

**MINUTES OF THE 51<sup>ST</sup> MEETING OF THE KERALA STATE  
GEOLOGICAL PROGRAMMING BOARD**

Date : 20<sup>th</sup> September 2014  
Venue : Banquet Hall, Government Guest House,  
Thycaud, Thiruvananthapuram  
Time : 10.30 hrs to 13.25 hrs  
Participants : Separate list appended

**Proceedings:-**

**51.1.0.** The Member Secretary and Director of Mining and Geology, Shri. D. P. Sreekumar whole-heartedly welcomed Shri. P. H. Kurian IAS, the Chairman of the SGPB and Principal Secretary to Government, Industries Department who consented to chair the meeting and all the esteemed members to the 51<sup>st</sup> SGPB meeting.

He explained the functions of the Mining and Geology department. He informed that the department collects revenue to the tune of Rs. 54 crores, by way of royalty of major minerals and minor minerals and that 75 percent of the revenue comes from minor minerals.

State Geological Programming Board (SGPB) is conducted every year to review the geological activities carried out in the State during the previous field season and to chalk out the activities to be carried out in the State for the following field season. SGPB also helps in avoiding duplication of work carried out by different agencies. The programmes proposed in the SGPB are reviewed by Central Geological Programming Board.

He focused on the major issue faced by many mineral-based industries in the State i.e., scarcity of raw materials. Many of the clay-based industries are in the verge of closing. Due to lack of proper notification of the prospective mineral-bearing areas, they are being underutilised and are used for other developmental activities before winning the valuable mineral resource. It is not that minerals are not available but that winning of mineral now-a-days has become herculean task.

The director reiterated the need for GSI, NCESS, AMD and other scientific departments to intensify mineral investigation programmes for reserving mineral-bearing areas for future mineral development projects. He said that at times, the Honourable Court's orders which are intended to restrict large scale mining in some States, becomes a binding to our State also where mining scenario are different on account of availability of area for mining, population density etc.. He pointed out that the Kasturirangan Report and Gadgil reports, may affect the mining in the ESA villages of Western Ghats, thereby substantially decreasing the supply of fundamental raw material. The major challenge is to provide mineral (at least building materials) to the public at lower cost without affecting much on environment. He reminded of the commendable job done by GSI in finding out alternate to river sand i.e., off shore sand, but we are in look out for good technology for mining of off shore sand. He added that a thought has to be given for re-use of material of destructed buildings i.e., instead of dumping the destructed buildings' material as waste, we may re-use it for construction – just like recycling of plastics.

The Member Secretary congratulated the Geological Survey of India, State Unit for having started the Engineering Geology Division, which was also a proposal put forward by SGPB. He appreciated the tire-less efforts taken by the officials in materialising this initiative, which is of great societal importance and wished all success in their future endeavours.

He expressed the need for including Environment Department and Survey and Land Records as members of SGPB.

**51.2.0.** Shri. P. H. Kurian IAS, the Chairman of the SGPB and Principal Secretary to Government, Industries Department informed that the Review Material provides a quick overview regarding the work carried out in the State.

He said that construction industry has grown up over a period of time but there is not enough raw material to support the same. The available raw material, for example bauxite/clay resources in Kannur and Kasargod districts in north Kerala,

iron ore in Calicut are not able to be retrieved due to local protest. Even the PSU in north Kerala is finding it very difficult to mine the minerals.

He opined that mining in Mookunnimala is environmentally unfriendly and is unacceptable to the people and that it is beyond the bearing capacity of that place. Number of licences/mining sites should have been restricted. He expressed that half of the time this board, a good forum for deliberations, should be spend on advising Government on such matters and half of the time for scientific/exploration related themes. He cited the example of the iron ore hill in Kozhikode, Chakkittappara, which is so green a place, totally green forest land and how one can think in Kerala to go and mine a forest like this which is very difficult for one to understand. He reminded that limitations of Kerala in exploring and exploiting these minerals has to be understood. Mining in small areas which are not actually economical leads to use of all sorts of unscientific methods of mining to make it economical. He opined that the Minor Mineral Rules should be made more scientific. The Rules were made in 1967 and the situation is different today. Mining is allowed in very small area, for example 10 cents, which is really unscientific. He said that in the new Rule minimum area for mining is 1 acre.

He said that the acute shortage for sand needs to be addressed and there are proposals to mine sand from sea. He enquired whether any agency/division present in the meeting could provide some locations so that we could go ahead and a trial could be made. He commented on instance of illegal transport of sand from Karnataka using receipts supplied from Andhra Pradesh, since Karnataka has imposed a ban on export of sand. When the demand for minerals or any product increases the mining goes haphazard. He opined that as far as Kerala is concerned, the demand for these minerals is on a peak now. He stressed that this is the peak period which demands onslaught on local geology and ecology. This is a time one has to be very careful and regulations have to be done very effectively so that irreparable damage is not done to the geology and ecology of this place. These should be the subject of the

deliberations to follow and should set a good new agenda for the next board meeting.

He supported the idea regarding reuse of construction materials which have once been used just like reuse of steel which is being practiced elsewhere, for example in Doha, from demolished buildings where areas are subjected to renovation. The Engineering Division may look into such aspects.

He stressed that the most important aspect is to try to reduce the demand of these materials. One of the suggestions now implemented is to hike the tax for big houses in geometric proportions. The concept of green construction should be more realistic with fewer contradictions. He also opined that the concept of inter-generational equity i.e., if we use all the resources around us what would be left for the future generations, is easily said. He told that let us put our feet together in finding the 'delicate balance' between the opposing factors.

