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Assam

Home Guards (Class 1)

Assam Public Service Commission (APSC)

Volume - 4

General Knowledge of Assam & English Comprehension

SIERRA INNOVATIONS

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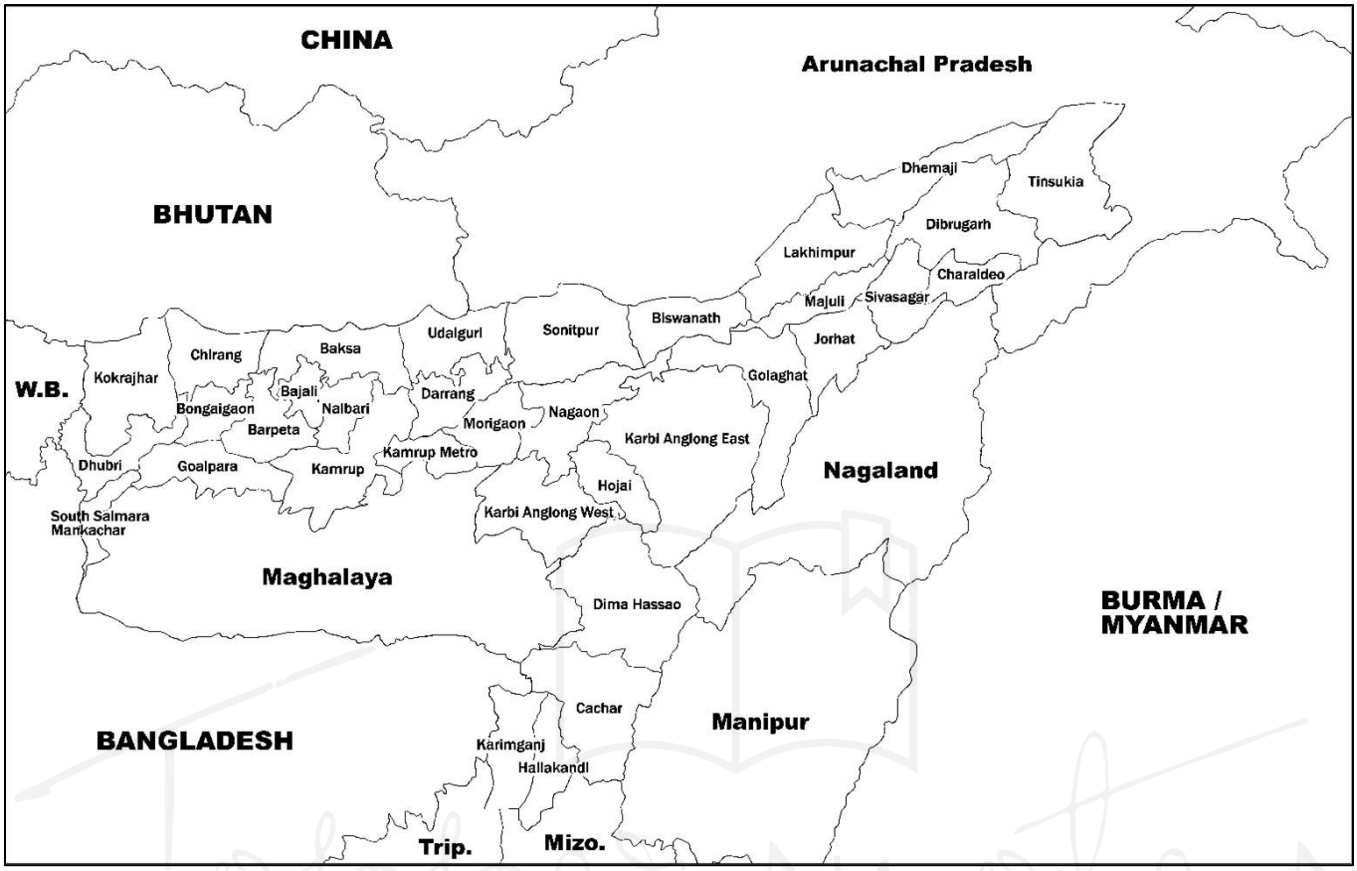
1 CHAPTER

Assam at a Glance



Assam at a Glance

Particulars	Details
Capital	Dispur
Largest City	Guwahati
Total Area	78,438 sq. km
Geographical Location	Latitude: 24°N–28°N Longitude: 90°E–96°E
Total Population (Census 2011)	3,12,05,576
Male Population (2011)	1,59,39,443
Female Population (2011)	1,52,66,133
Literacy Rate (Total)	72.19%
Male Literacy Rate	77.85%
Female Literacy Rate	66.27%
State Fabric	Muga Silk
State Beverage	Tea
Number of Districts	35
Sub-divisions	80
Development Blocks	219
Revenue Circles	184
Zilla Parishads	26
Total Towns (Census 2011)	214
Total Villages (Census 2011)	26,395
Lok Sabha Constituencies	14
Rajya Sabha Seats	7

Vidhan Sabha Constituencies	126
Police Stations (as of 31.03.2018)	314
Major Minerals	Coal, Petroleum, Natural Gas, Limestone, Dolomite, Sillimanite, Iron Ore, Glass Sand, Ceramic Clay, Uranium

Major Tribes	Bodo Kachari, Mising, Deori, Rabha, Tiwa (Lalung), Khamti, Sonowal Kachari, Tai Phake, Dimasa Kachari, Karbi, Barman, Hmar, Kuki, Rengma Naga, Zeme Naga, Hajong, Garo, Khasi, Jaintia, Mech

