

CONTENTS

	<u>Page No</u>
INTRODUCTION	1
BASIC FUNCTIONS OF THE DEPARTMENT	1
ORGANIZATIONAL SET-UP AND PRESENT STATUS OF MANPOWER IN THE DEPARTMENT	1-3
ACHIEVEMENTS OF THE DEPARTMENT DURING 2020-21	4-14
TRAINING, SEMINARS & EXHIBITION	15
MUSEUM	15
LIBRARY	15
BRIEF REPORT ON 40 th STATE GEOLOGICAL PROGRAMMING BOARD MEETING (SGPB)	16
REVENUE GENERATED DURING 2020-2021	17
BUDGET OUTLAY FOR 2020-2021	17



1. INTRODUCTION

The State Directorate of Geology & Mining, which came into being in the later part of 1968, was established with a view to search and explore the existence of the mineral resources of this virgin part of the country, with the ultimate objective of their development for socio-economic benefit of the people of the State. Sincere efforts have been made to evaluate the mineral resources of the State in spite of the hardships faced due to harsh working conditions as well as inadequate logistic support. The minerals, in order of their economic importance so far discovered and proved, are petroleum and natural gas, nickel-cobalt-chromium, magnetite, limestone, marble, coal, clay, slate, decorative and dimension stones, building materials and ground water resources.

In the international geo-scientific scenario, it is observed that the geological studies are not only confined within the periphery of mineral/ground water exploration. It has become essential to adopt modern methods of meeting future challenges in all the spheres of mineral/ ground water developments, engineering geology, mitigation of natural hazards and disaster managements arising out of earthquakes, floods, landslides/subsidence, etc. Thus, the Department has diversified its activities towards geo-technical and geo-environmental studies, seismic and earthquake monitoring activities, groundwater recharge through rainwater harvesting etc.

2. BASIC FUNCTIONS OF THE DEPARTMENT

- To search, explore and establish mineral, raw materials available in the State with an ultimate objective of utilization for socio-economic development of the people in harmony with natural ecology
- To undertake various geo-scientific investigations for rural and urban development, civil construction, hydel project, etc.
- Mineral management, exploratory mining, liasoning with exploratory agencies in the State.
- Effective enforcement of the Nagaland Coal Mining Policy and Minor Mineral Concession Rules.
- To explore and develop ground water resources.
- To implement various R&D projects relating to mineral developments, seismic surveillance and geo-technical related projects in the State.

3. DEPARTMENT'S ORGANIZATIONAL SET-UP/ MANPOWER STATUS

The Department is having its own double-storied office complex at Dimapur, besides 42 nos. of quarters for accommodating officers and staff. The total personnel strength of the Geology & Mining Department, both of technical and non-technical is 434 members, out of which 92 post are gazetted, 197 posts are class-III non-gazetted and 145 posts are Grade –IV staff. The Geology and Mining Department is a multi-scientific technical organization consisting of Geological, Drilling, Mining, Chemical, Administrative and Auxillary disciplines. The organization set-up is given below:-

A. MANPOWER SET-UP

DIRECTOR				
ADDITIONAL DIRECTOR				
Geological Wing	Drilling Wing	Mining Wing	Chemical Wing	Administrative Wing
Joint Director	Joint Director	Joint Director	Joint Director	Registrar
Geologist	Drilling Engineer	Mining Engineer	Chemist	Superintendent
Asstt. Geologist	Asstt. Drilling Engineer	Asstt. Mining Engineer	Asstt. Chemist	Asst. Superintendent
	Junior Engineer	Junior Engineer	J.T.A	U.D.A
	Drilling Asst. Grad-I, II & III	Mining Asstt.	Lab. Asstt. Gr-II & III	L.D.A
	Rigman	Mining Sirdar	Lab. Attendant	