He urged that the unscientific royalty structure should be rationalized and should be made reasonable with benefit to the society and the process is expected to be completed in the coming weeks. Finally, he informed that all efforts are being made to bring out a slightly better Rule.

- 51.3.0.** The Member Secretary requested the members to confirm the minutes of the 50<sup>th</sup> meeting of the SGPB, held on 29<sup>th</sup> July 2013. He invited discussions on any points which need clarification. Since there were no comments the Chairman informed that the minutes of the 50<sup>th</sup> SGPB has been confirmed.
- 51.4.0.** The minutes of the 50<sup>th</sup> SGPB was approved by the members.
- 51.5.0.** The Member Secretary then invited the members for the presentation of work carried out during the period from July 2013 to June 2014 and the proposed programmes for the year 2014 – 15.

**51.6.0.** Representing Additional PCCF, Protection, Kerala Forest Department, Shri. Pramod P. P., IFS, Deputy Conservator, Co-ordination informed that as of now, the distance between the Reserve Forest and mining area is not defined. A proposal, in this regard, has been given by the Forest Department to the Government for approval. He said that if forest department is consulted for mining before obtaining SEIAA's nod and permission from the Mining department, where there is no blasting within 1 km radius from the reserve forest, a considered view of the forest department could be given. The Chairman opined that consent is a big issue and that is where the Rules get violated. Regulations have to be fixed and the practice of giving consent should not be promoted since this favours subjectivity.

The Deputy Conservator informed that as per the Ruling of Supreme Court the distance bar for Wild Life Sanctuary/National Park is 10 km and every State, according to the necessity of a Wild Life Sanctuary/National Park, can legislate or decide on what should be the exact distance of a mining site from a Wild Life Sanctuary/National Park. He also informed that in response to suggestions invited for amendment of KMMC Rules 1967 it was communicated that (i) quarrying involving blasting within a radius of 1km from the reserve forest boundary should not be allowed and (ii) other mining not involving blasting can be permitted with NOC from the forest department within 1km. But Chairman intervened and expressed that instead of insisting NOC/consent it is better to specify the mandatory distance to be maintained from a reserve forest. The Chairman informed that the same should have been incorporated in the revised KMMC Rules but the amended version of KMMC Rules has already been moved to the Law Department. He added that the same also has to be included.

**51.7.0.** The Member Secretary invited Deputy Director General, GSI, State Unit, Kerala to speak a few words on the newly inaugurated "Engineering Geology and Landslide Studies Division".

- 51.7.1.** Dr. N. Kutumba Rao, DDG, GSI, State Unit, Kerala shared that a new “Engineering Geology and Landslide Studies Division” has been inaugurated on 23<sup>rd</sup> August by Shri. Harbans Singh, Director General, GSI.

He informed that earlier the geotechnical services used to be rendered from Headquarters, Kolkata, subsequently from Regional office, Hyderabad and later on from the Operational Office at Chennai and now from Kerala. This division extends engineering geological services to irrigation, water transport projects, power projects, transport, corridor projects underground storage structures, special buildings water supply and sewerage projects, any suggestion on quarry sites/mines, quarry excavations, Environmental Impact Analysis etc. He also informed that the association of GSI with civil engineering projects of Kerala dates back to pre-Independence era with investigation of Mattupetty and Senkulam projects. Very important studies carried out include Idukki, Sabarigiri, Idamalayar, Lower Periyar, Kuttiyadi, Kakkad, Peechi, Malampuzha, Malankara, Kallada projects for which GSI rendered geotechnical consultation for effective designing. He added that henceforth these services would be available from the Kerala office itself.

Chairman opined that one of the very big problems faced is regarding huge requirement of red earth for construction purposes by Railways, Metro projects etc. At present removal of red earth is being carried out unscientifically. He enquired whether GSI would be able to render services in identifying locations, lying within a particular radius from the construction sites, from where red earth can be removed with least impact on geological and hydrological parameters. He pointed out that legal requirement such as obtaining Environmental Clearance is a must. He added that it is true that there would not be any suitable area but if some area could be identified based on scientific studies by agencies like GSI, it would be better.

**Action: GSI, SU, Kerala**

The Dy. D. G., GSI, SU, Kerala replied that if a request is received for identifying a suitable site within a specified area,

the work can be taken up after obtaining approval from the competent authority.

## **GEOLOGICAL SURVEY OF INDIA, KERALA UNIT, THIRUVANANTHAPURAM**

**51.7.2.** Shri. M. Suresh Chandran, Director, GSI, presented the summary of the work carried out during the period from July 2013 to June 2014, which includes:-

- **Specialised thematic mapping:-**

- Study of the western extension of Palghat-Cauvery lineament and its geological implications, Palakkad and Thrissur districts, Kerala
- Study of geology along either-side of the 'Periyar Lineament' around Malayattur - Kothamangalam - Neriya Mangalam area, Ernakulam and Idukki districts, Kerala

- **National Geochemical Mapping:-**

- Geochemical mapping in toposheet no. 58A/1 & part of 58A/7 in Wayanad and Malappuram districts, Kerala and Coorg and Mysore districts, Karnataka
- Geochemical mapping in toposheet no. 58A/2 & part of 58A/7 in Wayanad and Malappuram districts, Kerala and Nilgiri district of Tamil Nadu
- Geochemical mapping in toposheet no. 58A/3 & part of 58A/7 in Kozhikode, Malappuram and Wayanad districts, Kerala and Nilgiri district of Tamil Nadu

- **Mineral Investigations:-**

- Preliminary investigation for PGE mineralization in the ultra-mafic/mafic rocks of Nilambur valley, Malappuram district, Kerala
- Preliminary investigation for gold and copper mineralization around Anapara area, Thrissur district, Kerala

- **Landslides:-**

- Landslide susceptibility mapping on macro scale along major road corridors in Idukki district, Kerala.
- Post disaster studies in Kerala.