State Symbols of Assam

Category	English Term	Assamese Term
State Song	*O My Dearest Country*	*O Mur Apunar Dekh*
State Motto	Hail Mother Assam	*Joi Aai Axom*
State Seal	Government of Assam	*Axom Sarkar*
State Language	Assamese	*Axomiya*
State Literary Society	Assam Sahitya Sabha	*Axom Xahitya Xobha*
State Festival	Bihu	*Bihu*
State Dance	Bihu Dance	*Bihu Naas*
State Flower	Foxtail Orchid	*Kopou Phul*
State Tree	*Dipterocarpus macrocarpus* (Hollong)	*Hollong*
State Animal	One-horned Rhinoceros	*Gor*
State Bird	White-winged Wood Duck	*Deo Haah*

2 CHAPTER Geographical overview of Assam

geographical location and extent

- Latitudinal Extent: 24° 8' N to 28° 2' N (approximately 4° latitudinal spread)
- Longitudinal Extent: 89° 42' E to 96° 1 'E (approximately 6° longitudinal spread)
- Total Geographical Area: 78,438 square kilometers (approximately 2.39% of India's total area)
- International Boundaries: Bhutan (North), Bangladesh (South-West)
- Interstate Boundaries: Arunachal Pradesh (North-East), Nagaland (East), Manipur (East-South), Mizoram (South), Meghalaya (South), West Bengal (West), Tripura (South)
- **Gondwana Massif** → Formation of the Karbi Plateau.
- **Folded sedimentary rocks (Tertiary and Quaternary periods)** → Formation of folded mountains, hills, valleys, and gorges.
- **Structural depressions** → Formation of plains.

Assam Plateau

- The Assam Plateau is an extension of the Indian Peninsular Plateau.
- It forms a transitional link between the Shillong Plateau and the hill ranges of Nagaland.
- The plateau mainly consists of the Karbi Anglong Plateau.

Karbi Plateau

- The Karbi Plateau is the north-eastern extension of the Meghalaya Plateau.
- It is divided into two parts by the Kapili Fault:
  - ✓ **Hamren Plateau (south-western part)**
    - Area: approximately 3,000 km²
    - Contiguous with the Jaintia Plateau.
  - ✓ **Central Karbi Plateau**
    - Area: approximately 7,400 km².

Central Karbi Plateau

- Guava-shaped in outline, with a narrow extension towards the south.
- Bounded by the Dhansiri plains in the east and the Kalong–Kapili plains in the west.
- The southern boundary is marked by the southern Karbi Hills and the North Cachar Hills.
- Subjected to intense erosion under hot and humid monsoon conditions, resulting in a radial drainage pattern.

Main Rivers

- **East-flowing rivers**: Hariahjan, Deopani Nambar, Daturang, Kaliani, Diphalu.
- **West-flowing rivers**: Deopani, Misa, Diju, Chapanala, Na-Noi, Digaru, Jamuna.
- **Elevation**: 100–1363 m above sea level.
- **Highest peaks**: Singhachen (1359 m) and Dambuksu (1363 m).
- The region also contains waterfalls and hot springs.

Hamren Plateau

- Contiguous with the Jaintia Hills and slopes from southwest to southeast.
- Dissected by the Kapili River.
- Most rivers of the region are tributaries of the Kapili.

Major rivers: Umiam (Kiling), Karbi Langpi, Barapani (Umkhen), Umud, Amlong (Kolonga), Amring, and Kapili.

Hills

- Part of the Patkai–Purvanchal hill system, representing the southern extension of the Himalayan ranges.
- Includes the Barail Range, characterised by parallel ridges, with the highest elevations located in the central part.

Northern Hill Ranges

- **Main Ranges:** Foothills of the Eastern Himalayas, including the **Mishmi Hills** and the **northern extension of the Patkai Range**
- **Average Elevation:** 1,000–2,000 metres above mean sea level
- **Orientation:** East–West alignment, parallel to the Brahmaputra Valley
- **Geological Age:** Tertiary formations; geologically young fold mountains
- **Physiographic Features:** Steep slopes, deep valleys, dense forest cover, and high rainfall
- **Significance:**
  - ✓ Act as a major watershed for numerous north-bank tributaries of the Brahmaputra
  - ✓ Rich in biodiversity and forest resources
- **Major Rivers Originating:** Subansiri, Jia Bharali, Puthimari, Pagladiya, Manas

Southern Hill Ranges

- **Major Ranges:** Karbi Anglong Hills, North Cachar Hills (Barail Range), Mikir Hills, Rengma Hills
- **Average Elevation:** 600–1,500 metres (some peaks exceed 1,500 metres)
- **Highest Peak:** Dambukso (Deopahar) in Karbi Anglong (~1,200 metres)
- **Orientation:** Predominantly East–West with local North–South spurs
- **Geological Structure:** Extension of the Meghalaya Plateau; composed mainly of Archaean and Precambrian rocks (geologically older than the northern hills)
- **Vegetation:** Dense tropical and subtropical forests; important biodiversity zone
- **Economic Resources:** Coal, limestone, and forest products
- **Major South-bank Tributaries Originating:** Kopili, Dhansiri (South), Jatinga, Diju

Other important hill ranges:

Hills	Key details
Mikir Hills	**Location:** South of Kaziranga National Park in Karbi Anglong district. **Nature:** Extension of the Meghalaya Plateau; among the oldest landforms of Assam. **Features:** Pear-shaped (~7,000 sq km) with radial drainage (Dhansiri, Jamuna). **Highest peak:** Dambukso.
Barail Hills	**Location:** Across Dima Hasao district and Cachar district, trending SW from Nagaland/Manipur toward the Jaintia Hills. **Nature:** Highest hill range of Assam; watershed between Brahmaputra basin and Barak basin. **Features:** 1,500–2,500 m (higher in south), tropical semi-evergreen to moist evergreen forests; includes Barail Wildlife Sanctuary. **Highest peak:** Singhason (1,713 m).
Karbi Anglong Hills	Central Assam; between Upper–Middle Brahmaputra and Barak Valley; 300–1,000 m (peaks >1,300 m); Archean rocks; Karbi Autonomous area
North Cachar Hills (Dima Hasao)	South-central Assam; 400–1,500+ m; highly dissected with deep gorges and poor connectivity; inhabited mainly by Dimasa tribe

Plains of Assam

Assam contains two major alluvial plains:

- **Brahmaputra Plain** — largest, approximately 58,315 km².
- **Barak Plain** — second largest, approximately 6,962 km².

Brahmaputra Plain (Central Assam Plain)

- Location: Central Assam, stretching from Sadiya in the east to Dhubri in the west
- Length: Approximately 720 km (east–west)
- Average Width: 80–90 km (varies from about 16 km at its narrowest to nearly 100 km at its widest)
- Average Elevation: 50–100 metres above mean sea level
- Formation: An alluvial plain formed by the depositional activity of the Brahmaputra and its tributaries
- Soil Type: New and old alluvium; highly fertile but prone to recurrent flooding
- Surface Characteristics: Predominantly flat to gently undulating terrain with numerous chars (riverine islands), beels (oxbow lakes), and marshes

- Economic Significance: Contains the majority of agricultural land, major urban centres, tea gardens, and the highest population concentration in the state
- Major Towns: Guwahati, Dibrugarh, Tezpur, Jorhat, and Nagaon

Subdivisions

- North Bank Plains Zone (NBPZ)
- Upper Brahmaputra Valley Zone (UBVZ)
- Central Brahmaputra Valley Zone (CBVZ)
- Lower Brahmaputra Valley Zone (LBVZ)

Barak Plain (Southern Assam Plain)

- Location: Southern Assam, comprising the districts of Cachar, Karimganj, and Hailakandi
- Separated from Brahmaputra Valley by: The Barail and Manipur hill ranges
- Area: Approximately 6,922 sq km
- Average Elevation: 30–50 metres above mean sea level
- Formation: An alluvial plain formed by the Barak River and its tributaries, such as the Katakhal, Jiri, Chiri, and Longai
- Characteristic Features: A relatively narrow valley surrounded by hills on all sides, with numerous beels and wetlands
- Climate: Receives higher rainfall than the Brahmaputra Valley and experiences more humid conditions
- Economic Activities: Predominantly paddy cultivation, tea plantations, and the presence of limestone deposits
- **Main rivers and tributaries**: Barak, Jiri, Labak, Madhura, Dalu, Jatinga, Langai, and Sonai.

Rivers of Assam

- The river system of Assam is dominated by the Brahmaputra and the Barak rivers.

Brahmaputra River

- **Origin:** The Brahmaputra originates from the **Chemayungdung (Angsi) Glacier** in the **Kailash Range** of Tibet at an elevation of about **5,150 m**.
- **Tibetan name:** Known as the **Yarlung Tsangpo (Tsangpo)** in Tibet; it flows eastward for about **1,625 km**.
- **Entry into India:** Enters **Arunachal Pradesh** after cutting a deep gorge near **Namcha Barwa Peak (7,757 m)**; here it is called the **Siang (Dihang)**.
- **Formation of Brahmaputra:** Near **Sadiya (Tinsukia district)**, the **Dibang** and **Lohit** join the Siang; from this confluence it is officially called the **Brahmaputra**.
- **Course in Assam:** Flows about **640–700 km** west–southwest through the **Assam Valley**.
- **Exit from Assam:** Enters **Bangladesh** near **Dhubri**, where it is known as the **Jamuna**.
- **Final course:** Joins the **Ganga (Padma)** in Bangladesh and finally flows into the **Bay of Bengal** as the **Meghna**.

North Bank Tributaries

Tributary	Origin	Course / Districts	Confluence with Brahmaputra	Key Features
Subansiri	Tibet	Enters via Arunachal → Lakhimpur	Near Lakhimpur	Largest north-bank tributary by discharge; **Subansiri Lower HEP – 2,000 MW** (under construction)
Jia Bharali (Kameng)	Eastern Himalayas (Arunachal Pradesh)	Tezpur, Sonitpur	Near Tezpur	Causes frequent floods in Sonitpur & Darrang
Dhansiri (North)	Nagaland Hills	Golaghat	Dhansirimukh	Length ~352 km; different from South Dhansiri
Puthimari	Bhutan Hills	Nalbari, Barpeta	Near Puthimari Ghat	Flood-prone river
Pagladiya	Bhutan	Nalbari, Barpeta	Near Pagladiya mouth	High sediment load → siltation problems

Manas	Tibet → Bhutan → Assam	Barpeta	In Barpeta district	Flows through **Manas National Park**; major high-discharge tributary
Sankosh	Tibet → Bhutan	Forms Assam–West Bengal boundary	Near Dhubri	Important boundary river

