

## Quadrant II – Transcript and Related Materials

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**Module Name: Phytogeographical divisions of India**

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### Notes

Phytogeography: The term phytogeography has come from Greek word-*Phyton* = "plant" and, *geographia* = "geography/distribution". Phytogeography is the branch of biogeography which deals with the geographic distribution of plant species and their influence on the earth's surface. Phytogeography is also known as botanical geography.

A phytogeographical region is an area of uniform climatic conditions having distinctly recognizable type of vegetation. Phytogeographical divisions are also called as Botanical regions or Floristic regions. Total 9 phytogeographical regions are recognized in India. All these regions have different type of vegetation, climate and rainfall. The distribution of plants in these regions is mainly controlled by climatic factors (Temperature, Altitude, Precipitation, Atmospheric moisture, light (intensity and duration), type of soil and biotic factors.

**Chatterjee, D. (1962)** divided India into 9 phytogeographical Divisions.

1. Western Himalayas

2. Eastern Himalayas
3. Indus plain
4. Gangetic plain
5. Central India
6. Deccan plateau
7. Western coasts of Malabar
8. Assam
9. Andaman & Nicobar

**1. Western Himalayas :** It consists of Kashmir, Himachal Pradesh, part of Punjab. This zone is wet in the outer southern region and, dry in the inner northern region. The region receives average annual rainfall of 100-200 cm with snowfall in the winter season. Altitudinally Western Himalayas are divided into three subzones:

- i. **Sub montane zone** or lower region- upto 1500 m altitude from the sea level.
- ii. **Montane or temperate zone-** 1500 m to 3500 m altitude.
- iii. **Alpine zone-** above 3500 m altitude and up to line of perpetual snow.

**i) Submontane zone:** Includes outer Himalayas, comprises mostly of Siwalik ranges. Ranges between 300 m to 1500 m above the sea level. Forests are tropical and subtropical type. Dominant plants of this zone includes *Shorea robusta*, *Salmalia malabarica*, *Butea monosperma*, *Acacia catechu* and *Zizyphus* species. In swampy areas plants like *Dalbergia sissoo*, *Ficus glomerata*, *Eugenia jambolana* are of common occurrence. At higher elevation (1000 m to 1500 m) species of pine are present and ground vegetation is scanty.

**ii) Montane or temperate zone:** This zone extends in the western Himalayas between the altitudes 1500 m and 3500 m. Dominated by plant species like: Oak, *Populus*, *Rhododendron*, *Betula*, *Pyrus* etc. Common herbs of this zone are *Ranunculus hirtilla*, *Polygonum*, *Primula*, *Clematis* etc. *Pinus excelsa*, *Cedrus deodara*, *Picea*, *Abies*, *Cupressus*, *Taxus baccata* are common in the heavy rainfall regions (1600 & 1800m). In Kashmir, *Betula* (birch), *Salix* (cane), *Populus* (poplar), *Quercus semicarpifolia*, *Quercus dilata* and Chestnut are of common occurrence.

**iii) Alpine zone:** This zone extends between 3500 m and 4500 m altitudes (snowline). Rainfall is very scanty and the climate is very cool and dry. Vegetation comprises of Alpine forests with scrub and meadows. This zone is dominated by plants: *Abies*, *Betula*, *Juniperus*, *Rhododendrons*. In the upper alpine region, herbaceous plants viz., *Polygonum*, *Primula*, *Cassiope*, *Saxifraga*, *Geranium*, *Aster*, *Potentilla* etc. are found

**2) Eastern Himalayas:** Extends from Sikkim to Assam, receives heavy monsoon rainfall and is characterized by less snow fall, high humidity, higher temperature. In its vegetational zone it is similar to western Himalayas and have greater variety of oaks and Rhododendrons and less conifers than the Western Himalayas. The Eastern Himalayas are divided into 3 zones:

- i) Tropical zone.
- ii) Temperate zone.
- iii) Alpine zone

**i) Tropical zone:** This zone extends from the foothills up to 1850 m altitude. The vegetation of this zone comprises of tropical semi evergreen or moist deciduous forest. The dominant plants of this zone are *Shorea robusta*; *Acacia catechu*; *Dalbergia sissoo*; *Dendrocalamus*; *Terminalia* etc.

**ii) Temperate zone:** This zone extends between 1800 meters to 3000 meters altitudes. Vegetation is montane temperate forests and dominated by plants like *Michelia*, *Quercus*, *Pyrus*, etc. at lower levels and *Juniperus*, *Cryptomeria*, *Pinus*, *Salix*, *Rhododendron*, *Arundinaria* at higher cooler levels.

