of state government towards increase in revenue generation, improvements are made in the coal policy management. He concluded by urging all delegates and distinguished guests to sincerely participate in the technical deliberation and wished the programme a success.

2. CHAIRMAN'S ADDRESS

Shri Bendang Longchari, Chairman of SGPB welcomed the distinguished guests and technical personals from GSI, PHED, NSDMA, NSMDC and BRO-SEWAK. He also expressed happiness on upgradation of the Geological Survey of India, Dimapur office to Deputy Director General level covering states of Manipur, Nagaland & Mizoram and welcomed the new Dy. Director General Shri S.K. Tangri. He said that with his vast expertise and knowledge, hoped that GSI would take up innovative programmes for benefit of the region and state. He also suggested for brainstorming sessions among the scientific fraternity from both the state and central agencies to come up with programmes which will have far reaching impact and make headway in the economic development of the state and region. While reminiscing on his association with the department he said that he has gained much scientific knowledge and felt nostalgic that this would be the last SGPB meeting for him. In conclusion he invited for suggestions where DGM can play proactive role in development of the state.

3. ADDRESS BY DY.DIRECTOR GENERAL, GSI, SU: MN&M

Shri S.K. Tangri, Dy.Diretor General, GSI while thanking for the warm welcome accorded to him appraised on the activities being carried out by the GSI, Dimapur. The GSI has been established and working in Nagaland for the past 43 years, mainly involved in systematic mapping of the Nagaland terrain. He was pleased to inform the house that GSI had completed the systematic geological mapping of Nagaland on 1:50000 scale on April 2015. He also said that GSI is undertaking geochemical mapping of the Naga Hill Ophiolite (NHO) as part of the National Geochemical Mapping programme. He said that Nagaland has a unique geology with the NHO having preserved evidence of the crustal evolution process. And as such GSI has also undertaken works on preservation of geo-heritage site. He concluded by saying that collaborative programmes and plans may be formulated with the ultimate goal of economic development and betterment of the state.

4. TECHNICAL SESSION

Shri E. Kikon, Addl.Director, DGM, Nagaland moderated the technical session of the 35th State Geological Programming Board Meeting.

I. Confirmation of 34thSGPB meeting minutes

The meeting minutes of the 34th SGPB were highlighted by the moderator and the same was unanimously confirmed and approved

II. Summary of actions taken on 34th SGPB meeting minutes

The moderator reviewed the summary of actions taken on the recommendation of the 34thSGPB meeting minutes. Follow up actions were taken up as per the recommendations.

III. Appraisal of DGM activities

The following works of DGM during 2014-15 were presented

A. MINERAL INVESTIGATION

1. Prospecting/Exploration of Platinum Group of Metals within Naga Hills Ophiolite at Thengahu Ridge, Ziphu-Moke Area, Phek District, Nagaland- DST funding

Geological mapping of 500 sq.km on 1:5000 scale had been carried out with collection of 200 nos of rock samples of volcanics, ultramafics & quartzites within grid of 10 m. Processing and preparation of 90 rock samples for PGE analysis where 30 samples sent to NGRI, Hyderabad, 25 samples to GSI, Shillong and 25 samples to IBM, Nagpur. The results are awaited.

2. Regional Coal Exploration under Promotional Funding

i. The first phase of work at Northern Khar Coal block, Mokokchung district had been completed and draft geological report had been submitted to CMPDIL, Ranchi. The final geological report will be prepared and submitted on receipt of results of the chemical and petrographic analysis of channel coal samples submitted to CMPDIL, Ranchi.

ii. The work carried out in Changki Block-A, Mokokchung district includes geological mapping of 1.5 sq.km on 1:5000 scale, drilling meterage of 607.05 m in 4 boreholes

(upto June 15) and 53 coal core samples sent to NEIST, Jorhat for Proximate analysis. The tentative coal seam zones encountered by drilling are SZ VIII, SZVII, SZ V & SZ III.

