# *Directorate of Distance Education*

**UNIVERSITY OF JAMMU**
**JAMMU**

# SELF LEARNING MATERIAL

**B.A. SEMESTER – II**

**SUBJECT : GEOGRAPHY** **UNIT– I to IV**
**COURSE CODE : GG-201** **LESSON : 1-16**

**RAJBER SINGH SODHI**
***Course Co-ordinator***

***http:/www.distanceeducationju.in***
***Printed and Published on behalf of Directorate of Distance Education, University of Jammu by the Director, DDE, University of Jammu, Jammu.***

# GEOGRAPHY OF JAMMU & KASHMIR

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# SYLLABUS

## GEOGRAPHY SEMESTER-II

**Title : Geography of Jammu & Kashmir** **Total Marks : 100**
**Course No. GG-201** **Theory : 80**
**Duration of Exam : 3 Hrs.** **Internal : 20**

**OBJECTIVES**

The objective of this course is to make the students familiar with the Geography of Jammu & Kashmir, its physical, socio-cultural and economic setting.

**UNIT-I**

1.1 J&K in the context of India
1.2 Physical Divisions
1.3 Climate
1.4 Drainage

**UNIT-II**

2.1 Natural Vegetation
2.2 Production and Distribution of Crops-Wheat, Rice and Maize
2.3 Horticulture and Sericulture
2.4 Livestock and Fisheries

**UNIT-III**

3.1 Mineral Resources-Coal and Gypsum
3.2 Hydel Power Resources
3.3 Industries-Forest Based, Agro Based and Handicrafts
3.4 Transportation and Communication

**UNIT-IV**

4.1 Population-Distribution, Growth and Density
4.2 Migration and Trans-Humance
4.3 Urbanisation
4.4 Tourism

**NOTE FOR PAPER SETTERS**

The Question Paper shall comprise of two sections-A&B. Section A shall be compulsory and shall comprise of 8 short answer questions of 2 marks each. Answer should be limited to 20 words. Candidate shall be required to attempt all the 8 questions. Section-B shall comprise of 8 questions from 4 Units. Candidates shall be required to attempt one question from each unit and each question shall be of 16 marks. Answer should be limited to 450 words for each question.

**SUGGESTED READINGS**


1. Dhar Vidya: Jammu and Kashmir Past and Present, Saksham Jammu 2005,
2. Drew Frederic, 1971: Jammu & Kashmir Territories: A Geographical Account, Oriental Publishers, Delhi.
3. Frank Younghusband: Sir Kashmir, London.
4. G.B. Singh: Encyclopedia of Jammu.
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6. Jasbir Singh: The Economy of Jammu & Kashmir, R.K. Anand & Co. Jammu, 2004.
7. K Warikoo (1976), Jammu, Kashmir & Ladakh : A classified Bibliography.
8. M.A. Stein (1982), Kalhana's Raja Larangani, The First Chromick Kashmir, 1 Bombay.
9. Majid Hussain, A Geography of Jammu & Kashmir. Ariana Publishing House New Delhi, 1985.
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# JAMMU AND KASHMIR IN THE CONTEXT OF INDIA

**B.A. Sem-II** **Unit-I**
**GG-201** **Lesson-1**

India is the largest one among the South Asian countries. India has an area of 32,87,782 sq.km. having 28 States and 7 Union Territary and Jammu and Kashmir State is one of the States of Indian Union and is the Northern most state of the Country.

The State of Jammu and Kashmir has its own importance. It is a symbol of national integration and unity. Jammu and Kashmir is located between 32°17' to 37°06' N latitudes and 73° 26' to 80° 30' E longitudes, occupying the central position in the Asian continent. It consists of three divisions-the foothill plains of Jammu, the Kashmir Valley and the mountains of Ladakh. It has two capitals: Srinagar is its summer capital, and Jammu is the winter capital. The geographical area of the state is 2, 22,236 sq.km which is 6.74 percent of the total area of the country. Jammu and Kashmir is one of the largest states of India including 76,114 sq.km under Pakistan occupation, 5130 sq.km handed over by Pakistan to China, and 39,605 sq.km illegally occupied by China.1 Its boundaries touch the countries of Tibet in the east, China and Afghanistan in the north and Pakistan in the west whereas Punjab and Himachal Pradesh states lie to its south.

The topography of the state is such that, low-lying valleys surrounded by mountain ranges characterize it, the most important of them all is the Kashmir valley that lies 1700 meters above the sea level, encompassed by the mighty Himalayas. Some of these valleys are the Tawi valley, Chenab valley, Poonch valley, and Sind valley. The mountain chains that adorn the region include the .Karakorum Range, Nun Kun range, the Zanskar range, and-Nanga Parbat. The state of Jammu and Kashmir has many Himalaya flowing 'rivers through it; Indus, Jhelum, Chenab are important one. Due to the

geographical location, climate, soil, rainfall and altitude, the vegetation in the state ranges from tropical deciduous forests to temperate coniferous forests. The Jammu and Kashmir region has loamy soil rich in magnesia, in most part of the state. As far as the regional flora is concerned, the area is rich in pines, conifers and medicinal herbs. The climate in this part of India mostly depends upon the time of the year and location, the area in naturally cool and extremely cold depending upon the altitude and mountainous geography.

The scenic beauty of Kashmir has given it the name of "heaven on earth". The Shankaracharya Temple provides excellent views of the valley of Kashmir. Other places of tourist attractions are the famous Mughal Gardens of Shalimar and Gulmarg, which offers spectacular scenic beauty. It is also the place where "yatra" to the shrine of Amarnath begins. In Srinagar, one can also enjoy boating in cushioned shikaras across the Dal and Nagin lake.

Jammu is a land of grand ancient temples, and beautiful palaces. The main tourist attractions of Jammu are the Raghunath Temple and the Vaishno Devi Temple, which attracts pilgrims all over the country. In Ladakh, one can have a look at the - famous Thiksey Monastery. The Stok Palace and Museum also houses the royal relics of the last ynng family of Ladakh..

**History**

The territories of the Maharaja of Kashmir and Jammu may be roughly described in the words of the treaty of March 16, 1846, as 'situated to the eastward of the river Indus and westward of the river Ravi.'2 The state of Jammu and Kashmir which had earlier been under Hindu rulers and Muslim Sultans became part of the Mughal Empire under Akbar. After a period of Afghan rule from 1756, it was annexed to the Sikh kingdom of Punjab in 1819. In 1864 Ranjit Singh made over the territory Jammu to Maharaja Gulab Singh. After the decisive battle of Sabron in 1864 Kashmir also was made over to Maharaja Gulab Singh under the Treaty of Amritsar. British supremacy was recognized until the Indian Independence Act 1947. When all the states decided an accession to India or Pakistan, Kashmir asked for standstill agreements for both. In the mean time, the state became the subject of an armed" attack from Pakistan and Maharaja Hari Singh acceded to India on 26th October 1947 by signing the instruments of accession. India approached the United Nation in January, 1949. Another round of

war between the two countries in 1905 was followed by the Tashkent Declaration" in January 1966.

Following the liberation movement in the former eastern wing of Pakistan, Pakistan attacked India in December, 1971. It was followed by the Shimla Agreementation July 1972. A new line of control was delineated bilaterally to replace the ceasefire line between the two countries in Jammu and Kashmir. The Maharaja's son Yuvraj Karan Singh took over as Regent in 1950 and on the ending of hereditary rules (17th October, 1952) was sworn in as a Sadar-i-Riyasat. On his father's death (26th April, 1961) Yuvraj Karan Singh was recognized as Maharaja by the Indian Government. He decided, however, not to use the title.

**Administrative Set up of Jammu and Kashmir**

The Constitution of the sate came into force in part of 17th November, 1956 and fully on 26th January, 1957. The constitution provides for a bicameral Legislature:-

1. Legislative Assembly

2. Legislative Council

**Demographic Scenario of Jammu and Kashmir from 2001-2011**

| | 2001 | 2011 | | |
|---|---|---|---|---|
| No. of Districts | 14 | 22 | Percentage of urban | |
| No. of Sub-Districts | 59 | 82 | population | |
| No. of towns | 75 | 122 | 2001 | 2011 |
| No. of Villages | 6,652 | 6,551 | 24.81 | 27.21 |

| | | Total | Rural | Urban |
|---|---|---|---|---|
| Population | Persons | 12,548,926 | 9,134,820 | 3,414,106 |
| | Males | 6,665,561 | 4,809,619 | 1,855,942 |
| | Females | 5,883,365 | 4,325,201 | 1,558,164 |

