



GSB NEWSLETTER

GSB in new zeal in survey and research activities

The Geological Survey of Bangladesh (GSB) has been incorporated with investigation and exploration of various mineral resources including coal, hard rock and other economic minerals for the potential development of the country. This national organization is entrusted with the responsibilities of geological mapping and other geo-scientific research works in the country. For the last five decades, GSB continues discovering coal, hard rock, peat, limestone, white clay, glass sand, metallic ore and other economic mineral deposits and carried out numerous significant geoscientific research programmes/projects of various disciplines throughout the country. In the coming days GSB is taking steps to expand its research activities in the light of various development plans/policies/strategies of the government.



Mr. Md. Mahbub Hossain, Senior Secretary, Energy and Mineral Resources Division was also present at the occasion.

GSB receives award for implementing annual performance agreement (APA) successfully

GSB is awarded in recognition of efficiency in implementation of annual performance agreement during the FY 2021-22. Minister of State for Power, Energy and Mineral Resources Mr. Nasrul Hamid, MP presented the award. Director General Mr. Mohammad Elius Hossain, Joint Secretary (Admin), EMRD accepted the award on behalf of GSB.

Successful completion of *Geoinformation for Urban Planning and Adaptation to Climate Change (GeoUPAC)* project

“Geoinformation for Urban Planning and Adaptation to Climate Change (GeoUPAC)” (January,2018 – December,2022) has been successfully implemented by GSB and Federal Institute for Geosciences and Natural Resources (BGR), Government of the Federal Republic of Germany. Under this project, developing a geoinformation database, generation of geomorphological, engineering geological maps, 3-D geological models and suitability maps has been accomplished for 4 project areas of Bangladesh (Barishal Metropolitan, Khulna City Corporation and Faridpur and Satkhira Town and adjoining areas).

The final outputs were shared with urban planners, engineers, policy/decision maker, academicians, researchers, stakeholders from project areas, professional, students and others from different organizations through a national seminar held on 7th December, 2022 at Hotel Pan Pacific Sonargaon, Dhaka. All the professionals and stakeholders participated in the technical presentations and discussions and made the event successful with their valuable suggestions.



GSB accomplished yearly field programmes under annual performance agreement (2022-23)

This year's APA activities of GSB were adopted in the light of various development plans/policies/strategies of the government which include government's election manifesto 2018, 8th five-year plan 2021-2025, Vision 2021-2041, Bangladesh Delta Plan 2100, Sustainable Development Goals 2030, etc. Most of this year's yearly geoscientific field programmes falls under SDG 6, 8, 11, 13 and Delta Plan Goal 1, 2, 4.

To achieve these goals geological and geomorphological mapping of 1200 sq. km. area, geo-hazards mapping of 578 sq.km. area, geochemical mapping of 166 sq.km. area and engineering geological mapping of 60 sq.km. area have been completed. Also, geophysical and geochemical investigations and six special research programmes were conducted. Besides field programme mentioned in APA, a special geological survey programme has also been conducted as per request from SPARSO.

The northern part of Sunamganj District is affected by environmental disaster: Geological survey work is conducted for potential disaster mitigation

For the purpose of implementation of the program, "Identification of environmental disaster-prone areas and determining potential mitigation measures in the northern part of Sunamganj District", an environmental geological and natural hazard assessment survey covering an area of 578 sq.km. has been carried out in Bishambharpur, Tahirpur, Sunamganj Sadar, Madhyanagar, Doarabazar and Chatak Upazilas in the northern part of Sunamganj District from November 13, 2022 to December 27, 2022. During the survey different disaster-prone areas with potential landslide, flood, river bank erosion has been identified and numerous meetings and focused group discussions with local people and govt. officials were held to conceive possible mitigation measures based of their experience.



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Rangunia Upazila came under geological mapping

Under the fieldwork titled "Geological Mapping of Rangunia Upazila of Chittagong District" necessary data/information collection activities have been conducted covering 410.73 sq. km. area from 10/01/2022 to 23/02/2023, with the aim of preparing a geological map at 1:50,000 scale. The main objectives of the programme are determining the structure of the mapped area, stratigraphic classification, sediment provenance, paleoenvironmental and tectonic history, and paleogeographic location identification. The results obtained will ensure sustainable development by exploring land resources, determining the presence of valuable mineral resources and mitigating geo-environmental risks in appropriate land use planning.



Application of palynological evidence for climate change delineation

In order to implement the field program titled "Palynological Study and Palaeo-environmental Delineation of Teknaf and Cox's Bazar Area, Bangladesh", four officers from Stratigraphy and Biostratigraphy branch completed the sample collection work in the mentioned areas from 20/12/2022 to 03/01/2023. The collected samples will be further analyses to delineate the palaeo- environment of the area based on palynological evidence.



