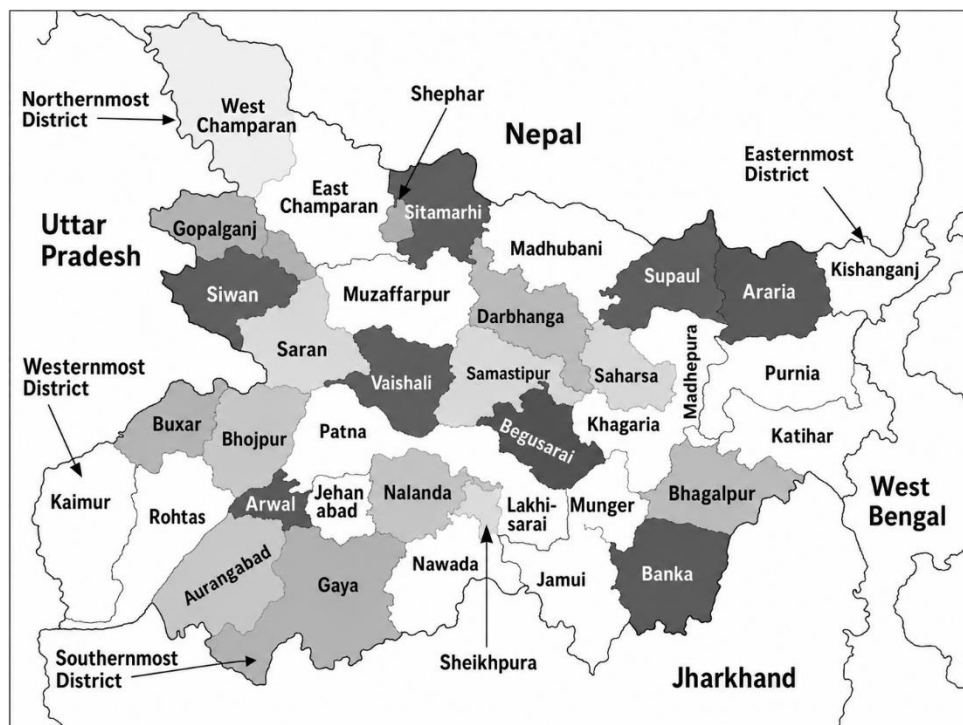


Bihar Special

COMPLETE BIHAR GEOGRAPHY NOTES

TOPICS COVERED

1. Bihar at a Glance – Basic Facts & State Symbols
2. Location, Boundaries & Administrative Structure
3. Physiographic Divisions & Geological Structure
4. Drainage System – Rivers, Lakes, Waterfalls, Hot Springs
5. Climate – Seasons, Agroclimatic Zones, Rainfall
6. Soils of Bihar – Types & Distribution
7. Natural Vegetation & Forest Resources
8. Wildlife – National Park, Tiger Reserve, Bird Sanctuaries
9. Agriculture – Crops, Special Products, Irrigation
10. Minerals & Energy Resources
11. Industries & Transportation
12. Floods & Disaster Management
13. Value Addition Boxes + PYQs throughout



SECTION 1 — BIHAR AT A GLANCE



| Geographical and Extent | |
|-------------------------|--------------------------------------|
| Latitudinal Extension | 24° 20' 10"N to 27° 31' 15" N |
| Longitudinal Expansion | 83°19' 50"E to 88°17' 40" E |
| Location in India | Bihar is located in north-east India |
| Shape of State | Rectangular |

BASIC FACTS ABOUT BIHAR

| Parameter | Detail |
|--------------------------|---|
| Official Name | Bihar (previously part of Bengal Presidency; created as separate province 1912) |
| Formation Date | 22 March 1912 (Bihar Day celebrated on 22 March) |
| Capital | Patna (also known as Pataliputra in ancient times) |
| Geographical Area | 94,163 sq km (2.86% of India's total area) |
| Rank (Area) | 13th largest state in India |
| Population (2011 Census) | ~10.40 crore — 3rd most populated state in India |
| Population Density | 1,106 persons/sq km — Highest population density state in India |
| Sex Ratio (2011) | 918 females per 1000 males |

| | |
|------------------------------|--|
| Literacy Rate (2011) | 63.82% (Male: 73.39%, Female: 53.33%) |
| Total Districts | 38 districts |
| Divisions | 9 Divisions |
| Sub-Divisions / Circles | 101 Sub-Divisions 534 Circles |
| Municipal Corporations | 12 Municipal Corporations |
| Nagar Parishads / Panchayats | 49 Nagar Parishads 80 Nagar Panchayats |
| State Language | Hindi (Also: Urdu, Maithili — Maithili is in 8th Schedule of Constitution) |
| Latitude | 24°20'10"N to 27°31'15"N |
| Longitude | 83°19'50"E to 88°17'40"E |
| Length (N to S) | 345 km |
| Width (E to W) | 483 km |
| Average Elevation | 53 metres (173 feet) above sea level |
| Highest Point | Someshwar Fort — 880 m (2,887 ft) — in West Champaran |
| Longest River | Ganga (445 km in Bihar) |
| Climate | Tropical Monsoon (Koppen: Cwa) — Humid Subtropical |
| Average Rainfall | 112 cm Highest: Kishanganj Lowest: Aurangabad |
| Average Temperature | 27°C Winter: 0-10°C Summer: 35-45°C |

★ **EXAM TIP:** Population density: Bihar has the **HIGHEST** population density among all Indian states (1,106/sq km). This is a very frequently asked BPSC question. Bihar is 13th in area but 3rd in population.

💡 **VALUE ADDITION:** Bihar was part of the Bengal Presidency until 22 March 1912 when it became a separate province. This date is celebrated as 'Bihar Diwas' (Bihar Day). The state's name is believed to be derived from the Sanskrit/Pali word 'Vihara' (Buddhist monastery), reflecting its Buddhist heritage.

► State Symbols of Bihar

| Symbol Type | Name | Key Detail |
|--------------|--|---|
| State Animal | Gaur (Indian Bison) — <i>Bos gaurus</i> | Also known as Indian Bison; found in Valmiki forest area |
| State Bird | House Sparrow (<i>Passer domesticus</i>) | Declared state bird to promote its conservation |
| State Tree | Peepal Tree (<i>Ficus religiosa</i>) | Sacred tree; also known as Bodhi Tree (under which Buddha attained enlightenment) |
| State Flower | Marigold (Genda Phool — <i>Tagetes erecta</i>) | Widely cultivated; Bihar grows 90%+ of its flower production as marigold |
| State Fish | Magur Fish (<i>Clarias batrachus</i>) | Walking catfish; important for Bihar's fisheries |
| State Emblem | Two swastikas, a Bodhi tree, a Dharma Chakra, a bow and arrow within | Adopted from the Mauryan art tradition |

| | | |
|------------|---|---|
| | a circle with 'Bihar Government' inscription | |
| State Song | 'Mere Bharath ke Kanth Haar' by Ramdhari Singh Dinkar | Dinkar is known as 'Rashtrakavi' of India |

★ **EXAM TIP:** *State Animal = Gaur (NOT Tiger). State Bird = House Sparrow. State Tree = Peepal. State Flower = Marigold. These are trap questions in BPSC – students often confuse with national symbols.*

💡 **VALUE ADDITION:** *Ramdhari Singh Dinkar (1908–1974), from Simariya, Begusarai, Bihar – was awarded the Sahitya Akademi Award (1959) and Padma Bhushan (1959). His famous works include 'Rashmirathi', 'Kurukshetra', and 'Urvashi' (Jnanpith Award 1972). He is called 'Rashtrakavi' (National Poet) of India.*


SECTION 2 — LOCATION, BOUNDARIES & ADMINISTRATION

LOCATION AND BOUNDARIES OF BIHAR

► Boundary States / Countries


| Direction | Border / Country | Key Districts on Border |
|-----------|--|--|
| North | Nepal (International Border — 601 km long) | West Champaran, East Champaran, Sitamarhi, Madhubani, Supaul, Araria, Kishanganj |
| South | Jharkhand (State) | Rohtas, Aurangabad, Gaya, Nawada, Jamui, Banka, Bhagalpur, Katihar |
| East | West Bengal (State) | Katihar, Purnia |
| West | Uttar Pradesh (State) | Buxar, Bhojpur, Rohtas, Kaimur (Bhabhua) |


 **KEY FACT:** Bihar is a completely **LANDLOCKED** state — it has no coastline. The Nepal border is the only international border of Bihar (601 km). Total state border length is approximately 3,202 km.

