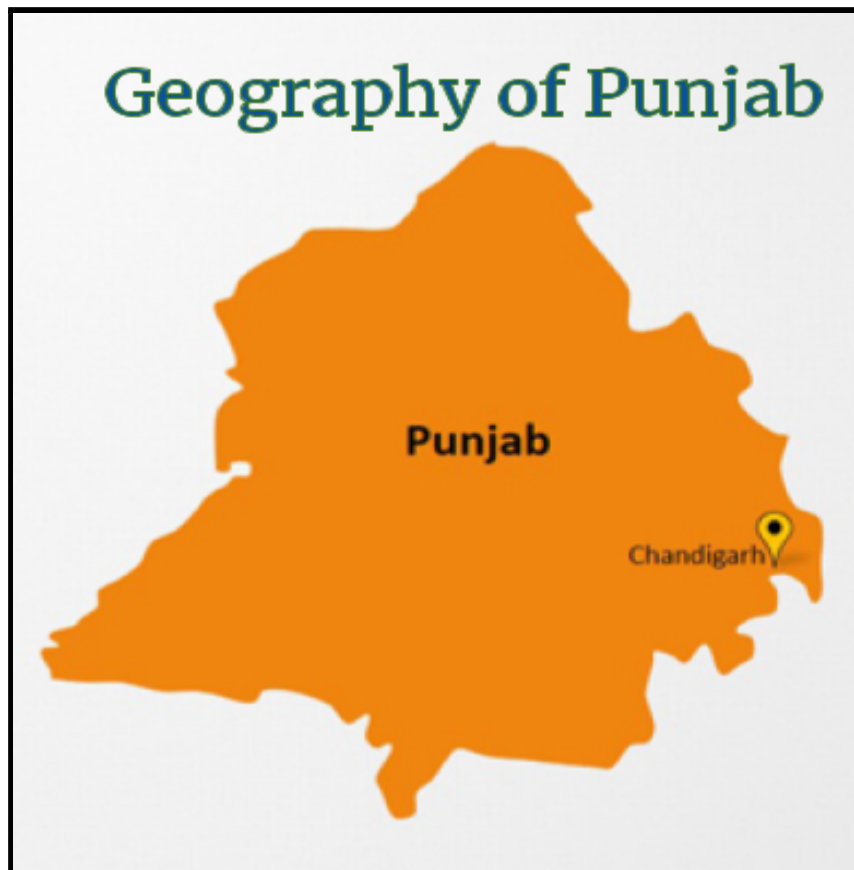


Punjab Civil Services



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Geography of PUNJAB

Introduction:

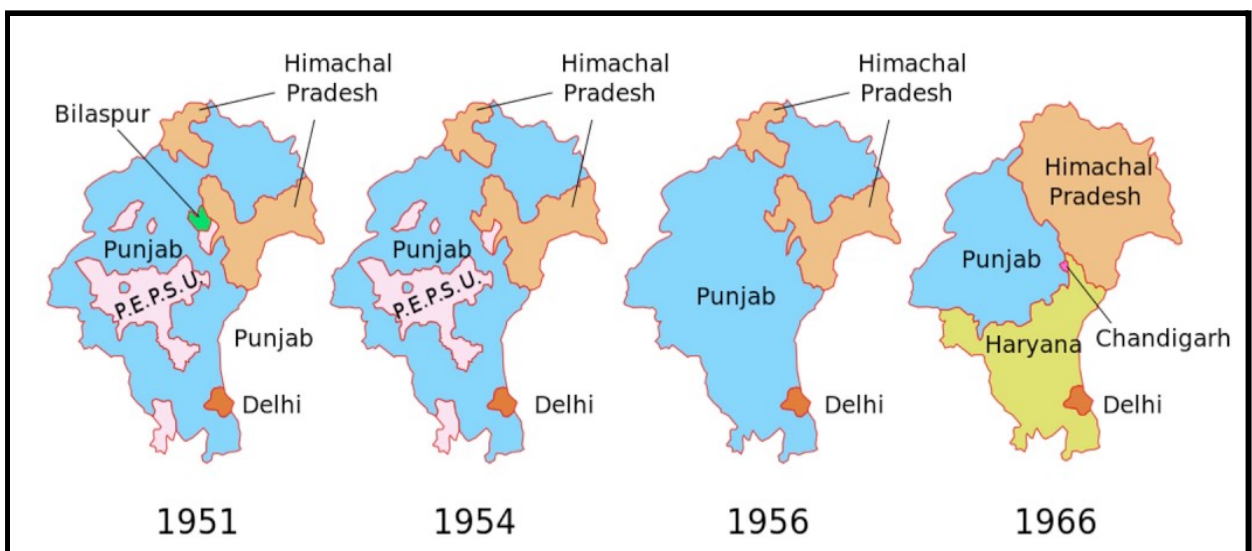
- The word **Punjab** is formed from two words - “*Panj*” and “*Aab*”.
- The word “*Panj*” means five and “*Aab*” means water.
- So, *Panj + Aab = “Land of five rivers”*

Satluj	Beas	Ravi	Chenab	Jhelum
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- *Punjab* is located in the North-Western part of India.
- Extensions:

Latitude	Longitude
29°30’N to 32°32’N	73°55’E to 76°50’E

- The distance between *North - South* is **335 kms.**
- The distance between *East - West* is **300 kms.**
- In Vedic times Seven rivers flowed in it, it was therefore called “*Sapta-Sindhu*”.
- When the Greeks captured it they called it “*Pentapotamia*”.
- When Mughals captured it, called it “*Punjab Lahore Province*”.
- The British gave it the name of “*Punjab*”.
- The present day Punjab came into existence on **1st Nov 1966**

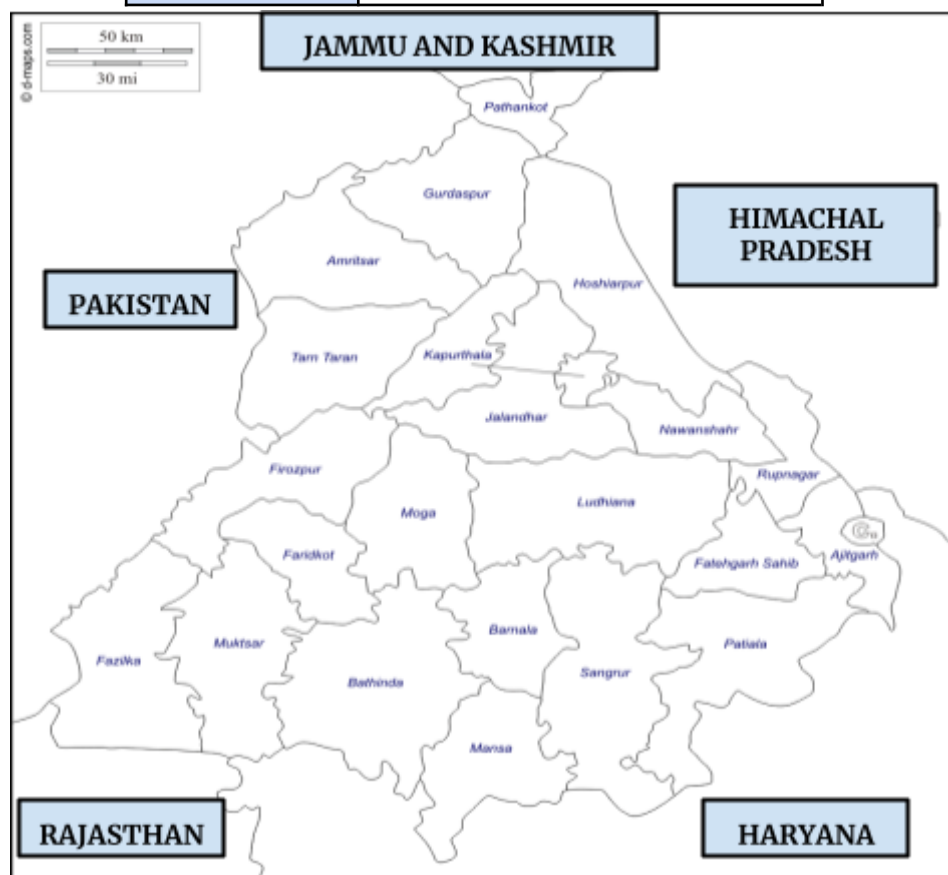


- Present day Punjab has an Area of **50,362 sq. kms.**
- It constitutes **1.5 %** of the total geographical area of India.
- Amongst 29 states of India, size wise Punjab comes at **18th** rank.