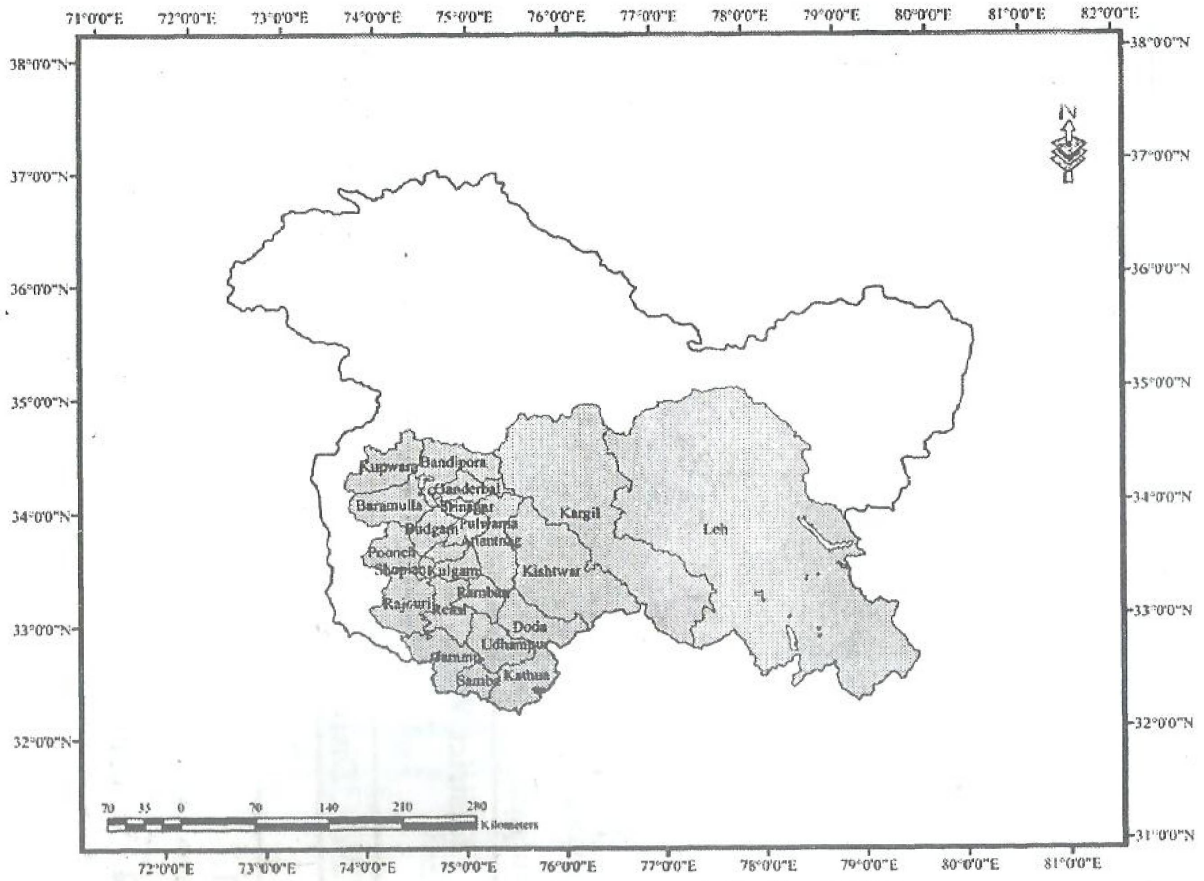
| *Decadal Population Growth 2001-2011* | *Absolute* | | | *Percentage* | | |
|---|---|---|---|---|---|---|
| | *Total* | *Rural* | *Urban* | *Total* | *Rural* | *Urban* |
| Persons | 2,405,226 | 1,507,758 | 897,468 | 23.71 | 19.77 | 35.66 |
| Males | 1,304,635 | 831,967 | 472,668 | 24.34 | 20.92 | 34.17 |
| Females | 1,100,591 | 675,791 | 424,800 | 23.01 | 18.52 | 37.48 |
| Sex Ratio (females per1000 males) | 883 | 899 | 840 | | | |

| *Population in the Age Group 0-6* | *Absolute* | | | *Percentage to total population* | | |
|---|---|---|---|---|---|---|
| | *Total* | *Rural* | *Urban* | *Total* | *Rural* | *Urban* |
| Persons | 2,008,642 | 1,596,076 | 412,566 | 16.01 | 17.47 | 12.08 |
| Males | 1,080,662 | 858,122 | 222,540 | 16.21 | 17.84 | 11.99 |
| Females | 927,980 | 737,954 | 190,026 | 15.77 | 17.06 | 12.20 |
| Child Sex Ratio (0-6 years) (females per 000 males) | 859 | 860 | 854 | | | |

| Literates | Absolute | | | Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Rural | Urban | Total | Rural | Urban |
| Persons | 7,245,053 | 4,898,008 | 2,347,045 | 68.74 | 64.97 | 78.19 |
| Males | 4,370,604 | 2,983,896 | 1,386,708 | 78.26 | 75.51 | 84.90 |
| Females | 2,874,449 | 1,914,112 | 960,337 | 58.01 | 53.36 | 70.19 |

Source: Census of India 2011.

## Administrative set up of Jammu and Kashmir




*Source* : Census of India 2011.

**District in 2011**

| *Districts of Kashmir Region* | *Districts of Jammu Region* | *Districts of Ladakh Region* |
|---|---|---|
| Kupwara | Punch | Leh |
| Budgam | Rajouri | Kargil |
| Baramulla | Kathua | |
| Bandipora | Doda | |
| Srinagar | Ramban | |
| Ganderbal | Kishtwar | |
| Pulwama | Udhampur | |
| Shupiyan | Reasi | |
| Anantnag | Jammu | |
| Kulgam | Samba | |

Apart from certan changes which took place in the wake of 1971 conflict and later came to be recognized under the Shimla Agreement a number of inter-district territorial transfers took place in the state during the decade 1971- 1981. Barring Doda, Kathua and Rajouri all the areas underwent a number of inter-district territorial changes. Till 1981 census there were only three districts in Kashmir division i.e. Anantnag, Srinagar and Baramulla and it was only after 1981 that three more districts i.e. Budgam, Pulwama and Kupwara were carved out of respectively from these districts. Kargil district came into existence for the first time by the addition of Kargil and Zanskar tehsils of Leh district in 1981.

For administrative and development point of view the government of Jammu and Kashmir has decided and approved in 2006, the creation of eight new districts. The new created districts i.e. Samba, Reasi, Ramban and Kishtwar in Jammu division and Kulgam, Shopian, Ganderbal and Bandipora in Kashmir division have started functioning from 1st of April, 2007.)

# PHYSICAL DIVISION

**B.A. Sem-II** **Unit-I**
**GG-201** **Lesson-2**

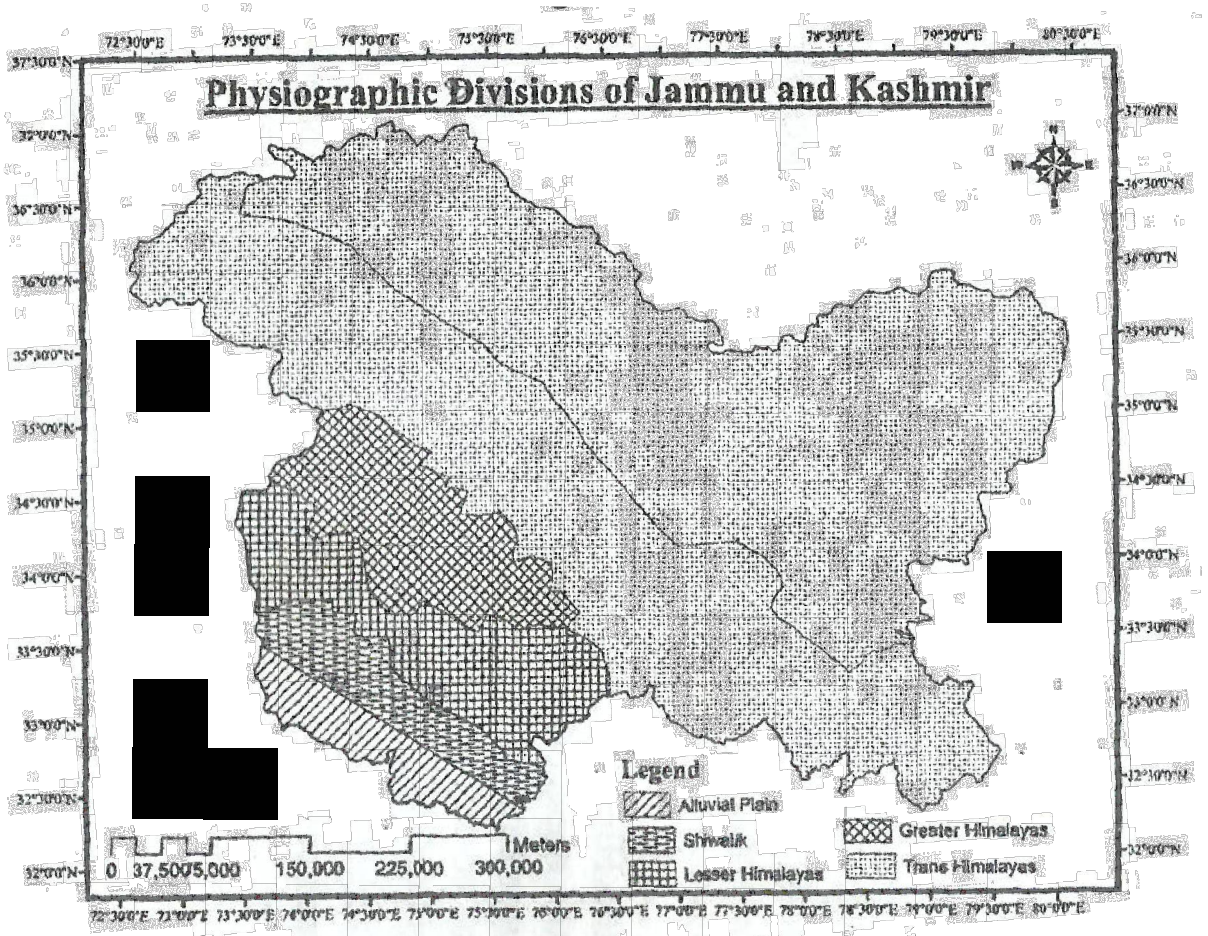
The Jammu and Kashmir state mostly consists of mountains and hills except an outer fringe of plain (SW), some duns and a tectonic valley of Kashmir. Morphologically the state is divisible into three regions viz. Jammu, Kashmir and Ladakh, each having distinct features of its own and the state has a unique geographical personality. But keeping in view the physiography of the state it has been divided into various physical divisions each has different relief features.

The alluvial plains of Ravi, Tawi and Chenab rivers border the southern flanks of the state. These are located in the south of Shiwalik hills. These outer plains vary in altitude from 325 to 350 mts. These are highly fertile for agriculture.

