The Disang Group of rocks comprises mainly shale, siltstone and fine-grained sandstone. It is divided into Lower and Upper Disang. The former consists of dark grey shales interbedded with thin bands of grey siltstone or fine-grained sandstone. In general, the frequency and thickness of siltstone/sandstone bands increases towards the top of this group (Upper Disang). The shales are argillaceous and carbonaceous in Lower Disang and more arenaceous in Upper Disang. In few places the shales and silty beds yielded micro-gastropods, bivalves and foraminifers.

The purpose of the present study is to locate the fossiliferous strata, to establish the age of sediments, set a zonal scheme and correlate the same with those of the northeast region, other parts of India and of the world; to discuss the paleoenvironmental set-up of the Disang Group, Nagaland.

To fulfill the above-mentioned objectives, investigations for locating microfossil-bearing horizons were carried out in different areas falling between the latitude 25° 30' and 25° 45' and longitude 94° 00' and 94° 45'. These areas are covered in the Survey of India toposheet No. 83 K/2 and No. 83 K/6. They fall under Phek and Kohima Districts. The localities in Phek District yielded a good number of foraminifera while those in Kohima District did not yield fauna.

56 foraminiferal species belonging to 29 genera, 23 families, 17 superfamilies and 5 suborders have been systematically identified. Of the total species, 16 are planktic forms and 40 are benthic forms. Among the planktonic foraminifers *Chiloguembelina cubensis*, *C. martini*, *C. cf. tenuis*, *Gobigerinatheka semiimvoluta*, *Hamkenina liebusi*, *Pseudohastigerina naguewichiensis*, *Turborotalia cerroazulensis cerroazulensis*, *Turborotalia cerroazulensis cocoensis* and *T. c. pomeroli* have been reported for the first time from Nagaland.

In the study area, 3 biozones in Late Eocene are recognized. They are based on the first appearances and last occurrences of marker species (planktic foraminifera) and their ranges. In the present study, the classification proposed by Loeblich and Tappan (1988) is followed. The zones are proposed in accordance with the code of stratigraphic nomenclature of India. The zonation used in the present study is based on Berggren et al. (1995). The proposed zonal scheme is primarily intended for the purpose of correlation within Disang Group of Nagaland. At the same time, this planktic foraminiferal zonal scheme for the Upper Disang Group (Late Eocene) helps in correlation with the works of Raju (1971) for Cauvery Basin, South India and
Published data on the stratigraphy of the Disang Group of Nagaland suggested a geosynclinal and/or deep marine set-up but direct evidences of foraminifera and other paleontological and sedimentological data have not been documented so far. The present study on Uvigerinids and smaller benthic foraminifera from the south-central part of Nagaland (around Pfütszero), planktic foraminifera and published data from outcrops from the Western and Northern part suggest:

1) Inner shelf facies at Tehai Reu Section and Lotsu Village section in the western part based on reported occurrence of *Pellastispira, Nummulites* and *Discocyclina*.

2) Middle to outer shelf set-up by an association of larger benthic and planktic foraminifera and some Uvigerinids (*U. cf. jacksonensis*) from a locality of Heina Reu section.

3) Lower part of upper bathyal set-up for the localities of Pfütszero 1 & 2, Chobama and Leshemi, supported by dominant *Uvigerina* facies consisting *Uvigerina cocoaensis, U. continuosa, U. cf. eocaena, U. glabrans, U. jacksonensis, U. longa, U. moravia, U. cf. steyeri and U. vicksburgensis*. In the absence of fauna on the level above the *Turborotalia cerroazulensis* Zone in the study area and elsewhere in Nagaland, we are unable to establish Eocene-Oligocene boundary.

Correlations of planktic foraminiferal zones between the studied sections show that Chobama 1 section has three biozones namely *Globigerinatheka semiinvoluta* Zone (P14), *Cribrohantkenina inflata* Zone (P15) and *Turborotalia cerroazulensis* Zone (P16). Chobama 2 section has no zonal marker. Therefore, no zone has been assigned to it. Chobama 3 section has been assigned two zones, namely *Cribrohantkenina inflata* Zone and *Turborotalia cerroazulensis* Zone.

Pfütszero 1 and 2 sections are assigned *Turborotalia cerroazulensis* Zone due to the presence of the zonal marker *Turborotalia cerroazulensis*.

Leshemi section is assigned as Taptian (Priabonian) stage due to the presence of *Hantkenina alabamensis* and no zone is assigned as no zonal marker foraminifera was encountered.

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SIGNIFICANCE OF PRESENT STUDY

1) (a) Confirms a deeper marine (lower part of upper bathyal) environmental set-up for the Upper Disang Group of central part of Nagaland at Leshemi section, Chobama 1, 2, 3 sections, Pfutsero 1 and Pfutsero 2 sections. Presence of abundant Miliolids and some Nummulites pengaronensis and Nummulites chavanensis in association with Osangukaria sp., Cyclammina sp. and Uvigerina jacksonensis at Leshemi section suggest that the larger foraminifera along with microgastropods from lagoonal-shallow marine was transported to bathyal condition. Studies by Raju et al. (1996) on morphological variation of Uvigerinids along Bay of Bengal support a paleobathymetry deeper than 350m.

(b) Shallow marine conditions during Late Eocene in western part of Nagaland at Champang, Chumukedima and Tynype wells, Heningkunglwa and Lotsu indicate paleo-shelf edge/margin is along a belt in western Nagaland.

2) Haq et al. (1988) suggested a global drop of sea-level around 80m during Late Eocene. The deeper part of upper bathyal set up during Disang was due to rapid subsidence.

3) The foraminiferal criteria employed to infer anoxic conditions are based on the approach of a paleontologists by the name of Robertson Reuach (see Chandra et al., 1993). The criteria pertinent to our study are:
   i) localized occurrence of thick “Uvigerinids”;
   ii) presence of pteropods and,
   iii) pyritised tests.

4) Very high percentage of Uvigerinids with pyritised tests indicate anoxic conditions, suggesting of possible source rocks.

5) Although local/regional variations are known, some of the species of Uvigerinids from Nagaland support open sea connection but had a restricted circulation at times to deep marine.

6) Confirms Late Eocene age for the Upper Disangs from the present work with the findings of Late Eocene markers of Cribrohan kenina inflata, Globigerinatheka semiinvoluta and Turborotalia cerroazulensis.