Greater Punjab (Before 1966)	Area : 15,0247 sq. kms.
Area of Punjab (After 1966)	Area : 50,362 sq. kms.
Area of Haryana (After 1966)	Area : 44,212 sq. kms.
Area of Himachal Pradesh (After 1966)	Area : 55,673 sq. kms.

- **Borders:** The state of Punjab is triangular in shape

North	Jammu and Kashmir
South	Haryana and Rajasthan
West	Pakistan
East	Himachal Pradesh



- Punjab is the *western component* of the “Great Northern Plains” or the “Satluj-Ganga plains” of India.

Physiography:

- Punjab is predominantly an alluvial plain but not a complete flat alluvial plain.
- The plain swiftly rises to form hills towards the *East* and *North-East* and it is uneven and desertic in the *South-West* due to the presence of large number of *sand dunes* and *sand flats*.
- The flood plains along the rivers are made of new alluvium deposited by the rivers themselves, while the upland plains above consists of old alluvium.
- The *interfluves*(*Doab*) (The region of higher land between two rivers that are in the same drainage system) are given names compounded from those of their confining streams:

Bist Doab	Between Beas & Satluj
Bari Doab	Between Beas & Ravi
Rachna Doab	Between Ravi & Chenab
Chaj Doab	Between Chenab & Jhelum

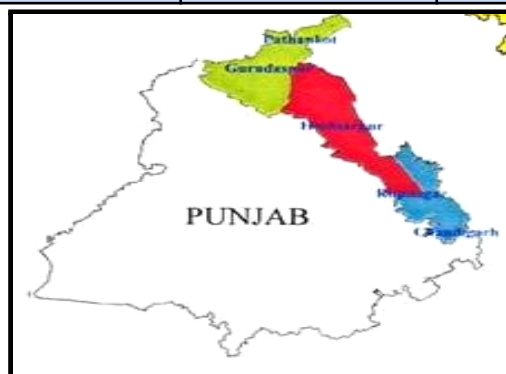
Landforms:

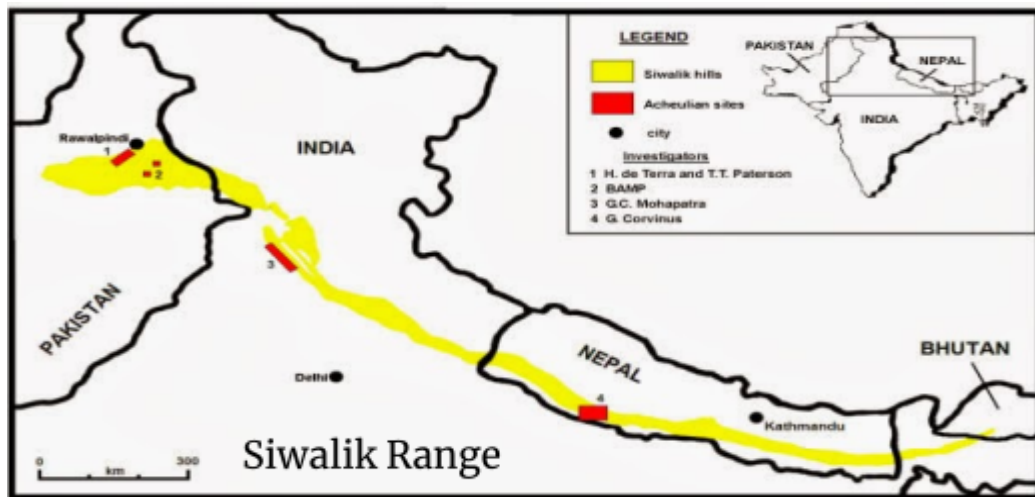
- The whole Punjab can be divided into the following LANDFORM types:
 1. The Shiwalik hills
 2. The Kandi
 3. The Alluvial Plains
 4. The Dune Studded region

1. The Shiwalik hills:

- The North-eastern region is covered by hill tracts, having width of 6 - 10 kms.
- The tract covers easternmost areas of five districts namely

Gurdaspur	Pathankot	Hoshiarpur	Nawanshahr	Rupnagar
------------------	------------------	-------------------	-------------------	-----------------





- The region is bordered by Shiwalik hills on Northwest, North and Northeast.
- The hill tracts are wide in Northwest and North, and narrow in the Northeast.
- It consists of conglomerates, clays and silts – all having characteristics of *fluvial* deposits (Sand and gravel deposited in the bed of a river) of rivers and streams.
- The low range of Shiwalik hills separates the Himalayas from the plains.
- Their height ranges from 400–700 metres above sea level.
- The slope of the hills is gentler towards the Punjab plain than the side that faces the Himachal Pradesh.

2. The kandi:

- The Kandi region spanning from Kashmir region, Punjab and Haryana is the transitional zone between the Shiwaliks and the plains.
- Kandi area of Punjab is a sub-mountainous zone that stretches in a thin belt along the northeastern border of the state of Punjab, and comprises the Punjab Siwaliks and strip of undulating land below the hills in the districts of Gurdaspur, Hoshiarpur, Fatehgarh Sahib and Ropar, with a length and width of 161 km and 10 km, respectively.
- The Shiwalik hills on their west and to their east in Rupnagar district, degrade into a dissected, rolling and coarse grained material which forms upland plain called as the “Kandi”.
- The kandi tract lies to the east of Pathankot–Hoshiarpur–Ropar–Chandigarh road with gaps formed by the floodplains of rivers Beas and Satluj.
- The region is badly dissected by numerous seasonal and ephemeral (short lived) streams locally known as “Chos”.

- Due to the deposition of rough, porous and coarse grained deposits numerous chos disappear without joining into the mainstream river.
- In terms of destruction caused by chos, *Hoshiarpur district is the worst affected.*

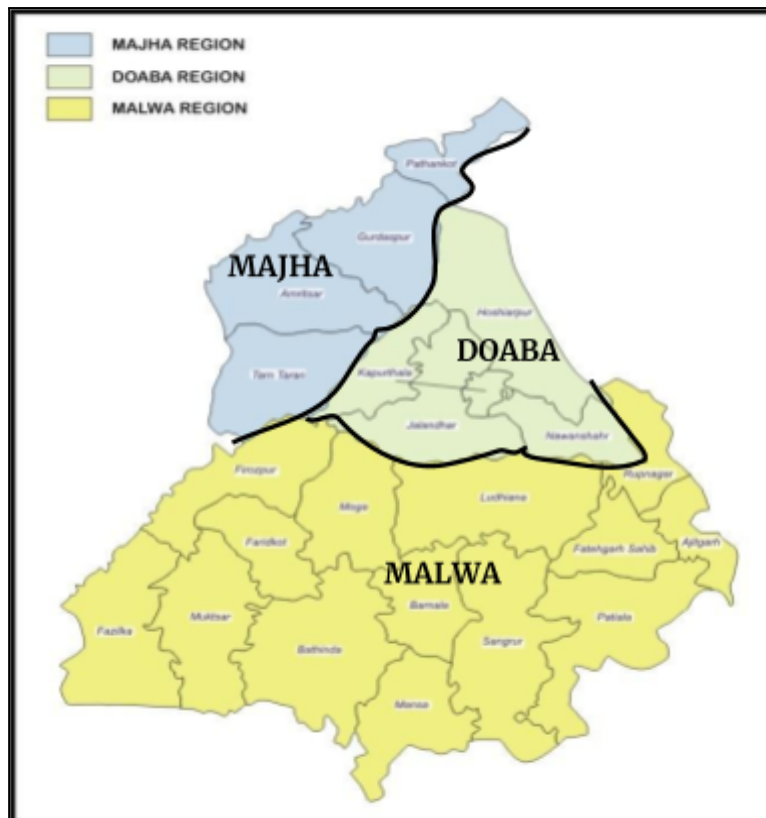


- It extends along the entire Shiwalik hills under different names such as *Kandi*, *Ghar* and *Changar*.
- In the region state tubewells have been installed to help the poor farmers as the water table is quite deep making it difficult for small farmers to install their own tubewells.

3. The Alluvial Plains:

- The plain is part of Indo-Gangetic plain and covers **70%** area of Punjab.
- This plain lies between **180–300** meters above sea level.
- Its slope is higher near the Shiwaliks and slopes away from them.
- These plains are made of **old alluvium** formed by deposition brought by the major rivers descending from the Himalayas.
- The state of Punjab is divided into **3 major regions**:

REGION	AREA	LANGUAGE
Majha (Upper Bari Doab)	Between Ravi & Beas	Majhi
Malwa	South of Sutlej	Malwai
Doaba (Bist jalandhar Doab)	Between Sutlej & Beas	Doabi



- **Majha (Upper Bari Doab):**

- This region mainly covers the area between Beas and Ravi rivers. The area north of Sutlej, after the confluence of Beas and Sutlej at Harike extending upto River Ravi is a part of Majha.
- This area was in the middle of historic Punjab region and hence the name Majha, meaning “in the middle/centre”.
- Also known as Bari Doab.
- Majha is spread over 4 Districts.