B. AUXILLARY WINGS

1	2	3	4	5
Survey Section	Civil Wing	IT Cell	Drawing Section	Mechanical
JE (Survey)	JE (Civil)	Photographic Officer	JE (Draft)	Foreman
Surveyor Grade I, II & III			Draughtsman	Head Driver
				Driver
				Handy Man
				Mechanics
6	7	8		
Store	Library Section	Legal Section		
Store Keeper Grade I & II	Librarian	Legal Officer		
Store Attendant				

No. of Manpower (Gazetted) in each discipline

<i>Sl.No</i>	<i>Particulars</i>	<i>Total No. of Post</i>	<i>Remarks</i>
1	Director	1	
2	Additional Director	1	
Geological Wing			
3	Joint Director	3	
4	Geologists	18	10 nos of Asstt. Geologist posts upgraded to Geologist Posts
5	Assistant Geologists	12	1 Asstt. Geologist post appointed on contract, 8 posts under requisition to NPSC.
6	Photographic Officer	1	
7	Junior Engineer (Draughtsman)	1	
8	Junior Engineer (Survey)	4	2 posts under requisition to NPSC
	Total	39	
Drilling Wing			
9	Joint Director	2	
10	Drilling Engineer	5	
11	Asstt. Drilling Engineer	8	1 post under requisition to NPSC
12	Junior Engineer (Drilling)	10	
13	Legal Officer	1	1 post of JE(D) converted to Legal officer and appointed on contract
	Total	26	
Mining Wing			
14	Joint Director (Mining)	4	2 JD (M) Post upgraded from ME
15	Mining Engineer	3	1 ME post upgraded from AME
16	Asstt. Mining Engineer	2	JE upgraded to AME. 1 post of AME under requisition to NPSC
	Total	9	
Chemical Wing			
17	Joint Director (Chemical)	1	
18	Chemist	2	
19	Assistant Chemist	2	1 post under requisition to NPSC
	Total	5	
Administration Wing			
20	Registrar	1	
21	Superintendent	4	
22	Assistant Superintendent	5	
	Total	10	
Civil Wing			
23	Junior Engineer	1	
	Total Gazetted	92	
	Class-III Non Gazetted	197	
	Grade-IV Staff	145	
	GRAND TOTAL	434	

4. ACHIEVEMENT OF THE DEPARTMENT DURING 2020 – 2021

(I) MINERAL EXPLORATION

(a) Regional coal exploration in Changki Coal Block B, Mokokchung district, Nagaland.

The ongoing Regional coal exploration in Changki Coal Block B (CCBB), Melak-Tsurang valley coalfield, Mokokchung district involves geological mapping along with drilling with the primary objective to assess the occurrence of coal bearing strata, the lay and disposition of coal seams and its potentiality both quantitatively and qualitatively. The work achieved during the period April 2020 - January 2021 is given below.

<i>Sl.No</i>	<i>Activity</i>	<i>Quantum of work achieved</i>
1	Geological Mapping on RF 1:5000	2.50 sq.km
2	No. of boreholes drilled	6 Nos (CCBB9,11,12,13,14,20)
3	Total meterage drilled	707.60 m
4	Chemical Analysis at NEIST, Jorhat Laboratory	39 Samples



DGM 20 Drilling camp site



Borehole CCBB20



Coal seam outcrops where mining is carried out by local miners

(b) G3 investigation of Chromite, South of Wui village, Tuensang district.

Wui village situated in the Eastern part of Tuensang district along the Indo-Myanmar border is located between latitude N25°02'06" and Longitude E95°04' 48" and falls in S01 Toposheet No. 83 N/4. The investigation area formed a part of the northern extension of the Naga Hill Ophiolite on the eastern part of the Indo-Myanmar Orogenic belt. The chromite mineralization occurred in the host rock of Dunite which is hard, fine to medium, greyish in colour, massive to boulder type exposed in the southern part of Wui village beyond Sukhomong nallah. Geological mapping covered an area of about 3 sq.km on 1:10000 scale by tape & compass method and GPS. 15 Nos of Dunite samples were collected to analyse for chromite in the laboratory.