Safe water aquifer found in Keraniganj Upazila

Geochemistry and Water Resources branch conducted the programme "Aquifer delineation and evaluation of sub-surface environment through hydrogeological investigation and preparation of geochemical map at Keraniganj Upazila of Dhaka District" from 20/12/2022 to 02/02/2023 covering an area of 166 sq.km. From the survey it is found that at a depth of

200-300 feet there is a water bearing layer (intermediate aquifer) of about 40 feet thick with a light yellowish-brown color of fine to medium sand which is safe for drinking. The gray fine to medium sand aquifer located at a depth of less than 200 feet (shallow aquifer) is not safe for drinking but can be used for other purposes and the deep aquifer consist of about 100 feet thick light yellowish-brown medium sand at a depth of 350-600 feet is safe (free of arsenic and iron) for drinking.



Economic prospect of Padma River sand

Economic prospect of heavy mineral exploration along the Padma River in Pabna and Rajbari districts has been carried out under field programme titled "Identification and Economic Assessment of the Valuable Minerals in the Padma River Sands of Bangladesh" by Economic Geology and Resources Assessment branch of GSB. Significant amount of economically valuable minerals are found in the Padma River sand.



Engineering geological survey for earthquake tolerant sustainable urban planning

"Engineering geological mapping and 3-D modeling for sustainable urban plan in Gopalganj municipality and surroundings" has been carried out by Urban and Engineering Geology branch of GSB to produce geomorphological and engineering geological maps, 3-D geological models and various types of other maps. Results of this survey could be used for earthquake tolerant sustainable local town planning.



Understanding coastal landforms and disasters at Koyra and Paikgacha Upazila

Coastal and Marine Geology branch of GSB implemented a field programme titled “Coastal Geological and Geomorphological Mapping for the Determination of Terrain Characteristics and Associated Hazard of Koyra and Paikgacha Upazilas of Khulna District, Bangladesh” from 28/11/2022 to 11/01/2023 covering an area of 636 sq. km. The objectives are to characterize coastal landforms and sediment characteristics and understand hydrology and identification of associated coastal hazards (cyclone and tidal surge, salinity, bank erosion, drainage congestion, water logging, etc.), and produce geological and other derivative maps at 1:50,000 scale.



Local industries are the main source of pollution for Mongla soil and water

“Determination of the pollution in soil and water of port, industrial area of Mongla Upazilla and it’s adjoining area” titled geochemical investigation programme has been executed from 02/10/2022 to 19/10/2022 covering an area of 50 sq.km. The chemical analysis of the collected soil and water samples from local industrial area and adjoining port area has been performed at analytical chemistry branch of GSB and found that untreated industrial effluent directly/indirectly polluting the soil and surface water of the investigated area.



Land accretion and erosion estimation of Jamuna River in Saghata Upazila

“Jamuna River Shifting and Changing Dynamics Assessment as well as Geological and Geomorphological Mapping of Saghata Upazila, Gaibandha District” has been carried out by Remote Sensing and GIS branch from 30/12/2022 to 26/01/2023 covering an area of 230 sq.km. The main objectives of the study focused on morphodynamic changes and vulnerability of river bank erosion of Jamuna River, determination of erosion tendency and geological and geomorphological mapping of the investigated area.



What minerals lie in the sediments and sedimentary rocks in Gowainghat Upazila

“Mineralogical analysis of sediment and sedimentary rocks of Gowainghat Upazila, Sylhet District” has been conducted to understand the lithology and to identify the minerals in the sediments and sedimentary rocks of the studied area. Rocks and minerals are vital for the construction, manufacturing and energy industries and for sustainable economic growth of the country.



Geophysical survey in search of magnetic minerals in Pirganj, Rangpur

“Detail magnetic and gravity profiling survey in Pirganj and adjoining area of Rangpur and Gaibandha District” has been conducted to find significant local anomaly prospective for economic mineral resources. Depth to the basement is identified and different geophysical maps (bouger anomaly map and magnetic anomaly map) will also be produced from this survey.



Shallow aquifer contamination by waste disposal sites in Matuail

Electrical Resistivity and Seismic Survey branch carried out “Electrical resistivity survey to delineate the extent of leachate to control the pollution of shallow fresh water aquifer around Matuail waste disposal site areas of Dhaka city” from 18/10/2022 to 27/11/2022. The results of this survey will help prevent pollution of the shallow aquifer.

Adoption of policies/ programmes aimed at improving service quality and establishing good governance in GSB

Policies/Programmes have been adopted to improve quality of service and establish good governance in GSB. Five tools related to good governance and reform activities have been included in APA (NIS, GRS, Citizen Charters, Innovation and RTI). Programmes taken under these tools are executed regularly.



GATC's activities are contributing to the skill development of officers and staffs

Geoscience Awareness and Training Centre (GATC) regularly organizes In-house training, seminars and workshops at conference hall of GSB. In-house trainings and local trainings were arranged for 216 officers and staffs in 2022-23 fiscal year. 14 officers have been trained in different institutions on various topics. 3 officers have taken part in an online training programme offered by China titled “Management of Sustainable Coastal Economic Zones for Bangladesh”. 16 seminars, symposiums, conferences have already been organized with the aim to develop skill of the GSB employees.