Majha (4 Districts)	Gurdaspur, Pathankot, Amritsar and Tarn Taran
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- **Malwa Plains:**

- The region between river Sutlej in the north and river Ghaggar in the south is called Malwa.
- It covers the largest part of Punjab (60–70% area of Punjab).
- This region is spread over 14 Districts.

Malwa (14 Districts)	Barnala, Bathinda, Fatehgarh Sahib, Faridkot, Fazilka, Firozpur, Ludhiana, Mansa, Moga, Mohali, Muktsar, Patiala, Ropar, Sangrur.
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- **Doaba (Bist Jalandhar Doab):**

- Doaba word is composed of two words - “Do” means “two” and “Aab” means “water”, i.e. “The land between the two rivers”.
- Doaba region of Punjab is triangular area between rivers Satluj and Beas.
- The region has very fertile and mature soils.
- The area is also known as Bist Doab or Jalandhar/Jullundhar Doab.
- Doaba region is spread over 4 districts.

<i>Doaba (4 Districts)</i>	Jalandhar, Kapurthala, Hoshiarpur, Nawanshahr
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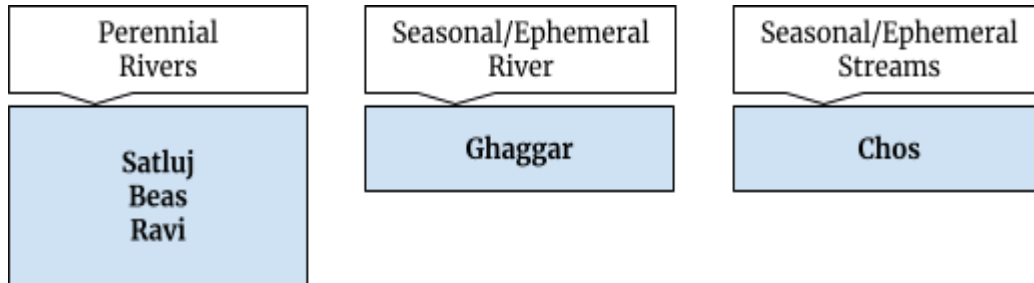
4. The Dune Studded Region:

- The South-western districts of Punjab having semi-arid climate bordering with the Thar desert of Rajasthan are studded with sand dunes.
- The whole region is predominantly plain but there are frequent occurrences of sand dunes and sand ridges.
- They are assumed to be developed due to the braiding action of Satluj and Ghaggar rivers and their tributaries.
- The local name for these dunes is “Tibbas”.
- Most of the dunes have been stabilized or cleared for cultivation.

<i>Districts</i>	Bathinda, Faridkot, Ferozepur, Mansa, Muktsar, Sangrur, Patiala
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Drainage System of Punjab

- Punjab is a rich state in matters of water resources.
- Punjab's drainage system comprises of 3 Perennial Rivers, Seasonal or Ephemeral river and Seasonal streams.



Ancient Names of the Rivers

Satluj	Satadree
Beas	Vipash
Ravi	Parushni
Chenab	Asikni
Jhelum	Vitasta
Indus	Sindhu
Sarasvati	Sarusti

Perennial Rivers (Permanent Rivers):

- *Perennial rivers* are those rivers which exhibit a continuous flow of water throughout the year.
- The drainage system of Punjab comprises of **3 Perennial rivers**:

1. Sutlej River:

- It is the longest among the five rivers flowing through Punjab.
- It is the largest among the five rivers of Himachal Pradesh.
- The river Sutlej is an *antecedent* drainage channel.

{ The Rivers that existed before the upheaval of the Himalayas and cut their courses southward by making gorges in the mountains are known as the *antecedent rivers*. }