South Bank Tributaries

Tributary	Origin	Course / Districts	Confluence with Brahmaputra	Key Features
Dibang	Mishmi Hills (Arunachal Pradesh)	Upper Assam	Joins Siang near Sadiya	Part of Siang–Dibang–Lohit system; **Dibang Multipurpose Project – 2,880 MW** (proposed)
Lohit	Eastern Tibet	Arunachal Pradesh → Sadiya	Near Sadiya	Forms Brahmaputra with Siang & Dibang; length in India ~200 km
Dhansiri (South)	Laisang Peak (Nagaland)	Golaghat, Karbi Anglong	Dhansirimukh	Length ~352 km
Kopili	Meghalaya Hills	Karbi Anglong, Nagaon, Morigaon	Near Morigaon	**Kopili HEP – 275 MW** (operational); length ~290 km
Digaru	Karbi Anglong Hills	Nagaon	Near Samaguri	Flood-prone
Kulsi	Khasi Hills (Meghalaya)	Kamrup	West of Guwahati	Length ~180 km
Krishnai	Meghalaya Plateau	Goalpara, Bongaigaon	Near Goalpara	Important south-bank tributary
Dudhnoi	Garo Hills (Meghalaya)	Goalpara	Near Dudhnoi mouth	Flash floods due to steep upper course
Jinari	Karbi Anglong Hills	Nagaon	Local confluence	Small tributary

Barak River

- **Origin:** Rises in the Manipur Hills at Liyai village at an elevation of about **2,331 m**.
- **Course in Assam:** Enters Assam through **Cachar district** and flows through the Barak Valley—Cachar, Hailakandi, and Karimganj.
- **Length:** Approximately **900 km**, of which about **524 km** lies in Assam.
- **Exit from India:** Enters Bangladesh near Karimganj, where it bifurcates into the Surma River and Kushiyara River.
- **Final Drainage:** These rivers reunite to form the Meghna River, which later joins the Ganga–Brahmaputra system before entering the Bay of Bengal.
- **Characteristics:** Highly meandering with wide floodplains; prone to monsoon flooding in the Barak Valley.

Major Tributaries of the Barak

Tributary	Origin	Confluence with Barak	Notable Features / Importance
Jiri	Manipur Hills (north of Cachar)	Near Jirighat, Cachar district	Forms part of the Assam–Manipur boundary; important for local irrigation and transport corridor (Jirighat gateway).
Chiri	Manipur Hills	Upstream section of Barak in Cachar	Small seasonal tributary; contributes to local drainage and monsoon flow.

Sonai	Manipur Hills	Near Sonai–Hailakandi region	Supports agriculture in southern Cachar; prone to flooding during heavy rains.
Rukni	Mizoram Hills	Near Cachar–Mizoram border	Short but steep gradient; carries high sediment load during monsoon.
Katakhal	Mizoram Hills	Hailakandi district	One of the more significant tributaries; causes recurrent floods in Hailakandi plains; important for paddy cultivation.
Dhaleswari	Manipur Hills	Cachar district (near Silchar region)	Major right-bank tributary; enhances Barak's discharge near Silchar; flood-prone.
Longai	North Cachar Hills (Dima Hasao)	Northern Cachar plains	Forms low-lying wetlands and beels; important for fisheries and local agriculture.

Soils

Soil Type	Location	Characteristics	Crops / Uses
Alluvial Soils	Brahmaputra and Barak plains	Young alluvium: recent deposits, grey to mottled grey, moderate to very deep. Old alluvium: older and more compact deposits. Generally loamy and highly fertile.	Loamy soils support almost all crops. Sandy soils are suitable for root and vegetable crops such as potato, carrot, and tomato. Clayey soils retain moisture and are suitable for rice, wheat, jute, sugarcane, and maize.
Piedmont Soils	Narrow northern belt along the Himalayan foothills (Bhabar and Tarai regions)	Bhabar soils are deep, clay-loamy, and contain boulders and pebbles. Tarai soils are sandy to silty loams, often waterlogged and swampy.	Dominated by tall grasses; agriculture is limited due to drainage conditions.
Hill Soils	Southern hill regions, Karbi Plateau, and Barail Range	Red sandy soils are deep, well-drained, moderately acidic, and rich in organic matter. Red loamy soils are deep, dark greyish-brown, slightly to moderately acidic, and low in nitrogen, phosphorus, and humus.	Limited cultivation; largely under forest cover with some shifting and terrace agriculture.
Lateritic Soils	North Cachar Hills, southern Karbi Plateau, and foothills of the Barail Range	Dark-coloured, fine-textured, heavy loams; poor in nitrogen, phosphorus, potassium, and lime due to leaching.	Highland areas grow millets and pulses, while lowland areas support cotton, wheat, rice, sugarcane, banana, and tea.

3 CHAPTER

Agriculture in Assam

Agriculture in Assam

- Agriculture forms the backbone of Assam's economy, with most industries being agro-based.
- Approximately 54% of the state's total land area is under cultivation.
- More than 80% of the population depends directly or indirectly on agriculture for their livelihood.
- Major crops include rice (the principal food crop), jute, sugarcane, tea, pulses, cotton, potatoes, fruits, coconut, and areca nut.
- Horticulture is an important sector, with crops such as coconut, citrus fruits, banana, black pepper, and papaya widely cultivated. Sugarcane is an important Kharif cash crop.
- Around 65% of the working population is engaged in agricultural activities.
- Agriculture plays a significant economic role by supplying food and raw materials to local industries such as tea processing, jute, sugar, rice milling, and oil processing, and contributes nearly half of the state's income.
- Recent trends indicate that the expansion of agricultural land has reduced forest cover, leading to increased emphasis on productivity improvement, pest management, and ecological sustainability.
- **GSDP Share:** Agriculture and allied sectors contribute approximately 18-20% to Assam's GSDP (varies with crop output and prices).