(c) G4 Investigation of Magnetite Deposit at Moya Village, Kiphire District.

Moya village is located in between latitudes N25°46' 29.4" and Longitudes E94°50' 53.5" with elevation of 1071 metres above sea level which is part of Toposheet No.83 K/13 Survey of India.

The presence of magnetite deposit was reported by the villagers at about 14 kms of Tizu nallah, south west of the village and near Survey Camp of Lower Tizu, Deptt of Power, H.E Project (36 MV). From a distance, the deposit appears reddish buff colour and look like Haematite but on careful examination, it was found that the outer surface of pyroxenite gives reddish buff colour due to iron leaching. The area was further investigated along the Tizu river, but except for a few pebbles of haematite and magnetite found along the river bed, no in situ deposit was found. The team also traverse the Likhimro nallah, north of the village and southern part of the village till the border of Mimi village but no deposit of magnetite was encounter.

(d) Detailed study of Minor mineral deposit & identification of stone quarries.

Geomorphological study of sandstone, boulder, sand, gravel and identification of stone quarries that have been identified are given below:-

i. Under Mokokchung District:-

- (a) Tsurang river sand deposit at Longthu Village.
- (b) Clay mining at Longthu area.
- (c) Sand/gravel deposit at Melak river near Yachang Village.
- (d) Stone Crusher unit located at 10 miles Tuli area.
- (e) Stone quarry near Bible College Tuli.
- (f) Stone quarry near Mission Compound at Merangkong.
- (g) Sand stones deposit at Unger Village area.
- (h) Sandstones deposit at Longmenden ridges near Ungma Village.

ii. Under Dimapur District:-

- (a) Gravel/boulder deposit of Chathe river.
- (b) Sand/gravel deposit of Dhansiri river.



Sand mining in Dhansiri River



Boulder deposit in Chathe river

(II) GEOSCIENCE STUDIES/INVESTIGATION

(a) Seismic Microzonation of Greater Dimapur City, Nagaland During the FSP.2019-20.

The following works were undertaken with respect to the ongoing project - Seismic Microzonation of Greater Dimapur City, Nagaland :

- (i) The work done under geological parameters include lithological, structural, geomorphological, geotechnical and geohydrological thematic parameters where mapping of total 141 sq.km of Greater Dimapur is completed. Drilling of 505 m in 10 boreholes for sub-surfaces strata correlation of Dimapur city up to depth of 50 m.



Core sample collection for sub-surface strata correlation. Loc: City College of Commerce