 **VALUE ADDITION:** Economic significance of Bihar's borders: The Jharkhand border gives access to coal, iron ore, and other minerals. The UP border facilitates massive trade and seasonal labour migration. The Nepal border has strategic importance for Terai ecology and international waterways cooperation. New Indo-Nepal waterway proposals include Gandak (NW-37) and Kosi (NW-58) rivers.

► Administrative Structure of Bihar

| Division | Districts Included |
|------------------------------|--|
| Patna Division (9 districts) | Patna, Nalanda, Bhojpur, Buxar, Rohtas, Kaimur, Arwal, Jehanabad, Aurangabad |
| Magadh Division | Gaya, Nawada, Arwal, Jehanabad, Aurangabad |
| Tirhut Division | East Champaran, West Champaran, Muzaffarpur, Sitamarhi, Sheohar, Vaishali |
| Saran Division | Saran, Siwan, Gopalganj |
| Darbhangha Division | Darbhangha, Madhubani, Samastipur |
| Kosi Division | Saharsa, Madhepura, Supaul |
| Purnia Division | Purnia, Araria, Kishanganj, Katihar |
| Bhagalpur Division | Bhagalpur, Banka |
| Munger Division | Munger, Jamui, Lakhisarai, Sheikhpura, Begusarai, Khagaria |

 **EXAM TIP:** Bihar has 38 districts, 9 divisions, 101 sub-divisions, 534 circles. These numbers are directly asked in BPSC. Smallest district by area: Sheohar. Largest district by area: West Champaran. Largest by population: Patna.

 **VALUE ADDITION:** Important district-wise facts: Kishanganj = highest rainfall, tea cultivation. Aurangabad = lowest rainfall. West Champaran = Valmiki National Park, Nepal border. Bhagalpur =

silk (Tussar), Vikramshila dolphin sanctuary. Gaya = Buddhist circuit, Falgu river, Bodh Gaya. Nalanda = Nalanda University ruins, Rajgir. Begusarai = fertilizer and oil refinery hub, called 'Lenin Nagari' of Bihar. Munger = Yoga capital of India (Satyananda Yoga Ashram).

SECTION 3 — PHYSIOGRAPHIC DIVISIONS & GEOLOGICAL STRUCTURE

PHYSIOGRAPHIC DIVISIONS OF BIHAR

Bihar can be divided into three main physiographical regions based on physical and structural conditions:

▶ A. The Himalayan Terai Region (North-West Bihar)

- **Location:** Located in the Northern part of West Champaran district.
- **Part of:** Shivalik Range of Himalayan mountains.
- **Formation:** Formed during the Tertiary period.
- **Ramnagar Doon:** Southernmost part of the Himalayan Terai Region, covering an area of 214 sq km.
- **Someshwar Hills:** Highest point in Bihar — 880 m — located here in West Champaran.
- Dense forests, riverine ecosystems, and hilly terrain. Home to Valmiki National Park.

▶ B. The Bihar Plains (Central Region)

The Bihar Plains are divided into two parts by the Ganga River:

◆ i. North Bihar Plains (North of Ganga)

- Part of the Indo-Gangetic Plain — highly fertile due to alluvial deposits from Himalayan rivers (Ganga, Kosi, Gandak, Bagmati, Kamla-Balan etc.).
- Prone to frequent floods — especially the Kosi, Gandak, Bagmati, and Mahananda belt.
- Formation: Quaternary rock period. Formed by deposition of alluvium by Himalayan rivers.
- **Diara Land:** Land formed between two branches of a river (doab). Highly fertile due to alluvial soil and water. High water table.
- **Tal Land:** Lowland swamp area generally flooded for a few months of the year. Major Tal: Mokama Tal (largest tal in Bihar, Patna district).

◆ ii. South Bihar Plains (South of Ganga)

- Smaller in area than the North Bihar plain. Triangular in shape — wider in the west, narrower in the east.
- **Hills found:** Hills of Gaya, Rajgir, Bihar Sharif, Sheikhpura, Jamalpur, and Kharagpur hills.
- **Main river:** Son river (flows through southern Bihar).
- Less prone to floods compared to North Bihar. Water scarcity in some areas.

▶ C. The South Bihar Plateau / Chotanagpur Plateau Extension

- **Location:** A narrow belt spreading from Kaimur district in the West to Banka in the East.
- Part of the larger Deccan / Chotanagpur Plateau. Features rugged landscapes, forests, and mineral-rich terrain.

- **Rock type:** Many hills made of Batholith (big mass of igneous rock formed by solidification of magma). Made of hard rocks: gneiss, schist, and granite.
- **Geological period:** Rohtas and Aurangabad = Vindhyan rock period. Champaran (NW) = Tertiary period. North Bihar plains = Quaternary period.
- Rich in minerals (limestone, quartz, coal, pyrite, copper etc.).
- **Rajmahal Hills:** Located in the Banka/Bhagalpur region. Famous for unique geological formations, diverse flora and fauna.

★ **EXAM TIP:** Bihar's physiographic divisions for BPSC: 3 regions — Himalayan Terai (NW, West Champaran), Bihar Plains (N+S of Ganga), and Chotanagpur Plateau extension (south belt Kaimur-to-Banka). Highest point = Someshwar Fort, 880 m, West Champaran.

💡 **VALUE ADDITION:** Diara Land vs Tal Land — Diara = fertile land between two river branches (doab); Tal = low-lying marshy land flooded seasonally. Mokama Tal is the most famous Tal in Bihar. Bihar's plains were formed by deposition from rivers flowing off the newly uplifted Himalayas — youngest plains on the basis of time period.

🔗 **CONNECT:** The Ganga divides Bihar into two unequal parts: North Bihar (larger, more flood-prone, more populated) and South Bihar (smaller, triangular, less fertile in parts but has historical significance — Gaya, Rajgir, Nalanda, Patna).

SECTION 4 — DRAINAGE SYSTEM: RIVERS, LAKES, WATERFALLS & HOT SPRINGS

MAJOR RIVERS OF BIHAR

Almost all rivers of Bihar drain into the Ganga. The Ganga itself divides the state into North Bihar and South Bihar.

► A. Ganga — The Lifeline of Bihar

| Parameter | Detail |
|--------------------------------------|---|
| Origin | Gangotri Glacier, Uttarakhand (Bhagirathi + Alaknanda at Devprayag) |
| Length in Bihar | ~445 km (longest river in Bihar) |
| Entry into Bihar | Buxar district (western end) |
| Exit from Bihar | Katihar district (eastern end — into West Bengal) |
| Direction of flow | West to East across Bihar |
| Significance | Divides Bihar into North and South Bihar; lifeline for irrigation, transport, culture |
| Left Bank Tributaries (North Bihar) | Ghaghra/Saryu, Gandak, Kosi, Bagmati, Kamla-Balan, Mahananda, Budhi Gandak |
| Right Bank Tributaries (South Bihar) | Son, Punpun, Falgu (joins Punpun), Phalgu |

💡 VALUE ADDITION: *The Ganga is sacred to both Hindus and Jains. It enters Bihar at Buxar and exits at Rajmahal (West Bengal border near Katihar). Bihar has the longest stretch of Ganga compared to any other state. The Ganga Action Plan (Phase I, 1985) was launched in Patna.*

► B. Major Rivers of North Bihar (Left Tributaries of Ganga)

| River | Origin | Key Facts | Districts Covered |
|-------------------|----------------------------------|--|---|
| Ghaghra / Saryu | Himalayan glaciers (Tibet) | Known as 'Saryu' in UP, 'Ghaghra' in Bihar. Joins Ganga at Chapra (Saran). Forms boundary with UP. | Gopalganj, Saran, Siwan |
| Gandak (Narayani) | Nepal Himalayas (Mustang region) | Called 'Narayani' in Nepal. Enters Bihar at Triveniganj (West Champaran). National Waterway NW-37. | West Champaran, East Champaran, Muzaffarpur, Vaishali, Saran |
| Budhi Gandak | Someshwar Hills, West Champaran | Runs parallel to Gandak. Meets Ganga near Hajipur/Munger area. | West Champaran, Sitamarhi, Muzaffarpur, Vaishali, Samastipur, Begusarai |

| | | | |
|--------------|--|--|---|
| Bagmati | Nepal Himalayas (Shivapuri range, Kathmandu Valley) | Enters Bihar at Dheng (Sitamarhi). Very flood-prone. Joins Kosi in Supaul/Madhubani area. | Sitamarhi, Muzaffarpur, Darbhanga, Samastipur |
| Kamla-Balan | Nepal (Mahabharata Range) | Also called Kamala or Kamla. Enters Bihar in Madhubani district. Joins Kosi. | Madhubani, Darbhanga, Samastipur |
| Kosi (Koshi) | Nepal Himalayas (Sun Kosi, Arun, Tamur — tributary system) | Known as 'Sorrow of Bihar' — most flood-prone river. Shifts course frequently. National Waterway NW-58. Kosi Barrage at Hanuman Nagar (Nepal). | Supaul, Saharsa, Madhepura, Khagaria |
| Mahananda | Darjeeling Hills (India), also Nepal | Enters Bihar at Kishanganj. Last major tributary of Ganga in Bihar before entering West Bengal. | Kishanganj, Purnia, Katihar |

★ **EXAM TIP:** 'Sorrow of Bihar' = Kosi River. It is the most flood-prone river due to heavy silt load and frequent lateral shifts. Kosi Barrage is at Hanuman Nagar, Nepal. The Kosi river system consists of 7 rivers (Saptakoshi in Nepal). NW-58 = Kosi River.