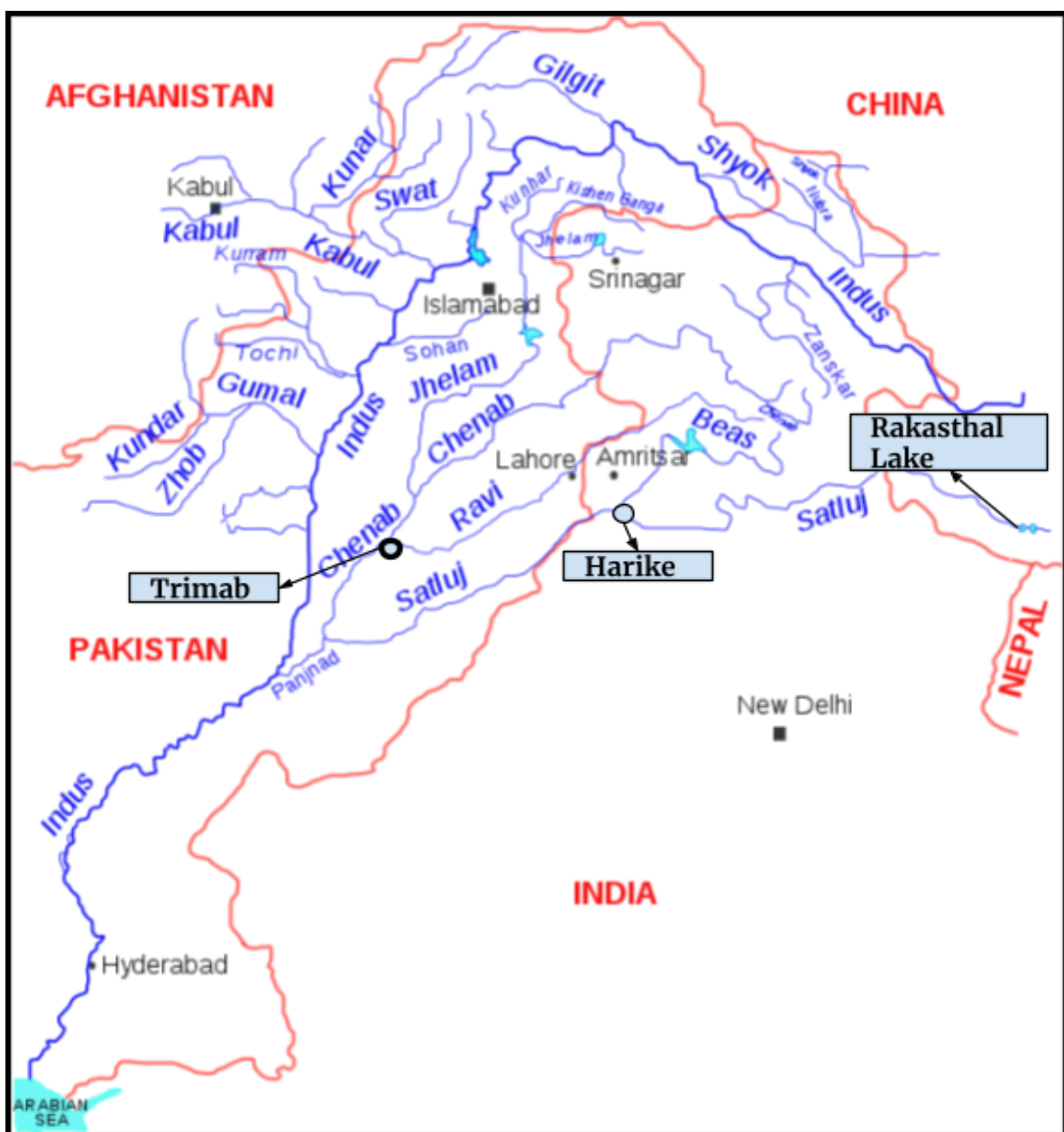


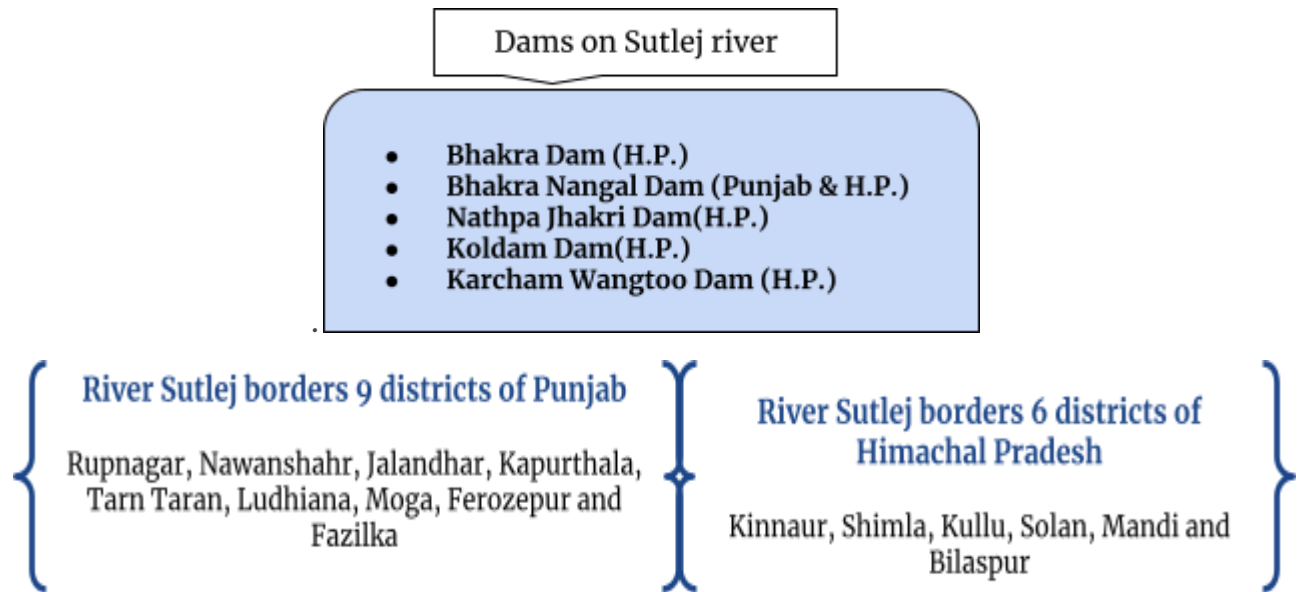
- The river Sutlej **originates** at an altitude of 4630 meters in the “Rakasthal” Lake near Mansarovar in Tibet under the Tibetan name “Langqên Zangbo”(Elephant River).
- The river flows **West-Northwest** for about 260 kilometres along the slopes of Kailash mountain to “Shipki La” pass, entering India in Himachal Pradesh.
- The river bends **Southwest** crossing through Himachal Pradesh, it enters Bilaspur district of Himachal Pradesh.
- The river cuts across the Naina Devi range of hills at *Bhakra*, where **Bhakra dam** has been built.

Bhakra Dam

- Concrete gravity dam on the river Sutlej located in Bilaspur, Himachal Pradesh.
- The dam forms the Gobind Sagar reservoir.
- It is the “Third Largest Reservoir” in India.
- It is the “Second Highest Dam” in the world.
- Described as “New Temple of Resurgent India” by Jawaharlal Nehru, the first prime minister of India,
- Nangal Dam is another dam in Punjab downstream of Bhakra Dam. However, sometimes both the dams together are called **Bhakra-Nangal Dam** though they are two separate dams.

- Now it enters Punjab plains near Rupnagar district.
- After flowing downstream for 160 kms the river joins Beas at *Harike* in Tarn Taran district.
- From there it follows **Southwesterly** course to meet joint course of *Ravi*, *Chenab* and *Jhelum* (**Trimab**-three rivers).
- Further the combined meeting point of *Sutlej*-*Beas* and the Trimab (*Ravi*, *Chenab* and *Jhelum*) is called the “**Panjnad**” (Five rivers).
- This collective drainage joins the *Indus* river a few kms above Mithankot.
- It marks the **international boundary** between *India* and *Pakistan* from Ferozpur to Fazilka for about 120 kms.

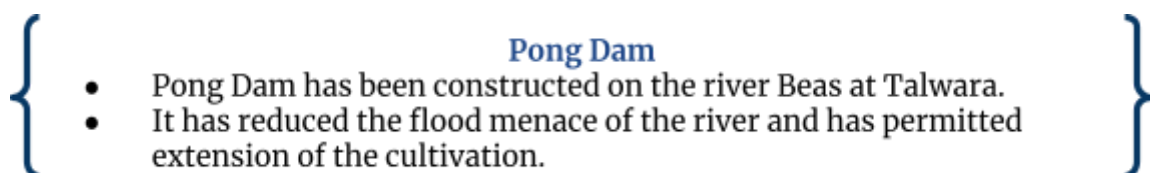




Left Bank Tributaries	Right bank Tributaries
Tirung Gayathing Baspa Duling Soldang	Spiti Ropa Taiti Kashang Mulgaon Yula Wanger Throng Ruppi

2. Beas River:

- The Beas river **originates** from the *Beas kund* near the *Rohtang Pass* at a height of 4,062 m above the sea level on the southern end of *Pir Panjal Range* close to the source of Ravi.
- It crosses the *Dhauladhar range* and takes a south-westerly direction entering Punjab plains through Hoshiarpur district near Talwara where many chos and khads join river Beas.



- Near Mirthal is is joined by the *Chakki stream*.

- After flowing 150 km, separating the Upper Bari Doab from the Bist Doab, the *Beas* river meets the *Satluj* river at “*Harike*” in Tarn Taran district.
- It is a comparatively small river which is only **460 km** long but lies entirely within the Indian territory.
- The famous **Manikaran Sahib Gurudwara** is located on its tributary “*Parbati*”.
- **Kandi Canal** and **Mukerian Hydel channel** takes off from the *Beas* river near *Talwara*.

Left Bank Tributaries	Right bank Tributaries
Parbati Suketri	Uhl Lambadug Gaj Chakki

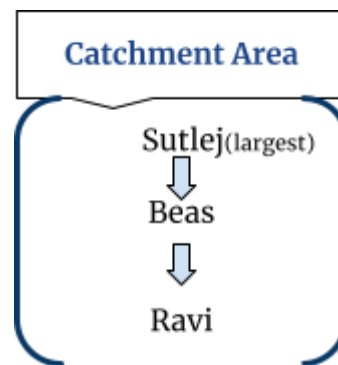
3. Ravi River:

- The Ravi river **originates** from the *Kullu hills* near *Rohtang pass* in Himachal Pradesh.
- It drains the area between the *Pir Panjal* and the *Dhauladhar range*.
- After crossin Chamba, it takes a south-westerly turn and cuts a deep gorge in the Dhauladhar range.
- It *enters Punjab* near **Madhopur**, where headworks of *Upper Bari Doab canal system* is located.
- It flows towards South-west and runs along the **Indo-Pak boundary**, along *Pathankot*, *Gurdaspur* and *Amritsar* districts, before entering Pakistan.
- It joins the river *Chenab* (actually the combined *Jhelum* and *Chenab*) a little above **Rangpur** in *West Punjab* (Pakistan).
- The place where the river Ravi joins the combined *Jhelum-Chenab* course is known as **Trimab** (*Three rivers*).

Tributaries of Ravi
Ujh Jalalia Nadi Saki Kiran Nala

Thein Dam (Ranjit Sagar Dam)
It has been constructed on river Ravi at Madhopur to for Hydroelectricity

Shahpur Kandi Project
Downstream of Thein Dam, Shahpur Kandi Project is being constructed to produce hydroelectricity and to get water for irrigation in Jammu & Kashmir



Seasonal River (Ephemeral River):

Ghaggar:

- It **originates** from the lower slopes of himalayas in the Solan district of Himachal Pradesh.
- It flows during the *monsoon rains*.
- It passes through Pinjore and Morni hills of *Haryana*, *Chandigarh* and southern parts of *Patiala*, *Sangrur* and *Mansa*.
- The river is believed to be also known as “*Hakra*” which got lost near Hanumangarh in Rajasthan.
- It is believed that river *Ghaggar* was fed with large quantities of water received from rivers *Satluj* and River *Yamuna* from the *northeast* and *east* respectively. But with the physiographic , climatic and tectonic changes that occurred with time shifted to the courses of *satluj* towards *northwest* and *yamuna* towards *south* thereby leaving river *Ghaggar* dry.
- It is also known as “*Defunct Sarasvati*”.

Seasonal Streams(Chos):

- These seasonal streams are located immediately to the *south* of siwalik hills.
- They dissect their way through these foothill zones for few kms before they exhaust themselves dry or fall in some nearby river.
- **Hoshiarpur district** is *most affected* with these chos.
- These seasonal streams or chos have been main agents of *soil erosion*.
- They are now being channelised and diverted by building embankments, reinforced by available boulders and stones.
- Also used to store water for irrigation during the dry seasons.

Climate of Punjab

- The *subtropical* continental location of Punjab reflects its climatic conditions ranging from extremely hot and dry during the summers to fairly cold and dry during the winters.
- Along with the complete contrast of hot and cold climate , *monsoons* during the summers and *western disturbances* during the winters are also a part of this region's climatic condition.
- Due to the subtropical continental location of Punjab ,it has “*Sub-tropical Monsoon type*” of climate.