In the North of outer plains lies the youngest mountains of sub continent called Shiwalik. These are 20-50 kms in width and their height varies between 600-1220 mts above sea level. Jammu city is located on the southern slopes of Shiwalik hills at an altitude of 366 mts. On the either bank of river Tawi. The southern slope of Shiwalik hills have an undulating pattern. Mansar and Surinsar lakes also lie in these mountains at an altitude of 600 mts.

The middle mountains are located between the river Tawi in the east and Poonch in the west. These have North West extension upto Muzaffarabad. Their average height is between 1820-2240 mts. Jammu-Srinagar National highway has been carved out through these mountains and it crosses them at Patnitop at a height of 1950 mts. The sacred cave of Mata Vaishno Devi also lies in middle mountains on Trikuta hills.

The bowl shaped valley of Kashmir is surrounded by North West Himalayan folds on all sides. These mountains vary in altitude from 2770 to 5550 mts. In the south




[redacted] *Source* : Indian Council of Agriculture Research, Nagpur. [redacted]

in Pirpanjal range in Banihal pass that affords on exit from the valley. Kashmir valley on the North is bounded by Greater Himalayas.

In J&K the Greater Himalayas are called 'Zanskar'. Average height of Zanskar range is 5940 mts. Here lie some coldest places, like Drass and Rangdom. Where temperature falls even below -40$^0$C in winter season. Ladakh region forms the Northern and Eastern part of the state. It is an arid table land with an average altitude of 5000 mts. It is the coldest desert having very low rainfall and scanty vegetation. Leh district is situated at an altitude of 3505 mts. On the right bank of Indus river. World's 2nd highest peak is also situated here in Karakoram range. Saichan, Baltore, Hispar, Rimo and Batuna are important valley glaciers in the North of ladakh. On the basis of the stratigraphic and tectonic history, relief characteristics and erosional processes Jammu and Kashmir state may be divided into six major physiographic regions:-

1 The Outer Plains

2. The Siwaliks or Outer hills

3. The Lower or Middle Himalayas

4. The Valley of Kashmir

5. The Greater Himalayas

6. The plateau of Ladakh.

**1. <u>The Outer Plains</u> :-** The outer plain of Jammu and Kashmir, locally known as Andarwah or Bajwat, is a part of the Great Plains of India. The outer plains stretch from river Ravi to the Chenab for a distance of 110 km with an elevation of 330 to 360 mtr above sea level. The plain is badly dissected by a series of deep and shallow ravines which carry off the seasonal flood waters of monsoon rains, exposing the sand, gravel, pebbles and boulders of the river bed. For most of the year these ravines locally called 'Khads' are dry. The other streams of this region are Basanter, Ujh, Tawi and Manawar Tawi. Jammu, Kathua, Samba, Hiranagar and Akhnoor belong to the outer plain.

The alluvial plains of the Jammu and Kashmir state are formed by the deposition of Chenab, Tawi, Ravi and their tributaries. In width, in the plain it varies from 7 to 30

km. It stretches in the southern parts of Akhnoor, Ranbir Singh Pura (R.S.Pura), Samba and Kathua.

**2. <u>The Siwaliks or the outer Hills</u> :-** The relatively low outermost hills of the Himalayas along its whole length from the Indus to the Brahmaputra are known as the Siwaliks. The outer hills known as outer Himalayas, Siwalik hills or Jammu hills because of their location, rising from Punjab plains and carrying a gentle slope these hills attain a height of 600 meters in the vicinity of Jammu. They stretch from Ravi to Jhelum for a distance of more than 200km and attain a maximum width of 20 to 50 km in this state. The outer most ranges of the Himalayas rise from the plains of Punjab, commencing with a gentle slope from Jammu, attain about 600 m in altitude, and their end abruptly in steep, almost perpendicular escapement inwards. The hills consist mainly of clay, Sand, round pebbles and boulders and Seasonal stream courses. Lake Mansar and saruinsar are situated at an elevation of 600 m to the east of Jammu city in the Siwalik range.

The undulating slope, adjacent to the plains upto an elevation of 300 m between ravi and Chenab rivers are locally known as kandi. The kandi land is characterised by numerous torrants, hilly soils and scarcity of water. Consequently agriculture in kandi tract is largely dependent on rains. The rate of soil erosion during rainy season is heavy.

From Basohli in the east and Poonch in the west, the Siwalik hills form broken and rugged terrain. A series of wide longitudinal valleys, called duns lie to the north of Siwalik hills. Udhampur, Sunderbani (Rajouri), Basohli, Ramkote and Dansal are typical examples of such duns.

**3. <u>The Lower or Middle Himalayas (Lesser Himalayas)</u> :-** It is also known as Middle Mountain, lesser Himalayas, Lower Himalayan or Pir Panjal mountain. The Middle Himalayas of the Jammu and Kashmir state lie between the Ravi in the east and the Poonch in the west and continues upto Muzaffarabad. The ranges of Pir-Panjal and Dhauladhar lie in the Lesser Himalayas of the state. In Jammu region they are locally known as Pahar (mountain). In elevation they seldom rise above 3600-4600 m, and have a width of about 60 km near Rajouri. In general, it has an east-west extension.

The Middle Himalayas are composed of highly compressed and altered rocks

of various geological ages, ranging from the Puranas and Carboniferous to Eocene.

Several important rivers like Tawi, Manawar-Tawi, Basanter, and Ujh have their sources in the Middle Himalayas is dominated by sandstone, shale and light yellow limestone of the Miocene Murree system and Eocene deposits.

Excepting the river terraces and the river valley, cultivation of crops is not an important economic activity on the slopes of the Middle Himalayas. The people are largely dependent an forestry, Lumbering, herding, cattle keeping, and tourist industry. The general standard of living of the people is low and the rural areas are less accessible. The area is poor in basic mineral resources, specially in coal petroleum and natural gas. Coal, however being mined at Kalakote ( Dist. Rajouri) of the Jammu Division. The Middle Himalayas are very rich in clays, sands, limestone, building-stone, slate and have enormous water resource which is being harnessed for the generation of the hydel power. There is however a dearth of metallic minerals like iron-ore, copper, bauxite, pyrite, lead, zinc, silver and gold, in the Middle Himalayas.

**4. <u>The Valley of Kashmir</u> :-** The valley of Kashmir, nestled in north-western folds of the Himalayas in a transverse valley, surrounded on all sides by high mountain ranges, characterised by snow covered lofty peaks. The surrounding mountain ranges rising to a height of 5,550 m on the north-east, where the Banihal Pass (Jawahar-Tunnel) provides an exit from the valley. The only outlet for the rivers is the Barmulla-gorge, where the placid Jhelum river leaves the smooth grassy banks and hurries head long down its rock course to the great plains of the south. The Kashmir valley is distinctly basin shaped and that it has a length of about 140 km ( 84 miles) and a width varying from 53-55 km (20 to 25 miles). The lowest point in the valley has an elevation of 1600 m (5, 200 feet) and the mean elevation is 184 m (6, 000 feet) above the sea level.

The oval shaped valley of Kashmir is filled with thick deposits of aluminum which have blanketed even the lower slopes of the surrounding ranges. On the borders of the Kashmir valley and even in the valley floor occur extensive elevated plateaus of alluvial and Lacustrine material. The deposits are locally known as Karewas which in most part is densely covered with rice and saffron crop.

**Side valleys :** Within the valley of Kashmir, there are three important side valleys namely. (i) The Lidder valley (ii) The Sind valley and (iii) The Lolab valley.

The Lidder valley extends from Anantnag to Pahalgam, including the Parganas of Dachinpora and Khaurpora.

Sind valley is one of the most beautiful valleys of Kashmir. It owes its name to the river Sind-har which is fed by glaciers and streams. It extends from Ganderbal to the Zoji-La Pass.

Lolab valley is the fertile oval shaped valley is situated in the north-west side of Kashmir, The valley is covered by thick forest of deodar. It is also famous for apple, cherry, Peach and walnut.

**5. The Greater Himalyas or inner Himalayas :-** To the north of Pir Panjal and Dhauladhar ranges are the more lofty mountain ranges of the innermost zone of the Himalayas rising above the snow-line into the peaks of the perpetual snow. In the north, Kashmir Range is an offshoot of the Zanskar Range, which forms the north-eastern border of the valley of Kashmir. In the Zanskar Range there are a few peaks which have heights between 4500 to 6,100m above the sea level. Beyond this range, one may observe the elevated plateaus and high mountain ranges separated from one another by great depressions with majestic peaks towering to 7,300m. The altitude steadily increases farther north, till the peak $K^2$ on the mighty Korakoram or Mustang Range, attains the culminating height of 8,621m; the second highest peak in the world. Tot the north-west the height of the valley beds descends till Gilgit on the vary flanks of the gigantic peak of Nanga Parbat, Diyamir (8,120m). In north and north-east Kashmir, there are the plateaus of Deosai, 3965 m above the sea level. The physical features of this extremely rugged wind-swept and frost-bitten region vary much in character. They present as aspect of desolate, ice bound altitudes and long dreary wastes of valleys and depressed lands totally different from the soft harmony of the Kashmir mountain.

**6. Ladakh Plateau :** Ladakh is one of the loftiest inhabited regions of the world, (3600-4600m). Its short but warm summers enable a few grain and fruit crops to ripen. The bare mountains which rise from their exhibit the exquisite from burning heat of some of the deserts to several degrees below freezing-point at night. Between Ladakh and

the Dhauladher range are the district of Zanskar, Lahoul, and Rupshu, consisting of intricately ramifying glaciated ranges of crystalline rocks, intersected by lofty valleys having but a restricted draniage into a few saline lakes and marshes.

## MOUNTAINS

**Definitions :** An upward projection of the earth's surface that rises to high altitudes. It usually possesses steep slopes of bare rock with sharp ridges and one or more rocky peaks. Mountains are formed in the process of orogenesis. They usually occur in belts or ranges e.g. The Himalayas, the Andes.