💡 **VALUE ADDITION:** The Kosi River — called 'Sorrow of Bihar' — changes its course drastically due to heavy silt deposition. Since 1736 CE it has shifted ~120 km westward. The 2008 Kosi floods were one of the worst disasters in Bihar's modern history — broke an embankment at Kusaha, Nepal, affecting millions. Kosi receives approximately 10 times more water than the Yamuna river. The Kosi Agreement between India and Nepal (1954, revised 1966) governs the Kosi Barrage operations.

► C. Major Rivers of South Bihar (Right Tributaries of Ganga)

| River | Origin | Key Facts | Districts Covered |
|-------------------|---|--|--------------------------------|
| Son | Amarkantak Plateau (MP) | 2nd longest river in Bihar (~250 km). Joins Ganga near Patna (Arrah area). Important for irrigation of South Bihar. | Rohtas, Kaimur, Arrah, Patna |
| Punpun | Chotanagpur Plateau (Palamu, Jharkhand) | Joins Ganga south of Patna. Falgu/Phalgu river is a tributary of Punpun. | Aurangabad, Gaya, Arwal, Patna |
| Falgu / Phalgu | Joins from Jharkhand plateau area | Sacred river for Hindus and Buddhists — Gaya is situated on its banks. Important for Pind Daan rituals. Also known as Niranjana. | Gaya |
| Sone / Son (same) | Same as above | — | — |
| Phalgu at Gaya | — | Phalgu is considered sacred because Sita cursed the river; hence it flows underground at Gaya (sand visible, water not). Rich in spiritual significance. | Gaya |

🔗 **KEY FACT:** Son River — 2nd longest river in Bihar. Originates from Amarkantak (MP), where it is born very close to Narmada (which flows westward) — making Amarkantak the origin of two rivers flowing in opposite directions.

💡 VALUE ADDITION: *Falgu/Phalgu River at Gaya: According to Hindu mythology, Goddess Sita cursed the Falgu river for falsely testifying against her during Lord Rama's visit to perform Pind Daan for his father Dasharatha. As a result, the river 'flows underground' at Gaya. Pilgrims can see only sandy bed — water must be dug for. This story makes Gaya one of the most important Hindu pilgrimage sites. Both Hindus (for Pitru Paksha Mela) and Buddhists (Bodh Gaya is nearby) revere this area.*

► D. Important Lakes of Bihar

| Lake / Jheel | Location | Type | Special Features |
|-------------------------|-------------------------|------------------------------|--|
| Kanwar Lake (Kabar Tal) | Begusarai district | Freshwater oxbow lake | Asia's largest freshwater oxbow lake; Bihar's first Ramsar site (November 2020); important bird sanctuary |
| Mokama Tal | Patna district | Tal (seasonal wetland/swamp) | Largest Tal in Bihar; significant for agriculture in flood season |
| Gogabeel Lake | Katihar district | Oxbow lake | Designated as Ramsar site in 2025; important for migratory birds |
| Udaipur Jheel | West Champaran district | Natural lake | Designated as Ramsar site in 2025; ecologically rich |
| Nagi Dam Reservoir | Jamui district | Reservoir-lake | Declared bird sanctuary 1987; Ramsar site 2024; smallest bird sanctuary in Bihar (~2 sq km); known for red-crested pochard |
| Nakti Dam Reservoir | Jamui district | Reservoir-lake | Ramsar site 2024; hosts pochards, pintail ducks, swamp partridges |
| Anjana Lake | Muzaffarpur | Lake | Designated as Balmi Mahadev Lake; tourist site |
| Ghaghara Tal | Near Motihari | Seasonal wetland | Significant for migratory birds in winter |

★ EXAM TIP: *Kanwar Lake = Asia's largest freshwater oxbow lake. Bihar's 1st Ramsar site (2020). Located in Begusarai. In 2024, Nagi Dam (Jamui) and Nakti Dam (Jamui) became Ramsar sites. In 2025, Gogabeel (Katihar), Udaipur Jheel (W. Champaran), and Gokul Jalashay (Buxar) were added — making Bihar one of the states with most Ramsar sites.*

💡 VALUE ADDITION: *Ramsar Convention (1971): An international treaty for the conservation and sustainable use of wetlands. Sites designated under it are called 'Ramsar Sites' or 'Wetlands of International Importance'. Bihar's Ramsar Sites timeline: Kanwar Lake (2020) → Nagi Dam, Nakti Dam (2024) → Gogabeel, Udaipur Jheel, Gokul Jalashay (2025). This expansion reflects growing emphasis on wetland conservation in Bihar.*

► E. Waterfalls of Bihar

| Waterfall | Location | River | Details |
|-------------------|-----------------|--------------|--|
| Kakolat Waterfall | Nawada district | — | Most famous waterfall in Bihar; about 160 feet high; popular tourist destination; believed to have medicinal value |
| Telhar Waterfall | Rohtas district | Dunari River | Natural waterfall; part of Kaimur hills |

| | | | |
|---------------------|-----------------------------|-----------------|--|
| Durgawati Waterfall | Kaimur district | Durgawati River | Near Kaimur hills; scenic spot |
| Maner Falls | Near Maner (Patna district) | — | Small seasonal waterfall |
| Japla Waterfall | Rohtas/Kaimur hills | — | Scenic waterfall on Kaimur Plateau |
| Banjari Waterfall | Rohtasgarh, Rohtas | — | Located near Rohtasgarh Fort; seasonal |

★ **EXAM TIP:** *Kakolat Waterfall (Nawada) = Most famous waterfall in Bihar. It is approximately 160 feet high. Very frequently asked in BPSC – 'Which is the most famous/largest waterfall of Bihar?' = Kakolat.*

► F. Hot Springs of Bihar

| Hot Spring | Location | Temperature | Significance |
|--------------------------------|--------------------------|--------------------------|--|
| Rajgir Hot Springs | Rajgir, Nalanda district | ~45°C (varies by source) | Most famous hot springs in Bihar; located at the foot of Vaibhavgiri hill; 5 main kunds – Brahma Kund, Saptadhara, Surya Kund, Makhdum Kund, Kasturi Kund; mentioned in Buddhist and Hindu texts |
| Munger Hot Springs (Sita Kund) | Munger district | ~65-70°C | Believed to be the place where Sita proved her purity (Agni Pariksha); water boils eggs. Near Karna Chaura. |

💡 **VALUE ADDITION:** *Rajgir Hot Springs (Brahma Kund) – The water is considered medicinal and sacred. Rajgir was the ancient capital of Magadha during the time of the Buddha. The hot springs were described by Chinese traveller Fa-Hien who visited in the 5th century CE. Today Rajgir is a major religious tourism destination for Hindus, Buddhists, and Jains.*

🔑 **KEY FACT:** *Munger's Sita Kund is one of Bihar's most famous hot springs with water temperature reaching 65-70°C – hot enough to boil eggs. 'Sita Kund' literally means 'Sita's Pool' – linked to the Ramayana.*