3. *Detailed exploration and economic feasibility studies of Moke Marble/Limestone*

The work had been completed and report submitted where a total indicated resource of 1.713 MT had been established in 2 limestone pockets. The Moke Marble/Limestone has seven pocket deposits with an overall potential resource of 5.95MT.

B. MINERAL DEVELOPMENT

1. *Nagaland Coal Policy and Rules, (First Amendment) 2014*

The major amendments in the Coal Policy and Rules incorporates issues on sales tax registration, empowerment to the role of village councils, increased benefits to the land owners (resource owners) and trading of the Nagaland coals.

2. During 2014-15, the department had generated revenue of Rs. 1,54,00,000/- from coal sector.

C. GROUNDWATER

1. The department had constructed altogether 25 nos of tube wells under exploration programme with total meterage drilled of 1628.84 m and generated substantial amount of sub surface geological data.

2. Feasibility studies for construction of tube wells were carried out in Kohima, Dimapur, Wokha, Mokokchung, Zunheboto and Peren districts as per user demand.

3. Periodic water level monitoring from Hydrographic Network stations (NHNS) in Nagaland set up by CGWB and DGM. Data on water level are collected 4 (four) times a year and sent to CGWB, Guwahati for interpretation and analysis.

D. CHEMICAL SECTION

The chemical laboratory had analysed 67 groundwater and surface water samples. Presence of Fluoride above permissible limit had been reported from samples from Dimapur district while Manganese and Iron are mainly reported from samples of the hilly districts.

E. SEISMOLOGY AND DISASTER MANAGEMENT

1. The seismic Sub-Net station set up at DGM in collaboration with North East Institute of Science & Technology (NEIST) Jorhat, is yet to be functional for need of additional equipments and lack of funds for payment of the annual bandwidth fees.

2. A collaborative work with Nagaland State Disaster Management Authority (NSDMA) and NEIST, Jorhat on Seismic Micro zonation of Dimapur city had been proposed and submitted to Govt. of Nagaland for approval.

F. LANDSLIDE INVESTIGATION

1. Preliminary investigation of landslides at Assam Rifles Garrison Post, Kohima had been carried out and report submitted.

2. Project proposal on “Landslides inventory mapping and geodatabase generation of Nagaland with special reference to detail investigations of hazardous landslides for mitigation and remedial measures” had been prepared for central funding.

G. GEOTECHNICAL INVESTIGATION

Geotechnical investigation and soil stability tests had been carried out for building foundations at Mt.View Colony, Bank Colony, Padumpukhuri, NHHD Ltd., Zunheboto town and Tertiary Cancer Care center, Naga Hospital Authority Kohima.

IV. Appraisal of work done by outside agencies

A. GEOLOGICAL SURVEY OF INDIA, MANIPUR CIRCLE DIMAPUR (GSI)

a. Review of Work for FS 2014-15

- i. Systematic Geological Mapping of Nagaland state on 1:50,000 scale has been completed successfully with completion of mapping in gap areas in parts of Peren, Dimapur, Kiphire, Kohima and Phek districts.
- ii. Geochemical mapping was carried out in the Ophiolite Belt of Manipur and Nagaland covering T.S. 83K/6, 7, 10, 11, 12 and TS 83N/3, 4 Mon, Tuensang & Kiphire districts, Nagaland on 1:50000 scale.
- iii. Investigation for Chromium and Associated Base Metal in the Naga Hill Ophiolite on 1:12,500 scale was carried out.

b. Programme for FS 2015-16

- i. Specialised Thematic Mapping in and around Noklak-Pungro in the Naga Hill Ophiolite Belt to elucidate Tectonics – Metamorphic Evolution of Ultramafic – Mafic Rocks on 1:25,000 scale.
- ii. Detailed Corridor Mapping along Dimapur-Kohima, Merapani-wokha and Mariani-Changtonya across Frontal Fold Thrust Belt of Naga-ArakanYoma Suture of Nagaland on 1:25,000 scale
- iii. Investigation for Chromium and Associated Basemetal on 1:12,500 scale in Ophiolite Belt of Nagaland.
- iv. Macro-Scale (1:50,000) Landslide Susceptibility Mapping in parts of Toposheets Nos. 83 J/11 in Mokokchung and Wokha districts Nagaland.