Mountains are conventionally divided into four categories according to their origin:-

(i) Folded Mountains

(ii) Block Mountains

(iii) Volcanic Mountains

(iv) Residual Mountains

Geologists have long recognised four main periods of mountain building. The Archaean in the pre-cambrian era (460 million years ago), the caledonian Mountain (425 million years ago), Hercynian mountains (280 million year ago), Appalachians (230 million years ago).

### Mountains in J&K state

Jammu and Kashmir state is a mountainious state that constitute various ranges of mountains.

**(i) The Western Himalayan Range:-**

The great Himalayas form the natural boundaries between India and Tibet. In the Eastern Himalayas are the lofty Peaks of Kan Chin Jinga and Dhaula giri both above 28,000 feet above sea level. The highest peaks of western Himalayan range are Nanda Devi 25749 feet, Gya peak 24,764 feet, Mono Monali peak 23,900 feet and Porgyal 22,700 feet above sea level.

**(ii) Mid Himalaya or the Pir Panjal Range:-**

This range of Mid Himalaya consists of a distinct masses of mountains which has been sub divided into four sub ranges. (a) Bisahar Range is the shoot off the Western Himalayas extending from the cluster of Jamnotri peak to the Satluj below Shatul for about 80 km.

**Lahul Range :** which streches for about 200km. along the south ward sweep of Chenab in Kishtwar beyond this continues the well known Siwalik range.

**Pir Panjal Range:** The Pir Panjal range extends from Jamnotri Peak to the Swat river for about 590 kms. Between the Jamuna and the Indus, the direction is South East to North West, upto Indus. The height and lofties peak of the Pir Panjal is 15,000 ft and the lowest pass was 9640 ft. above sea level.

**(iii) The Outer Himalayas or the Dhola Dhar Range:-**

The outer or the Sub Himalayas ranges start from the bends of the Bias river Mandi, upto the promineul peaks of Gnadga on the river Indus. However, it has the peaks of maximum height between Bias and Ravi. Out of all these most prestigious range of hills is northern hills of Kangra valley, is known by the name of Dhada Dhar range.

**(i) The Dhaula Dhar Range:-**

The first important ridge of Sub Himalayan or the Outer Himalayan range forms the natural boundaries between Kullu, Manali, Chamba of Himachal Pradesh. To the eastern side it extends upto Kuman.

**(ii) The Siwalik Range:-**

The second portion of the sub Himialayan range extends from Ravi to Chenab. It forms the natural boundaries between Chamba, Bhadarwah in the north and Chenani, Ram Nagar on the South. From Chenani it breaks up into a remarkable Triple Peaked Mountain which is sacred for the Hindus named as Trikuta Devi Peak 7000 ft. This is the famous peak for the Mata Vaishno Devi Pilgrimage. This Range is extend up the Poonch.

**(iii)** The Third or the central portion of the Sub Himalaya is known as Rattan Panjal which is crossed by old Bhimber road to Kashmir and derives its name from the pass of Rattan Pir. This ridge has the elevation between 7700 fet to 11,000 feet above sea level.

**(iv)** The Kotli Range of sub Himalaya is although unknown but its short ridges extend from Kotle (POK occupied area) to Dhan gali.

**(v)** The fifth and the most waterly portion of the sub-Himalayan ranges are from Jehleum to Indus. It has very small peaks of the elevation of 7,000 ft and well covered with trees of Pine, devdar and small herbs, on its northern slopes.

The other mountains peaks in Jammu & Kashmir are :-

**Nanga Parbat:-** It is the highest mountain peak in the state with an altitude of 8127 mts.

**Gash Brari:-** The peak is 17,836 ft. high above sea level and is accessible through Pahalgam.

**Amarnath Peak:-** It is 17,321 ft. above the sea level and is approachable via Pahalgam and Sonamarg.

**Haba Khatoon Mountain:-** It is 17,000 ft. high and lies in Gurez valley.

**Harmukh Mountain:-** It is 1698 feet high. It forms a past of greater Himalayas and lies between Jhelum and Kishan Ganga river.

**Afferwath Mountain:-** It is 14,500 ft. high and lies near Gulmarg. Alphather Glacier, the source of Nilnag lake is located on it.

## PASSES

In a range of hills or especially of mountains, a pass (or gap, Notch, Saddle or Bealach) is a lower point that allows easier access through the range. Passes have been important since before recorded history and have played a key role in both trade and war.

There are thousands of passes around the world, some are familiar names such

as:-

1. **Karakoram and Kunlun** Both these mountain ranges lie to the north and nonrth-east the state and separate it from Russian, Turkistan and Tibet. In the north-west, Hindukush range continues towards Karakoram ranges, where K2 peak, the second highest peak of the world, is situated. Two lofty peaks of Gasherbrum (8,570 m) and Masherbrum (7,827m) also lie there. People of Ladakh pass through Karakoram pass (5,352 m) and Nubra pass (5,800m) while going to Chinese Turkistan and Khattan. One can reach Tibet from Ladakh via Kharudangala pass (5,557 m) and Changla pass (5,609m)

2. **Zanskar** It is about 600 metres above sea level and separates Indus valley from the Valley of Kashmir. It prevents south-west, coastal winds from reaching Kashmir. Ladakh region terminates at Zojila pass (3,529m) from where begins the Valley of Kashmir. Poat pass (5, 716m) is also a famous pass in this range.

3. **Nun Kun** It lies between Ladakh and Kashmir border. It is 7,055.1m above sea level. To its south-east is situated Kulu and to its north-west is situated Kargil tehsil of Ladakh. One has to pass through Bawalocha pass (4,891m) to reach Leh (Ladakh) from Kulu.

4. **Nanga Parbat** This range spreads in Gilgit. Its height is 8,107.68 m above sea level and is utterly devoid of vegetation. It was conquered by the Italian mountaineers in 1954. This now under the unlawful possession of Pakistan.

5. **Amarnath** Amarnath mountain is famous for its holy Amarnath cave, at a height of 5,372 m above sea level. They have a pass Mahagunas pass (1,475 m) on their way to Shri Amarnathji. Gwasharan (5,450m) is situated in the Lidar valley towards Pahalgam; on it lies the famous glacier Kolahi. Sheshnag mountain also spreads in this valley. It is called Sheshnag as its peaks resemble the heads of seven big snakes.

6. **Toshmaidan** Toshmaidan (4,270m) adn Kajinag (3,700m) mountains lie in the Inner Himalayas. They remain clad with snow throughout the year, but during summer when the snow melts, the water flows down into the Jhelum river.

7. **Afarwat** This mountain spreads through the Gulmarg valley. The famous springs

Alpathar lies on its peak, from which, Nullah Nagal comes out and flows down into the Wular lake.

8. **Pir Panjal** This range separates Kashmir valley from the uter Himalayas and it is about 2,621 km inlength and 50 km in breadth. Famous Banihal pass (2,832 m) lies in the shape of a tunnel on its peak, it remains covered with snow during winter making it impassable. Now at a height of 2,200 m above sea level a new tunnel, namely 'Jawahar Tunnel' has been constructed. The tunnel is 2,825 m long and it was opened for traffic on 22nd Dec. 1956. On the other end of this range lie Baramulla pass (1,582m) and Hajipir pass (2,750m). Hajipir joins Punch and Uri. During 1965 Indo-Pak war, the Indian Army had occupied this pass. Later on, it was handed over to Pakistan.

9. **Shiwalik** These hills extend from the north of the outer plains to middle mountains of the state reaching heights varying from 600 m to 1,500 m above sea level.

10. **Volcanic Peak** One Volcanic Peak 'Soyamji' (1,860 m) is situated in North Machinipura (Handwara) and the other "Kharewa peak' lies in Tehsil Pahalgam, which is now dead or extinct; the former, however, continued eruptionof Lava for about thirteen months during 1934, is now in dormant satate.There is temple on this peak and many sulphur springs are found at the foot of the hill. These volcanic mountains are the cause of earthquates in Kashmir. So far, twelve devastating earthquakes have occured in Kashmir. Of these, the earthquake of 1885 was the most devasting. Hundreds of houses collapsed, thousands of people died and there were cracks in the earth as a result of this earthquake.

11. **Zojila Pass** (11,634 feet/3505 meters above the sea level) is the first mountain peak which separates the Kashmir valley and Ladakh.

12. **Namila Pass** At a height of 12220 ft. after travelling above 90 kms from Kargil on the Leh, Kargil road falls Namkeela pass.

13. **Fata-La-Pass 16715 ft.** which separates Kargil District from the Leh District.

14. **Lama-Yarru** (13340 ft/ 4094 mtrs.) This is the lowest place in whole of Ladakh situated at 1219m/ 4000ft from the sea level.

15. **Panzi-La-Pass** (4400mts / 14441 ft.) A pass which separated Suru Valley from T, shaped Zanskar valley is at 140 km from Kargil.

16. **Kara-Koram Pass** (18660 ft.) It is situated to the North eastern side of Ladakh.

17. **The Kailash or Gangri Pass** (20,700ft.) It separates Ladakh from Tibet.

18. **Pir Panjal** (11970 ft.) This pass is a part of the Mid Himalayan range which divides the valleys of Lahul, spiti Kishtwar and Kashmir on the North and valley, of Kullu, Chamba and Poonch on the western bank of the Indus.

9. **Thung-Lung-La Pass** (17,500ft.) This falls on the Leh Manali Highway and is significant because it is considerable to be the second highest motorable road pass of the world.

10. **Khardung-La-Pass** (18,380ft/ 5578 mtrs.) It separates Nubra, Valley from the Ladakh or Indus valley.

11. **Chang-La-Pass** (18,00 ft/5,475 mts.) towards the east of Ladakh.

12. **Sinthen Pass** to connect the valley with Kishtwar.

There are other passes such as Burzil pass, Shipki-La-Pass, Nathula pass. All these passer lie in the Northern part of our State.