► G. Important River Projects / Barrages in Bihar

| Project / Barrage | River | Location | Significance |
|---------------------------------|---------|---|---|
| Kosi Barrage (High Dam) | Kosi | Hanuman Nagar, Nepal (Indo-Nepal joint project) | Flood control for Bihar; irrigation; Indo-Nepal Kosi Agreement (1954, revised 1966) |
| Gandak Barrage | Gandak | Valmiki Nagar (W. Champaran), Nepal border | Irrigation of N. Bihar; water supply to Nepal; Indo-Nepal Gandak Agreement (1959) |
| Son Barrage / Indrapuri Barrage | Son | Rohtas district | Irrigation of South Bihar; one of the oldest barrages in Bihar |
| Bagmati Barrage | Bagmati | Sitamarhi / Dheng area | Flood control in North Bihar |

| | | | |
|--------------------|----------------|-------------------------------|---|
| Gaya Ji Rubber Dam | Falgu / Phalgu | Gaya | Recent project; water storage for Gaya city and Pind Daan pilgrimage |
| Farakka Barrage | Ganga | West Bengal (Bihar-WB border) | Controls Ganga's flow; affects flooding in Katihar area; Indo-Bangladesh water treaty |
| Durgawati Dam | Durgawati | Kaimur district | Irrigation in South-West Bihar |

★ **EXAM TIP:** *Kosi Barrage = Hanuman Nagar, Nepal. Gandak Barrage = Valmiki Nagar. Son Barrage = Rohtas. Gaya Ji Rubber Dam = on Phalgu river at Gaya. Farakka Barrage affects Bihar's flooding pattern. These are regularly asked in BPSC.*

★ PRACTICE QUESTIONS (BPSC) — Topic-wise

- Q1. The river known as 'Sorrow of Bihar' is — (a) Ganga (b) Kosi (c) Gandak (d) Son [BPSC]
- Q2. Kanwar Lake, Bihar's first Ramsar site, is located in which district? [BPSC]
- Q3. Which is the most famous waterfall in Bihar and where is it located? [BPSC]
- Q4. The Son River originates from which plateau? [BPSC]
- Q5. Ganga enters Bihar at which district? [BPSC]
- Q6. Kosi Barrage is located at which place? [BPSC]
- Q7. Rajgir Hot Springs is located in which district? [BPSC]
- Q8. How many km does the Ganga flow in Bihar? [BPSC]
- Q9. The Falgu/Phalgu river is associated with which city of Bihar? Why is it significant? [BPSC Mains]
- Q10. Mokama Tal is located in which district of Bihar? [BPSC]

SECTION 5 — CLIMATE OF BIHAR

CLIMATE OF BIHAR

- **Climate Type:** Tropical Monsoon / Humid Subtropical (Koppen Classification: Cwa)
- **Bihar occupies a transitional position:** Between humid West Bengal (east) and slightly less humid Uttar Pradesh (west).

► Seasons in Bihar

| Season | Months | Temperature | Key Characteristics |
|-----------------------|----------------------|--------------------------|--|
| Summer (Grishma) | March to June | 35–45°C (May–June peaks) | Hot and dry; dust storms ('loo' winds); plains extremely hot; May–June most severe; occasional nor'westers in east Bihar |
| Monsoon (Varsha) | July to October | 26–32°C | SW Monsoon arrives (June end to July start); Bay of Bengal branch is dominant; North Bihar receives more rain than South Bihar; Average: ~112 cm |
| Autumn / Post-Monsoon | October to November | 20–28°C | Retreating monsoon; skies clear; pleasant weather; beginning of rabi crop season |
| Winter (Shishir) | November to February | 0–15°C | Cool to cold; North Bihar coldest; occasional frost in Terai areas; dense fog (especially Dec–Jan); Western disturbances bring some rain |

► Rainfall Distribution in Bihar

| Category | District | Average Rainfall |
|------------------|-----------------|---|
| Highest Rainfall | Kishanganj | ~200 cm (close to the sub-Himalayan belt; influenced by Bay of Bengal branch of SW Monsoon) |
| Second Highest | West Champaran | ~170 cm (Terai region, Himalayan foothills) |
| Lowest Rainfall | Aurangabad | ~75 cm (plateau region, rain shadow effect) |
| Second Lowest | Rohtas / Kaimur | ~80 cm (Vindhyan plateau — leeward side) |
| State Average | All of Bihar | ~112 cm annually |

★ **EXAM TIP:** Highest rainfall district = Kishanganj. Lowest rainfall district = Aurangabad. State average = 112 cm. These are very frequently asked in BPSC! Also note: North Bihar is more flood-prone (more rain, Himalayan rivers) while South Bihar sometimes faces drought.

💡 **VALUE ADDITION:** Bihar experiences 'Loo' winds in summer — hot, dry, desiccating winds from the NW. These cause heatwave deaths in Bihar. 'Nor'westers' (locally called 'Kalbaisakhi' in Bengal) occasionally affect eastern Bihar in pre-monsoon season, bringing thunder and lightning. Bihar's lightning deaths are among the highest in India — 242 deaths in 2023-24 alone (Economic Survey 2024-25). The government has installed early warning systems to mitigate this.

► Agroclimatic Zones of Bihar (as per ICAR)

| Zone | Districts Covered | Key Features |
|--|--|--|
| Zone I: North-West Alluvial Plain | West Champaran, East Champaran, Gopalganj, Siwan, Saran | High rainfall; good irrigation from Gandak canal; rice-wheat system; sugarcane |
| Zone II: North-East Alluvial Plain | Sitamarhi, Muzaffarpur, Sheohar, Darbhanga, Madhubani, Vaishali, Samastipur | Highly flood-prone; Bagmati, Kamla, Kosi system; jute, maize, paddy |
| Zone III: South-East Alluvial Plain | Bhagalpur, Banka, Munger, Jamui, Lakhisarai, Sheikhpura, Khagaria, Katihar, Purnia, Araria, Kishanganj, Supaul, Saharsa, Madhepura | Kosi region; maize, jute, aman paddy; frequent floods in Kosi basin |
| Zone IV: North-East Alluvial Plain (Mahananda) | Purnia, Kishanganj, Katihar, Araria | High rainfall; tea, jute, paddy; influenced by north-eastern monsoon |
| Zone V: South Bihar Plain (Ganga South) | Patna, Nalanda, Gaya, Nawada, Aurangabad, Jehanabad, Arwal, Bhojpur, Buxar, Rohtas, Kaimur | Son canal irrigation; wheat, lentils (masoor), chickpea (chana); less rainfall |
| Zone VI: Chotanagpur Plateau Extension | Parts of Rohtas, Aurangabad, Banka, Jamui, Nawada | Hilly terrain; mineral-rich; forest cover; dry farming; maize, arhar dal |

💡 VALUE ADDITION: Bihar's agroclimatic zone classification has immense practical importance – it determines which crops are promoted, which irrigation projects are built, and which agricultural schemes are implemented. Zone I & II have the highest productivity, while Zone VI faces challenges due to hilly terrain.

SECTION 6 — SOILS OF BIHAR

SOILS OF BIHAR

| Soil Type | Location in Bihar | Key Properties | Crops Grown |
|----------------------------------|---|--|---|
| Alluvial Soil (Khadar & Bhangar) | Most prevalent; North Bihar plains and Ganga basin | Highly fertile; rich in potash and lime; lacks nitrogen, phosphorus, and humus; light-coloured | Paddy, wheat, sugarcane, maize, vegetables |
| New Alluvial (Khadar) | Riverbanks; flood plains of Kosi, Gandak, Ganga | Younger soil; deposited annually during floods; very fertile; sandy-loamy | Paddy, wheat, seasonal vegetables |
| Old Alluvial (Bhangar) | Away from rivers; elevated areas in North Bihar | Older alluvial deposits; contains 'Kankar' (calcium carbonate nodules); less fertile than Khadar | Wheat, barley, gram |
| Sandy / Sandy Loam | Diara land; riverbanks; some parts of North Bihar | Light soil; poor water retention; low fertility; prone to wind erosion | Watermelon, vegetables, maize |
| Clayey / Clay Loam | South Bihar plains; Gaya, Nalanda, Patna (lowlands) | Heavy soil; good water retention; high plasticity; 'Black Cotton Soil' type in some areas | Paddy, sugarcane, jute |
| Red Laterite Soil | South Bihar plateau; Rohtas, Kaimur, Jamui, Banka, Nawada | Weathered; acidic; low fertility; iron oxide gives red colour; porous | Millets, arhar (pigeon pea), maize; with improvement: paddy |
| Balgadhar / Kaliar Soil | Waterlogged areas of North Bihar | Salt-affected; high pH; infertile; found where poor drainage exists; reclamation needed | Limited cultivation possible after reclamation |
| Forest Soil | Hilly areas; Champaran Terai, Kaimur, Rajmahal hills | Rich in humus; good fertility; found under dense forest cover | Not used for agriculture; supports forests |

★ EXAM TIP: Most prevalent soil in Bihar = Alluvial Soil. North Bihar plains = New Alluvial (Khadar). Old Alluvial = Bhangar (contains Kankar). South Bihar plateau = Red Laterite soil. Khadar is MORE fertile than Bhangar. BPSC asks this comparison frequently.