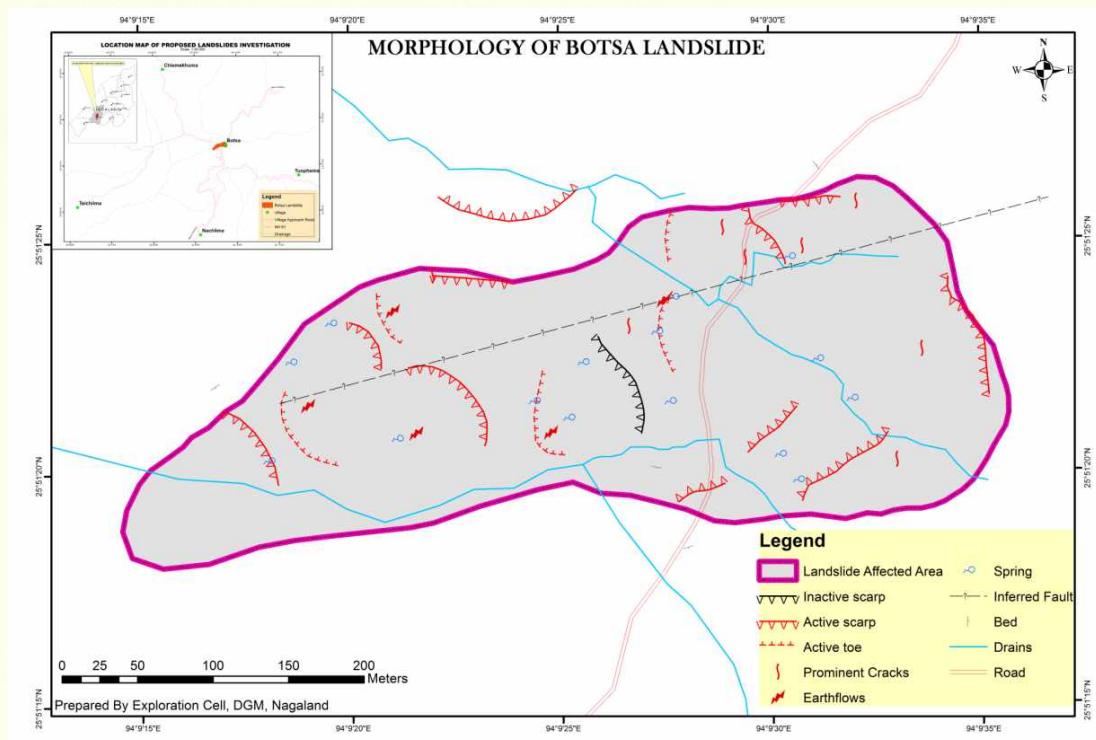


Core sample collection for sub-surface strata correlation. Loc: Kushiabil

- (ii) The geophysical thematic parameters include Seismotectonic study, Acquisition of Seismic Ambient noise data, Ground penetration radar survey and acquisition of strong ground motion data along with analysis and interpretation for integration and final map generation. All parameters of geophysical survey excepting GPR covering total study area 141 sq.km had been completed.

(b) Preliminary Geological Report Of Landslide/Subsidence At Botsa Town, Chiephobozou Tehsil in Kohima District.

The investigated area (as shown in the map below) falls within the latitudes N25°51'17.61" - N25°51'23.42" and longitudes E 94° 9'14.25" - E 94° 9'38.63" in the S0I Toposheet No. 83K/1 and located 38 km from Kohima town towards Wokha along NH-61, covering an area of about 1sq. km. In the present investigation area i.e. Botsa town, the landmass subsidence has been occurring every year during Monsoon season causing damages to human settlement and other utilities as well as NH-61. Moreover, it has also created psychological barrier for further development in the area due to instability of the land. Numerous cracks were observed in floors, walls and roofs of the individual houses, Church, Public School and other Govt. buildings. Altogether about 150 houses were affected. Road length of about 250 metres along NH-61 and approach road to other neighbouring villages are affected by landmass subsidence. Locally the investigated area falls under the Disang Group of rocks, characterized by shale dominant lithology with some sandstone. The dominant lithological characteristic ranges from strong to very weak rocks. The strong or competent rocks are further weakened by intersection of numerous planes, which lead to creation of numerous secondary pores in the weak impermeable rocks. It is, therefore very prone to landslides or slope failures of landmasses triggered by rainfalls, earthquakes, anthropogenic activities or other artificial vibrations, or combination of two or more factors. Therefore, various causative geo-parameters responsible for occurrence of Botsa landslide are lithology, structures and geomorphology, geohydrological, soil conditions of the area. Recommended remedial measures as: (i) Construction of concrete line Drain from above the village down below across the village; (ii) Three tube wells of 50m depth along with some 10-15m depth ring wells within Botsa.