Agro-Climatic Region

Agro-Climatic Region	Districts	Key Features / Soils	Major Crops
Upper Brahmaputra Valley (North)	Dhemaji, Lakhimpur, Sonitpur, Udalguri, BTAD, Darrang	Himalayan foothills: alluvial/diluvial soils; Central belt: fertile soils; Southern riverine belt: sandy, flood-prone	Rice (largest area), Tea, Jute, Mustard, Sugarcane, Vegetables (potato, tomato in winter)
Upper Brahmaputra Valley (South)	Tinsukia, Dibrugarh, Sivasagar, Jorhat, Golaghat	Less flood-prone; higher grounds suitable for tea	Rice, Tea, Mustard, Sugarcane
Central Brahmaputra Valley	Nagaon, Morigaon	Bowl-shaped, flood-prone; eastern foothills: acidic soil; western part: non-acidic	Rice, Tea (foothills), Jute, Coconut
Lower Brahmaputra Valley	Kamrup, Nalbari, Barpeta, Kokrajhar BTAD, Chirang BTAD, Baksa BTAD, Dhubri, Goalpara	Sub-regions: higher areas & floodplains	Rice, Jute, Rapeseed, Mustard, Potato, Coconut, Wheat (~4% of land)
Hills	Karbi Anglong, North Cachar Hills	Lateritic, acidic soils	Citrus fruits
Barak Valley	Cachar, Hailakandi, Karimganj	Acidic soils on elevated hillocks	Tea

Crops in Assam

Crop	Key Points	2011-12 Production & Area	Main Districts / Notes
Rice	Primary food crop; grown in plains & hills; high-yield varieties boosted output	47.16 lakh tonnes; 25.46 lakh ha	All Brahmaputra & Barak Valley districts; low in Dima Hasao & Karbi Anglong
Wheat	Introduced 1960s as rabi crop; production fluctuates	49,000 tonnes	Kamrup, Nalbari, Barpeta, Dhubri
Maize	Grown in hills & some plains by Nepali & ex-tea garden farmers	17,000 tonnes	Karbi Anglong, North Cachar Hills
Mustard	Floodplain crop by immigrant farmers	1,52,000 tonnes	Brahmaputra floodplains
Soyabean / Sunflower	Recently introduced experimentally	—	Karbi Anglong, Marigaon, Barpeta
Jute	Fibre crop; Assam 2nd largest producer in India	19,956 tonnes; 66,000 ha	Dhubri, Goalpara, Bongaigaon, Barpeta, Nalbari, Kamrup, Darrang, Marigaon, Nagaon
Cotton	Hill districts; Northeast India 2nd largest producer	~1,000 bales; 1,000 ha	Karbi Anglong, North Cachar Hills
Sugarcane	Traditional crop; stable area & production	—	Golaghat, Jorhat, Sivasagar, Nagaon, Kamrup, Nalbari, Barpeta
Rubber	Climate & soil suitable; private plantations exist	10,950 MT; 32,000 ha	—
Coffee	Hills provide suitable conditions; mainly foothills	57 tonnes; 909 ha	Karbi Anglong, North Cachar Hills
Potato	Leading NE producer; still imports required	—; 98,000 ha	Dhubri, Goalpara, Bongaigaon, Barpeta, Kamrup, Darrang, Morigaon, Nagaon
Banana	Household & commercial cultivation; 'malbhog' prized	7,29,000 tonnes; 48,000 ha	Goalpara, Kamrup; hubs: Dhupdhara, Rangjuli, Daranggiri
Tobacco	Small-scale; smoking & chewing varieties	~1,000 tonnes; 1,000 ha	Dhubri, Goalpara, Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup; Phulaguri (chewing)

Allied Sectors

Animal Husbandry

- **Livestock Population:** Assam has a significant livestock population, including cattle, buffaloes, goats, pigs, and poultry.
- **Cattle and Buffalo:** The state has more than one crore cattle and around 10–12 lakh buffaloes. However, productivity, particularly milk yield per animal, remains low.

- **Pig Rearing:** Pig rearing is especially important among tribal communities. Assam has the highest pig population in Northeast India, estimated at around 20–22 lakh.
- **Poultry:** Broiler and layer farming are expanding steadily, with an estimated poultry population of about 4–5 crore birds.
- **Milk Production:** Daily milk production is approximately 12–14 lakh litres. Despite this, the state remains milk-deficient and imports milk from neighbouring states.
- **Indigenous Breeds:** Local cattle breeds such as Luit, along with Mithun (a semi-domesticated bovine found in hilly areas), possess strong adaptability to local climatic conditions.

Fisheries

- **Fishery Resources:** Assam has abundant water resources, including rivers, wetlands (beels), ponds, and tanks, making it highly suitable for fisheries.
- **Fish Production:** Annual fish production is around 3–3.5 lakh metric tonnes, including both capture and culture fisheries.
- **Types of Fisheries:**

1. **Capture Fisheries:** Traditional fishing in rivers, beels, and floodplains; an important livelihood source for local fishing communities.
2. **Culture Fisheries:** Scientific fish farming in ponds and tanks, which is expanding with government support.

- **Important Species:** Rohu, Catla, and Mrigal (Indian major carps), along with indigenous species such as Chital and Borali.
- **Beel Fisheries:** Wetlands (beels) are ecologically rich and support biodiversity. However, encroachment and siltation pose serious threats to these resources.