# CLIMATE

**B.A. Sem-II** **Unit-I**
**GG-201** **Lesson-3**

Climate has been defined as the average weather conditions at a specific place over a lengthy period of time, i.e., more than 30 years, while the conditions of the atmosphere at any place at a specific time or for a short time is known as weather. Climate deals with all the meteorological elements, i.e., atmospheric pressure, humidity, precipitation, temperature, wind and the way they are influenced by latitude altitude and aspect of slope, etc. Climate of a particular place is the net result of combination of several factors which also affect the climatic condition. The factors are like latitude, altitude, terrain, distance from the sea and Prevailing winds etc.

**Latitude:-** The state of Jammu and Kashmir lie between $32^0.6'$ N latitude, so latitudinally the area lies in the subtropics. But infact only outer plain and outer hills i.e. Jammu region experiences the sub tropical climate. The other two regions i.e., Kashmir and ladakh experience a climate which is mostly influenced by altitude.

**Altitude:-** The altitude above sea level of the three regions of J&K increases as we proceed to wards North. Increase in altitude always results in decrease of temperature. Thus Jammu is 366m high from the sea level with annual mean temperature of $24.5^0$c has a sub tropical climate. Kashmir is at a height of 1585m above sea level and having mean annual temperature $13.3^0$c comes under temprate climate, while Ladakh is at a height of 3505m above sea level experience sub Arctic climate.

**Terrain:-** There are a series of mountain ranges that run parellel to each other. Some of these act as a climatic barriers. These mountains also check the movement of moisture laden winds. Pir Panjal is the great barrier with regard to south west monsoon. It is evident that in J&K Jammu recieves high rainfall, Srinagar low and Ladakh very low.

**Distance from the Sea:-** The state in for away from the sea. It is characterised by extremes of Temperatures so as we proceed from south to north the height from the sea level increase and the temperature decreases.

**Prevailing winds:-** During summers the state in under the influence of south west Monsoons. In winter the state lies in the path of western disturbances. The winter rainfall in the low lands and snow falls in the high lands, is because of these eyelines.

**Climatic Divisions of Jammu and Kashmir**

The State of Jammu and Kashmir is situated in sub tropical latitudes, but owning to topographic features and snow clad peaks, the climate over a greater part of the state resembles to that of mountainous and centinental parts of temperate latitudes. The state can be divided into three climatic regions.

i) Sub tropical Jammu.

ii) Temperate Kashmir

iii) Sub Arctic Ladakh

In Jammu the monthly temperature remains almost above $13^0$c round the year, thus it enjoys a growing season of full year. The hottest month in the June while January the coldest month. Sometimes the day temperature shoots to $46^0$c in June. Most of the rainfall comes from July to september so the humidity is also high (69%) during this period. Four months i.e. May, June, October and November are generally dry.

December to February remains the cold season with a temperature between $13.5^0$c to $17^0$c in this region. The days are often sunny and warm as compared to night which are very cold. The annual rainfall is about 150 mm. The temperature begins to rise above $17^0$c in March till it reaches above $40^0$c in June. The weather becomes mostly dry and very hot. The South west monsoon arrives in Jammu by first week of July and withdraw by second week of September. The humidity is quict high during monsoons. October and november are generally dry with a decrease in temperature to $27^0$ and $21^0$c respectovely.

From the Point of view of Climate, the Jammu Division is divisible into two Parts, i.e. (i) The Plain region, lying to the south of the Siwaliks, and (ii) The mountainous region,

stretching over the Middle and the Greater Himalayas in the districts of Doda, Rajouri, Poonch and Udhampur.

**a) The Plain region:-** The outer plains and the outer Hills are grouped into tropical and sub tropical climatic region. The region includes the Kathua and Jammu districts and extends upto Siwalik hills in the north. The chief towns of this region are Jammu, Kathua, Samba, Hiranagar, Bishneh, Basoli and Akhnoor observe intense tropical heat in summer. In Jammu a typical foot hill town of outer hill region, the duststorms are common with occusional rains owning to its close vicinity to plains of Punjab. The nights are charming because the cool wind descends from the Siwaliks at night time. The hot air of the summers which steadily blows from west to east is known as "Loo" in local dialect. The summer crops including vegetables are repeatedly irrigated to protect them from 'Loo' (hot air). The mist and fog is quite common in winters. The frost and the cold winds, which blow from north to south (snow peaks of chenab valley to the plains), are common in winters.

**b) The mountaineous region:-** The climate and weather conditions of th emountainous tract of th eJammu Division are altogether different from that of the plain areas. The Middle Himalayas of Jammu division sprawal between Ravi in east and Poonch in west. Chief towns of this region are Doda, Bhadarwal, Kishtwar, Batote, Ramban, Banihal, ramsu, Riasi, Rajouri, Poonch and Udhampur. The moisture laddenwinds of the Summer monsoon cause rainfall in the outer plains and Outer hill regions but in middle mountains they become too weak to cause precipitation. But when they are strong enough, the rainfall is also caused in Middle Himalayas and across the Pir Punjal into the Kashmir valley. Rainfall in the hilly tract in recorded in almost all the twelve months of a year with maxima in July and August. In fact about 75% of the average annual rainfall at all the rainfall recording stations of the hilly and mountainous areas is recorded during the season of Barsat (general rains).

The climate of sub tropical Jammu is monsoon type. The year is divided into four seasons.

**(i) Cold Season :** This season lasts for three months i.e. December to February. The mean monthly temperature during this season is between $13.5^0$C to $20^0$C. The days are often sunny and warm but nights are cold. Precipitation falls in the

form of snow in high land. This precipitation is valuable for rabi crops in the region. Occurrence of fog locally known Dhund. Kohra is common in this season. The minimum temperature remains about $12^0$C and mean maximum temperature remains round $26^0$C.

**(ii)** **Hot Season :** Temperature begins to rise about $29^0$C in March and continues to rises upto June, when it rise about $40^0$C. The weather is mostly dry and very hot and water table falls very much.

**(iii)** **Rainy Season :** S.W. Monsoon arrives in Jammu by July. The showers are refreshing and give relief from intense heat. The streams and ravines overflow and water table rises. But monsoon is fickle. It may arrive too easily or too late. During this season humidity is quite high.

**(iv)** **Season of Retreating Monsoon :** Monsoon withdraw from Jammu by 14 September. There is complete reversal of direction of these winds. In October and November, the weather is generally dry. The temperature begins to falls and reaches $20^0$C in November and it is the time for harvesting Kharif crops.

**B** **Temperature :** The climate of the Kashmir division are intrinsically linked with the weather machanism in the subcontinent in general. The location of the Kashmir valley at a high altitude (about 1600m) in the north-western corner of the subcontinent, surrounded by high mountains on all sides, give it a unique geographical character with distinctive climatic characteristics. In general, the distinctive features of the climate of Kashmir are : (i) mild summers, (ii) Vigorous and severe winters with snowing and rain, (iii) a muggy and oppressive weather in July and August, and (iv) the most exquisitely pleasent spring.

On the basis of temperature and precipitation a year in the valley of Kashmir may be divided into the following four seasons:

1. Winter season (November to February)
2. Spring season (March to Mid-May)
3. Summer season (Mid-May to Mid September)
4. Autumn season (Mid-September to October)

(i) **Winter :** The main features of this seasons are very low temperature, high precipitation and high humidity. It lasts from November to March. Frost is common, snowfall is high. Heavy woolen clothes are used for survival. December, January and February receive about 120 cms. of snowfall.

(ii) **Spring :** It marks the first transition from cold to hot season and lasts for two months i.e. April to May. leaves appear agricultural activities begin temperature rises about $10^0$C and in March rainfall is sufficient. In this season nights are cold, wide variation in temperature is observed from place to place and there is further increase in temperature in April and May. The mean minimum and maximum temperature goes to $12^0$C and $25^0$C.

(iii) **Summer :** June and September is the period of summer season in Kashmir. The mean monthly temperature of June at Srinagar reads about $22^0$C. July is the hottest month in which the maximum temperature, sometimes goes upto $35^0$C or $37^0$C. Monsoon showers fall during July and August. Weather during these two seasons in muggy.

(iv) **Autumn :** Late September and October are the months of autumn season in the valley. October is the warm dry month favourable for ripening of temperatures fruits. It is harvest time leaves of the trees fall in the late of this month. In September the mean maximum temperatures is about $25^0$C and minimum about $11^0$C. The days are warm and nights are very cold and very little precipitation is recorded. Sky generally remain clear.

**C** **Sub Arctic Ladakh :** Ladakh division, lying meanily to the north of the Greater Himalayas, has a unique geographical personality. It is characterised with parallel mountain ranges, numerous snow-covered peaks, gigantic glaciers, narrow fertile valleys, alluvial fans, river terraces and seasonal lush green pastures. For most of the part Ladakh has bare crats, barren rocks and granite table lands, devoid of natural vegetation. All these factors have closely influenced the climate of Ladakh.

The climate of Sub Artctic Ladakh is very cold, arid and dry. In winter temerature is extremely low. Cold desert conditions prevail in this region.

The mean maximum temperature of Leh in July is $25^0$C and mean minimum

temperature is $7^0$C. In this season diurnal range of temperature is high being about $18^0$C under the rarified atmosphere. The heat during the day is intense and there remains a large difference in the sun and shade temperature. On a particular day the mean maximum temperature goes upto $38^0$C which may cause sun burn to the people working in the fields. In January this mean minimum temperature remain below freezing point i.e. remains as low as $-1.6^0$C at Leh and $-40^0$C at Drass. It is interesting that from september to may at Leh the night temperature remain below freezing point but the annual range of temperature is about $25^0$C. The skies are generally clear and insulation very intense. Winds blow with steady speed.

From May the September at Leh is the warm season and is the period and growing season. The average annual rainfall is about 20cms. at Leh, most of rainfall which is received in January, March and August. In no mouth humidity is above 50%. In this high mountainous region the climate is vertical. The snow that falls in winter becomes so powdery that is swept from the roofs of the houses with brooms. The ice crystals acquire a highly crystallized shaped during winter.