GSB officials go abroad for technical training



Kazi Munsura Akhter, Deputy Director (Geology) participated in a short course on “Developing the Blue Economy through Sustainable Marine Resource Management (Bangladesh)” from 11 October 2022 to 07 March 2023 under Australia Awards from University of Sunshine Coast, Australia. Tanzim Tamanna Afroz, Assistant Director (Geology) attended Masters in Geoinformation Science and Earth Observation in Water Resource and Environmental Management from faculty of ITC, UT, The Netherlands

from August 28, 2020 to April 30, 2023. Four geoscientific officers of GSB received training on “Study and development of mineral resources of the World Ocean-Exploration and development of mineral resources of the Ocean” from St. Petersburg University of Russia from 07/11/2022 to 21/11/2022. Five officers took part in different training programmes offered by ITEC, India on remote sensing, GIS, climate change and sustainable development and environmental management. Apart from these, one officer participated in a counterpart training in Japan under “The Project for Establishment of National Special Data Infrastructure (NSDI) for Bangladesh”.



Earthquake risk in Bangladesh: a critical national issue

A seminar was held on December 04, 2022 at GSB titled “Managing earthquake data/information of Bangladesh: a critical national issue” by Mir Fazlul Karim, former Director of GSB. He presented a study on the possibility of an earthquake of magnitude 9 in Bangladesh as predicted by Lamont-Doherty Earth Observatory (LDEO), Columbia University and its surrounding areas. The speaker said at the seminar that Bangladesh is not at risk of such a massive 9.0 magnitude earthquake, contradicting an anticipation of LDEO in a 2016 paper by

Michael Steckler. He also suggested a collaboration between global scientists and researchers to find out the geographic location of faults, the scenario of sediments and the actual possibilities of mega earthquakes.



Promoting activities of GSB at MIST

For APA implementation GSB visited Military Institute of Science and Technology (MIST) on 20th march 2023 and presented power point slides on GSB activities, discoveries of GSB and earthquake occurring processes of Bangladesh. Presentation were given by Mr. Arif Mahmud, Director (Geology), Mr. Md. Kamal Hossain, Director (Geology), Mr. Aktarul Ahsan, Deputy Director (Geology) and Mr. Mohammed Masum, Deputy Director (Geology). High officials and faculty members from MIST were present at the occasion.



NOAMI and Bangladesh Naval Academy visits GSB

Participants from 18th course on “Oceanography: Principles and Applications” of NOAMI visited GSB on November 22, 2022. Apart from this, as a part of training visit of 16th Basic Hydrographic Course (CAT-B) programme of Bangladesh Naval Academy students are assisted in visiting the laboratories of different branches and museum of GSB.



GSB signed MoU with UDD and KDA

A MoU was signed on October 11, 2022 between GSB and Urban Development Directorate (UDD) to fulfill the objectives of GeoUPAC project. Another MoU has been signed between GSB and Khulna Development Authority (KDA) for future cooperation.



Organizing meetings / workshops at field level on public awareness

Awareness building seminars, trainings and workshops are held from 22nd to 26th August 2022 with stakeholders in Faridpur and Satkhira municipalities on “Geo-information for Climate Change Resilient Sustainable Urban Planning and Development of Faridpur/Satkhira Town and Surrounding”. Besides most of the field parties arranged public awareness meeting at respective Upazila head quarter based on their field activities/findings.

New projects are setting off at GSB

GSB has already sent some new project proposals to the Ministry. These new projects are expected to be started in a few months. Proposed projects are-

- Geoinformation for the Implementation of Climate Change-Resilient Urbanization (GICU)
- Enhancement and strengthening of drilling capability of GSB (ESDC-GSB).
- Mapping for Development of Earthquake Resilience Cities in Bangladesh.

Publications

GSB published total 75 geo-scientific reports among which 11 geo-scientific report has been published this year and 1 more are on the process in BG press. In FY 2022-23, 10 unpublished reports have been submitted to the data center. Besides, Yearly Report 2022 and GSB Newsletter-volume 8, March 2022 has been published.



Victory Day 2022 celebration at GSB premises

Victory day was celebrated by Geological Survey of Bangladesh in proper manner at its head office premises. The Deputy Director General and all branch chiefs along with officers and staffs attended the function.

The day's program began with the hoisting of the national flag at sunrise and by singing the national anthem. On the occasion of victory day, poetry recitation, essay competition, painting, sports, music show and raffle draw were organized with the participation of GSB officers, staffs and their families. At the programme, senior officers of GSB distributed the prizes among the winners.



GSB observes historical 7th March and Independence Day 2023

Historical 7th March, and Independence Day were observed by Geological Survey of Bangladesh in proper manner. The Director General of GSB Mr. Mohammad Elius Hossain, Joint Secretary (Admin), EMRD and all the branch chief of GSB attended the function and placed wreaths at the portrait of Bangabandhu at Petrobangla, Dhaka.



GSB celebrates birth anniversary of father of the nation and national children's day

On 17th March 2023, GSB celebrated the birth anniversary of father of the nation Bangabandhu Sheikh Mujibur Rahman and national children's day-2023 in a befitting manner. The programme includes hoisting of national flag at the office and placing of wreaths at the portrait of Bangabandhu at GTCL, Dhaka.

Chief Adviser

Mr. Mohammad Elius Hossain, Director General, GSB & Joint Secretary (Admin), EMRD

Newsletter Committee

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