

7.5.1.2. Geographical Information:

Uttarakhand has a total area of 53,484 km², of which 93% of total area is covered by mountain and 65% area is covered by forest . Maximum northern part of the state is covered by high Himalayan peaks and glaciers. In the first half of the nineteenth century, the expanding development of Indian roads, railways and other physical infrastructure was giving rise to concerns over indiscriminate logging, particularly in the Himalaya One who raised this was Sir Joseph Dalton Hooker, Director of the Royal Botanic Gardens, Kew, who visited the region. As a consequence, Lord Dalhousie issued the Indian Forest Charter in 1855, reversing the previous laissez-faire policy. The following Indian Forest Act of 1878 put Indian forestry on a solid scientific basis. A direct consequence was the founding of the Imperial Forest School at Dehradun by Dietrich Brandis in 1878. Renamed the 'Imperial Forest Research Institute' in 1906, it is now known as the Forest Research Institute (India). The model "Forest Circles" around Dehradun, used for training, demonstration and scientific measurements, had a lasting positive influence on the forests and ecology of the region. The Himalayan ecosystem provides habitat for many animals (including bharal, snow leopards, leopards and tigers), plants, and rare herbs. Two of India's largest rivers, the Ganges and the Yamuna, originate in the glaciers of Uttarakhand, where myriad lakes, glacial melts and streams feed them.¹

Uttarakhand lies on the southern slope of the Himalaya range, and the climate and vegetation vary greatly with elevation, from glaciers at the highest elevations to subtropical forests at the lower elevations. The highest elevations are covered by ice and bare rock. Below them, between 3,000 and 5,000 metres (9,800 and 16,000 ft) are the western Himalayan alpine shrub and meadows. The temperate western Himalayan subalpine conifer forests grow just below the tree line. At 3,000 to 2,600 metres (9,800 to 8,500 ft) elevation they transition to the temperate western Himalayan broadleaf forests, which lie in a belt from 2,600 to 1,500 metres (8,500 to 4,900 ft) elevation. Below 1,500 metres (4,900 ft) elevation lie the Himalayan subtropical pine forests. The Upper Gangetic Plains moist deciduous forests and the drier Terai-Duar savanna and grasslands cover the lowlands along the Uttar Pradesh border in a belt locally known as Bhabhar. These lowland forests have been mostly cleared for agriculture, but a few pockets remain.

1. Source: <http://en.wikipedia.org/wiki/Uttarakhand>

Sub-divisions of Uttarakhand:

1. Kumaon division
2. Garhwal division



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Important Rivers in Uttaranchal:

| | | | | |
|---------------|------------|---------------|-------------|-----------------|
| 1. Ganga | 2. Yamuna | 3. Bhagirathi | 4. Kali | 5. Gori |
| 6. Alaknanda | 7. Kosi | 8. Sharda | 9. Ramganga | 10. Dhauliganga |
| 11. Mandakini | 12. Pindar | 13. Tonnes | 14. Saryu | 15. Bhilangana |

3. Source: http://www.euttaranchal.com/uttaranchal/rivers_glaciers.php

Physiographic zones of Uttarakhand, their attributes, major produces and livestock

| S.N. | Zone | Farming Situation | Soil | Rainfall (mm/year) | Districts | Principal farm produces and Livestock |
|------|-----------------------|---------------------------------|---|--------------------|--------------------------------------|---|
| 1 | Zone A Upto 1000 m | Tarai irrigated | Alluvial | 1400 | U.S.Nagar, Haridwar | Rice, wheat, sugarcane, lentil, chickpea, rapeseed-mustard, mango, litchi, guava, peach and plums. Livestock: Buffalo and cattle. |
| | | Bhabar Irrigated | Alluvial Mixed with Boulders and shingles | 1400 | Nainital, Dehradun and Pauri Garhwal | Rice, wheat, sugarcane, rapeseed-mustard, potato, lentil, mango, guava, and litchi. Livestock: Buffalo and cattle |
| | | Irrigated lower Hills (600-1000 | Alluvial Sandy soil | 2000-2400 | Champawat, Nainital, Pauri | Rice, wheat, onion, chillies, peas, potato, |

| | | | | | | |
|---|--------------------------|---|------------------------------|-----------|---|--|
| | | m) | | | Garhwal, Dehradun, Tehri Garhwal | radish, cauliflower, pulses, oilseeds, soybean, mango, guava, plums, and peaches. Livestock: Buffalo and cattle |
| | | Rain-fed lower hills (600-1000 m) | Residual Sandy loam | 2000-2400 | Champawat, Nainital, Pauri Garhwal, Dehradun, Tehri Garhwal, Bageshwar | Finger millet, maize, rice, wheat, pulses, mango, guava, plums, and peaches. Livestock: Buffalo, cattle and Goat |
| 2 | Zone B 1000- 1500m | Mid hills south Aspect (1000- 1500 m) | Sandy Loam | 1200-1300 | Champawat, Nainital, Almora, Dehradun, Tehri Garhwal, Bageshwar | Rice, finger millet, wheat, potato, tomato, peas, Cole crops, pulses, peach & plums. Livestock: Cattle, sheep & goat |
| 3 | Zone C 1500- 2400m | High hills (1500-2400 m) | Red to Dark | 1200-2500 | Pithoragarh, Almora, Chamoli, Bageshwar | Amaranth, finger millet, Frenchbeans, Cole crops, potato, peas, peaches, plums, pear, apple, stone fruits. Livestock: Cattle, sheep and goat, |
| 4 | Zone D >2400M | Very high hills | Red to dark Black Clay | 1300 | Pithoragarh, Chamoli, Uttarkashi | Amaranth, buckwheat, peas, Cole crops, apple and potato. Livestock: Sheep, goat |

Introduction of Roorkee: Field Survey

Geography:

Roorkee city of Haridwar district is located at 29.87°N 77.88°E. Roorkee is 172 kilometers (107 mi) far from the Indian capital, New Delhi. Roorkee city is situated between the rivers Ganges, Yamuna, close to the foothills of the Himalayas. Before the creation of Uttarakhand on November 9, 2000, Roorkee was a part of the state of Uttar Pradesh.