B.PUBLIC HEALTH ENGINEERING DEPARTMEENT (PHED)

- i. Conducted workshop on usage of Groundwater Prospect Maps of Nagaland prepared by the Nagaland Science & Technology Council under the Rajiv Gandhi National Drinking Water Mission, GoI. Also conducted workshop on water conservation and selected one JAL GRAM village in each 11 districts under the “HAMARA JAL, HAMARA JEEWAN” objective of Ministry of Water Resources, River Development and Ganga Rejuvenation, GoI.
- ii. Construction of sustainability structures comprising of 235 units of rooftop rainwater harvesting, rejuvenation of 186 units of traditional well/springs and water treatment units (IRP) along with shallow ring well in 34 habitations.

iii. Under the Water Quality Monitoring and Surveillance (WQMS) activity, Field Testing Kits were provided to the community, 990 WATSAN committee members trained and testing of 13,596 water samples through Field Testing Kits (FTKs) and 6,094 water samples in the 11 laboratories of the state.

C. NAGALAND STATE DISASTER MANAGEMENT AUTHORITY (NSDMA)

Terrain stability study of Kohima town had been carried out during 2014-15 to identify landslide susceptible areas within the municipal jurisdiction and expanded urban areas covering approx. 80 sq.km. The work is expected to be completed in the current field season.

D. CENTRAL GROUND WATER BOARD, NORTH EASTERN REGION (CGWB)

i. Data gap analysis reports had been prepared for 394 sq.km of Athibung block of Peren district which is proposed to be taken up for aquifer mapping during 2015-16 under the National Aquifer Management Programme.

ii. 5 EW and 5 OW had been fixed for Ground water exploration through departmental rigs in Peren district.

iii. 45 samples had been analyzed including for iron and fluoride under hydrochemical studies

iv. District brochures of 8 districts of Nagaland had been updated and sent to CHQ for issuance

v. Mass awareness programmes had been conducted in all districts of Nagaland under the Hamara Jal, Hamara Jeevan programme with cooperation of PHED, Govt. of Nagaland.

vi. Groundwater Year Book of 1 NE state and Dynamic Groundwater resource assessment of NER had been completed.

5. APPROVAL OF DGM FIELD SEASON PROGRAMME 2015-16

The moderator highlighted the field programme to be undertaken during the field season programme 2015-16) which was unanimously approved for further necessary action by the board.

6. DISCUSSIONS AND RESOLUTIONS

- i. *Agenda of Nagaland State Mineral Corporation Ltd (NSMDC) on acquisition of land for Limestone and Ni-Co Magnetite deposit areas.*

The DGM has fund constraints to carry out land survey and demarcation as proposed by NSMDC. Therefore necessary survey works and negotiations for land acquisition may be taken up by the NSMDC. DGM will extend technical support in the event of feasibility of any project. It was also mentioned that geological exploration and feasibility studies of the Pyakatsu limestone and Moke marble/limestone deposits had been completed by DGM.

- ii. *Agenda of Nagaland State Disaster Management Authority (NSDMA) for collaborative work on landslide hazard zonation and seismic macro/ micro zonation of district headquarters.*

Collaborative works may be taken up in case of NSDMA funding the projects. DGM may provide the necessary field and technical support.

iii. Agenda of BRO-SEWAK for technical advice on remedial measures of landslide affected road stretches

The GSI had agreed to carry out the investigations since BRO-SEWAK had written for the same to GSI. In the event of detailed investigation involving subsurface investigation is required GSI may recommend to DGM. However such work will be carried out on deposit basis.

iv. In the course of discussion on landslide studies/investigations in Nagaland the followings points were noted:

- a. Landslide investigations are carried out by various agencies; however the works are often independent with no consultation among the agencies, resulting in duplication of works. Therefore frequent meetings between DGM, GSI and NSDMA may be held for better coordination among the agencies as well as for sharing of information.
 - b. The Geological Survey of India (GSI) as nodal agency of landslide in India is carrying out phase wise Landslide Susceptibility mapping on 1:50,000 scale for the state of Nagaland. They have also carried out surface geological investigation of localized landslides in the state. It was informed that all geological reports being carried by the GSI, except for few geo-engineering and MoU based projects are available for public usage in the GSI portal.
 - c. The complexity of landslides occurring in Nagaland has led to the importance of sub-surface data of slide areas in recommendation for remedial measures. The state is plagued with landslide problems with the main desire of public being implementation of effective remedial measures.
 - d. The DGM, Nagaland is strengthened with sufficient manpower and drilling machineries and equipment for sub-surface investigations. As such, it is proposed for central funding for landslide studies of Nagaland with special reference to remedial measures. The department had also done commendable work on Landslide Hazard Zonation and disaster mitigation of NH 29 between Dimapur-Kohima in collaboration with the Indian Institute of Remote Sensing (IIRS) Dehradun. Therefore DGM requested and hoped that GSI would extend its support towards the proposed project.
- v. On query of the Techno Feasibility studies of Coke-Breeze from Konya coal, Nagaland it was informed that Techno Feasibility studies had been carried out by NEIST, Jorhat with funding by the state government with positive results. However pilot scale studies need to be carried out prior to any project work. It was also informed that caking coals for manufacture of coke-breeze is found only at Konya in Nagaland.
- vi. With the PHED and DGM having its own established laboratory for water testing it was suggested that the two departments may have joint meeting to coordinate its activities and maintain uniformity in the water quality analysis.
- vii. While appreciating the PHED on carrying out analysis of enormous water samples (19,690 samples) through Field Testing Kits (FTKs) and in the district laboratories, it was suggested that concise information of the analytical results may be presented in

future for deliberations so as to have clear perspective on the overall water quality from different parts of the state.

viii. On suggestion of the GR-IV post as demand made by landowner of Luthur village (geo- heritage site), it was suggested that the matter may be taken up at the next CGPB.

ix. On formulation of building regulations by the State Disaster Management Authority, it was suggested that geological parameters has to be taken into consideration for any building construction/code.

7. CHAIRMAN'S REMARKS

Shri Bendang Longchari, IAS, the chairman of the 35th SGPB in his concluding remarks thanked all the delegates for their active participation. While commenting on the geohazard specially landslide disasters, he said that all agencies should work in coordination and formulate master plan for mitigating the impacts of disaster. He said that due to the present fund constraint of the state GSI and DGM may jointly work towards landslide mitigation. He also informed the house that concept notes of the NSMDC on mineral development has been submitted to concerned ministry which if taken up would create avenues for employment generation and economic development of the state. He also said that the project proposal on dynamic groundwater resource evaluation to mitigate the uncontrolled and haphazard groundwater exploitation has been approved in the ministerial level. He also informed on the concept note proposed by Dr. B.P Baruah, Rtd. HoD, Coal Division, NEIST, Jorhat on Institute of Mineral resources of the NER which would be beneficial for the whole region. He also supplemented that the water quality analysis results of the PHED may be disseminated and shared for the awareness of the public. He also expressed happiness on willingness of Dy.DG, GSI on his willingness to cooperate in scientific activities and sharing his valuable inputs. In conclusion he once again thanked all members for a fruitful deliberation.

8. VOTE OF THANKS

Shri Wanthang, Addl Director proposed the vote of thanks where he thanked all distinguished guests for their presence and participation. He sincerely thanked the chairman Shri Bendang Longchari, IAS for his concern, support and encouragement. He also thanked Shri S.K.Tangri, Dy.DG, GSI, for his valuable suggestions and inputs. He expressed gratitude to Shri S.K. Kenye, Director for highlighting the activities of the department, Shri E. Kikon, Addl Director for moderating the technical session and Shri O.K Temjen, OSD for his meaningful participation. He expressed gratitude to all distinguished scientist and delegates from GSI, NSMDC, PHED, NSDMA for sharing their ideas for the progress of the department. He finally concluded by thanking all DGM officials and staff for the arrangements and success of the 35thSGPB Meeting.