Map: Morphology of Botsa landslide



Cracks on public school building



Cracks on building foundation

(c) Nagaland being located in Zone V with respect to both Seismic and Landslide hazard zonation of India, it is important to consider rock and soil mechanics studies for engineering foundations as well as the geological parameters in the area before construction of any structures. In this regard, the department has been involved in site soil stability studies for engineering foundation of buildings, roads, bridges, dams etc. During 2020-2021, the following investigations were carried out and remedial measures/ recommendations were submitted to the concerned authority/agency:-

1. Geo-technical landslide investigation along NH-29 at Peducha, Lalmati, Zubza and Kiruphema areas.
2. Geo-technical and landslide study along NH-2 Mokokchung-Amguri road section and NH-702D Mokokchung-Mariani road section.
3. Geo-technical soil investigation and soil test for construction of Fuel station at Noklak town.

(III) MINERAL DEVELOPMENT

(a) COAL

The Mining section of Directorate of Geology and Mining is implementing the Nagaland coal Policy and rules. The officers and staff are monitoring and regulating Coal Mines and Coal Transportation and during 2020-2021 the following achievements were made:

(i) Issue of Coal Prospecting License and Coal Mining Lease.

The Department has been issuing Coal Prospecting Licensee (CPL) and Coal Mining Lease (CML) to individuals and parties. So far, the department has issued 9 CPL (Six in Mon, Two in Wokha & One in Mokokchung) and 2 CML (One each in Mon & Mokokchung).

(ii) Outsourcing of check gates.

The Department has also outsourced six mineral check gates in the State during the period namely;

- 1) Tuli-Watuyongpang (Mokokchung) - M/s Nagaland Minerals and Mines
- 2) Tsutapela (Mokokchung) - M/s. Apongsashi
- 3) Anaki 'C' (Mokokchung) – M/s. Manshak Phom
- 4) Shetap (Longleng) – M/s. Mosa Phom
- 5) Naginimora (Mon) – M/s. Methlow Konyak
- 6) Tiru-Sinphan (Mon) – M/s. MCJ & Company

(b) MINOR MINERAL

Activities carried out under the Implementation of the Nagaland Minor Mineral Concession Rules, 2004 during 2020-2021 are listed as follows:

- i. Transport and transits of minor minerals are being monitored and royalty on minerals are collected at the 5 (five) mineral check gates namely, Dillai gate, New field gate, Chumukedima gate, Seluophe gate and Khopanala gate respectively.
- ii. Proposal has been made for setting up of a check gate in and around Hekishe Village and Molvon to regulate the quarries in the area.
- iii. Two gates namely Watiyongpang Gate, Tuli sub-division and Tsutapela Gate, Mangkolemba Sub-division under Mokokchung District has been setup.

V. CHEMICAL LABORATORY

Activities under Chemical laboratory during the period 2020-2021:-

(1) Preparation of Alcohol based hand sanitizer during Covid-19 pandemic.

500 litres(approx.) of alcohol based hand sanitizers were prepared as per WHO specifications and distributed to important offices such as the Deputy Commissioners Office Dimapur, Treasury and Accounts Office, Dimapur, Commissioner of Police Dimapur, SBI Dimapur and Kiphire District.

(2) Sample Analysis.

(a) Rock/Stone:

One sample of quartz stone collected from Wanching, Mon District, was analysed. The Analytical result showed the presence of SiO₂ is 53.9%.

(b) Coal:

Four samples of coal were analysed during the period:-

- (i) Two samples from Merapani, Wokha District - The result showed one of the sample in the Lignite grade and the other in the sub- bituminous range.
- (ii) Two samples from Peren District - The result showed one of the sample was in the Lignite grade and the other in the bituminous grade.

(c) Water:

- (i) A total of 52 groundwater samples were collected from in and around Dimapur and analysed for quality and potability assessment. The following parameters were found above the permissible limits of Bureau of Indian Standard for drinking water.
 - a) Turbidity- Above permissible limit in 2 samples.
 - b) Bi-Carbonate alkalinity (HCO₃) - Above the permissible limit in 1 sample
 - c) Iron (Fe) - Presence above the permissible limit was detected in 11 of the samples analysed.
 - d) Manganese (Mn) - Presence above the permissible limit was detected in 22 samples.
- (ii) 10 samples were collected from Kohima/Thizama area and analysed. The iron content of the sample of Finance department staff quarter – II (Thizama T/W) was found 2.29 mg/l which is more than 100% excess above the permissible limit.