Chairman informed that he used to be a member of a committee which studied on landslides in Idukki. The committee identified the reasons for the same and suggested preventive measures. Due to lack of proper implementation of preventive measures the landslides repeatedly occur.

Proposed programs for the field season 2014 -15 include:-

• **Specialised thematic mapping:-**

- Study on the sanukitoid type rocks and structure in the western extension of Palghat-Cauvery lineament and its geological implications, Palakkad district, Kerala
- Study of geology along either-side of the 'Periyar Lineament' around Malayattur - Kotamangalam - Neriya Mangalam area, Ernakulam and Idukki districts, Kerala

• **National Geochemical Mapping:-**

- Geochemical mapping in parts of Kannur and Kasargod districts of Kerala and Kodagu and Dakshina Kannada districts of Karnataka.

• **Mineral Investigations:-**

- Preliminary investigation for gold in Mundanpara, Chittur and Katalakkandi areas in the southern part of Attapadi valley, Palakkad district, Kerala
- Preliminary exploration for Platinum Group Minerals in Vellamari block, Attapadi valley, Palakkad district, Kerala

• **Landslides:-**

- Preparation of a 1:50,000 scale landslide susceptibility map for mountainous/ hilly region on GIS platform. (preparation of a 1:50,000 scale landslide susceptible map for TS 49M/14 and 58A/3 in Kozhikode, Wayanad and Malappuram districts, Kerala)
- Post-disaster studies in Kerala (Service item)

• **Engineering Geology:-**

- Geotechnical evaluation of water resources development projects in Kerala



• **Geological Monuments and Geoparks:-**

- GSI has passed a resolution on 28.05.14 declaring Varkala cliff as a 'Geoheritage site' and the DG, GSI has requested the Chief Secretary, Govt. of Kerala to issue a notification in this regard. Managing Director, Vision Varkala Infrastructure Development Corporation Ltd took initiative and arranged a meeting with the Hon'ble Chief Minister, Kerala. On 23.06.14, the DDG, SU: Kerala made a presentation on significance of Varkala and follow up action required. The meeting was attended by Minister for Tourism, Minister for Culture, MLA, Municipal Chairman, Municipal Secretary, Vice Chairman, State Planning Board, Secretaries of various departments and several senior officials of Govt. of Kerala. GSI was represented by the DDG, Director (TC), Director (Parks & Museum) and Director (EG&LS). GSI is awaiting a notification to be issued by the Government.

**51.7.3.** In response to Member Secretary's query GSI replied that they do not propose to take up any mineral investigation programme in Mannucheeni area since there is no chance of obtaining clearance from forest department. GSI, as reply to enquiry from Chairman, informed that other than post-disaster studies they have not proposed to take up any landslide studies in Munnar area. GSI added that though the selection of study area is toposheet-wise, if a specific request arises such study would be taken up. GSI also informed that the exploration programmes carried out in Kerala are of G4 level. Shri. R. Radhakrishnan Nair, Deputy Director enquired whether GSI wishes to take up G3 level investigation of PGE along with Mining and Geology department. GSI replied that they are yet to identify a good potential area and that they are hoping to attain the same in Attappadi.

**51.7.4.** Dr. S. N. Kumar, Professor and Head, Department of Geology, Kariyavattom Campus enquired GSI about the Engineering and Geotechnical Laboratory and they replied that they have just initiated and soon it would become a full-fledged laboratory.

**51.7.5.** Member Secretary informed that for the ensuing field season, the following two proposals may be included in SGPB for GSI, SU, Kerala.

- Mapping of landslide-prone areas in Munnar

GSI replied that mapping of landslide prone areas along the road corridor of Idukki district has already been completed. Landslide susceptibility mapping on mesoscale (1:10,000) of Munnar area has also been completed and that any site-specific studies, if required, can be taken up on request.

- Optimal site selection for extraction of ordinary earth, within a given area, for construction purposes - The Dy. D. G., GSI, SU, Kerala replied that if a request is received for identifying a suitable site within a specified area, the work can be taken up after obtaining approval from the competent authority.

**51.8.0.** Chairman informed that in an effort to extract sand from dams/reservoirs Andhra Pradesh Government could generate 400 crores. He said that the same has been tried earlier in Palakkad, but in rest of the places nothing more could be done. One of the problems is that catchment of dam falls in the forest area. Kerala has so much of sand in the reservoirs and the reservoirs need to be cleaned for better capacity. He told that SGPB has to come with some suggestions on how this can be accomplished.

He opined that purpose of SGPB should be more of general nature and should come out with practical suggestions to help the State on certain pressing problems like this.