- **Seasons:**

- There are **3 Well Defined Seasons** in Punjab:

Hot and dry season (mid-April to end of June)
--

Rainy Season (from early July to end of September)

Cold Season (early december to end of February)
--

- There are **2 Transitional Seasons** in Punjab:

Autumn (oct to end of November)

Spring(march to mid-April)

1. **Hot and dry season** (mid-April to end of June):

- Punjab experiences scorching heat during this period due to the shift of the sun towards the *tropic of cancer*.
- During *May* and *June* a scorching hot and dry westerly wind blows , called “**Loo**” which increases the temperature and restricts the outdoor movement during the day.
- During this time a *warm air mass* coming from the South-west Asia ,when passes over the low pressure Punjab region becomes turbulent giving rise to “**Dust Storms**”. They are caused by intense low pressure at sub-regional level or by the movement of dusty winds from the Rajasthan desert. The frequency of these dust storms is higher in southwest Punjab. “**Multan**” is notorious for hot weather and dust storms.
- By the end of June Punjab becomes a region of very low pressure.
- To break this spell of intense heat, monsoons arrive and the Rainy season begins.

2. **Rainy Season** (from early July to end of September):

- The role of monsoons is very important for Punjab as it marks the start of agricultural year with the sowing of *Kharif crops*.
- The dry and brown landscapes turns into greenery everywhere.
- Punjab receives rainfall from both the branches of monsoon i.e. “*Arabian sea branch*” and “*Bay of Bengal branch*”.

3. **Cold Season** (early december to end of February)

- The cold season onsets in Punjab mainly in mid- November.
- The months of December and January are the *coldest* in the region with mean temperature below 21°C.
- Sometimes the temperature at night drops below freezing point.
- *Excessive cold* in Punjab is due to the arrival of cold winds from the *Caspian Sea* and *Turkmenistan*, which brings along with it the frost and fog over the Punjab.
- This season experiences small rainfall from the arrival of temperate cyclones from the Mediterranean Sea. Although small in proportions, these winter showers is critical for the success of *Rabi crops*.
- The Northwestern parts of Punjab receives more of these winters showers than the eastern parts.

4. **Autumn** (oct to end of November):

- A continuous change in weather takes places with the withdrawal of monsoon till the end of November.
- The temperature is generally high during the day and pleasant during the night with transitional phase of dry and fair conditions.

5. **Spring** (march to mid-April):

- The temperature rises gradually during the spring season.
 - But abruptly after the onset of hot season in the beginning of April.
 - Due to high variability in terms of rainfall, Punjab may experience occasional *hail storms* during the *March* and *April* generated by regional turbulent atmospheric conditions defined by a high surface temperature and low upper atmosphere temperature. These storms do a lot of *damage* to *standing crops* especially wheat, gram and vegetables.
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Forests in Punjab

- The forests of Punjab present a kaleidoscopic spectrum of diverse vegetation types varying from the pine forests to thorn forests of deserts as per variations of altitude and climate.

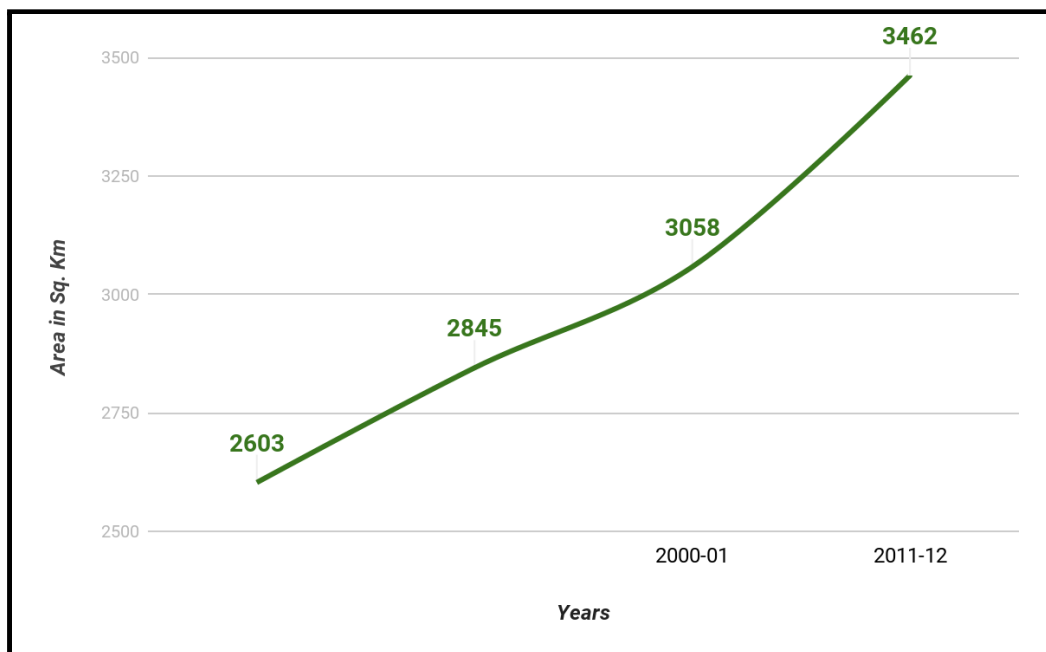
Recorded Forest Cover

Recorded forest area in state	3,463 sq km
state's geographical area.	6.87%

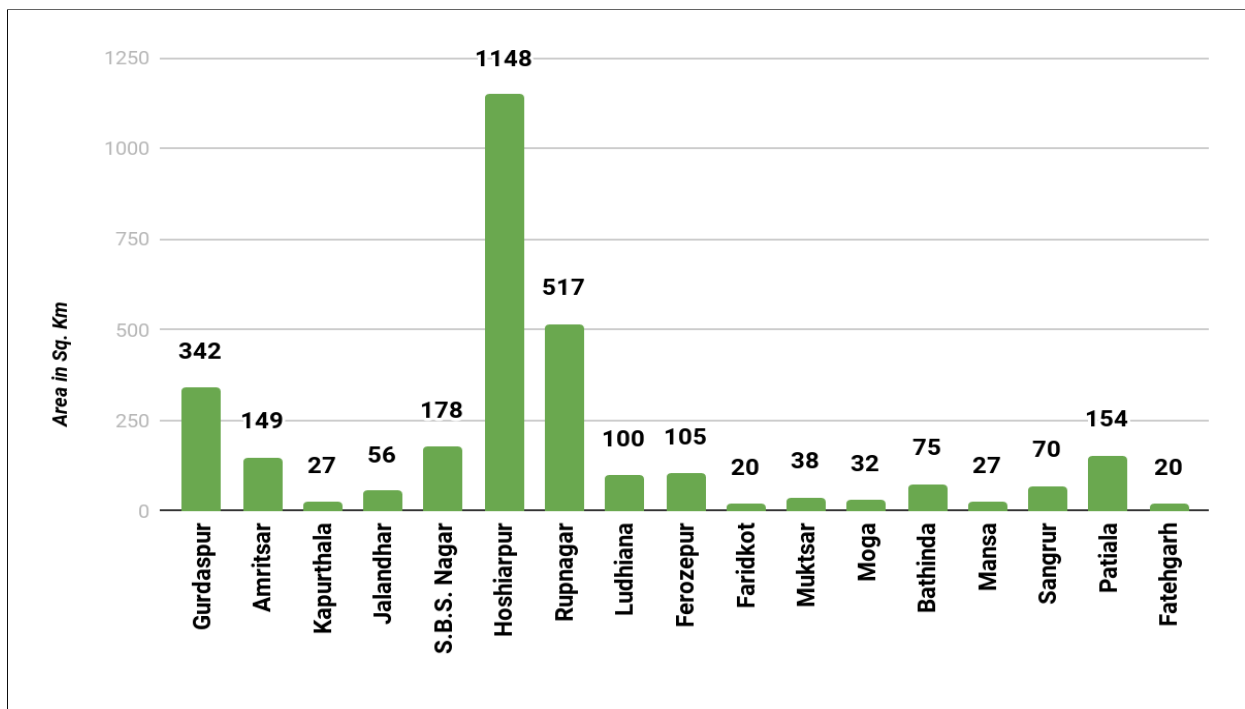
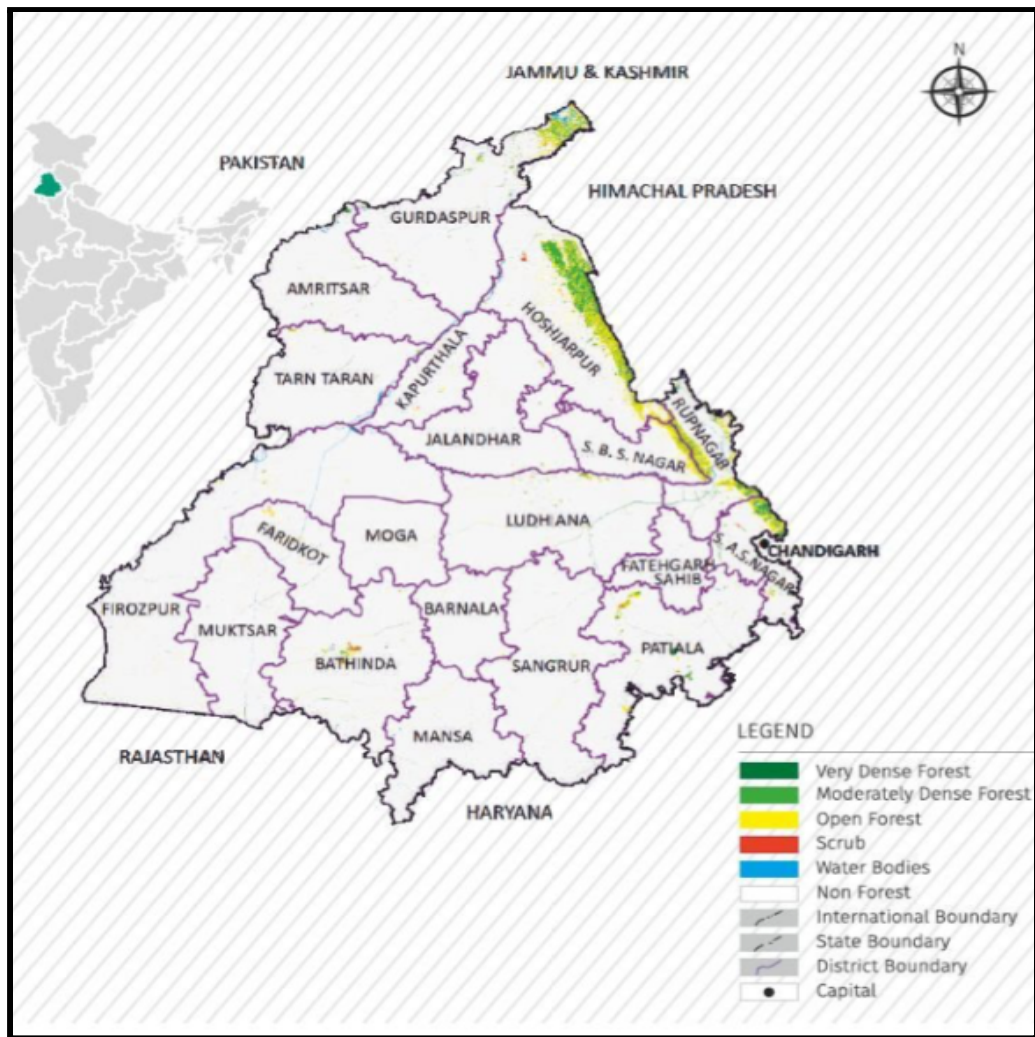
Forest Classification