💡 VALUE ADDITION: Soil health is Bihar's greatest agricultural asset and greatest challenge. While alluvial soils are highly productive, they are deficient in nitrogen (N), phosphorus (P), and organic matter. Bihar's government has implemented Soil Health Card Scheme to address this. About 40% of Bihar's land is affected by some form of soil degradation — flood-induced erosion in North Bihar and drought-induced degradation in South Bihar.

🔄 REMEMBER: Khadar = New alluvial = Near rivers = More fertile. Bhangar = Old alluvial = Away from rivers = Contains Kankar (lime nodules) = Less fertile. This comparison is very important for BPSC!

SECTION 7 — FORESTS, WILDLIFE & PROTECTED AREAS


FORESTS OF BIHAR

- **Total Forest Cover:** Approximately 7.3% of Bihar's geographical area (well below national average of ~21%). Bihar is one of the least forested states in India.
- **Forest types:** Tropical Moist Deciduous (in Champaran Terai, Kaimur, Rajmahal); Tropical Dry Deciduous (most of South Bihar hills); Sub-Himalayan Terai forests (West Champaran).
- **Major Forest Areas:** West Champaran (Valmiki), Kaimur district, Rohtas, Aurangabad, Jamui, Banka, and Rajmahal hills (Bhagalpur).
- **Forest Departments:** Bihar State Forest Corporation manages commercial forests. Social Forestry and JFM (Joint Forest Management) programs active.
- **Jal-Jeevan-Hariyali Mission:** Bihar government's flagship program for water conservation, afforestation, and green cover. Targets large-scale plantation.

 **KEY FACT:** Bihar has only ~7.3% forest cover vs India's national average of ~21%. This is a critical issue — deforestation, population pressure, and agricultural expansion have led to severe forest loss. The Valmiki Tiger Reserve is the only tiger reserve in Bihar.

► National Park & Tiger Reserve

| Name | Location | Area | Establishment | Key Facts |
|-----------------------|--|---|--|--|
| Valmiki National Park | West Champaran district; bordering Nepal | Core: ~335.65 sq km; Entire Tiger Reserve (incl. Sanctuary): ~899-901 sq km | Wildlife Sanctuary: 1978; National Park: 1990; Tiger Reserve (Project Tiger): 1994 | Only National Park in Bihar; Only Tiger Reserve in Bihar; dense forests, riverine ecosystems; Gandak river flows through it; animals: tigers, leopards, elephants, sloth bears, gharials, deer, wild boar; 300+ bird species |

 **VALUE ADDITION:** Valmiki Tiger Reserve has a special historical significance — it is named after sage Valmiki who wrote the Ramayana and is believed to have lived in this forest. The Gandak river forms a natural boundary between Bihar (India) and Nepal through this reserve. Project Tiger was launched in 1973 by Indira Gandhi. Valmiki was included in 1994. Bihar's tiger population has been growing slowly due to conservation efforts.


► Wildlife Sanctuaries of Bihar

| Sanctuary | District | Area (approx.) | Notable Species / Features |
|-----------|----------|----------------|----------------------------|
|-----------|----------|----------------|----------------------------|

| | | | |
|--|--|---|--|
| Kaimur Wildlife Sanctuary | Kaimur (Bhabhua) | ~1350 sq km — Largest wildlife sanctuary in Bihar | Wolves, deer, leopards, sambhar, nilgai; dense Vindhyan plateau forests; Rohtasgarh Fort nearby |
| Rajgir Wildlife Sanctuary (Pant WLS) | Nalanda | ~35 sq km | Deer, peacocks, boars; scenic hills; Rajgir hot springs; newly revamped with Nature Safari (2021) and Zoo Safari (2022) |
| Vikramshila Gangetic Dolphin Sanctuary | Bhagalpur to Kahalgaon (~60 km stretch of Ganga) | ~50 km stretch | India's only sanctuary dedicated to the Gangetic Dolphin (<i>Platanista gangetica</i>); Gangetic Dolphin = National Aquatic Animal of India; monitoring station at Bhagalpur |
| Bhimbandh Wildlife Sanctuary | Munger | ~682 sq km | Hot springs; Bhimband kund; elephants, tigers, leopards, deer; diverse forest; river Kiu flows through |
| Gautam Buddha Wildlife Sanctuary | Gaya | ~259 sq km | Deer, foxes, leopards; historical significance (near Bodhi Gaya); established 1976 |
| Kanwar Lake Bird Sanctuary | Begusarai | ~67.5 sq km — Largest bird sanctuary in Bihar | Migratory birds from Siberia, Central Asia; 59+ species of birds; Asia's largest freshwater oxbow lake; Ramsar site 2020 |
| Kusheshwar Sthan Bird Sanctuary | Darbhanga | ~29.2 sq km | Winter migratory birds; sarus cranes, painted storks, open-billed storks; seasonal wetlands |
| Baraila Jheel Salim Ali Bird Sanctuary | Vaishali | ~— | Named after renowned ornithologist Salim Ali; migratory bird habitat |
| Nagi Dam Bird Sanctuary | Jamui (Jhajha) | ~2.2 sq km — Smallest bird sanctuary in Bihar | Red-crested pochard, pochards, pintails; Ramsar site 2024 |
| Nakti Dam Bird Sanctuary | Jamui (Jamtara area) | ~3.33 sq km | Red-crested pochards, common pochards, swamp partridges; Ramsar site 2024 |
| Udaipur Wildlife Sanctuary | West Champaran | Small area | Ramsar site 2025; ecologically rich wetland |
| Gogabeel Conservation Reserve | Katihar | ~217.99 ha | Oxbow lake; Ramsar site 2025; 94+ bird species recorded |

★ **EXAM TIP:** Largest wildlife sanctuary = Kaimur (1350 sq km). Smallest bird sanctuary = Nagi Dam, Jamui (~2 sq km). Only tiger reserve = Valmiki. Gangetic Dolphin Sanctuary = Bhagalpur (Vikramshila). National Aquatic Animal = Gangetic Dolphin. Bihar's 1st Ramsar site = Kanwar Lake (2020). Most recent Ramsar sites = Gogabeel, Udaipur Jheel, Gokul Jalashay (all 2025).

💡 **VALUE ADDITION:** The Gangetic Dolphin (*Susu/Soons*) was declared India's National Aquatic Animal in 2009 by PM Manmohan Singh. It is endangered and found mainly in the Ganga-Brahmaputra river system. Bihar's Bhagalpur stretch is the most important habitat. The dolphin is a blind freshwater species that navigates using echolocation. Dolphin Research Centre has been established in Patna for its conservation. Bihar also has Gharial Incubation Centre at Bettiah (West Champaran).

 **REMEMBER:** *Wildlife exam mnemonics: Bihar has 1 National Park (Valmiki, West Champaran), 1 Tiger Reserve (Valmiki), and 11+ Wildlife Sanctuaries. Always check if a new sanctuary has been added before the exam!*

★ **PRACTICE QUESTIONS (BPSC) — Topic-wise**

Q1. Which is the only National Park in Bihar and where is it located? [BPSC]

Q2. Valmiki Tiger Reserve was notified under Project Tiger in which year? [BPSC]

Q3. Which is the largest wildlife sanctuary in Bihar? [BPSC]

Q4. Which wildlife sanctuary in Bihar is dedicated to the Gangetic Dolphin? [BPSC]

Q5. Kanwar Lake was declared as Ramsar site in which year? [BPSC]

Q6. Which is the smallest bird sanctuary in Bihar? [BPSC]

Q7. What is the National Aquatic Animal of India? Where is it mainly found in Bihar? [BPSC]

Q8. Which city in Bihar is known as 'Silk City'? [BPSC]

SECTION 8 — AGRICULTURE OF BIHAR

AGRICULTURE OF BIHAR

- **Primary sector dominance:** Agriculture employs ~80% of Bihar's population (vs national average 58%).
- **India ranking:** Bihar is the 8th largest producer of fruits and 4th largest producer of vegetables in India.
- **Land use:** Net Sown Area is ~56% of total geographical area — one of the highest in India.
- **Cropping Intensity:** Supaul and Jehanabad recorded the highest cropping intensity in recent years.