Sericulture

- **Silk Production:** Assam is the only state in India that produces all four major varieties of silk — Mulberry, Eri, Muga, and Tasar.
- **Muga Silk (Golden Silk):** Unique to Assam and produced from the semi-domesticated silkworm *Antheraea assamensis*. It has Geographical Indication (GI) status and is globally recognized for its natural golden colour and durability.
- **Eri Silk:** Known as "Ahimsa silk" because cocoons are harvested after the moth emerges. It is produced from *Samia ricini*, which feeds on castor leaves. Assam is the largest producer of Eri silk in India.
- **Pat Silk (Mulberry Silk):** A conventional variety of silk produced in limited areas of the state.
- **Employment:** Sericulture provides livelihood to more than 10 lakh families, particularly rural women and tribal communities.

4 CHAPTER Industries of Assam

Industrial Development in Assam

- Industrial development in Assam lags behind the national average and is largely based on agro-based and mineral-based industries.
- The state, however, possesses abundant natural resources that support industrial growth.
- **Contribution to SGDP:** Industrial sector contributes approximately 20-25% to Assam's SGDP. This is lower than the national average for industrial sector contribution.

Major Industries

Tea Industry

- Originated in the Upper Brahmaputra Valley; tea was discovered by Robert Bruce in 1823.
- Major tea-growing areas include Tinsukia, Dibrugarh, Sivasagar, Jorhat, Golaghat, Nagaon, and Sonitpur.
- Important institutions include the Tocklai Tea Research Institute (1911) and the Guwahati CTC Tea Auction Centre (1970).
- The industry employs approximately 8 lakh people directly and about 10 lakh indirectly; nearly half of Assam's population depends on tea for livelihood.
- Around 65,000 small tea growers contribute nearly 30% of Assam's total tea production.
- Associated industries include instant tea processing, sawmills, plywood, machinery, cardboard, and tin/aluminium packaging.

Rubber

- Area under rubber cultivation increased from about 13,500 hectares (2003–04) to 31,100 hectares (2011–12).
- Rubber cultivation has partly replaced traditional jhum (shifting cultivation) in some areas.
- Industrial units, including proposals by Dunlop Tyres, have been planned in Kamrup.

Oil and Refineries

- Oil was discovered at Digboi in 1889, where India's oldest refinery was established in 1901.
- Other major refineries include Noonmati (1962), Bongaigaon (1979), and Numaligarh (1999).
- Assam Petrochemicals Limited at Namrup produces methanol, formalin, and related petrochemical products.

Natural Gas

- Major production areas include Naharkatia, Moran, Lakwa, and Rudrasagar.
- Production during 2011–12 was about 2,895 million cubic metres, accounting for nearly 25% of India's output.
- Gas-based industries include Namrup Fertilizer Plant, Namrup Thermal Power Plant, Brahmaputra Cracker and Polymer Limited (BCPL), and Assam Gas Company Limited.

Coal

- Estimated reserves are around 1,200 million tonnes.
- Coal mining began at Makum in 1865.
- Production in 2011–12 was approximately 5.9 lakh tonnes.

Limestone and Cement

- Limestone deposits are mainly found in the Karbi Plateau and North Cachar Hills.
- The cement factory at Bokajan produced about 8.63 lakh tonnes in 2011–12.

Fertilizer Industry

- Major unit: Fertilizer Corporation of India, Namrup — produces urea, ammonium sulphate, and sulphuric acid.
- Other units include Assam State Fertilizer & Chemicals Limited, Eastern Fertichem, and organic manure units at Khanapara.
- Total production in 2011–12 was approximately 3.94 lakh tonnes.

Sugar Industry

- The first sugar mill in Assam was established at Baruabamun Gaon, Golaghat, in 1955.
- Other mills are located at Kampur (Nagaon), Chargola (Karimganj), and Khandsari units in Karbi Anglong and Sonitpur.

Plywood Industry

- About 52 factories employ nearly 25,000 people.
- Assam contributes around 15% of India's plywood production.
- The industry began in 1925 at Margherita.

Handicrafts

- **Bell-metal craft:** Major centres include Sarthebari, Barpeta, and Hajo; traditionally associated with the Kanhar community.
- **Brass work:** Practised by the Maria community; major centres include Dibrugarh, Jorhat, North Lakhimpur, Golaghat, Nagaon, Guwahati, and Barpeta.
- Other crafts include ivory work, pottery, bamboo and cane products, goldsmithy, coir products, handmade paper, and soap making.

Coffee Plantation

- Coffee cultivation in Assam is limited and mainly concentrated in Karbi Anglong and Dima Hasao districts.
- In the Northeast region, major coffee-producing states include Meghalaya, Nagaland, and Mizoram.

Sericulture

- A traditional cottage and farm-based, labour-intensive industry providing livelihood to more than three lakh families in rural and semi-urban areas.
- Generates forward linkages through yarn reeling and weaving, largely within rural households.

Major Silk Varieties

- **Muga Silk:**
  - ✓ Endemic to Assam and granted Geographical Indication (GI) status.
  - ✓ Assam produces more than 85% of the world's Muga silk.
  - ✓ Holds strong cultural and ritual significance.
- **Eri Silk:** Assam contributes about 62% of India's production.
- **Mulberry Silk:** Traditionally produced in several regions.
- **Oak Tasar Silk:** Introduced in hill districts.

Government Initiative

- The Muga Mission (2017–18) was launched with an outlay of ₹465 crore to enhance Muga production and strengthen the value chain.

Industrial Infrastructure Projects

Plastic Park – Gelapukhuri, Tinsukia

- Proposed to promote polymer-based downstream industries linked to the Assam Gas Cracker Project.
- Nodal agency: Assam Industrial Development Corporation Ltd.
- Area: 500 acres.
- Total project cost: ₹9,365 lakh.