Reserved	1.43%
Protected	36.87%
Unclassified	61.70%

Trend in recorded forest area in Punjab



District wise recorded forest area in Punjab



Forests of Punjab as per Champion and Seth classification

Northern Dry Deciduous Mixed Forests:

- Vegetation is predominantly xerophytic with preponderance of species like Acacia catechu, A. niloca, A. leucophloea and Anogeissus latifolia with the scrub of Carissa Opaca, Grevia opva, Adhatoda vasica, etc.

Dry Deciduous Scrub Forests:

- These are mostly found in Kandi tract with predominant species like Acacia Catechu, Dalbergia sissoo, Bombax ceiba, Emblica Officinalis, Launea grandis, Toona ciliata, Cassia Fistula, etc.

Khair, Sissoo forests in foothills, Bella and Mand areas:

- These forests are mostly man made by planning in the foothills of Bela and Mand areas. Mostly Khair, Sissoo And Eucalyptus hybrid have been planted in these areas. Groves of mango are found in these forests.

Shivalik Chir Pine Forests:

- Pinus roxburghii is the main species found in these forests at an elevation of 850mand above. Associated species are Terminalia alata, T. bellerica, T. chebula, Anogeissus latifolia, Emblica officinalis, Cassia fistula, etc.

Dry Deciduous Bamboo Forests:

- These forests are found in Dasuya Forest Division only. The main species found in these forests is Dendrocalamus strictus. The Other associates are Lannea grandis, Diospyros montana, Butea monosperma, Holoptelea integrifolia and Cassia fistula.

Forest and Tree Cover in Punjab, 2011

Category	Area (in sq.km)	% of TGA
Tree Cover	1699	3.37
Forest Cover	1764	3.50
Tree and Forest Cover	3463	6.87

Major Forest Areas

Shivalik Forest:

- comprising sub-mountainous zone and undulating land below the hills in the districts of Gurdaspur, Hoshiarpur, Pathankot, S.B.S Nagar and Ropar. This area constitutes about 77% percent of the total forest area in the state.

Bir Forests:

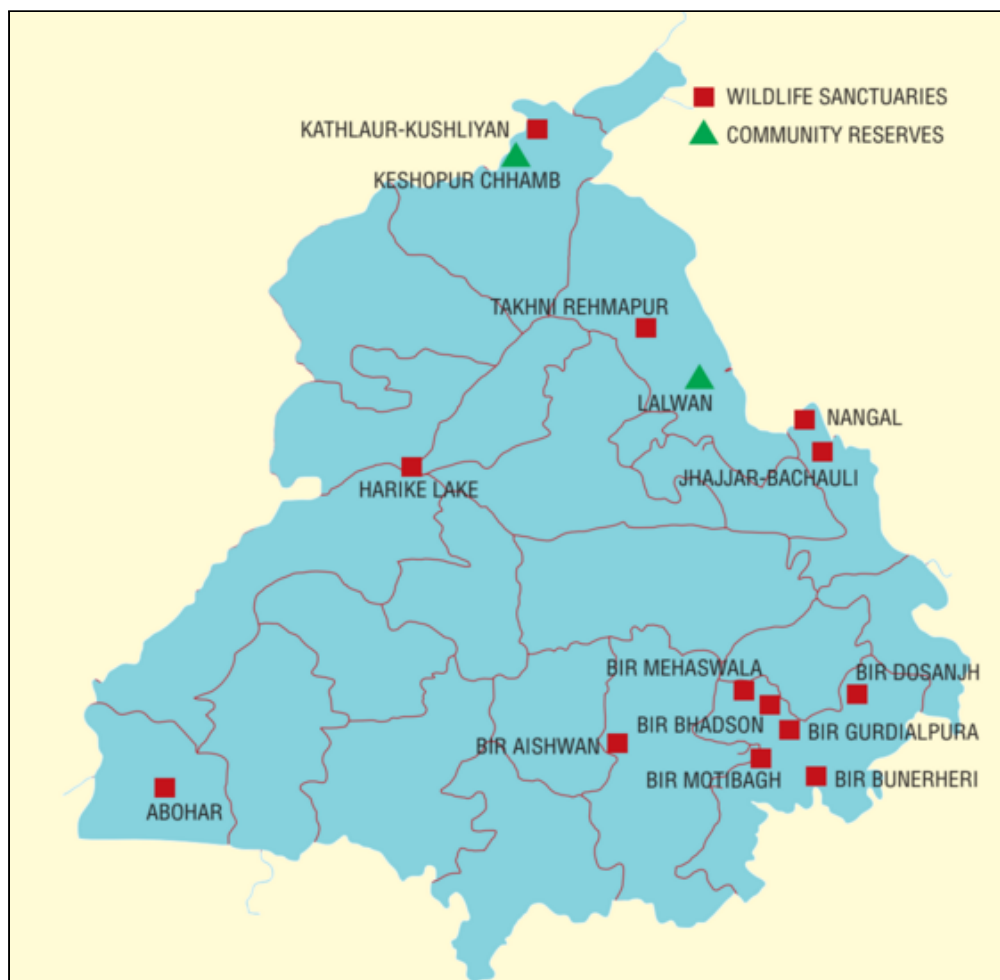
- Patiala and Sangrur districts

Mand Forest:

- Primarily around wetlands in district Tarn Taran, Kapurthala and Rupnagar

Wildlife Protected Areas

- Total Area:** 34536.13 Hectare
- Wildlife Sanctuaries:** 13
- Zoological Parks:** 2
- Deer Parks:** 3
- Community Reserves:** 2 (first in India)



