AREA, PHYSIOGRAPHY AND CLIMATE
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Assam is situated in the extreme north eastern region of India. It is in between 24° and 28° N latitude and 89° 50' and 96° E longitude. The state embodies an area of 78523 Km² and is bounded by Arunachal Pradesh and Bhutan on its north, Bangladesh, West Bengal and Meghalaya in its west, Mizoram and Tripura in its south and a part of Arunachal Pradesh, Nagaland and Manipur in its east. (Map No:-1)

The state of Assam is divided into three natural division. viz., Brahmaputra Valley, Barak Valley and Assam Plateau. The Brahmaputra Valley is 725 Km long and 50 to 100 Km wide. It covers an area of 56339 Km² and in elevation, on an average ranges between 50 to 75 m above sea level.

The second Physiographic unit is Barak Val-
Icy. It is 556 Km long undulating plain with small hill-rocks and swamps and has an area of about 6962 Km². The general-elevation of the plain is 75m above sea level. It comprises the area covered by the district of Cachar.

The third Physiographic unit, the Assam plateau comprise the hill tracts which lie between Brahmaputra and Barak valleys. It has an area of about 15222Km². It comprises the area covered by the districts of Karbi Anglong and North Cachar hills. The general elevation of Karbi plateau varies between 600-1200m above sea level. The hills of North Cachar are of varying elevations ranging between 600-1350m.

The district of Nagaon lies in the Brahmaputra valley (Map No:-III). The district is bounded on its east and south by the hills of Karbi Anglong, on the west by Marigaon district and on the north by the river Brahmaputra. The district has a total geographical area of 4002Km² which is 5.05% of the total state area. The district is composed of three sub divisions, viz,
Nagaon, Kaliabor and Hojai. Because of the position and extension from hills to plains, a distinct physiographic variation is observed in the district. The district can be broadly divided into following tracts: (Map No:-III).

(1) Low hills :- There are number of low hills in the eastern and southern sides of the district. The elevation of the hills lie between 100 to 300 m above M.S.L. The hills are either barren, cultivated or mixed or reserve forests.

(2) Piedmont and high land areas :- In the eastern and southern sides of the district there lie the undulating and rolling piedmont and highland areas.

(3) Flood plain :- The plains of the district particularly along the Brahmaputra river and their tributaries suffer from regular flood in the rainy season. This area has been delineated as flood-plain and beyond this area upto piedmont and upland areas are the old flood plains. However, occasional flood occurs in these areas also. Old channels and low lying uplands are also included in this
category of land.

(4) Char lands :- There are almost shaped, sandy and/or silty areas formed on the main bank of the river Brahmaputra due to oscillation of the river from side to side. These are called 'Chars' or 'Chaparis' which are washed away or strengthened by deposition of fresh materials during subsequent floods.

(5) Swampy areas :- Due to earthquake and other natural causes some depressions are formed within the plains as well as in other areas. These are called Beels (large water bodies) and are found to be scattered all over the areas. Most of the Beels retain water throughout the year.

The hill areas of the district are extension of Karbi Anglong hills. The steep slopes of these areas are either barren or having natural forests and the lower slopes are used as natural forests and part of which are utilized for cultivation of tea, rubber and coffee. Burapahar, Kukurakata pahar, Bamuni, Hatimura and Rekapahar are the
prominent hills of the district. There are some tributaries of Brahmaputra flowing through these hills. These are Deupani, Jamuna, Kapili and Killing. However, a channel named Kolong emerges from the Brahmaputra and joins with Brahmaputra again.

There are as many as 28 reserved forests in the district occupying 90602 ha. of the district and are situated in the hills, piedmont and highland with only a few in alluvial tracts. The forests are Kaki, Lumding, Duarsalna, Chalchali, Duarbagari, Gorubat, Hojai, Jamunamukh, Gobha, Laokhoa, Uttarkhola, Namati, Pubthoria, Jugijan and Tetelia areas.