Shri. Jacob Punnen, Mining Consultant, M/s. KEMDEL said that it has to be done as a desilting operation. If it is done as a mining operation obtaining clearances would be extremely difficult but for desilting clearances can be obtained and the same should be obtained by the concerned water resources department. There is a procedure and is being followed in Tamil Nadu. Chairman agreed that the same procedure may be followed. Shri. Jacob Punnen also informed that whatever help is required KEMDEL may give and that it has to be a project owned by the Irrigation department and they have to move for

environmental clearance, first with the State Committee and with the Central Committee.

**Action: Irrigation Department & KEMDEL**

*Note submitted by Managing Director, KEMDEL, Shri. K. Venugopal:-* As a general case Principal Secretary stressed the need for desiltation of reservoirs in the State. As most of the reservoirs are under the purview of forest department, the process needs clearance from the Forest and Wild Life department. In other dams like Malampuzha, Walayar and Chulliyar Kerala State Mineral Development Corporation (KEMDEL) can continue the desiltation activities. This would be a solution for the acute shortage of sand in the construction field and also to increase the capacity of the reservoirs. He has also pointed that they have already desilted about 1 lakh m<sup>3</sup> of sand from the Malampuzha, Walayar and Chulliyar dams. Further approval from the Governemnt is needed to continue the desiltation activities. Considering the request from the Managing Director, KEMDEL Principal Secretary entrusted KEMDEL for further desiltation activities in Malampuzha, Walayar and Chulliyar dams. With regard to the desiltation of reservoirs coming under the purview of the forest department, Principal Secretary informed that Government is planning to convene a meeting with Forest Department, Mining and Geology department and KEMDEL to resolve the issue.

**MALABAR CEMENTS LTD., WALAYAR, PALAKKAD**

**51.9.0.** Shri. Jose Thomas, Manager (Mines), Malabar Cements Ltd., Walayar, Palakkad informed that they received a circular from IBM stating that State government has to recognise certain agency/consultants for preparation of DGPS survey maps for mining lease in Kerala and agencies recognized for this purpose shall be obtained from the Director of Mining and Geology, Thiruvananthapuram and the map is to be completed and submitted in 60 days.

**51.9.1.** The Member Secretary informed that Kerala Land Information Mission (KLIM) has already been identified as the agency. Chairman opined that this has to be reviewed.

Shri. R. Radhakrishnan Nair, Deputy Director informed that this technique provides exact latitude and longitude of the area and should co-ordinate with the cadastral map and that in Kerala it is not possible to integrate with the cadastral map. He also informed that IBM has realized the point that even if we do the DGPS survey it cannot be integrated with the cadastral map of Kerala. It is not an easy task.

Shri. V. D. Jalnapurkar, IBM informed that Director of Mining and Geology has been approached and has not received a reply so far, in this regard. Shri. R. Radhakrishnan Nair, Deputy Director said that (i) there are not much agencies in Kerala to do the DGPS survey (ii) if somebody carries out, without the proper facilities, how the mining and Geology department can verify and confirm it and (iii) georeferencing is a big problem. Chairman interfered and informed that it would be better if IBM could suggest some agencies. Representative of IBM replied that let the Director of Mining and Geology inform whether there are any competent agencies in Kerala or not in writing to IBM. Director of Mining and Geology agreed to it. Shri. Jacob Punnen, Mining Consultant, M/s. KEMDEL asked whether they would be able to complete the task within two months. Subsequently the same has to be authenticated by the Mining and Geology department. Chairman instructed the Director of Mining and Geology to take immediate steps lest the mining projects would be affected.

**Action:- Mining & Geology department**

### **IDRB**

**51.10.0.** Smt. Sarah George, Director, IDRB told that regarding the desilting process irrigation department has certain guidelines and expressed doubt whether KEMDEL is following those guidelines. The objective being complementary, Chairman instructed to sort out the same between Irrigation Department and M/s. KEMDEL.

**Action: Irrigation Department & KEMDEL**

**51.10.1.** Shri. R. Radhakrishnan Nair, Deputy Director asked the officer representing irrigation department why a proposal is not put forward regarding desiltation of reservoirs. It was replied that they are proposing to take up desiltation of Meenkara dam. In

response to Deputy Director's query regarding the need for environmental clearance for desiltation of reservoirs, it was replied that it is mandatory.

**51.11.0** Chairman informed that Government is need of qualified persons for sanctioning environmental clearance to B2 Category quarrying/mining activities of minor minerals in the State. In this connection, Dr. Ansari J., Sr. Principal Scientist, NIIST informed that NABET approved by MoEF accredits qualified persons/consultants. Chairman said that he is awaiting the sought list, in this regard, from the Director of Mining and Geology. He also stated that abiding the instruction of the Honourable Supreme Court of India environmental clearance becomes mandatory. Taking into account the volume of the task, he doubted whether the services of the retired officials from various departments or people from one or two agencies would alone be sufficient to meet the requirements. Chairman instructed to prepare a list of qualified persons. Director of Mining and Geology informed that it would be advertised in the website. Chairman instructed to collect online application/biodata. Chairman also opined that Director, Environment Department should be made a member of SGPB. Chairman once again thanked all the members for making it convenient to attend the meeting.