Bamboo Technology Park – Chhaygaon, Kamrup

- Developed under a Public–Private Partnership (PPP) model with support from the Ministry of Commerce and Industry, Government of Assam, and private partners.
- Objective: To create integrated infrastructure for bamboo-based industries.
- Total cost: ₹6,228 lakh.
- Status: Commissioned; one unit operational.

Integrated Tea Park – Chhaygaon, Kamrup

- First integrated tea park in Northeast India.
- Nodal agency: Assam Industrial Development Corporation Ltd.
- Planned facilities include:
  - ✓ Tea Auction Centre
  - ✓ Tea Research and Development facilities
  - ✓ Exhibition and Convention Centre
  - ✓ Packaging and tea-tasting units
- Estimated project cost (DPR): ₹9,344.96 lakh (approval pending).
- Funds released up to March 2020: ₹1,484.45 lakh.
- Physical progress: Approximately 50% completed.

Assam Industrial and Investment Policy

- **Policy Objectives:** The policy aims to accelerate industrial growth, generate employment opportunities, promote entrepreneurship, and attract investment to the state, with a focus on balanced regional development.
- **Priority Sectors:** Agro-based and food processing industries, tea processing and value addition, bamboo-based industries, tourism, information technology and electronics, and handloom and handicrafts have been identified as priority or thrust sectors.
- **Incentive Structure:** Eligible industrial units are provided with various incentives, including capital investment subsidy, interest subsidy, transport subsidy, power tariff subsidy, and reimbursement for quality certification.
- **Special Provisions:** Enhanced incentives are offered to industries established in backward districts. Additional benefits are also provided to women entrepreneurs and entrepreneurs belonging to Scheduled Castes and Scheduled Tribes.

North East Industrial and Investment Promotion Policy (NEIIPP)

- **Central Government Initiative:** The NEIIPP is a special policy introduced by the Government of India to promote industrial development in the North Eastern states, including Assam. The policy became operational in 2007 and has undergone subsequent revisions.
- **Key Incentives:**
  - ✓ Capital Investment Incentive of 30% of investment in plant and machinery, subject to prescribed limits.
  - ✓ Central Interest Incentive of 3% on working capital loans for a period of five years.
- **GST Reimbursement:** Reimbursement of the central share of GST for a specified period to enhance the competitiveness of industrial products.
- **Income Tax Exemption:** Eligible new manufacturing units in the North East are entitled to 100% income tax exemption for ten years under Section 80-IC of the Income Tax Act.
- **Comprehensive Insurance:** Provision of support for insurance coverage of industrial units against specified risks.
- **Eligibility:** Applicable to manufacturing and service sector units meeting the prescribed minimum investment criteria. Certain sectors, such as tobacco and alcoholic beverages, are excluded from the benefits.

Government Initiatives and Future Prospects

Make in Assam Initiative

- **Investment Summits:** Regular investment summits are organized to attract both domestic and foreign investment. Memoranda of Understanding (MoUs) are signed with potential investors to promote industrial development in the state.
- **Sector-Specific Focus:** The initiative focuses on the targeted promotion of sectors such as petroleum downstream industries, food processing, tourism, and information technology. Roadshows are conducted in major investment centres to attract investors.

Industrial Corridors and Special Zones

- **Guwahati Industrial Corridor:** An industrial corridor is being developed around the Guwahati metropolitan area with improved infrastructure and connectivity to support industrial growth.
- **Petroleum, Chemicals and Petrochemical Investment Region (PCPIR):** A proposed PCPIR aims to utilize Assam's petroleum resources for the development of downstream petrochemical industries. Detailed planning for the project is currently underway.

5 CHAPTER

Minerals and Power Resource in Assam

Assam is fairly rich in mineral resources. Apart from petroleum, coal, and limestone, which have been extracted for a long time, the state also possesses several other economically valuable minerals.

Petroleum and Natural Gas

Assam is the oldest oil-producing state in India. Commercial oil production began in 1901 at Digboi, marking the beginning of petroleum production in the country.

- **Digboi Oilfield:** Located in Upper Assam in Tinsukia district, Digboi is known as the "Oil City of Assam." It houses India's oldest operating oil refinery, established in 1901. Production has declined significantly over time due to resource depletion.
- **Naharkatiya Oilfield:** Discovered in 1953 in Dibrugarh district, it is one of the most productive oilfields in Assam. The field is connected to the Numaligarh Refinery through pipeline networks.
- **Moran–Hugrijan Oilfield:** Located in Dibrugarh district, this oilfield is important for both crude oil and natural gas production and contributes significantly to Assam's petroleum output.
- **Rudrasagar Oilfield:** Situated in Sivasagar district and discovered in the 1960s, it is known for moderate levels of production.
- **Geleki Oilfield:** Located in Sivasagar district, it contains important reserves of both petroleum and natural gas.
- **Spatial Pattern:** Most major oil and natural gas fields are concentrated in the Upper Assam Belt, extending from Digboi in the east to Geleki in the west. This belt follows the Brahmaputra Valley sedimentary basin.

Coal

Assam possesses coal deposits of relatively low grade, concentrated in specific regions. The coal is primarily of Tertiary age and is younger and generally lower in quality compared to Gondwana coal.

- **Makum Coalfield:** Located in Tinsukia district near Margherita and Ledo, it is the largest coalfield in Assam. Coal produced here is mainly used by local industries and railways. Mining operations are managed by the North Eastern Coalfields (NEC) under Coal India Limited.
- **Nazira Coalfield:** Located in Sivasagar district, this coalfield contains small reserves. Commercial exploitation remains limited due to thin coal seams and low quality.
- **Mikir Hills Coalfield:** Situated in Karbi Anglong district, it contains scattered deposits with minimal current production.
- **Characteristics of Assam Coal:** Assam coal generally has high moisture and sulphur content and a relatively low calorific value. It is mainly used in tea estates, brick kilns, and local industries.

