Geological Survey of Bangladesh and Regional Cooperation on Geospatial Data Shearing

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Duties and responsibility of GSB

- Geological mapping of the country.
- Exploration of mineral resources.
- Geophysical investigation.
- Engineering, Urban, and geotechnical surveys.
- Study on geo-hazards.
- Coastal and marine geological investigations.
- Drilling activities.
- Training and support public and private sectors
Duties and responsibility of GSB

- Mapping of Natural Environments - mainly geology, geomorphology and engineering geology.

Why?

- Better use and management of geo-resources.
- Support sustainable development of build-up environments
Duties and responsibility of GSB

Geological Map of coastal areas of Bangladesh

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Mapping Examples

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Mapping Examples

1 Collection of information

- Concept, Layer sequence
- Terrain model and borehole location map
- Borehole log: Grain size and SPT
- 3D view: boreholes and terrain model

2 Network of cross sections

- Construction of cross sections using borehole, sample and SPT data
- Construction of layer boundaries: "Sub-crop" with regard to connected layers

3 Layer boundaries

- HOLOCENE
  - Artificial Fill
  - Organic soil
  - Clay
  - Silt
  - Cohesive Sand
  - Clean Sand

- Plio-Pleistocene
  - Medium to coarse Sand

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River banks Erosion Mapping

1956-1975

1990-1995

2010-2015

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Land Elevation Mapping

Digital Elevation Model (DEM) derived from LiDAR data

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Landslides Early Warning

Statistical analysis of rainfalls

Rainfall Threshold Values
- 3 Hour – 100mm
- 24 Hour – 200 mm
- 3 Day – 350 mm

Rainfalls and Landslides Probability

Warning Dissemination

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Landslides Early Warning

Automatic SMS
Briefing
Evacuation
Aim

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Earthquakes Monitoring

Monitoring stations

Monitoring locations

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Why Regional Co-operation on geospatial Data is Necessary?
Ganges- Brahmaputra- Meghna River System

Each river catchment shared by different countries
Oceans rim Countries

Single ocean supported adjacent countries

Countries around the oceans

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Faults map of Bangladesh and its surroundings

Faults have no political boundaries
Advantages of regional co-operation

In this region having mostly under same climate conditions with variability. Huge river catchments shared by different countries as well as oceans.

Natural Hazards like Flood, Earthquake, Tsunami, Cyclone, Landslide, Volcanism are very common in the region.

Geospatial data sharing can improve the regional research and can play a positive impact in saving the life and resources in this region.
Challenges of regional co-operation

All the countries are not in the same level of collecting, storing and using of the geospatial data.

India is far ahead with the remote sensing data mostly from own satellites in different resolution with the GIS database.
Conclusions

Geospatial data sharing can improve the accessibility of data among countries that can play a positive impact in regional as well as local resource planning and disaster management.
Thank You