Category	Name of Protected Area	Area (ha)	Year of Notification
Wildlife Sanctuaries	Bir Moti Bagh Wildlife Sanctuary, Patiala	654.00	1952
	Bir Bhunerheri Wildlife Sanctuary, Patiala	661.66	1952
	Bir Dosanjh Wildlife Sanctuary, Patiala	517.59	1952
	Bir Bhadson Wildlife Sanctuary, Patiala	1022.63	1952
	Bir Mehas Wildlife Sanctuary, Patiala	123.43	1952
	Bir Gurdialpura Wildlife Sanctuary	620.53	1989 & 2003
	Bir Aishwan Wildlife Sanctuary, Sangrur	264.40	1952
	Harike Wildlife Sanctuary, Ferozepur, Tarn Taran, Kapurthala	8600.00	1992 & 1999
	Takhni-Rehmapur Wildlife Sanctuary, Hoshiarpur	382.00	1993 & 1999
	Abohar Wildlife Sanctuary, Ferozepur	18650.00	1993 & 2000
	Jhajjar Bacholi Wildlife Sanctuary, Rupnagar	116.00	1998
	Kathlaur-Kaushlian Wildlife Sanctuary, Gurdaspur	758.40	2007
	Nangal Wildlife Sanctuary, Rupnagar	289.69	2009
	Total Area (A)	32660.34	
Zoological & Deer Parks	Mohindra Chaudhary Zoological Park, Mohali	202.00	1977
	Tiger Safari, Ludhiana	35.00	1977
	Deer Park, Nilon, Ludhiana	4.00	-
	Deer Park, Bir Moti Bagh, Patiala	8.00	-
	Deer Park, Bir Talab, Bathinda	20.00	-
	Total Area (B)	269.00	
Community Reserves	Lalwan Community Reserve, Hoshiarpur	1266.80	2007
	Keshopur Chamb Community Reserve, Gurdaspur	340.00	2007
	Total Area (C)	1606.80	
	Grand Total	34536.13	

Wildlife Sanctuaries	Conservation reserves	Community reserves
<p>Wildlife sanctuary is an area which is of adequate ecological, faunal, floral, geomorphological, natural or zoological significance. It is declared for the purpose of protecting, propagating or developing wildlife or its environment.. Certain rights of the people living inside could be permitted.</p>	<p>Conservation reserves can be declared by the state government, particularly the areas adjacent to national parks and sanctuaries and those areas which link one protected area with another. Such declaration should be made after consulting with the local communities. Conservation reserve are declared for the purpose of protecting landscapes, seascapes, flora and fauna and their habitat. The rights of people living inside a conservation reserve are not affected.</p>	<p>Community reserves can be declared by the state government in any private or community land, not comprised within the national park, sanctuary or a conservation reserve, where an individual or community has volunteered to conserve wildlife and its habitat. Community reserves are declared for the purpose of protecting fauna, flora and traditional or cultural conservation values and practices. As in the case of a conservation reserve, the rights of people living inside a community reserve are not affected.</p>

Major Wildlife

Wild animals:

- Sambhar, Nilgai, Blackbuck, Wild boar, Barking deer, Hog deer, Jungle cat, Jackal, Rhesus monkey, Hare, Fishing cat, Indian squirrel, Mongoose, Smooth Indian oer, Cobra, Indian pangolin, Python, Rat snake, Monitor lizard, Garden lizard, Chital ,Indian porcupine and few sighting of Leopard also reported in Shivalik hills areas adjoining to Himachal Pradesh.

Birds:

- Black Partridge, Grey Partridge, Brahminy Myna, Common Quail, Peafowl, Rose Ringed Parakeet, Jungle Babbler, Spotted owlet, Dove, Bar headed goose, Common pochard, White eyed pochard, Fishing eagle, Indian skimmer, Blue winged teal, Red munia, Sykes's nightjar, Whistling teal, Red jungle fowl, Coot, Green Parakeet, Indian Cormorant, Indian Robin, Red Vented Bulbul, White Breasted kingfisher, White rumped vulture, Shikra, Brahminy Duck, Gadwall, Pintail, Jack snipe, Fantail Snipe, Mallard & Northern shoveler.

Factors affecting forest & wildlife in Punjab

- Increased urbanization
 - Change in land use pattern
 - Degradation of natural habitat & pollution
 - Increased demand of Timber
 - Deforestation
 - Invasive alien species especially *Lantana camara*, *Parthenium hysterophorus* & *Eichhornia crassipes*
 - Poaching & illegal trade of wildlife products
 - Forest fire and encroachments
 - Soil erosion in shivaliks tracts
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Wetlands of Punjab:

- **Ramsar Convention** on Wetlands define wetlands as: "*areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres*".
- Punjab has **12 Natural wetlands** and **9 manmade wetlands**.
- Out of these 3 have been declared as Ramsar site - *Harike, Kanjli* and *Ropar* and 2 other declared as National wetlands - *Ranjit Sagar* and *Nangal*.

Punjab wetlands are of following types:

Wetlands of International importance (Ramsar sites)
Wetlands of National importance
State Wetlands
Other Identified Wetlands

Wetlands of International importance (Ramsar sites):

There are *three* Ramsar sites in Punjab:

1. Harike Wetland(Hari-ke-Pattan):

- It is the largest wetland in northern India in the border of Tarn Taran Sahib district and Ferozepur district of the Punjab
- The wetland was formed in 1953 by constructing the headworks across confluence of the Beas and Sutlej rivers.
- the recognition was accorded to this wetland in 1990, by the Ramsar Convention, as one of the Ramsar sites in India, for conservation, development and preservation of the ecosystem.
- This man-made, riverine, lacustrine wetland spreads into the three districts of Tarn Taran Sahib, Ferozepur and Kapurthala in Punjab and covers an area of 4100 ha.

2. Kanjli Wetland:

- Kanjli Wetland is a man made wetland located in the Kapurthala district of Punjab.
- It was created in 1870 by constructing the headworks across the perennial Bien River, a tributary of the Beas River to provide irrigation facilities to the hinterland.
- It was recognized internationally by the Ramsar Convention in 2002 by designating the Kanjli Lake in the List of Wetlands of International Importance.
- It has a socio-religious significance due to its association with Guru Nanak Dev Ji.

3. Ropar Wetland:

- Ropar Wetland, also named Ropar Lake, is a man-made freshwater riverine and lacustrine wetland
- The wetland developed consequent to the construction of a regulator on the Sutlej River in 1887.
- It was declared as a wetland of National importance in 1996 and consequently it became a Ramsar site in 2002.

Wetlands of National importance:

There are *two* National wetlands in Punjab:

1. Ranjit Sagar Wetland:

- It is a manmade, riverine and lacustrine wetland with freshwater ecology.
- It is located on the river Ravi, upstream of Madhopur Headworks in GURDASPUR district of Punjab.
- It was declared as a wetland of National importance in 2006.

2. Nangal Wetland:

- It forms a long artificial lake constructed over river Sutlej under the name of Nangal Dam about 13kms downstream of Bhakra dam.
- It was declared as wetland of National importance in 2008.
- This manmade wetland was declared as a wildlife sanctuary in 2009.
- Nangal in the national directory of wetlands because of its avian diversity.

State Wetlands:

There are **five** state wetlands:

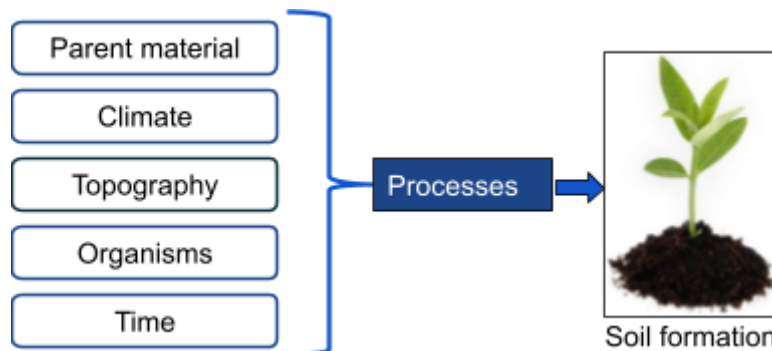
Dholbaha Reservoir	Manmade wetland	Hoshiarpur
Keshopur-Miani wetland	Natural wetland	Gurdaspur
Kahnuwan Chhamb wetland	Natural wetland	Gurdaspur
Jastarwal wetland	Natural wetland	Amritsar
Mand-Bharthala wetland	Natural wetland	Nawanshahr

Other Identified Wetlands:

Hussainiwala Reservoir	Manmade wetland	Ferozepur
Maili dam	Manmade wetland	Hoshiarpur
Mangrowal dam	Manmade wetland	Hoshiarpur
Aliwali Kotli	Natural wetland	Amritsar
Bareta	Natural wetland	Mansa
Sital Sagar	Natural wetland	Hoshiarpur
Narayangarh Terkiana	Natural wetland	Hoshiarpur
Rababsar	Natural wetland	Kapurthala
Lobana	Natural wetland	Patiala
Gobind Sagar Khokhar	Natural wetland	Sangrur
Lehal Kalan	Natural wetland	Sangrur

Soils of Punjab

- Soil is a mixture of organic matter, minerals, gases, liquids, and organisms that together support life. The Earth's body of soil is the pedosphere, which has four important functions: it is a medium for plant growth; it is a means of water storage, supply and purification; it is a modifier of Earth's atmosphere; it is a habitat for organisms; all of which, in turn, modify the soil.
- The word Soil originated from the latin word “Solum” which means “floor”.