# DRAINAGE

**B.A. Sem-II** **Unit-I**
**GG-201** **Lesson-4**

## INTRODUCTION:

The arrangement and distribution of streams which are drainage system etches into the land surface and which may reflect the sum total of factor which may reflect the sum total of factors which influence the number, size and frequency of streams in a particular area is known as drainage system. The patterns of streams are influenced by

(i) Initial slope

(ii) Lithology

(iii) Structure

(iv) The geological and geomorphologic history of the area, and

(v) The climate and rainfall regime of the area

The state of Jammu and Kashmir is derived by the mighty Indus, Jhelum, Kishanganga, Chenab and their tributaries out of these the Indus and the Chenab rivers have their origins well to the north of the Greater Himalyas and they pierce through the main ranges of the Himalayas. The Jhelum has its origin at the verinag near the banihla Tunnel in the Pir Panjal Range.

## THE INDUS:

Rising in the vicinity of mansarower lake from Sengge-Khambal Glaciers, The Indus river flows in a north-westerly direction through the trough between the Kailash and the Ladakh Range. It is 709 km, long within India and drains an area of about 117,844 sqkm. For about 320 km it flows in a north-westerly direction,

when it crosses on the south-eastern boundary of Kashmir at an elevation of about 4,500m at Leh. Flowing in the same direction, it falls to 3500m at Leh. About 19 km downward, it is joined by the Shyok river on the right bank . Near skardu, the shigar joins the Indus on the right bank. Gilgit is another important right-hand Tributary of the Indus. The river thence flows west, crosses the Kashmir border and turns south and south-west wards entering into Pakistan.

The river Indus though flowing through gorge has numerous alluvial tans and river terraces. The tower of Leh is situated on an alluvial tan. To the east of Leh, on either bank of the Indus is an alluvial fan stretching over a distance of over 30km. This is the most fertile and levelled land sprinkled with several rural settlements of the Ladkah region.

**THE JHELUM:**

The Hydaspes of the ancients (Greeks and Romas), the vedasta of the Hindus, the Jhelum is known to the Kashmiris as the veth. When it leaves Kashmir at Baramullah it is called Kashmir Darya and after joining the Kishanganga it is spoken as the Jhelum river from the Pir-Panjal ranges about one km ahead of varinag. Initially the river flows in a north westerly direction and after passing through the city of srinagar merges into the walar lake. Emerging from the wular, it takes a south westerly direction which it pursues upto Baramulla. It finally passes into Pakistan through the Barmulla uri gorge. The Jhelum flood plain is about 1,585m above the Sea level.

Srinagar city is situated on either sides of the river Jhelum. The river is navigable without a single lock from khanabal to Baramulla a distance of 170 km, liddar, Vishav, Rambiara, Romushi, Dudhganga, Sukhnag, Sind are some of the important tributaries of river Jhelum. When the river is over flooded during rainy season it is diverted to the wular lake. The river Jhelum covers a distance of 720 km from its source to Trimmu, a place where it finally joins river chenab.

The Kishanganga: The river of Kishanganga an important tributary of the jhelum river has its orign in Kishansar lake and consequently been named as kishanganga. It drains the tilail, Burzha-Bal, Gurez and their surrounding region kishanganga merges into the Jhelum river near the city of Muzaffaffarbad.

**THE CHENAB:**

The Chenab in the mightiest river of the state. It has its source in the glaciers of the middle Himalayas. A combination of two streams Chandra and Bhaga rising lahoul and combine at Tandi (Himachal Pradesh) The Chandra has its source from a glacier known as Bara Lacha snowbed (6100m), whereas the Bhaga originates from the north-west. The river chandrabhaga enters the Jammu and Kashmir state at padar after flowing through the pangi valley of chenabe (H.P) from tandi to Kisthwar the river has many goreges, rapids and falls. At kishtwar the river receives a pernnial tributary known as wadvan stream and makes a typical gorge about 1000 feet below Kishtwar valley. From Kishtwar the river chenab flows to the west crossing Doda, Ramban, Reasi to Akhnoor. This river is not navigable, however, it is used for floating down the timber logs and construction of hydle project like that of salal (Reasi) Dul Husti (Kihstwar) and Bagliar (Ramban) hydle project. At some distance from Akhnoor it enters into the boundaries of Pakistan where owing to the flat tract, it spreads out in a big fan.

**TAWI:**

This stream has its origin from Seoj near Bhadarwah a meadow of the kailash mountain in the middle Himalayas. The river after passing through Chenani, Udhampur, Nagrota and Jammu finally meets chenab at Akhnoor. The river has a total length of 120 kms

**UJH:**

A branch of river Ravi flows from east to west comes from Ramkot side, passing through Kathua area enters Shakargarh tehsil in Pakistan. It collects its drainage from outer hills and is in flood during rainy season. A very large bridge has been constructed on National highway over the river.

**NEERU:**

This river arises from vicinity of Bhadarwah in middle mountains near Bhadarwah. It drains only Bhadarwah tehsil of Doda district. The river has a length of 45 kms and finally meets chenab at Pul Doda.

**ZANSKAR**

The zanskar river, a north flowing tributary of the Indus river, has two main branches in its upper reaches. First of these, the Doda originates near Pensi-La (4,400m) mountain pass and flows through the main Zanskar valley. The second branch is formed by two main tributaries, the Kargyag river with its source near the Shingo La (5,091 m) and Tsarap river with its source near the Baralacha-La.

**SHYOK**

The Shyok river, a tributary of the Indus river, traverses through the Ladakh of India and the Northern areas of Pakistan for a distance of about 550 km. It originates from the Rimo Glacier. The river widens at the confluence with the Nubra r:der.

**KISHANGANGA**

The Kishanganga or the Neelum river flows through the Kashmir region and enters Pakistan in the Gurais sector of the Line of Contr1' It meets the Jhelum river north of Muzzafarabad. The controversial Kishanganga Power Project is being constructed on it.

**DODA**

The Doda river originates from the Drang Drung glacier of the Pensi-La and flows through the state of Ladakh. The river flows into the Padum valley, and joins with the Tsarap river to form the larger river Zanskar.

**DRAS**

The Dras river, a tributary of the Suru river, originates in the Machoi Glacier near the Zozi-La pass.

**NUBRA**

The Nubra river is a tributary of the Shyok river and flows in Ladakh region. It originates from the Siachen Glacier.

## LAKES AND SPRINGS:

A number of lakes are found in the state of Jammu & Kashmir. Most of them are of glaciar origin. Some of the important lakes of the state are as follows:

**Wular** The Wular lake in Kashmir the largest freshwater lake in India. It is about 16 km long, 9.6 km ide with ill-defined shores. This lake lies between Bandipore and Sopore at a distance of 75 km.

**Dal** The Dal lake is a beautiful lake near Srinagar. It is 8 km long and 6.4 km wide. It is the floodlung of the Jhelum. The famous Mughal gardens are situated around it. Floating gardens, found in this lake, grow a large variety of vegetables.

**Nagin** The Nagin lake is located at a few distance from the Dallake. Both the lakes are interconnected by a small water channel. Like Dallake, it also freezes in the winter.

**Anchar** The Anchar lake is swampy area. The Sind Nollah enters this lake from one side and flows out from the other. It is about 8 km long and 3 km wide. Ganderbal is a famous township on its north-west bank.

**Mansbal** The Mansbal lake is at a distance of 29 km from Srinagar and is situated at Sopore. It is 5 km long and 1 km wide. It is connected with Jhelum by a canal near Sumbal.

**Mansar** The Mansar lake, 62 km from Jammu, is over a mile in length and half-a-mile in width. Besides being a popular excursion destination, it is also a holy site, sharing the legend and sanctity of Lake Mansharovar. On its eastern bank lies the shrine of mythological Sheshnag. People take a holy dip in it on festive occasions.

**Harwan** The Harwan lake is situated at a distance of 21 km from Srinagar. It is 278 m long, 137 m wide and 18 m deep. This lake is a source of water supply to Srinagar city.

**Hokarsar** The Hokarsar lake lies on the Baramula road about 13 km from Srinagar. It is about 5 km long and 1.5 km wide. Willow trees are grown in abundance around its banks.

**Vishno Pad** The Konsurnag or Vishno Pad lake is situated in the Pir Panjal range at a /height of 13,124 It (4,000 m) above sea level to the south of Shopian. It is about 5 km long and 3 km wide and is the source of the river Vishav. It is at a distance of 34 km from Shopian.

**Gangabal** The Gangaballake is situated at a height of 11,713 ft (3,570 m) on the peak of Harmukh mountain.

**Sheshnag** The Sheshnag lake is situated near Vavjan, enroute to Shri Amarnath cave. It is at a distance of 28 km from Pahalgam.

**Neelang** The Neelang lake is situated in tehsil Badgam at a distance of 10 km from Nagam. It is bounded by dense forest.

There are two more lakes: Tarsar and Marsar; lie on the northern slope of the Harmukh mountain. Marsar lake is the origin of the Canal Sharabkul that provides water to the fountains that play in the Mughal Gardens. Marsar lake flows into the Lidar, which is one of the largest tributaries of Jhelum. Sokh and Dokh are two frozen lakes situated at Harmukh mountain. These are said to be two headrops of Parvati - one a warm drop indicating happiness and another a cold one showing grief. The Pan gong is a salty lake in Ladakh. It is about 6.4 km long and 3.2 to 6.4 km wide at a height of 4,267 m above sea level. The other lakes of Ladakh are Patlong, Thaled, Longzang, Pang or and Tsimoriri.