**iii) Alpine zone:** This zone extends from 4000 m - 5000 m altitude. The climate of this zone is very cool and dry. Vegetation comprises of alpine forests. Plants are *Junipers*, *Rhododendron*.

**3) Indus Plains:** This regions includes arid and semi-arid regions of Punjab, Rajasthan, Kutch, parts of Gujrat and Delhi. Climate is with dry hot summer and cold winters. Rain fall received by this region is less than 70 cm annually. Vegetation is bushy and thorny type. Dominant plants species reported from this region are *Acacia arabica*, *Prosopis species*; *Tamarix species*; *Salvadora species*, *Zizyphus mummularia*, *Eugenia*, *Mangifera indica*, *Dalbergia sissoo*, *Albizzia lebbeck*.

4) **Gangetic Plain:** This is the region showing richest vegetation in India. The region extends over Uttar Pradesh, Bihar, Bengal, and part of Orissa. Average annual rainfall received by this region ranges from 50 cm to 150 cm from east to west. Vegetation is mainly of tropical moist deciduous forests and dry deciduous forests. Dominant plants of this region are *Dalbergia sissoo*; *Acacia arabica*; *Butea monosperma*; *Acacia catechu*; *Ficus religiosa*. Weeds and grasses like *Xanthium*, *Cassia*, *Amaranthus* etc. are also present.

5. **Central India:** This region comprises part of Madhya Pradesh, Orissa, and Gujrat. The average annual rainfall received by this region ranges between 150-200 cm. Vegetation comprises of thorny, mixed deciduous and teak type forest. This region is dominated by plants viz., *Tectona grandis*, *Shorea robusta*, *Mangifera indica*, *Butea monosperma*, *Dalbergia sissoo*, *Terminalia*, *Carissa*, *Acacia* etc.

6. **Deccan Plateau:** This region includes Southern peninsular India (AP, TN & Karnataka). Receives average annual rainfall of upto 100 cm. The central hilly plateau has tropical dry deciduous forest while, the low eastern dry Coromandel Coast has tropical dry evergreen forest. Plants which dominates this region are *Boswellia serrata*, *Tectona grandis*, *Santalum album* (Chandan), *Cedrela toona*, *Phyllanthus*, *Euphorbia*, *Capparis* and, in the Coromandel coast halophytic species are present.

7) **Western Coast of Malabar:** This region extends from Gujarat to Kanyakumari. Receive heavy rainfall over 400 cm. This region has 4 types of forests viz.,

1. **Tropical evergreen forests** (occurs at 700 m altitude),
2. **Mixed deciduous forests** (found at altitude upto 1600m).
3. **Temperate evergreen forests** (occurs above 1200m altitude).
4. **Mangrove forest** near Bombay and Kerala Coast.

The dominant plants of each of these forest are:

1. **Tropical evergreen forest** : *Cedrela toona*, *Mangifera indica*, *Artocarpus hirsutus*, *Sterculia alata* etc.

**2. Mixed deciduous forest:** *Terminalia species*, *Tectona grandis*, *Dalbergia sissoo*, *Bamboo species* etc.

**Temperate forest (Sholas):** *Gardenia obtusa*, *Michelia nilagirica*, *Eugenia species*.

**Mangrove forest:** Mangrove plants are common.

## 8) Assam

This region is rich in vegetation and covers valley of Brahmaputra, Naga hills, Manipur. The region receives heaviest rainfall with Cherrapunji receiving rainfall of over 1000 cm. The rainfall normally ranges between 200 cm to 1000 cm. Temperature and wetness are very high which are responsible for dense tropical evergreen forest in this region. Vegetation comprises of dense evergreen forests or sub-tropical forest. Dominant plants of this region includes *Bambusa pallida*, *Shorea robusta*, *Ficus elastica*, *Dipterocarpus macrocarpus* etc. Grasses such as *Saccharum species*, *Imperata cylindrica*, insectivorous plants like *Nepenthes*, epiphytes such as ferns and orchids are of common occurrence. In the northern cooler regions' plants like *Alnus nepalensis*, *Rhododendron arboreum*, *Betula species* are also found. In hilly tracts, some conifers like *Pinus khasiya* and *P. insularis* are also found.

9) **Andaman & Nicobar:** This region includes Islands of Andaman and Nicobar. Climate is warm and humid with very high temperature. Vegetation comprises of mangrove and beach forest at its coasts, evergreen forest in the interiors. This region is dominated by plants such as *Rhizophora*, *Mimusops*, *Calophyllum*, *Lagerstroemia* etc.