The most valuable timber trees in these forests are Sal (*Shorea robusta* Gartn.f), Sam (*Artocarpus chplasha* Roxb), Koroi (*Albizzia odoratisima*), Gamari (*Gamelina abroea*), Sonaru (*Cassia fistula*), Kathal (*Artocarpus integrifolia*), Sida (*Lagerstromia parviflora*), Poma (*Cedrela toona*), Moj (*Albizzia indica*), Simalu (*Bombax ceiba*), Ajar (*Lagerosteroemia speciosa*).
Mango (*Mangifera indica*), Bola (*Morus laevigata*), Clumps of "Kako" bamboo (*Bambusa* sps) and commercially valuable canes (*Calamus* sps) are available in some of these forests.

Soil.

The soils of Assam have been derived from two major types of parent materials residual and transported. Soils on residual material, are formed in situ in the hills of Assam plateau and its isolated small outcrops of earstwhile Goalpara, Kamrup, Darrang and Lakhimpur districts and the piedmont areas of the hills. The soils of Brahmaputra and Barak Vallies are formed on alluvial deposits transported from Assam Himalayas, Assam plateau and lower Himalayas.

A variety of soils ranging from Entisoles on the Char area to Alfisols in the piedmont high land hilly areas are seen in the district of Nagaon. The soils of the
Char areas are transported sandy loam of recent origin, loam sand or loamy (Entisols and Inceptisols). The soils of the piedmont and high land areas are generally light loam and sandy loam (Inceptisols). These soils contain higher amount of oxides of Fe and Al and also exchangeable H and Al and lower in P than the soils of the alluvial plains. (Map No.: IV)

Climate :- **

The state of Assam is situated in the Subtropical zone. Its climate is mainly influenced by the south-west monsoon from Bay of Bengal and determined by surrounding hills of Assam Himalayas, Lower Himalayas and Assam plateau. The climate is characterised by hot and wet summer and dry and cool winter.

The climate of Nagaon district does not differ materially from that of the rest of Assam. Temperature drops to a minimum of 8°C in the month of Jan-
uary and rises up to a maximum of 38.3° C in the month of July / August (Graph-II). The relative humidity is recorded in Shillongani (R.A.R.S.), Nagaon, Assam highest in the month of December (97.2%) and lowest in the month of March (88.1%) (Graph-III).

Rainfall:-**

Rainfall is the most dominating factor determining the climate of Assam. Assam enjoys a fairly good amount of rainfall during five months from May to Sept. The nature and distribution of rainfall is almost concentric, being lowest in central Assam and gradually increasing towards the periphery of the surrounding hills.

Nagaon district receives a good amount of rainfall in the hills and eastern humid piedmont (Salna T.E., more than 2200 mm) However, rainfall is low in the piedmont and plain areas of the southern part of the district (Hojai, Kaki and Lumding, less than 1200 mm). The
sub-humid areas having less than 1200mm of rainfall occupies about 22% of total geographical area of the district. (Graph-I). The distribution of rainfall in the district of Nagaon is depicted in (Map No.: II).

** Sources 
(1) Regional Agricultural Research Station. Shillongani Nagaon, Assam.

(2) District Agricultural Office, Nagaon, Assam.
GRAPH -1  MONTHLY AVERAGE RAINFALL AT NAGAON (1988-1991)
RAINFALL GRAPH
TEMPERATURE IN
FOR THE YEAR 1988
FOR THE YEAR 1989
FOR THE YEAR 1990
FOR THE YEAR 1991

AM, BM, CM, DM STAND FOR MAXIMUM TEMPERATURE
A, B, C, D STAND FOR MINIMUM TEMPERATURE

GRAPH - II : MAXIMUM AND MINIMUM MONTHLY AVERAGE TEMPERATURE
Relative humidity (%) from 1988 to 1991 (4 Years)