(iii) Altogether 17 samples were received from DGM field officials collected from different districts of Nagaland for analysis. Analytical result is given below in brief.

- a) Presence of Iron above the permissible limit of Bureau of Indian Standard for drinking water in 7 samples.
- b) Presence of Mn above the permissible limit of Bureau of Indian Standard for drinking water in 8 of the samples.
- c) Presence of Potassium (K) above the permissible limit of Bureau of Indian Standard for drinking water.



Chemist at work in the laboratory

VI. GROUNDWATER SECTOR

As per CGWB's *Dynamic Groundwater Resource Assessment of India 2017*, total annual groundwater recharge for Nagaland State stood at 2.20 bcm, annual extractable groundwater resource at 1.98 bcm and stages of groundwater extraction at 1%. As such, there is huge potential for sustainable development of groundwater in hilly areas of the State where most of the district headquarters experiences scarcity of water during lean periods. In a bid to utilize the available groundwater resources, the department regularly undertakes development of groundwater in conjunction with artificial recharge under exploratory and deposit works which not only generates revenue but also provides hydrogeological data for future exploration.

Major programmes under Groundwater section during 2020-21:

1) Construction of tube wells.

Number of Wells constructed on exploratory and deposit basis during the financial year

Type of drilling Rig used	Number of wells constructed		Total
	Exploratory	Deposit	
DTH	1	6	7
Rotary	2		2
<i>Total</i>			<i>9</i>

2) Identification and construction of Artificial Recharge structures and roof top rainwater harvesting to revive sick wells in industrial area of Dimapur.

Keeping in view the rapid depletion of groundwater levels in dense settlement and industrial areas of Dimapur largely due to over-pumping, the Department has taken up this programme to adopt suitable measures to recharge groundwater aquifers. The Department has constructed Artificial recharge structures on a pilot basis at the following locations: -

(i) St. John Hr. Sec School, Dimapur:

The rooftop of the two storied main school building having a surface area of about 400 sq.m is tapped by PVC pipes and connected to a filtration tank at the ground level. The filtered water is channeled into the storage reservoir for daily use and the excess water from the reservoir is piped to three different recharge wells located east of the school building. The targeted aquifer for recharge lies at a depth of 100- 150ft. It is expected to harvest about 600 m³ (6.0 lakhs litres) of rain water annually.

(ii) Directorate of Geology & Mining Office Complex, Dimapur:

The rainwater from the rooftop of the office complex having a surface area of 2040 sq.m is tapped and channeled by PVC Pipes into the filtration chamber on the ground located west of the office complex. Provision has been made for utilizing the water in the storage tank during monsoon season by means of pumping. The harvested rainwater is injected to a recharge well at a depth of 113 m bgl. The static water level of the well is 54.0 m bgl and the targeted aquifer for recharge lies at the depth of 100-110 m bgl. 3200 m³ (32.0 lakh litres) of rainwater is expected to be harvested and recharged annually.

3) Geohydrologic distribution and qualitative assessment of Dhansiri river in Dimapur district.

The study includes measurement of Dhansiri river drainage basin to understand influence input, output and transport of sediments, initial gradient, variation of rock resistance, structural control, geological and geomorphological history of the drainage basin or watershed area.

Besides, qualitative assessment of the drainage system was also carried out to know the characteristic of the watershed area for groundwater potential, groundwater management, basin management, and environmental assessment. The study was also used to understand the landform process, soil, physical properties and erosional characteristics.

4) Study of environmental implications of Dhansiri river under Dimapur district.