**Action:- Mining & Geology department**

**GEOLOGICAL SURVEY OF INDIA, MARINE & COASTAL SURVEY DIVISION, MANGALORE**

**51.12.0.** Dr. K. Reghunathan Pillai, Suptd. Geologist presented the details of cruises taken up during the period from June 2013 to July 2014 which include:-

- Cruise SD-253: Preliminary evaluation of heavy mineral occurrence of Trivandrum- Attipara area, Kerala - to evaluate the sub surface heavy mineral occurrence in the offshore area Trivandrum- Attipara, Kerala. (*Cruise period: 18.10.2013 – 02.11.2013*)
- Cruise-SD-254: Preliminary Evaluation of Sand resources off Kochi, Kerala (*Cruise period: 12.11.2013 – 30.11.2013*)

- Item No. 070: Coastal survey between Kasargod and Nileshwaram, Kerala for identification of heavy mineral occurrences - to survey the seabed from coast to 10 m isobath; to delineate, geomorphological features of the nearshore zone; to delineate the occurrences of Heavy Minerals and to delineate the zone of active erosion
- Item No. 080: Preliminary survey for Heavy mineral occurrences in the near coastal waters between Nileswaram and Ezhimala, Kasargod and Kannur district Kerala - Study of morphological features, sediment distribution and occurrences of heavy minerals from coast line to 10 m isobath.

Coastal activities taken up in field season 2014-15: Quantum of work to be carried out during Phase II (field and boat work) of Item 008.

- Profiling - 5 profiles
- Sampling - 20 profile samples  
40 boat samples
- Boat survey - Bathymetry surveys in 0-10 m depth

**OPERATION: WEST COAST-II, GEOLOGICAL SURVEY OF INDIA, COCHIN**

**51.13.0.** Dr. Thomas Mathai, Director presented the field programmes during the period from June 2013 to July 2014 which include:-

- Item No:075 for Geology and Geo-environmental studies of Ashtamudi Estuary , Kerala
- Item No: 076 for Assessment of heavy mineral potential in near shore gap areas off Attipara, near Trivandrum, Kerala
- Geotechnical Appraisal off Manjeshwaram, Kasaragod, Kerala, for the development of a harbour/minor port (SD-252)
- Cruise: SD-251 Preliminary evaluation of Construction grade sand and associated placer minerals, if any, off Paravur, Quilon district, Kerala for sand investigation
- Cruise SD-255 for Evaluation of relict sand resources beyond TW off Kodungallur, Kerala, was carried out during April 2014, to locate the possible occurrences of

construction grade sand to assess the economic heavy minerals in the sandy sediments and to delineate palaeo-strandline.

Proposed programme for the field season 2014 – 15 include:-

- Evaluation of Relict sand resources beyond TW off Kodungallur, Kerala Mapping of gap areas in the near shore sector (between 0 and 10 m) - to prepare bathymetry map and surface sediment distribution map.
- Mapping of near-shore gap areas and assessment of Heavy Mineral potential off Anjengo, Kerala - to assess heavy mineral concentrations in the surface samples in the near shore sector off Anjengo, Kerala.

**51.13.1.** In reply to the query by Member Secretary whether there are any recommendations made on the study on Ashtamudi lake, Dr. Thomas Mathai informed that they are ready to communicate the recommendations of their studies to Land Use Board, Pollution Control Board, Environment Department.

**CENTRAL GROUNDWATER BOARD, KERALA REGION, THIRUVANANTHAPURAM**

**51.14.0.** Dr. Nandakumar, Regional Director, CGWB presented the programmes taken up during the field season 213 – 14, which include:-

- Aquifer Mapping Program – Flagship program of CGWB
  - Coastal Sedimentary Multi-aquifer systems – covering 1550 sq. km. in parts of Alappuzha, Kottayam, Pathanamthitta and Thiruvananthapuram districts
  - Hard rock aquifers in overexploited/critical blocks - covering 1000 sq. km. in Chittoor and Malampuzha blocks of Palakkad district
- Groundwater Exploration
  - Coastal Sedimentary Multi-aquifer systems
  - Hard rock aquifers in overexploited/critical blocks (in Chittoor and Malampuzha blocks of Palakkad district)
  - Shiriya and Mogral watersheds in Kasargod district
- Geophysical Studies

- Coastal Sedimentary Multi-aquifer systems
- Hard rock aquifers in overexploited/critical blocks
- Hydrochemical Studies
- Groundwater Regime Monitoring and strengthening of Groundwater observation well network
  - GW Regime monitored through 1203 wells – 4 times
  - Established 356 additional wells
  - Monthly monitoring in Thiruvananthapuram urban area
  - Participatory monitoring in 52 wells
- Technical assistance to Government organisations – carried out two short-term investigations
- Workshop/IEC activity – one major change in the working of CGWB by going out of the office to create awareness and build the capacity of the stake holders by conducting
  - Workshop on Water conservation in Kerala – Prospects and challenges jointly with the Department of Geology, University of Kerala
  - State level painting competition – Kerala and Lakshadweep for school children to create awareness on water conservation
- RGI Training Programs
  - Two state level training programs on state level management plan and local groundwater issues at Trivandrum and Kottayam
  - Five block level training programs on village level aquifer management plan
- Special study – Radon distribution in groundwater in coastal tracts of South Kerala
- Information dissemination
  - Manual on National Aquifer mapping and management
  - Ground water year book
  - Ground water exploration report
  - District ground water information brochures

The proposed programs for the year 2014 – 15 include:-

- Aquifer Mapping Program – of entire Tertiary aquifers covering ~5200 sq. km. over the next two years
  - Compilation of existing data and data gap analysis
  - Data generation (in-house)
  - Aquifer map preparation



