(A) PANORAMIC VIEW OF UMRANGCHU AREA (TOP)

(B) PANORAMIC VIEW OF UMRANGCHU AREA (BOTTOM)
CHAPTER I

INTRODUCTION

1.1 LOCATION OF THE AREA

The area under study is a small part of the North Cachar Hills district of Assam. It is bounded by longitudes 92°48'1" — 92°48'7"E and latitudes 25°31'51" — 25°32'8"N and is included in the Survey of India, Toposheet No. 83C/14 (1 : 50,000 scale). The area forms the western edge of North Cachar Hills adjacent to the Jaintia Hills of Meghalaya further west. The limestone belt of this area occupies a large tract along the Kopili valley and exposes intermittently in a NE-SW direction with a dip 2-7° towards SE from near the confluence of Kopili and Kharkhor rivers through Garampani to Panimur with a strike length of 40 km and width varying between 1 km to 2.4 km.

1.2 COMMUNICATION

The Lanka-Garampani road passes through the study area. The area may be approached by an all weather road from Guwahati via Nowgaon-Dabaka and Lanka, covering 254 km. Except for the last 40 km which passes through hilly terrain, the road is on flat country. The present area is 140 km by road from Shillong via Jowai. The area is connected with Haflong, district Headquarter of North Cachar Hills by an all weather road of 109 km.

The nearest railway station Lanka, 62 km away is on the broad gauge section of the North-East Frontier Railway. The nearest Civil Airport Borjhar is at a distance of 264 km.
During the investigation of the area — the only means of traversing are to follow the footpaths and to climb the hillocks with gentle slopes. It is to be mentioned that most of these roads become unusable during the rainy season.

1.3 PHYSIOGRAPHY AND DRAINAGE

The neighbouring areas of the study area lie in the western extremity of North Cachar Hills district and are bordered on west by the Kopili river. The region constitutes the eastern flank of the Shillong Plateau. The drainage system of the area is controlled by river Kopili which flows in an east-west direction. Streams like Langyen cut across the main deposit forming ravines. The area comprises of small flat topped hillocks whose elevations vary from 580 m to around 840 m above mean sea level. The highest point at Khandong is at 837.29 m above mean sea level.

The North Cachar Hills play the role of the principal watershed between Brahmaputra and Surma valley. The present area is a part of the valley of Kopili river which is an important tributary of the mighty river Brahmaputra. Umrangnala is also flowing along western border of the study area.

1.4 CLIMATE AND RAINFALL

The region falls under one of the heaviest rainfall zones in India, the annual average rainfall ranges between 200 and 250 cm. The
area experiences pre-monsoon showers during March-April and regular monsoon during June-October. The maximum and minimum temperatures are 40°C in summer and 6°C in winter respectively. The area falls in seismic zone No. S-T-S code.

The area under report is an unclassified forest land and has extensive vegetation.

The wind direction is normally from north-west. The wind pressure is 1018 to 8000 milibars. The humidity of air varies between 40 to 90 percentage. The winter months from November to February are quite cold.

1.5 HABITATION AND AGRICULTURE

The original inhabitants of this area comprises of Dimacha and Karbis. With the construction and commissioning of the Kopili Hydel Project and three cement plants, there has been considerable influx of population from other parts of the state and the country.

The local tribal people normally practise Jhum (Shifting) cultivation. Other types of cultivation are being introduced gradually.

1.6 FLORA AND FAUNA

The entire area is covered by forest of mixed vegetation with some species like Sal, Debadaru, Gamari, Oak, etc. and different varieties of Orchids. The hilltops are occupied by some green grasses and trees. The slopes of the hillock surrounded by Creeper, Bamboo,
Palm, fern, Cycas, etc. and many others.

The area was famous for big games like elephant, tiger, bear, monkey etc. Many bigger and smaller bears could be seen in this area. On the other hand with the increasing constructional activities and human population these animals have to migrate towards dense forest areas. Several kinds of bird like petridges, quails, etc. are seen in the present area.

Jatinga, the famous place for migratory bird is found around this area. The forest is rich both in flora and fauna in this area.

1.7 WEATHERING

The investigated area is composed of sedimentary rocks which are not as hard as igneous rocks and weathering actions of different agents are conspicuous.

Weathered sandstones and limestones are seen at many places. An interesting feature caused by the weathering and leaching action of water is the formation of pinkish-brown ferruginous coating over the sandstone of Kopili formation exposed at the top of this area.

The iron bearing solution of the overlying formation percolated through the limestone and shows a high content of iron in them with dark brown to yellow in colour at the surface.

The sandstones are highly ferruginated and impart a dark reddish brown colour. Because of weathering effects the erosional fissures are
also present in this area.

1.8 PREVIOUS LITERATURE

The hydel potentiality of the Kopili river and the limestone belt of the Garampani area in North Cachar Hills were drawing the attention of geologists since the middle of the current century. Oldham (1883) and La Touche (1886) made some geological traverses in this area. However, Sondhi (1949) and Mukherjee (1949, 1953) of Geological Survey of India were the pioneer geologists to visit this area for systematic geological mapping.

Between 1955 to 1962, many geologists of Geological Survey of India visited this area either in connection with the engineering aspects of the proposed Kopili Hydel Project or to study the feasibility of setting up a major cement plant. The first objective detailed mineral investigation was carried out by Gopalkrishnan (1962) of Geological Survey of India.

Since 1972-73, geologists of the State Geology and Mining department, Assam have been carrying out systematic geological mapping for location of promising limestone deposits. The efforts of the Geology and Mining department, Assam resulted in locating one of the largest limestone deposits of the region during 1978.

The geologists of the State Geology and Mining department, Assam reveal valuable informations on the strength of which the limestone horizon could be classified into four recognizable sub-horizons based on
their physical and lithological characters for industrial utilization. The four sub-horizons of limestone are (a) highly ferruginous and argillaceous limestone, (b) dirty grey limestone with shale partings, (c) bluish grey to light grey massive and compact limestone and (d) light grey limestone with sandy limestone bands (Prasad & Kakati, 1984).