**Important Springs**

Kashmir valley abounds in numerous springs of which Veri nag (the source of Jhelum), Martand (Anantnag), Achnabal (Anantnag), Kokernag (Anantnag), Chashma shahi (famous for its fresh and digestive water, situated near Srinagar on one side of Boulevard road), Tullamulla or Khirbhawani (a sacred spring), Vicharanag, Sukhnag, Vishnosar all( Harmukat Ganga in Srinagar area and Chirnagad Vasaknag in Anantnag are very famous.

# NATURAL VEGETATION

**B.A. Sem-II** **Unit-II**
**GG-201** **Lesson-5**

## INTRODUCTION

The term natural vegetation is used loosely to describe any plant life that is not organized or influenced by mankind. The natural vegetation of my region or place is closely influenced by

(i) Climate

(ii) Physiography

(iii) Edaphic conditions

(iv) Biotic setting and

(v) Human interaction with nature.

Climate ultimately effects all forms of life. The direct effects of climate on plants are exerted by elements of the water and heat budget, precipitation, humidity, temperature, sunlight and wind.

Out of all the climatic factors the influences of temperature on vegetation is most important. Plants can grow only within certain temperature limits, although, the limits are not the same for all plants natural vegetation, often called as "green gold" is an important source of revenue in the state.

## TYPES & DISTRIBUTION OF VEGETATION:

The type of vegetation found in J&K is typical of western Himalayas of which it is a part. In the Jammu and Kashmir provinces the terrain is mountainous and rainfall is sufficient to favour tree growth. The cold and arid climate of Ladakh region is unfavourable for the growth of forests. If we talk of total geographical

area of the state and we find the percentage of forested area, it is as low as 12.95%. The total area under commercial forest is 27% of the total geographical area. 57% of this forested area lies in Jammu region and rest 43% is in Kashmir province while Ladakh region needs to be excluded in this case. The number of factors like altitude, soil, precipitation terrain etc. has resulted in a variety of vegetation in J&K state which range between tropical and alpine types.

In order to understand the spatial distribution of different types of natural vegetations, the forest of Jammu and Kashmir state may be classified under the following categories.

**SUBTROPICAL FORESTS:**

The subtropical rain forests are confined to the siwaliks and lower slopes of the middle Himalayas. Owing to the seasonality of rainfall and adaphic factors there is great diversity of trees in these forest. These factors have a thick undergrowth of bushes and scrubs. The dominant species of subtropical forests are teak, sal, shisham, pipal (ficus religiosa), Tun, silver-Pine, Mohowa, Khair, thorny bushes, evergreen shrubs, climbers, reed and tall grasses locally known as Khar. Most of these species are broad-leaved deciduous typed which drop their leaves in the month of January, February and March. These forest are mainly utilised for fuelwood, timber, house-construction, agricultural implements furniture and miscellaneous purpose. Valuable products like resins, gum, katha, and medicinal herbs are also obtained from the sub tropical forest of the state. This type of vegetation is found in Jammu plains and kandi region. There is a bamboo forest at Jasrota. Khair is found in Bisohli area.

**TEMPERATE FORESTS:**

Moving northward the place of subtropical forest is taken by temperate vegetation. The slopes of Pir-Panjal, Greater Himalayas, Zanskar and Karakoram between 1,500 to 3,000 m are dominated by temperate forests. The dominant species in these forest are deodar, pine, silver-fir, spruce, fir, elm, alder, cedar, ash, sorrel, birch, paper-brich and hazel. The northern slopes of Pir-Panjal have the dominance of deoder blue-pine with undergrowth of deciduous shrubs while the Jhelum forest divisions (stretching over Gulmarg and Lolab valley) is dominated by cedar, fir and spruce species of conifers.

In the valley floor of Kashmir poplar, chinar, maple and vir (willow) are the main species of vegetation which deciduous in character.

The temperate forest are utilized for timber, fuelwood, charcoal and house construction. These forest produce good quality of timber and paper pulp. The most valuable timber forest of deodar has been depleted and is now confined to north western corner of Kashmir division. The accelerated rate of falling of tress is leading to the shrinkage of area of deodar, sprace, pine and fir. The over exploitation of forest and the use of soft and costly wood for fuel is doing great harm to the state revenue of one hand and the ecosystem on the other. According to data of 1994-95 the total area under forest in the state was 201.82 sq km out of which 19326 sq km was under thorny bushes and shrubs. In Jammu division district Doda has largest area under forest, followed by Baramulla 71% and Anantanag 60%

**ALPINE PASTURES:**

In the state of Jammu and Kashmir the Vegetation, especially grasses belonging to the higher regions of mountain system is known as Margs or Alpine pastures. This vegetation zone lies between 3600 to 4000 m above the sea level and begins well above the upper limits of conifer forests. Being the zone of high altitudes the climate in alpine pastures is extremely cold over greater parts of the year. It is only in the summer months (May to September) when ice melts at high altitudes and lush green grasses grow. The low temperatures at high altitudes of the Himalayau belt of the state support some dwarf varieties of birch and Junipers making a shrubby appearance. The stunted conifer tree merge into extensive alpine pastures. In there pasture, some shrubs form isolated thickets during summer months (June-August). The lush green and nutritious grasses of alpine pastures are utilized and grazed by the Gujjars and Bakerwals who practice trans humane. These herders ascend in the alpine pasture with their goats and sheep. They stay in Margs pasture upto the middle of September, depending on the prevailing temperature and precipitation conditions. In the autumn season (September-October)

they descend and migrate with their flock to the zones of lower altitudes kandi areas

of the Jammu division to pass their witness.

**NATURAL VEGETATION OF LADAKH:**

In ladakh, the average annual rainfall is less than 20cm ladakh is high altitude desert. Lack of moisture is the essential factor shaping the vegetation of Ladakh. The absence of rainfall over greater past of the year has resulted into xerophytic vegetation. The plants of Ladakh have evolved many special characteristics for conserving water. Many plants of Ladakh, like that of deserts, are heavily around with spines to repel the attacks of moisture seeking animals. In certain soil conditions, Ladakh plant have extremely long tap roots to reach deep underground water supplies. The natural vegetation in Ladakh is absent over the greater part except for more humid region of nubra and other ride valleys of the Indus river. Hippophae-Scrub is the major woody component which is used as fuel and material of roofing of houes.

The above description shows that the state of Jammu and Kashmir is relatively poor in natural vegetation as compared to the other Himalayan states of India. The growing pressure of population, the contractual system of falling, tress, over-interaction of man and poor management are responsible for the depletion of forests. During the last 50-years a substantial proportion of forest have been cleared and brought under agriculture and pastures. Whatever is left of the former vegetal cover, visa-a-vis and kinds of stresses and strains in the state still has a great important in regard to soil conservation, besides providing timber, fuelwood, fodder medicinal herbs and water and aesthetic beauty conservations. Looking at the benefits accrued from forest their conservation and judicious utilization deserve priority. To achieve these objectives a sound pragmatic strategy needs to be evolved in consulation with the researchers, planners administrators and rural masses. Forest have assumed a great importance in the economy of J&K state as a substantial revenue yielding industry. These are most valuable asset by a nation as they serve it in different ways. They influence climate and reduces extremes of temperature. They are also helpful in conserving soil and regulating moisture on earth's surface. They also bring about ecological balance and keep the atmosphere neat and clean.

# PRODUCTION AND DISTRIBUTION OF CROPS-WHEAT, RICE AND MAIZE

**B.A. Sem-II** **Unit-II**
**GG 201** **Lesson-6**

Land is one of the major natural resources of a country. The nature and magnitude of economic activitiesindustrial or agricultural-mainly depend on the quantum of land resources and the manner in which they are used. Land use pattern is of great important particularly it can put to alternative uses. Exploitation of land for agriculture industrial, resident's recreational or other purposes come in Land Utilization. In simple terms it is showing the distribution of t.he total geographical area under various uses.s The land use pattern of region is the result of a member of factors like topography, climate, soils, human activities and technological inputs. The land use pattern has been changed with the increasing pressure of population and consequent demand for cereals development activities and technological improvements.

Till 1949-50, the land area in India was classified into five categories known as the five-fold land utilization classification. These categories were: (i) forests, (ii) area not available for cultivation, (iii) other uncultivated land, excluding the current fallows, (iv) fallow lands, and (v) the net area sown. This five-fold classification was, however, a very broad outline of land-use in the country & was not found adequate enough to meet the needs of agricultural planning in the country. The states were also finding it difficult to present comparable data according to this classification owing to the lack of uniformity in the definitions and scope of classification covered by these five broad categories. To remove the non comparability and to bteak up the broad categories into smaller constituents for better comprehension, the Technical Committee on Coordination of Agricultural Statistics, set up in 1948 by the Ministry of Food and Agriculture, recommended a ninefold land-use classification replacing the old five-fold classification, and also recommended standard concepts and definitions for all the states to follow.

The statement below gives the nine-fold classification and its relationship with the old five-fold classification.

**Classification adopted for land-utilization statistics**

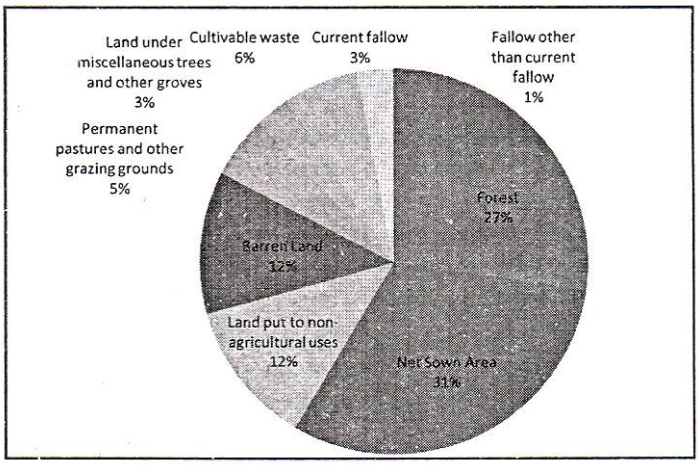
| *S. No.* | *Old classification* | *S. No.* | *New Classification* |
|---|---|---|---|
| 1. | Forest | 1. | Forests |
| 2. | Area not cultivation available for cultivation | 2. | Land put to non-agricultural uses |
| 3. | Other cultivated land, excluding current fallows | 3. | Barren & unculturable land |
| 4. | Fallow lands | 4. | Permanent pastures & other grazing land |
| 5. | Net area sown | 5. | Miscellaneous tree crops & groves, not included in the net area sown |
| | | 6. | Culturable waste |
| | | 7. | Fallow land, other than current fallows |
| | | 8. | Current fallows |
| | | 9. | Net area sown |

The total of these classes under both classifications adds up to the reporting area. The revised classification has been accepted in principle by all the states and has been adopted since 1950-51, except by West Bengal, in respect of which the data are still presented on the basis of the old classifica tion.