► Major Crops of Bihar

| Crop | Type | Districts Famous For | Key Facts |
|--------------------|----------------------|---|--|
| Paddy (Rice) | Kharif crop | North Bihar — Darbhanga, Sitamarhi, Muzaffarpur, Samastipur, Khagaria, Vaishali | Staple food; largest area under cultivation; both 'Aus' (early) and 'Aman' (main) varieties grown |
| Wheat | Rabi crop | South Bihar — Rohtas, Patna, Bhojpur, Buxar, Aurangabad | Second largest crop; Son Canal area produces excellent wheat; Bihar is major wheat belt |
| Maize | Kharif / Zaid | Kosi region — Khagaria, Begusarai, Muzaffarpur, Samastipur, Madhepura | Bihar is the 2nd largest maize producer in India; Maize production grew by over 65% in 3 years; used for food, animal feed, starch |
| Jute | Kharif crop | Purnia, Katihar, Araria, Kishanganj | 4th largest jute producer in India; Jute Park being developed at Maranga (Purnia); gaining importance |
| Sugarcane | Annual crop | West Champaran, East Champaran, Gopalganj, Siwan, Saran | Sugar mills concentrated in Champaran; Dutch founded first sugar enterprise in Bihar in 1840; Champaran = sugarcane belt of Bihar |
| Lentil (Masoor) | Rabi crop | Patna, Bhojpur, Rohtas, Aurangabad, Gaya | Bihar is the largest producer of Masoor dal in India; also called 'Red Lentil' |
| Litchi | Horticulture (fruit) | Muzaffarpur, Sitamarhi, Vaishali, Hajipur | Bihar produces ~70% of India's litchi; Muzaffarpur 'Shahi Litchi' has a GI Tag; exported to many countries |
| Makhana (Fox Nuts) | Water crop / aquatic | Darbhanga, Madhubani, Saharsa, Supaul, Purnia, Sitamarhi | Bihar produces ~80-90% of world's Makhana; GI Tag received; Mithila Makhana is world famous; Government has Makhana Development Scheme |
| Banana | Horticulture | Hajipur (Vaishali), West Champaran | Hajipur is famous for bananas ('Hajipur Banana'); large export potential |
| Mango | Horticulture | Darbhanga, Bhagalpur, Munger, Nalanda | 'Jardalu Mango' of Bhagalpur has GI Tag; 'Chausa' also famous; Darbhanga mango orchards |

| | | | |
|-----------------------------------|-----------------|---|--|
| Paan (Betel Leaf) | Cash crop | Aurangabad, Gaya, Vaishali, Muzaffarpur | Magahi Paan (from Aurangabad/Gaya) has GI Tag; most premium paan variety in India; highly aromatic |
| Tea | Plantation crop | Kishanganj | Only district in Bihar with commercial tea cultivation; similar to Darjeeling tea; promoted under Kishanganj tea project |
| Potato | Rabi crop | Nalanda, Patna, Buxar | Major potato growing region; Nalanda is famous |
| Onion | Rabi / Kharif | Multiple districts | Hajipur and surrounding areas |
| Madhubani Makhana / Zarda Tobacco | Cash crops | Madhubani, Darbhanga, Muzaffarpur | Tobacco grown in limited areas for Zarda/Khaini products |

★ **EXAM TIP:** Bihar's GI Tagged agricultural products: Shahi Litchi (Muzaffarpur), Mithila Makhana (North Bihar), Jardalu Mango (Bhagalpur), Magahi Paan (Aurangabad/Gaya). Very important for BPSC! Masoor Dal = Bihar is #1 producer in India. Maize = Bihar is #2 producer in India.

💡 **VALUE ADDITION:** Mithila Makhana (Fox Nuts / Phool Makhana): Bihar accounts for 80-90% of global Makhana production, mostly from the Mithila region (Darbhanga, Madhubani, Saharsa, Purnia). It is grown in ponds and slow-moving water bodies. The government has a dedicated 'Makhana Development Scheme' and has established a National Research Centre for Makhana at Darbhanga. It is a superfood – high in protein, calcium, low in fat. The government aims to double Makhana exports.

💡 **VALUE ADDITION:** Magahi Paan – The most premium variety of betel leaf in India – comes from Aurangabad and Gaya districts of Bihar. It has a GI Tag. Known for its unique taste, aroma, and medicinal properties. The name 'Magahi' comes from 'Magadha' (the ancient region). It is expensive, rare, and used in pan shops across India for special varieties of paan.

► Irrigation in Bihar

| Irrigation Source | Details |
|---------------------------|--|
| Canals | Son Canal System (largest canal system in Bihar; serves South Bihar); Eastern Gandak Canal; Kosi Canal; Sone Head Works at Dehri-on-Sone |
| Tubewells / Groundwater | Most extensively used in North Bihar; Bihar has high groundwater table; 57%+ of irrigation from groundwater |
| Rivers / Lift Irrigation | Pump-based lift irrigation from rivers; Nikrish Pump Canal project |
| Tanks / Ponds | Traditional irrigation; important in South Bihar hills; less significant today |
| Ganga Water Supply Scheme | New project using Ganga water for irrigation and drinking supply in South Bihar |

🔑 **KEY FACT:** Son Canal System is the largest canal irrigation system in Bihar. It originates from the Son Barrage (Indrapuri) in Rohtas district and irrigates large parts of South Bihar (Rohtas, Aurangabad, Arrah, Patna, Gaya districts).

► Special Agricultural Schemes in Bihar

- **Fourth Agriculture Roadmap (2023-2028):** Bihar's flagship agricultural planning document. Focuses on crop diversification, natural farming, value chain development.
- **Jaivik Corridor Yojana:** Establishes organic farming zones in all districts of Bihar.
- **Makhana Development Scheme:** Dedicated support for Fox Nut cultivation and processing.
- **JEEViKA (Bihar Rural Livelihoods Project):** Women SHG-based agricultural development; 'Green Delights' brand for women farmer producer companies.
- **Desi Gaupalan Protsahan Yojana:** Promotes indigenous cow breeding and dairy.
- **Jal Jeevan Hariyali:** Comprehensive water conservation and afforestation mission.

PRACTICE QUESTIONS (BPSC) — Topic-wise

Q1. Bihar is the largest producer of which dal in India? [BPSC]

Q2. Which district of Bihar is famous for Shahi Litchi with GI Tag? [BPSC]

Q3. Which district of Bihar has commercial tea cultivation? [BPSC]

Q4. Mithila Makhana has received which special status? [BPSC]

Q5. What percentage of India's Makhana does Bihar produce? [BPSC]

Q6. Son Canal System originates from which barrage? [BPSC]

Q7. Which GI Tagged mango variety is from Bhagalpur, Bihar? [BPSC]

Q8. Bihar is which rank in maize production in India? [BPSC]

Q9. Magahi Paan comes from which districts of Bihar? [BPSC]

Q10. Dutch founded first sugar enterprise in Bihar in which year? [BPSC]

SECTION 9 — MINERALS & ENERGY RESOURCES

MINERALS OF BIHAR

Post the formation of Jharkhand (2000), Bihar lost most of its rich mineral belt to the new state. However, Bihar still has significant mineral resources in its southern plateau region.

| Mineral | Location in Bihar | Key Facts / Uses |
|-----------------------------|---|--|
| Pyrite | Rohtas district (Amjhore — largest pyrite mine in Asia) | Bihar holds 95% of India's pyrite resources; used in making sulphuric acid, fertilizers; production ~9,539 tonnes/year |
| Limestone | Rohtas, Kaimur, Munger, Jamui | Used in cement manufacture; production ~4,78,000 tonnes/year; major cement plants in Rohtas |
| Quartz / Quartzite | Gaya, Nawada, Munger | Used in glass and electronic industries; ~14,865 tonnes/year |
| Mica (Crude) | Gaya, Nawada, Munger (Jharkhand border area) | Used in electrical and electronic industries; ~53 tonnes/year |
| Steatite (Talc) | Gaya, Munger | Used in ceramics, cosmetics, paper; ~945 tonnes/year |
| Graphite | Banka, Jamui, Munger | Soft black carbon mineral; used in lubricants, pencils |
| Bauxite | Munger, Banka, Jamui | Ore for aluminium; found in south Bihar hills |
| Iron Ore | Jamui, Banka, Munger | Iron ore found in small quantities; limited commercial exploitation |
| Copper Ore | Banka, Munger area | Small deposits; not commercially significant |
| Coal | Small deposits in Kaimur area | Minor deposits; not major commercially |
| Mineral Oil & Gas | Katihar, Purnia districts (NW area) | Exploratory deposits; under investigation; not commercially extracted yet |
| Chromite, Manganese, Nickel | South Bihar plateau | Minor deposits scattered across hills; not commercially exploited |

★ **EXAM TIP:** Bihar holds 95% of India's Pyrite resources — most important mineral fact! Pyrite mine at Amjhore (Rohtas) = largest pyrite mine in Asia. Limestone = Rohtas, Kaimur. Quartz = Gaya, Nawada. After Jharkhand's formation in 2000, most minerals went to Jharkhand — this is important context.