- On the basis of texture, climate, topography and denudation process, the soils of Punjab can be classified in the following major types:

Flood plain or Bet soil	Loamy	Sandy	Desert	Kandi	Sierozem	Forest	Sodic and Saline
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Flood plain or Bet soils:

- These are *Khadar soils* of the periodically flooded or old flood plain areas of various rivers, streams, chos of the state.
- They are **found** in the form of elongated belts on the both sides of the river channel such as those of *Sutlej, Ravi, Beas* and *Ghaggar* and also found along the *west banks of Sutlej* from Ropar to Fazilka towns in South-west and in Zira and Moga Tehsils.
- The soil is **Pale to yellow** brown in colour.
- The soil is well drained, very deep and vary in texture.
- These generally have a low content of organic matter in them.
- These soils are suitable for the cultivation of *paddy, wheat, sugarcane* and *vegetables*.

Loamy soils:

- It is the most important, fertile and productive soil group of the Punjab state.
 - These are predominantly **found** in *Nawanshahr district, Nakodar tehsil of Jalandhar district, Phagwara tehsil* and central parts of *Kapurthala district*.
 - In *Malwa plains*, loamy soil have a large coverage in *Patiala, Nabha, Sangrur, Moga, Bathinda and Muktsar districts*.
 - This soil has **25%** coverage in state of Punjab.
 - The soil becomes *partly salt affected or sodic* towards north-west Amritsar and south-west Batala tehsil of Gurdaspur district due to flooding by chos & rivulets and excessive irrigation.
 - These soils are intensively cultivated for **wheat** and **paddy**.
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Sandy soils:

- These are arid soils **found** in south-western and south central Punjab covering the districts of *Bathinda, Mansa, Southern parts of Ferozepur and Muktsar districts*, large parts of *Sangrur*, south central parts of *Patiala district* and some patches of *Ludhiana district*.
 - These are **yellow to grey** in colour.
 - The **grey colour** reflects the *deficiency of organic matter*.
 - It is **poor** in *Nitrogen, Phosphorus and Potassium*.
 - The pH value ranges from **7.8 to 8.5**
 - These soils are *sandy loam to silt* in texture.
 - These have *low to medium fertility* but by artificial irrigation technology
 - These are capable of producing **cotton, citrus, oilseeds, wheat** and **fodder crops**.
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Desert soils:

- These soils are prevalent in the **arid zones** of *Abohar and Zira tehsils of Ferozepur district, Muktsar, Bathinda, Mansa*, and some patches in *Sangrur and Ludhiana districts*.
- These soils developed under *arid and hot climatic conditions* cover **11%** of the total area of Punjab, with average rainfall upto 30 cm.
- The soil is dry and *deficient in humus*.
- It is **poor** in *Nitrogen, Phosphorus and Potassium*.
- The pH value ranges from **7.8 to 8.5**
- These soils are **calcareous** due to high evaporation and little rainfall.

- The colour of the soil is **yellow to light brown**.
 - The soils are suitable for cultivation of *cotton, moth, citrus, wheat, bajra* and other *Kharif fodder*.
 - The soils suffer from *wind erosion* especially in summers.
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Kandi soils:

- These soils are **found** in *Pathankot, Gurdaspur, Hoshiarpur, Nawanshahr* and *Ropar districts*.
 - The texture of the soil is *sandy, sandy loam, silt and clay-silt to gravelly*.
 - The soil becomes coarser and rougher in the eastwards of the shiwalik hills , dominated by gravels, pebbles and conglomerates.
 - These have been deposited by numerous *chos* coming from the Shiwalik hill.
 - These soils are badly eroded and less productive and are suitable for *dry farming*.
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Sierozems:

- Sierozems are *grey soils of semi arid* parts of Punjab, having grass and deciduous vegetation.
 - These soil covers **25 %** area of Punjab.
 - Such soils are **found** in Malwa plain in *Ludhiana, Sangrur, Fatehgarh Sahib, Rajpura, Patiala* and some parts of *Faridkot districts*. In *Doaba and Majha regions* such soils are found in western parts of *Kapurthala* and *Tarn Taran* and *patti tehsil of Amritsar districts*
 - These are **grey** in color which indicates it is deficient in organic matter.
 - These are fine grained loamy soils whose texture varies from *sandy loam, loam to silt to clay*.
 - The pH value ranges from **7.8 to 8.5**
 - These soils produce highest yield of *wheat* under irrigation.
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Grey-Brown Podzolic and Forest Soils:

- These are stony, gravelly and sandy soils found in the region of *Gurdaspur, Hoshiarpur, Nawanshahr* and *Ropar districts*.
 - Such soil are formed due to erosion by running water and less hot temperature conditions.
 - These have been developed under Shrub and deciduous forests, steep slopes and rugged topography.
 - These are **reddish brown to olive brown** in colour.
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Sodic and Saline Soils:

- Salinity is the presence of high content of soluble salts(more than 0.2%), which makes it difficult for the plants to absorb the water from the saline soils.
 - The pH value ranges from **7.3 to 8.5** and the soil is neutral in reaction.
 - Sodic soils have high percentage of sodium(more than 15%) salt and high pH value of above 8.5 and strong alkaline reaction.
 - These soils are found in areas of *Fazilka, Ferozepur, Muktsar and Faridkot districts.*
 - All areas of sodic soils lie along or across *Bikaner canal, Abohar, Bathinda, Ghaggar and Kotla branches of Sirhind canal and Bhakra canal.*
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Punjab- State profile:

- Basic Information

Area(Total)	50,362 sq. km
Area(Rural)	48,265 sq. km
Area(Urban)	2097 sq. km
Latitude	29°30'N to 32°32'N
Longitude	73°55'E to 76°50'E
Forest Area	3463 sq. km
Altitude	180-300 m
Area under Cultivation	42.93 lakh hectares
State Animal	Black Buck
State Bird	Goshawk(<i>Accipiter gentilis</i>)
State Tree	Shisham(<i>Dalbergia juvenile sissoo</i>)
State Language	Punjabi
State Game	Kabaddi
Creation	1st November 1966
Capital	Chandigarh
Secretariat	Chandigarh
High Court	Punjab and Haryana High Court, Chandigarh
First Governor	Chandulal Madhavlal Trivedi
First Chief Minister	Dr. Gopi Chand Bhargav
First Chief Justice of High Court	Justice Ram Lal
First Speaker of Vidhan Sabha	Kapur Singh

- **Administrative Setup**

Divisions	5
Districts	22
Tehsils	81
Sub-Tehsils	85
Blocks	148
Villages	12.581
Panchayats	13.080
Cities	74
Towns(Population 1 Lakh and above)	143
Corporations	10
Zila Parishads	22
Municipal Committees	143
Lok Sabha Seats	13
Rajya Sabha Seats	7
Vidhan Sabha Seats	117
State Legislature	Unicameral

- **Demography (Census 2011)**

Population(Total)	2.77 Crores
Male population	146.39 Lakh (52.8%)
Female population	131.04 Lakh (47.2%)
Rural population	173.44 Lakh(62.52% of total population)
Urban population	103.99 Lakh(37.48% of total population)
Density	551 per sq. km
Sex ratio	895
Child sex ratio(0-6)	846
Literacy rate	75.84%
Male literacy rate	80.44%
Life expectancy at birth	Male : 69.7 years. female: 72.8 years
Birth rate	15.9/1000 per annum
Death rate	6.9/1000 per annum
Infant mortality rate(IMR)	28/1000 live births per annum
Maternal mortality rate(MMR)	155/100000 live births per annum
Female literacy rate	70.73%
Schedule Caste population	31.94% of total population
Sikh population	50.91%
Hindu population	36.94%
Muslims	1.57%
Christians	1.20%
Others	0.38%