Dimapur town is dissected by two main rivers Dhansiri and Chate river, which significantly contributes to the natural recharge of groundwater aquifers. Hence polluting the rivers with non-biodegradable waste, chemicals, etc., is likely to have an adverse effect on the aquifer system in the long run. With a view to address these problem, a study on the groundwater aquifer in the form of comprehensive water quality testing by sampling at designated locations and production of water quality maps is under progress.

5) Hydrogeological mapping and Censusing.

Censusing of tube wells, dug/ring wells, springs and water bodies were carried out covering towns and sub-divisions of Kiphire, Tuensang and Longleng districts with an objective to identify and mapped the potential ground water secondary aquifers for assessment of groundwater reserves. Data collected includes post monsoon water level, depth of well, discharge, types of aquifers, local geology & geomorphic set up, usage of ground water, etc.

6) Geophysical Survey for feasibility and site selection.

Geophysical survey and hydrogeological investigation for construction of tube wells as per the demand of the user agencies is being continuously carried out by the Department.

7) Periodic water level monitoring from national hydrographic network stations (NHNS) in Nagaland.

Collection of water level data from NHNS covering Dimapur, Peren, Kohima, Wokha, Mokokchung, Tuensang and Mon districts in Nagaland is a continuous field item since 1999, a collaborative work with CGWB NER Guwahati. Monitoring of wells is done periodically four times a year in the month of Jan, March, August and Nov. There are presently 33 monitoring stations set up by CGWB and DGM within the state. The data so collected is being sent to CGWB NER Guwahati periodically.

In addition to NHNS, there are 9 monitoring stations in the state covering Dimapur, Kohima, Wokha and Mon districts for monthly collection of water level data which are also sent to CGWB NER Guwahati.



Groundwater drilling in progress



Pump test of a completed well in progress



Groundwater monitoring stations under NHNS at various locations in the State



Geologists carrying out Geophysical survey for Groundwater exploration



Artificial recharge structure at Directorate of Geology & Mining office, Dimapur



Artificial recharge structure at St. John Hr. Sec. Residential School, Dimapur

5. TRAININGS, SEMINARS / SYMPOSIUM & EXHIBITION.

In order to keep the Departmental officers and staff abreast of the latest technological advancements in the scientific world, the Department facilitated the following training:

- 1 officer completed 11 months Orientation Course for Geologist (OCG) conducted by the Geological Survey of India from GSITI Hyderabad which was conducted from September 2019 to August 2020.
- 1 Officer attended the e-training conducted by GSI, RTD, NER, Shillong, on “*Basic course on Mineral Prospecting and Exploration, Resource estimation techniques, UNFC, Amended MMDR Act 2015, NMEP and NMP*” from 17.08.2020 to 22.08.2020.
- 2 Officers attended the e-Training on “Fundamentals of mapping Techniques in Tertiary Terrain” from 24.08.2020 to 26.08.2020, conducted by GSI, RTD, NER, Shillong.
- 2 Officers attended the e-Training on “*Transect Mapping in the Nagaland-Manipur Ophiolite Belt*” from 05.10.20 to 09.10.20, conducted by GSI, RTD, NER, Shillong
- 1 Officer attended the e-training on “*Basic Course on Arc-GIS and its application for RMT*” conducted by GSI, RTD, NER, Shillong from 03.11.20 to 11.11.20.
- 5 officers attended the e-training conducted by CGWB on “*Regional groundwater management issues*” from 15th to 17th September, 2020.

6. MUSEUM.

The Department has a good museum with a vast collection of samples of different types of rock, minerals, fossils, geological structures, etc., which serves as a storehouse of knowledge for scholars, professionals, students and the general public as well.

7. LIBRARY.

The department maintains and runs a library with an extensive collection of books, journals, research papers, magazines, etc, which serves as a repository of knowledge to enhance and update the knowledge of professionals, researchers, and students.

Pic: Salomi Limestone deposit, Kiphire District

8. 40th STATE GEOLOGICAL PROGRAMMING BOARD MEETING.