- Preparation of Aquifer Response Model & Aquifer Management Plan
- Outsourcing activities
- Groundwater Regime Monitoring and strengthening of Groundwater observation well network
  - Monitoring of existing ground water observation wells – in-house and participatory monitoring
  - Establishment of additional observation wells
- Ground water Regulation
  - Ground water regulation and notification of areas
- Other major activities
  - Ground water resource assessment
  - Technical assistance to Government organizations as per request (STWSI)
  - Preparation of report and information dissemination – State Ground water exploration report and Ground water year book (1) (2013 – 14)
  - IEC activities - State level Workshop (1), Mass Awareness campaigns, State/UT level painting competition – Kerala and Lakshadweep and TIER II training programs on aquifer Mapping (3 nos. – Kasargod, Thrissur and Ernakulam)

**51.14.1.** In response to enquiry of the Member Secretary on data collection in the Mangalapuram area, Director, CGWB informed that they have already released the report and that they have not taken up any further work in Mangalapuram area.

**51.14.2.** Dr. Ansari, NIIST enquired regarding sharing of data collected by CGPB and Director, CGWB replied that all the data are in the open domain. Shri. Jacob Punnen enquired whether there are any publications regarding the position of aquifer in Kollam and Alappuzha districts. Director, CGWB replied that in Alappuzha, eventhough they have drilled 600 metres they have not touched hard rock.

**ATOMIC MINERALS DIRECTORATE FOR EXPLORATION AND RESEARCH (AMD), KERALA CHAPTER**

**51.15.0.** Dr. Balachandran briefed the exploration activities of Atomic Minerals Directorate for Exploration and Research (AMD), Kerala Chapter:-

- Exploration was taken up on behalf of IRE, in Chavara area. As instructed by IBM a status report has also been submitted to them. Unlike the universally accepted depth interval of 1.5 metre, we have taken it as 1 metre in conformity with the UNFC norms. In the present mining blocks in Chavara the value is >60% in the barrier beach in Chavara and moving towards eastern extension the percentage reduces to 5 to 20%. He also informed that exploration has already been completed in the northern and central sectors of Kerala and made the reports.
- A study was also taken up on nature of beach washings to understand the difference between the mineralogy of earlier established deposits and which comes as beach washings and also on the post-tsunami appearance of pyroxenes and amphiboles around Chavara for which twenty samples were collected. This study will be continued this year from Thiruvanthapuram to Alappuzha.
- Took part in the exhibition in connection with the Golden Jubilee Celebration of Department of Geology, Kariyavattom Campus, University of Kerala and the Additional Director, AMD presented a nut shell regarding 'Exploration and Evaluation of beach placer of India with special reference to Kerala'.
- National Science Day was celebrated for the first time in Thiruvananthapuram and was inaugurated by Dr. S. N. Kumar, Professor and Head, Department of Geology, Kariyavattom Campus, University of Kerala and an exhibition was also arranged.

The proposed field programmes include:-

- Continue exploration for heavy minerals in Chavara and eastern extension of Thottappally blocks to meet the needs of IREL and
- Continue with the studies on beach washings

**INDIAN BUREAU OF MINES, OFFICE OF THE CONTROLLER OF MINES (SOUTH ZONE)**

**51.16.0.** Shri. V. D. Jalnapurkar informed that, during the period from July 2013 to June 2014, they have conducted the following

MCDR, Mining Plan, Mining Scheme and Prospecting License and Task Force inspections - iron ore - 1 Mining Plan inspection; china clay - 11 MCDR and 12 Mining Plan /Mining scheme inspection; silica sand - 12 MCDR and 10 Task Force inspections; bauxite - 1 MCDR; beach minerals - 2 MCDR and one Mining Plan; laterite - 1 MCDR; limestone - 1 MCDR; graphite - 1 MCDR; limeshell - 3 MCDR and ilmenite - 2 MCDR. He also informed that all the task force inspections in respect of silica sand were carried out in association with State DMG, Government of Kerala and he duly appreciated nice co-operation extended by the officials. Out of 26 cases of violation of various provisions of MCDR Rule 88, only one violation has been complied so far while the remaining are under various stages of processing. Eight number of mines were suspended. He added that other geological studies have not been taken up. The 3<sup>rd</sup> Mines, Environment and Mineral Conservation Week was celebrated during 27<sup>th</sup> January to 1<sup>st</sup> February 2014. Status of approval of Mining Plan and Mining Schemes during 2013 - 14 was also reported.

He also informed that they propose to conduct 4<sup>th</sup> Mines, Environment and Mineral Conservation Week celebration during March 2015 in Kerala and those MCDR Mining Plan/Mining Scheme inspections would be carried out as per annual programme.

**51.16.1.** Dr. Ansari, Sr. Principal Scientist, NIIST enquired whether IBM and AMD allow mechanized mining in CRZ area. IBM replied that it depends on the need of extent of mechanization in the area.

**NATIONAL INSTITUTE OF INTERDISCIPLINARY SCIENCE AND TECHNOLOGY, THIRUVANANTHAPURAM**

**51.17.0.** Dr. Ansari J., Sr. Principal Scientist, NIIST presented the observations and results of dust abatement studies conducted in association with Kerala State Pollution Control Board in China clay mines (M/s. English India Clays Ltd., Thonnakkal, Thiruvananthapuram).

