



GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

RECORDS  
OF  
THE GEOLOGICAL SURVEY OF BANGLADESH  
Volume-5  
Part-2

GEOLOGY OF MADHYAPARA AREA,  
DINAJPUR DISTRICT, BANGLADESH

by  
ANISUR RAHMAN

---

Issued by the Director General, Geological Survey of Bangladesh, Dhaka.

1987

## ABSTRACT

Geological investigations at Madhyapara area during 1974-76 and 1983 reveal that the basement rock occurs at a depth ranging from 128 metres (422 feet) to 326 metres (1071 feet). It is overlain by a sequence of sediments of the ages Paleozoic, Tertiary and Quaternary.

The fresh basement rock occurs at depths ranging from 136 metres (446 feet) to 160 metres (522 feet). It comprises granodiorite, quartz diorite, gneiss and at places pegmatite of Archaean Age. The upper part of the basement is mostly weathered. A white clay layer having thickness ranging from 1.21 to 6.4 metres (4 to 21 feet) is located at the boundary between the basement rock and the overlying Tura Formation. In the bore hole No. GDH-26 Gondwana sediments directly overlie the basement rock. Siderite occurring in veins and veinlets in the basement rock of the area requires to find out localities of its concentration of economic value. Pyrite and chalcopyrite present in the pegmatite warrant detail investigation.

Structurally the area is fault controlled. Three fault/lineament trends are discernible in the area from photogeological study. Northwest-southeast trending faults/lineaments are the oldest, followed by the northeast-southwest aligned faults/lineaments. East-west aligned fault/lineament is the youngest. The oldest faults/lineaments probably played an important role in the formation of the Gondwana basin in the region.

Pebbly beds and sandstone units of Dupi Tila sandstone and conglomerate beds of Tura and Gondwana rocks constitute aquifers in the area. These aquifers are bounded on top by the impermeable Madhupur Clay and at the bottom by the impervious kaolinized rock except the location of GDH-26, where it is limited by the basement itself.

The fresh basement rock is very hard and compact as is indicated by its RQD (Rock Quality Designation) and FSI (Fracture Spacing Index). The average RQD is 80% and FSI ranges from 0.1 to 2 per foot. These engineering properties accompanied with the data of Aggregate Crushing Strength and Los Angeles Abrasion Tests are indicative of its suitability for use as construction material.