The Department held its 40th State Geological Programming Board meeting in the Conference Hall of the Directorate of Geology & Mining on September 11, 2020.

The State Geological Programming Board (SGPB) meeting is an annual event usually held with the participation of Geoscientists, Researchers and Officials from various states of the country wherein geological/mining issues pertaining to the state are discussed, and the proposals of collaborations with other agencies like GSI are formulated. However, in view of the Covid-19 pandemic, the 40th SGPB meeting could not be attended by participants from other States.

The meeting was held under the chairmanship of Shri. S. Manen, Director DGM, with representatives from Geological Survey of India, Manipur-Nagaland Circle (GSI), Nagaland State Mineral Development Corporation (NSMDC) and OSD, Geology & Mining department along with technical officers of the department.

The meeting deliberated on the geo-scientific activities undertaken by DGM and GSI as well as allied agencies. The house also affirmed on better coordination and data sharing among allied agencies for effective implementation and to avoid overlapping of work among the agencies.



Shri. S Manen, Director DGM, addressing the 40th State Geological Programming Board held in the Conference Hall of Geology & Mining office on Sept. 11, 2020.

8. REVENUE GENERATED DURING 2020-2021.

The total revenue generated up to Jan. 2021 is as follows:-

Sl.No	Section	Revenue Generated (₹)
1	Groundwater	4,45,389
2	Coal	2,21,68,000
3	Minor Minerals	17,83,061
	TOTAL	2,43,96,450

Rupees (Two Crores Forty Three lakhs Ninety Six thousand Four hundred Fifty) Only.

9. BUDGET OUTLAY FOR 2020-21

Detailed break-up of Voted budget outlay under 'DEVELOPMENT' and 'NON-DEVELOPMENT' for the Financial Year 2020-2021 is given below:

Major/Minor heads of Accounts	₹ in lakhs	
	NON-DEVELOPMENT	DEVELOPMENT
REVENUE SECTION		
2552 :North Eastern Area		
2552-54- :Mineral Development		
2552-54-102- :Mineral Development		
2552-54-102 (1) :Mineral Exploration		
2552-54-102 (2) :Setting up of Decorative stone (Marble) Projects		
2853-02- :Non-Ferrous Mining & Metallurgical Industries Regulation and Development of Mines		
2853-02-001 :Direction & Administration	715.47	
2853-02-101 :Survey & Mapping	814.27	35.00
2853-02-102 :Mineral Exploration	1400.14	30.00
2853-02-190-01 :Grant-in-aid (NSMDC)	487.03	
2853-02-800 :Other Exploration		
2853-02-800-01 :Petroleum & Natural gas activities (Grant-in-aid)	50.00	
2853-02-800-02 :Other charges – Groundwater resource Development	16.00	35.00
REVENUE TOTAL		
CAPITAL SECTION		
4853 :Capital Outlays on Non-Ferrous Mining & Metallurgical Industries		
4853-60-190 (1) :Investment (NSMDC Ltd)		100.00
4853-60-800 (1) :Major Works		
Grand Total	3482.91	200.00

It is expected that both outlays under “DEVELOPMENT” and “NON-DEVELOPMENT” would be more or less fully utilized.



Shri. S. Manen, Director DGM along with other officials handing over hand sanitizers prepared by DGM to Shri. Khashiho Sangtam, Hon'ble Minister for Geology & Mining, Nagaland and Shri. K.T. Sukhalu, Hon'ble Advisor for School Education, Nagaland.



Shri. S. Manen, Director DGM along with DGM officials handing over hand sanitizers prepared by DGM to Shri. Anoop Khinchi IAS, Deputy Commissioner, Dimapur.



Field investigation on the occurrence of diamond crystals in Wanching village under Mon district as circulated in Social media: A team of Geologist from the Department visited the site and identified the said mineral as 'Quartz' crystals which are found abundantly in sedimentary rocks of Nagaland along veins, fractures, faults, etc.