Objectives of the study included identification of a suitable dust suppressant and evaluate its effectiveness and its effect on water environment. Calcium chloride along with coconut pith (to increase the water holding capacity) was used as dust suppressant and coarse aggregates were used to increase road friction. He concluded that 33% Calcium Chloride along with coconut pith is a good suppressant and is cost-effective.

- 51.17.1.** Dr. Ansari J. informed that he would like to submit the following proposal before SGPB - 'A project for evaluation of china clay deposits suitable for pharma and cosmetic quality'.

**Action:- Mining & Geology department**

**STATE GROUND WATER DEPARTMENT, KERALA**

- 51.17.1.** Shri. A. G. Gopakumar, Hydrogeologist presented the programmes carried out during field season 2013 -14 and they include:-

- Ground water investigation and development
  - Identification of ground water potential areas
  - Locate sites for ground extraction structures such as bore well, tube well, filter point well and open well
  - Ground water estimation jointly done along with Central Ground Water Board
- Control and regulation of ground water
  - Objective of the scheme is to control and regulate groundwater development through legislation of Kerala Groundwater (control & Regulation) act 2002 to prevent adverse impacts of groundwater over exploitation and to ensure equitable distribution of resources to all sections of the society
  - Authority has decided not to issue any NOC for packaged drinking water units in semi-critical blocks in future
- Training of personnel
- Rajiv Gandhi Drinking Water Mission - implementing of mini water supply schemes with participation of beneficiaries
- Conservation of groundwater and artificial recharge
- Hydrology Project (Externally assisted Project)
- Development of Decision Support System (DSS)
- Purpose Driven Studies (PDS)

Proposed plan for the financial year 2014 – 15

- Ground water investigation and development
- Control and regulation of ground water
  - Objective of the scheme is to control and regulate groundwater development through legislation of Kerala Groundwater (control & Regulation) act 2002 with special attention to over exploited, critical and semi-critical blocks in the State
  - Formulate a Comprehensive Groundwater Management Plan for over exploited Chittoor block in Palakkad district
- Training of personnel
- Rajiv Gandhi Drinking Water Mission – implementing of mini water supply schemes and hand pump schemes
- Conservation of groundwater and artificial recharge – to increase sustainability of sources of water supply
- Hydrology Project (Externally assisted Project)
- Long term Drought Mitigation Plan
- Comprehensive Recharge Schemes in identified areas
- Augmentation of recharge for community water supply schemes having groundwater as source
- Roof-top rain water harvesting & recharge
- Intensification of Groundwater Monitoring Network
- Development of a GIS based Groundwater database

**51.17.1.** The Deputy Director enquired whether there exists any Gazette Notification regarding Control and Regulation of groundwater for declaring the critical and semi critical blocks in the State. Shri. Gopakumar replied that five over exploited blocks in the State has been notified by the Government for restriction of tapping of groundwater. Critical and semi-critical blocks has also to be considered for over exploitation or tapping of groundwater. He also informed that there is no restriction for drilling operation for domestic wells.

**DEPARTMENT OF GEOLOGY, KARIYAVATTOM CAMPUS, UNIVERSITY OF KERALA**

**51.18.0.** Dr. S. N. Kumar, Professor and Head, Department of Geology, Kariyavattom Campus, University of Kerala informed that its

Golden Jubilee was celebrated and he acknowledged the co-operation and help extended by the members of the SGPB. They had conducted a series of programmes – 3 national seminars, workshops, exhibitions, extension programmes in nearby panchayats which could attract large number of experts and public.

He suggested that SGPB may recommend to government regarding

- reducing the consumption of raw materials like sand and rock for construction purposes.
- restriction on the floor area of building to be constructed, depending on the number of members in the house.
- use of sand available in the reservoirs/dams i.e., desilting of our reservoirs and dams and also the use of sand available from offshore areas.

#### **DEPARTMENT OF MINING AND GEOLOGY**

**51.19.0.** Shri. R. Radhakrishnan Nair, Deputy Director presented the progress of work carried out during 2013 – 14 and proposed programmes for the period 2014 – 15, which include:-

- He informed that though India hosts vast mineral resources, they are not extracted to the extent possible. India produces 86 Minerals [4 Fuel Minerals; 10 Metallic Minerals; 46 Non Metallic Minerals; 3 Atomic Minerals; 23 Minor Minerals (Aggregates & Minerals used for domestic purposes)], India is the only country where minerals are categorised into major (used for industrial purposes) and minor minerals (used as aggregates for domestic purposes). Lime shell, for instance, has a dual role (used both as major and minor mineral). The amount India (\$15/km<sup>2</sup>) spent on exploration is very meagre compared with Canada (\$124/km<sup>2</sup>) and Australia. He also informed that mining in India is confined to 7150 km<sup>2</sup> i.e., 0.22 % of total area. But the protest against mining is so high in India, because of deterioration of aesthetic value. He said that a thermal plant deteriorates environment 300 times than a mine, but people have no objection. People protest only against mining. According to the publication by Ministry of Mines, in Kerala, out of total area of 38,863 km<sup>2</sup> only 13 km<sup>2</sup>

is used for mining of minor minerals. Currently mining sector contributes less than 4% to the GDP of India.