Major minerals found in Assam are as follows:

Mineral	Places in Assam
Iron Ore	Foothills of Tirap and Nagaland; Jaipur area (Upper Assam Belt); near Dhubri along the Bilasipara hills (especially Chanderdinga Hills and Melajgarh near Abarapuri in Bongaigaon district); near Hahim (Kamrup); Malanga area (Goalpara)
Copper	Found in small quantities in the Mahamaya Hills (Dhubri district) and along the Barjneel River (Karbi Anglong)
Gold	Near Haflong (North Cachar Hills); alluvial gold was formerly extracted from the Subansiri, Dibang, and Dikrong rivers

Coal	Karbi Anglong, Ledo, Jaipur, Makum, Margherita, and Naginimara areas
Petroleum	Digboi, Naharkatiya, and Duliajan
Natural Gas	Naharkatiya, Moran, Lakwa, and Rudrasagar
Limestone	Dilai Hills, Koilajan, Sainilanchu, and Silbheta (Karbi Anglong); Umrangso and Garampani (North Cachar Hills)

Gypsum	Dimasa Reserved Forest of the Karbi Hills; near Badarpur (Cachar district); near Haflong
Mica	Holamara Hills
Quartz & Feldspar	Hahim (Kamrup); Silbheta (Karbi Anglong); Pancharatna (Goalpara)
Sulphur	Found in areas associated with tertiary coal deposits such as Ledo, Makum, and Margherita

Petroleum Refineries in Assam

Refinery	Location / Year of Commissioning	Operator	Key Features / Significance
Digboi Refinery	Digboi, Tinsukia district — 1901	Indian Oil Corporation Limited (IOCL)	India's oldest operating refinery; processes crude oil from Digboi and nearby oilfields; historically significant in India's petroleum industry.
Guwahati Refinery (Noonmati)	Noonmati, Kamrup Metropolitan district — 1962	Indian Oil Corporation Limited (IOCL)	First public sector refinery in India; processes crude from Assam as well as imported sources; important supplier for Northeast India.
Numaligarh Refinery	Numaligarh, Golaghat district — 1999	Numaligarh Refinery Limited (NRL) — joint venture of BPCL, OIL, and Government of Assam	Largest refinery in Assam; major regional energy hub; undergoing expansion to enhance capacity.
Bongaigaon Refinery	Bongaigaon district — 1974	Indian Oil Corporation Limited (IOCL)	Processes imported crude; supplies petroleum products across Northeast India and neighbouring regions.

Pipeline Network:

The refineries are interconnected through a network of crude oil and product pipelines. The Numaligarh–Siliguri pipeline transports petroleum products to North Bengal and Sikkim.

Power Sector in Assam

- **Power as a Growth Driver:** Electricity forms a fundamental component of economic infrastructure. Expansion of the power sector has a direct multiplier effect on industrial growth, agriculture, and overall economic development.
- **Institutional Framework:** The Assam State Electricity Board (ASEB) functions as the nodal state agency responsible for the management and regulation of the electricity sector.
- **Functional Unbundling:** Power sector operations are carried out through three specialised subsidiaries:
  - ✓ **Assam Power Generation Corporation Limited (APGCL):** Responsible for power generation.
  - ✓ **Assam Electricity Grid Corporation Limited (AEGCL):** Responsible for power transmission.
  - ✓ **Assam Power Distribution Company Limited (APDCL):** Responsible for power distribution and supply.

Hydropower and Thermal Power Projects in Assam

Type of Project	Project Name	Location / Notes
Hydropower	Karbi Langpi Hydroelectric Project	Karbi Anglong
	Kopili Hydroelectric Project	Umrongso
	Pagladia Hydroelectric Project	Kamrup / Nalbari
	Subansiri Lower Hydroelectric Project	Assam
Thermal Power	Namrup Thermal Power Project	Dibrugarh
	Chandrapur Thermal Power Project	Guwahati
	Lakua Thermal Power Station	Sivasagar
	Bongaigaon Thermal Power Project	Salekati
	Borgolai Thermal Power Project	Margherita
	Kothalguri Thermal Power Project	Near Duliajan Oil Town; established with overseas economic aid and Japanese collaboration
	Galeki Thermal Power Project	Sivasagar
	Amguri Thermal Power Project	Sivasagar

Renewable Energy

- Assam is increasingly exploring solar, biomass, and small hydropower projects to diversify its energy mix and achieve sustainability goals.
- **Solar Energy:** Assam receives moderate solar radiation, averaging about 4–5 kWh/m² per day. Solar parks are being developed in districts such as Nagaon, Barpeta, and Kamrup. The state aims to achieve approximately 200 MW of solar power capacity under its solar energy policy.
- **Biomass Energy:** The availability of agricultural residues, tea waste, and bamboo provides significant biomass energy potential. Small biomass-based power plants operate mainly in tea-producing districts. The estimated biomass power potential in the state is around 200–250 MW.
- **Small Hydropower:** Small hydropower projects with capacities below 25 MW are being promoted. Potential sites have been identified in districts such as Karbi Anglong, Dima Hasao, and Kamrup, with an estimated potential of about 150–200 MW.
- **Policy Framework:** Renewable energy initiatives in the state are coordinated by the Assam Power Generation Corporation Limited (APGCL). The state government provides incentives such as feed-in tariffs and capital subsidies to encourage private investment in renewable energy projects.