💡 **VALUE ADDITION:** Jharkhand was carved out of Bihar on 15 November 2000, taking with it the Chotanagpur and Santhal Pargana regions — the mineral-rich zones with coal, iron ore, copper, manganese, bauxite, uranium etc. This was a major economic loss for Bihar. Post-bifurcation, Bihar's economy became even more agriculture-dependent and lost industrial capital, leading to the development gap Bihar is now trying to bridge.

🔗 **CONNECT:** Amjhore Pyrite Mine (Rohtas) → Fertilizer Corporation of India (FCI) plant at Sindri (now Jharkhand) uses pyrite for sulphuric acid → used in fertilizer production. Bihar's pyrite is thus linked to India's fertilizer industry.

► Energy Resources of Bihar

| Energy Source | Key Plants / Projects | Details |
|---------------------|--|--|
| Thermal Power | Barauni Thermal Power Station (Begusarai); Muzaffarpur Thermal Power Station; Kanti Thermal Power Station | Coal-based power; NTPC also has plants in Bihar; major power deficit state – depends on central grid |
| Hydroelectric Power | Limited; mostly from Kosi and Gandak barrages | Bihar has very limited hydro-power potential due to flat terrain; minor power from barrages |
| Solar Power | Widespread state government solar installations; Bihar Electricity Regulatory Commission promoting rooftop solar | Bihar receives 250-300 sunny days/year; huge solar potential; floating solar projects proposed on reservoirs |
| Biogas / Bio-energy | Gobar Gas Units under Jal Jeevan Hariyali; Hari Khad Programme | Rural energy from agricultural waste; promoted in cattle-rich areas |
| Wind Energy | Very limited; Bihar's flat terrain not ideal | Limited wind energy potential unlike coastal/hilly states |
| Natural Gas | Pipeline from GAIL passing through Bihar; Durgapur-Haldia-Patna pipeline | Natural gas supply for industries and CNG; not major producer |

💡 VALUE ADDITION: Bihar is a significant power-deficit state. Despite having Barauni Thermal Power and other plants, Bihar relies heavily on power from the central grid. The government has been aggressively pushing solar energy – Bihar has excellent solar radiation (5-6 kWh/sq m/day). Floating solar panels on reservoirs (like those on Rohtas-area reservoirs) are being piloted. Bihar's rural electrification (Har Ghar Bijli scheme) has significantly improved in recent years.

SECTION 10 — INDUSTRIES, TRANSPORT & DISASTER MANAGEMENT

10. INDUSTRIES OF BIHAR

| Industry Type | Key Centres | Details |
|-------------------------|---|---|
| Sugar Industry | West Champaran, East Champaran, Gopalganj, Saran, Siwan, Darbhanga | Most important industry; Dutch founded first sugar enterprise in 1840 in Bihar; Bihar has the largest number of sugar mills in eastern India; sugarcane belt in Champaran |
| Silk / Textile Industry | Bhagalpur (Tussar Silk), Gaya, Patna | Bhagalpur known as 'Silk City'; produces Tussar silk; Bihar Silk Development Corp.; Bhagalpur silk has unique texture; 'Bhagalpuri Silk' famous globally |
| Leather Industry | Muzaffarpur, Mokama, Patna | Leather tanning and footwear; limited finished goods processing; most raw material goes to Kolkata, Kanpur, Chennai |
| Fertilizer / Chemical | Barauni (Begusarai) — Hindustan Fertilizer Corp; Sindri (now Jharkhand) | HPCL Refinery at Barauni; fertilizer plants; Barauni is industrial hub of Bihar |
| Cement | Rohtas, Kaimur (based on limestone) | ACC cement and other plants; Dalmia, Lafarge have plants in Rohtas-Kaimur belt |
| Food Processing | Hajipur (EPIP), Muzaffarpur, Patna, Purnia | Bihar has significant food processing potential; litchi, mango, makhana processing; integrated food park at Hajipur EPIP zone |
| Dairy / Milk Industry | Patna, Hajipur, Muzaffarpur | CONFED (Bihar State Milk Cooperative Federation, est. 1983); Sudha dairy brand; expansion of milk cooperatives in 7,000 villages |
| Tea Industry | Kishanganj | Limited but growing; tea processing units; similar quality to Darjeeling tea |
| Jute Industry | Purnia (Maranga — Jute Park), Katihar | Jute Park being developed at Maranga; raw jute processing |
| Paper Industry | Samastipur, Muzaffarpur | Sugarcane bagasse-based paper; limited scale |
| Engineering / Machine | Hajipur, Patna, Muzaffarpur | Auto-parts, machinery; small and medium enterprises |

★ **EXAM TIP:** *Bhagalpur = Silk City (Tussar Silk). Sugar Industry = most important in Bihar. CONFED (Bihar dairy) founded = 1983. Hajipur EPIP = major industrial zone. Dutch founded first sugar enterprise in Bihar in 1840. All are regularly asked in BPSC.*

💡 **VALUE ADDITION:** *Hajipur EPIP (Export Promotion Industrial Park) — established near Vaishali on the national highway; one of Bihar's most important industrial zones. It houses food processing, packaging, and export-oriented units. Hajipur also has CISF HQ and VCI (Vaishali Chini Industries). Hajipur is also known as the 'City of Bananas' and for its Hajipur Fair.*

11. TRANSPORT IN BIHAR

► Railway Network


- **East Central Railway (ECR) Headquarters:** Hajipur (Vaishali) — established 2002; one of India's important railway zones.
- **Key Railway Lines:** Patna-Gaya-Mughal Sarai; Patna-Muzaffarpur; Patna-Rajgir-Bakhtiyarpur; Samastipur-Darbhanga; Katihar-Purnea-Saharsa.
- **Patna Metro:** Under construction/partial operation — will improve urban mobility in Patna city.
- **Mahatma Gandhi Setu:** One of the longest river bridges in Asia (5.6 km) over Ganga connecting Patna and Hajipur (Vaishali).

► National Highways through Bihar

| NH | Route | Key Cities |
|----------------------|--------------------------|--|
| NH 19 (old NH 2) | Delhi-Kolkata | Buxar, Arrah, Patna, Mokama, Barh |
| NH 27 (old NH 31) | Gorakhpur-Kharagpur | Muzaffarpur, Darbhanga, Purnia, Kishanganj |
| NH 28 | Barauni-Gorakhpur | Muzaffarpur, Vaishali |
| NH 31 | Barhi-Guwahati | Barh, Mokama, Bhagalpur, Katihar, Purnia |
| NH 98 | Patna-Biharsharif-Nawada | Nalanda, Gaya belt |
| NH 139 | Patna-Gaya | Jehanabad, Arwal, Gaya |

► National Waterways in Bihar

- **National Waterway 1 (NW-1):** Ganga river — Allahabad to Haldia; passes through Bihar (Buxar to Bhagalpur stretch); important for cargo movement.
- **National Waterway 37 (NW-37):** Gandak River — mostly in Bihar; proposed as international Indo-Nepal waterway.
- **National Waterway 58 (NW-58):** Kosi River — in Bihar; also proposed as international Indo-Nepal waterway.
- Ara Canal — also used for navigation purposes in limited stretch.

 **VALUE ADDITION:** National Waterway-1 (Ganga) is India's oldest and most important inland waterway. The stretch from Patna to Bhagalpur in Bihar is being developed as part of Jal Marg Vikas Project (JMVP) by IWAI (Inland Waterways Authority of India). This will help in cargo movement and reduce road pressure.

12. FLOODS & DISASTER MANAGEMENT IN BIHAR

► Floods — Bihar's Biggest Geographic Challenge

- **Most flood-prone state:** Bihar is one of the most flood-prone states in India. Nearly 76% of North Bihar's population lives in flood-affected areas.