Progress for the period from July 2013 – June 2014:-

- Investigation for Bauxite/Aluminous laterite/laterite/clay in Kannur District
  - Ulloor area, Alapadamba and Eramam villages ,Taliparamba taluk, Kannur district
  - Eramom area, Taliparamba taluk, Kannur district
  - Vaipiriyam area, Kankol village,Taliparamba taluk, Kannur district
  - Korom area, Kankol village, Taliparamba taluk, Kannur district
- Investigation for china clay in Kundara, Kollam District
  - Area North West of Kanjiracode clay mine, Kundara, Kollam District
  - Kulapoika – Punnathadam area near Kanjirakode, Kundara, Kollam District.
- Survey for Identification of Tile/Brick Clay bearing areas in Malappuram District
- Mineralogy and gem testing laboratory
- Chemical laboratory
- Inventorisation of gemstones in Sreepadmanabhaswamy Temple, Thiruvananthapuram

Proposed programmes for the period 2014 - 2015

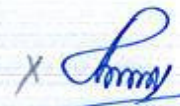
- Investigation for china clay in Kulapoika-Punnathadom area, Kundara, Kollam district
- Investigation for Bauxite/ Aluminous laterite/laterite/ clay in Kannur & Kasargod Districts
  - Kannadipoyil area, Perithatta village ,Taliparamba taluk, Kannur district
  - Karinthadam area , Peringome-village, Taliparamba taluk, Kannur District
  - M/s. KCCP Ltd., Mines, Nileshwaram, Kasargod District
  - Exploratory drilling in areas recommended by GSI, Kerala Unit
- Survey for identification of Tile /brick clay bearing areas
- Minor mineral quarry mapping

- 51.19.1.** Shri. R. Radhakrishnan Nair, Deputy Director thanked GSI for having analysed the samples for Gallium and Vanadium and also informed that some more samples need to be analysed. The Member Secretary said that we expect further co-operation in this regard. He suggested that a discussion may be held with GSI in this regard.
- 51.19.2.** Shri. Gopakumar, State Groundwater Department pointed out the need for effective implementation of landslide mitigation measures. Shri. R. Radhakrishnan Nair, Deputy Director informed that the point is well taken.
- 51.20.0.** Shri. A. G. Korah, Deputy Director delivered vote of thanks. He informed that Chairman suggested a deviation in agenda and a change from the present form and style. He also expects more deliberations on pressing issues of mines and mining from the members. He also suggested conducting another meeting in these lines.

He duly thanked all participating dignitaries from various organisations for their presence, active participation and valuable deliberations during the meeting.

The 51<sup>st</sup> SGPB meeting concluded at 13.25 hrs.

Minutes approved by

X   
P.H. KURIAN  
Pr. Secretary  
(Ind & IT)  
Govt. of Kerala



List of Participants of the 51<sup>th</sup> SGPB Meeting held on 20<sup>th</sup> September 2014

Sl. No.	Name of Institution	Officers who attended the meeting
1	Atomic Minerals Directorate for Exploration and Research, Thiruvananthapuram	Mr.K. Balachandran Officer in-charge
2	Central Ground Water Board, Thiruvananthapuram	1) Dr. Nandakumar Regional Director 2) Mrs.T.S. Anitha Shyam Senior Hydrogeologist
3	Department of Geology University of Kerala, Kariavattom	Dr. S.N. Kumar Professor & Head
5	Marine and Coastal Surveys Division, GSI, Kochi	Dr.Thomas Mathew Director West Coast Operations
6	Marine and Coastal Surveys Division, Operation West Coast, GSI, Mangalore	Mr.K.Raghunathan Pillai
7	Geological Survey of India, OP. TNP & K, Kerala Unit, Thiruvananthapuram	1) Dr.N Kutumba Rao Deputy Director General 2) M.Suresh Chandran Director
8	Indian Bureau of Mines, Bangalore	V.D. Jalnapurkar Sr. Mining Geologist
9	Indian Rare Earths Limited Chavara, Kollam	1) Mr.Jameel Ahamed Senor Manager (Mining)
10	Kerala Clays & Ceramics Products Ltd., Kannur, Kerala	Mr.P.K. Bharathan Geologist
11	The Kerala Ceramics Ltd., Kundara, Kollam, Kerala	Mr.Samson.A Deputy Manager
12	The Kerala Minerals and Metals Ltd., Chavara, Kollam, Kerala	Mr.NP Anil Kumar
13	Kerala State Electricity Board	1) Mr. Rajeev Kumar. K Executive Engineer 2) Mr.Radhakrishnan.P Assistant Executive Engineer
14.	Kerala State Ground Water Department	Mr. Gopakumar A.G Hydrogeologist
15.	Directorate of Industries & Commerce Government of Kerala	Mr.K.Ramesh Additional Director
16.	Irrigation Design & Research Board Government of Kerala	Mrs.Sarah George Director
17.	Kerala Forest Department	Mr.Pramod PP. IFS
18.	Malabar Cements Ltd., Walayar, Palakkad, Kerala	Mr.Jose Thomas Mines Manager
19.	KEMDEL	1)Mr.K Venugopal Managing Director 2)Mr. Jacob Punnen Mining Consultant
20.	National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram	Mr.J.Ansari Senor Principal Scientist
22.	Industries Department Govt .Secretariat	1) Smt. Jayalekhadevi. Deputy Secretary 2) Smt .Minimol.V.G Under Secretary
23	Department of Mining and Geology Thiruvananthapuram	1) Mr. D.P. Sreekumar Director (1/C) 2) Mr. R. Radhakrishnan Nair Deputy Director 3) Mr. A.G Korah Deputy Director (1/C)