- **Main flood-causing rivers:** Kosi, Gandak, Bagmati, Kamla-Balan, Mahananda, Burhi Gandak, Ghaghra.
- **Kosi 2008 floods:** One of the worst disasters in Bihar — Kosi embankment breached at Kusaha, Nepal; ~3 million people displaced; massive damage.
- **Floods 2023-24:** Affected 3.16 lakh people in 6 districts (Economic Survey 2024-25).
- **Lightning deaths:** 242 deaths from lightning in 2023-24 in Bihar — one of the highest in India. Early warning systems being installed.
- **Heatwave deaths:** 12 deaths from heatwave in 2023-24. Heatwave Action Plan being implemented.

► Disaster Management Infrastructure

- **MMC (Mausam Morcha Centre), Patna:** Issues flood warnings for 5 major river basins in Bihar.
- **PMC (Patna Meteorological Centre):** Flood and weather forecasting.
- **Birpur Centre:** Flood early warning station on Kosi river.
- **Bihar State Disaster Management Service cadre:** A dedicated cadre for local disaster response — formed recently.
- **NDRF:** National Disaster Response Force has permanent battalions stationed in Bihar.
- **Embankments:** Bihar has over 3,700 km of embankments built to control floods — but they are often breached.

💡 **VALUE ADDITION:** *Why is Bihar so flood-prone? Three interconnected reasons: (1) Himalayan rivers carry enormous silt and water from Nepal catchment areas; (2) flat terrain of Bihar plains prevents quick drainage; (3) climate change has increased intensity of monsoon rainfall. Solutions being explored: interlinking of rivers, better embankment management, community-based disaster response. The Farakka Barrage in West Bengal also contributes to backflow flooding in Bihar's Ganga basin.*

★ **EXAM TIP:** *Floods + Bihar = BPSC favourite topic. Key facts: 76% of North Bihar flood-prone. Kosi = Sorrow of Bihar. Kosi 2008 = worst modern flood. Flood warning = MMC Patna + Birpur centre. Bihar has 3,700+ km of embankments.*

★ PRACTICE QUESTIONS (BPSC) — Topic-wise

- | |
|--|
| Q1. Bhagalpur is known as which city because of its silk industry? [BPSC] |
| Q2. East Central Railway Headquarters is located where in Bihar? [BPSC] |
| Q3. CONFED (Bihar dairy cooperative) was established in which year? [BPSC] |
| Q4. Which is the longest bridge over Ganga in Bihar (also one of Asia's longest)? [BPSC] |
| Q5. National Waterway 1 passes through which river? [BPSC] |
| Q6. Which river is responsible for the most floods in Bihar and why? [BPSC Mains] |
| Q7. Bihar holds what percentage of India's Pyrite resources? [BPSC] |
| Q8. Where is the largest Pyrite mine in Asia located? [BPSC] |
| Q9. Dutch founded first sugar enterprise in Bihar in which year? [BPSC] |
| Q10. Which river forms the boundary between Bihar and Uttar Pradesh? [BPSC] |

SECTION 11 — FIRSTS IN BIHAR & RAPID REVISION

11. 'FIRSTS' IN BIHAR — High-Frequency BPSK Facts

| Category | First / Important Fact |
|---|---|
| First Governor of Bihar (post-independence) | Jairamdas Daulatram (1947) |
| First Chief Minister of Bihar | Sri Krishna Sinha (1946) |
| First Ramsar Site of Bihar | Kanwar Lake, Begusarai (2020) |
| Only National Park in Bihar | Valmiki National Park, West Champaran |
| Only Tiger Reserve in Bihar | Valmiki Tiger Reserve (notified 1994) |
| Largest Wildlife Sanctuary | Kaimur Wildlife Sanctuary (~1350 sq km) |
| Smallest Bird Sanctuary | Nagi Dam Wildlife Sanctuary, Jamui (~2 sq km) |
| Largest Bird Sanctuary (by area) | Kanwar Lake Bird Sanctuary, Begusarai (~67.5 sq km) |
| Highest Point in Bihar | Someshwar Fort — 880 m — West Champaran |
| Longest River in Bihar | Ganga (~445 km) |
| Second Longest River | Bagmati (~394 km in Bihar) |
| Most Flood-Prone River | Kosi (Sorrow of Bihar) |
| Highest Rainfall District | Kishanganj (~200 cm) |
| Lowest Rainfall District | Aurangabad (~75 cm) |
| Largest District (area) | West Champaran |
| Smallest District (area) | Sheohar |
| Highest Population District | Patna |
| Lowest Population District | Sheohar |
| Most Densely Populated State | Bihar (1,106/sq km) — Highest density in India |
| First Industrial Zone (EPIP) | Hajipur (Vaishali) |
| ECR (Railway HQ) | Hajipur (Vaishali) — est. 2002 |
| Oldest Rock-cut Cave in India | Lomas Rishi Cave, Jehanabad (Barabar Hills) |
| National Aquatic Animal found in Bihar | Gangetic Dolphin (Vikramshila sanctuary, Bhagalpur) |
| Largest Tal (Seasonal Wetland) | Mokama Tal, Patna district |
| Asia's largest freshwater oxbow lake | Kanwar Lake (Kabar Tal), Begusarai |
| Only GI-tagged paan | Magahi Paan from Aurangabad / Gaya |
| Only GI-tagged makhana | Mithila Makhana (North Bihar) |
| Silk City of Bihar | Bhagalpur (Tussar Silk) |
| Yoga Capital of Bihar | Munger (Satyananda Yoga Ashram) |
| Lenin Nagari / Red City | Begusarai |
| Famous Waterfall in Bihar | Kakolat Waterfall, Nawada |
| Most Famous Hot Spring | Rajgir Hot Springs (Brahma Kund), Nalanda |

| | |
|-------------------------------|---|
| Hot Spring + Egg Boiling Site | Sita Kund, Munger |
| Tea Growing District | Kishanganj (only tea district in Bihar) |
| Bihar Formation Day | 22 March 1912 (Bihar Diwas) |
| Bihar Bifurcation — Jharkhand | 15 November 2000 |

★ **EXAM TIP:** This 'Firsts' table is a goldmine for BPSC. Every single row has been asked in BPSC at some point. Revise this table before any exam day. Pay special attention to: Highest density state = Bihar, Kanwar Lake = Asia's largest oxbow lake, Valmiki = only national park, Kaimur = largest sanctuary, Naji Dam = smallest sanctuary.

RAPID REVISION — Geographic Facts at a Glance

| Topic | Key Answer |
|---------------------------|--|
| State Animal | Gaur (Indian Bison) |
| State Bird | House Sparrow |
| State Tree | Peepal |
| State Flower | Marigold (Genda) |
| State Fish | Magur Fish |
| State Song writer | Ramdhari Singh Dinkar |
| Borders | N: Nepal S: Jharkhand E: West Bengal W: UP |
| Nepal Border Length | 601 km |
| Total Districts | 38 |
| Divisions | 9 |
| Highest Point | Someshwar Fort, 880 m, West Champaran |
| Bihar Divided by | Ganga River (into North and South Bihar) |
| Sorrow of Bihar | Kosi River |
| Lifeblood of Bihar | Ganga River |
| Largest Sanctuary | Kaimur (~1350 sq km) |
| Only NP | Valmiki NP (West Champaran) |
| Pyrite Resource | 95% of India's pyrite in Bihar (Amjhore, Rohtas) |
| GI Tag - Litchi | Shahi Litchi, Muzaffarpur |
| GI Tag - Mango | Jardalu Mango, Bhagalpur |
| GI Tag - Paan | Magahi Paan, Aurangabad/Gaya |
| GI Tag - Makhana | Mithila Makhana |
| #1 Masoor producer | Bihar |
| #2 Maize producer | Bihar |
| 70% Litchi production | Bihar |
| 80-90% Makhana production | Bihar |
| First Ramsar Site | Kanwar Lake, Begusarai (2020) |

| | |
|----------------------|---|
| Ramsar Sites in 2024 | Nagi Dam (Jamui), Nakti Dam (Jamui) |
| Ramsar Sites in 2025 | Gogabeel (Katihar), Udaipur Jheel (W Champaran), Gokul Jalashay (Buxar) |
| Bhagalpur known as | Silk City (Tussar Silk) |
| ECR Headquarters | Hajipur |
| CONFED established | 1983 (Bihar State Milk Cooperative Federation) |
| Bihar Formation | 22 March 1912 |
| Jharkhand carved out | 15 November 2000 |

— END OF BIHAR GEOGRAPHY NOTES —