**Jammu and Kashmir-General Landuse, 2007-08**

| S. No. | Use of Land | Total Reporting Area in 000 Hect,. | Percentage |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| 1. | Forest | 658 | 27.30 |
| 2. | Net Sown Area | 752 | 31.20 |
| 3. | Land put to non-agricultural uses | 293 | 12.15 |
| 4. | Barren Land | 289 | 11.99 |
| 5. | Permanent pastures and other grazing grounds | 125 | 5.18 |
| 6. | Land under miscellaneous trees and other groves | 71 | 2.94 |
| 7. | Cultivable waste | 141 | 5.85 |
| 8. | Fallow other than current fallow | 8 | 0.33 |
| 9. | Current fallow | 73 | 3.02 |
| | Total | 2410.00 | 100.00 |

**Jammu and Kashmir-General Landuse, 2007-08**



It is clear that only 27.30 percent of the total area of the state is under forest cover and 31.20 percent is the net sown area. In case of forest cover the area is below 33 percent in state which was recommended by the government under the National Forest Policy 1988. Permanent and other grazing grounds occupy about 5.18 percent of the total reporting area and 11.99 percent is covered by the barren land. The proportion of fallow other than current fallow is 0.33 percent and current fallow is 3.02 percent respectively. 12.15 percent of the total reporting, area is comes under non agricultural uses in 2007-2008

**Production of Food Grains in Jammu and Kashmir**

| Year | Rice | Maize | Wheat | Other cereals and millets | Pulses | Total Food Grains |
|---|---|---|---|---|---|---|
| 1964-65 | 4327 | 3718 | 1122 | 407 | 253 | 9827 |
| 1965-66 | 2356 | 2165 | 827 | 252 | 231 | 5831 |
| 1974-75 | 4560 | 3036 | 1931 | 258 | 318 | 10103 |
| 1980-81 | 5464 | 4933 | 2047 | 285 | 337 | 13066 |
| 1985-86 | 5871 | 4939 | 2721 | 220 | 285 | 14036 |
| 1990-91 | 5769 | 4440 | 2974 | 213 | 268 | 13664 |
| 1995-96 | 5050 | 5360 | 3992 | 188 | 152 | 14742 |
| 1999-00 | 3915 | 4712 | 4343 | 177 | 145 | 13292 |
| 2000-01 | 4153 | 5258 | 1487 | 170 | 128 | 11196 |
| 2001-02 | 4223 | 5381 | 3430 | 198 | 125 | 13357 |
| 2002-03 | 4214 | 4651 | 4055 | 203 | 142 | 13265 |
| 2003-04 | 5048 | 5326 | 4595 | 225 | 132 | 15325 |
| 2004-05 | 4928 | 4922 | 4782 | 243 | 152 | 15027 |
| 2005-06 | 5574 | 4535 | 4575 | 201 | 135 | 15020 |
| 2006-07 | 5546 | 4869 | 4983 | 238 | 141 | 15777 |
| 2007-08 | 5620 | 4745 | 4959 | 230 | 153 | 15707 |

*Source :* Financial Commissioner (Revenue).

**Total Area Shown urtder Different Crops in Jammu and Kashmir**

*(Area in 000 hectares)*

| Year | Food Crops | | | | |
|---|---|---|---|---|---|
| | Rice | Jowar | Bajra | Maize | Wheat |
| 1955-56 | 196.00 | 1.00 | 19.00 | 203.00 | 150.00 |
| 1960-61 | 226.00 | — | 18.00 | 216.00 | 172.00 |
| 1965-66 | 212.00 | 1.00 | 16.00 | 255.00 | 154.00 |
| 1968-69 | 240.00 | — | 17.00 | 245.00 | 188.00 |
| 1974-75 | 237.00 | — | 16.50 | 265.30 | 191.00 |
| 1980-81 | 264.58 | 0.05 | 15.02 | 275.19 | 201.98 |
| 1985-86 | 265.55 | 0.10 | 16.99 | 286.98 | 224.01 |
| 1990-91 | 274.49 | — | 16.09 | 294.90 | 245.12 |
| 1995-96 | 273.08 | 0.01 | 13.75 | 303.87 | 243.81 |
| 1999-00 | 250.63 | 0.006 | 13.38 3 | 17.30 | 245.75 |
| 2000-01 | 244.05 | — | 13.34 | 330.21 | 280.96 |
| 2001-02 | 249.80 | — | 13.57 | 326.48 | 259.60 |
| 2002-03 | 236.20 | 0.13 | 13.40 | 329.46 | 248.30 |
| 2003-04 | 259.82 | — | 16.77 | 321.19 | 254.66 |
| 2004-05 | 250.04 | 5.98 | 16.04 | 322.70 | 252.78 |
| 2005-06 | 259.01 | 1.42 | 13.01 | 320.92 | 252.83 |
| 2006-07 | 252.52 | — | 20.77 | 323.60 | 266.11 |
| 2007-08 | 263.25 | — | 16.82 | 302.44 | 278.30 |

*Source :* Financial Commissioner (Revenue)

## Production of Food Crops

Food crops have attracted highest attention of our planners, policy makers, administration and agriculture scientists. Jammu and Kashmir is essentially grain growing state. Rice, wheat, maize, millets and pulses are in major food crops. It is in these crops, particularly in wheat, maize, bajra, jowar and rice high yielding variation have been developed and green revolution has set in country. The trends of the production of food grains from 1964-65 to 2007-2008 has been given.

## Rice

Rice is the staple food of the people of State and mostly in Kashmir. Rice finds many other uses besides a food crop.

Rice is a tropical crop, and its cultivation needs both high temperature and high rainfall. The annual range of temperature should be broadly 23° C. The usual rainfall should be between 60-200 cm. if the rainfall below the range, irrigation is a must if we want to save this crop. Frost, mist, fog and low temperatures are injurious to its cultivation.

The land under rice cultivation in Jamrnu region is 123320 thousand hectares while it is 139926 thousand hectares under rice cultivation in Kashmir region. The district of Anantnag leads in area sown under rice in hectares in the valley, where as second and third position is taken by Budgam and Baramulla respectively in 2007-2008. In Kashmir region, the crop is raised in almost all parts of the region Kulgam belt which is drained by the "Vishav" a famous tributary of river Jhelum, is often referred as the "Rice bowl of Kashmir". The average yield of rice in Kashmir division is about 18 quintals per hectare while in Jamrnu division; the average yield per hectare is about 13 quintals.

The cultivation of rice is widely carried out in Jammu region. The cultivation of rice is highly concentrated in the alluvial tracts of the Jammu, Kathua, RS. Pura, Reasi, Udhampur and mostly lower areas of Chenab basin i.e. Doda, Bhaderwah and Kishtwar, Akhnoor, Jamrnu, Kathua and RS. Pura, Rajouri and Samba are the important riee growing areas in the Jamrnu region. "Basmati" which is the finest type of rice and mostly export in middle east and other parts of the country grown in RS.

Pura. While in Ladakh, a small quantity of rice grown in Nubra, Sura and Rupsu valley.

The area under rice has increased from 212.00 thousand hectares to 263.25 thousand hectares during the period from 1965-66 to 2007-08 in state, exhibiting an increase of 24.18 percent respectively.

The production of rice in Kashmir valley was (3468000 qtls) .61.70% while in Jamrnu region it was only 38.30% (2152000qtls) in the year 2007-2008. The total production of rice in Jammu and Kashmir was 562 thousand quintals.

**Wheat**

Wheat is the staple food of people of state and mostly in Jammu division as rice in Kashmir division. After maize next in importance comes the wheat crop in Jammu and Kashmir. It needs different temperature at difterent times during its cultivation at the time of sowing $10^0$C at the time of growth 15°C and at the time of ripening 20°C. For wheat cultivation it is necessary to have around four months of frostless period for wheat. The most favorable rainfall range from 60-75 cm. Rainfall below 40 cm is not conducive to the growth of wheat crop. The shortage of rainfall can be made up with the help of irrigation water. Soil is not very important. Wheat is grown in the poor soil also but loamy soil is ideal for its cultivation. Plain or rolling surface is best surface because tractors and other equipments can work upon it easily.

In Jammu region and Kashmir region it is sown in the month of October and November while in Sum and Nubra valley of Ladakh it is sown in the month of May and harvested in the month of August. So in Ladakh it is a kharif crop. In Jammu division, the crop is raised in almost all parts of the region The Jammu districts leads in area sown under wheat in hectares in Jammu division where as second and third position Kathua and Rajouri districts respectively. The cultivation of wheat is widely carried out in Jarnmu region only because the climate of Kashmir region is not suitable for the growth of wheat So in Kashmir region farmers give more preference to Rice and Maize instead of wheat cultivation. The cultivation of wheat is highly concentrated in Jammu, R.S. Pura, Samba, Akhnoor, Vijaypur, Rajouri, Poonch, Udhampur, Reasi etc. Wheat is also cultivated where irrigation facilities are too

limited for example "Kandi" areas of Jarnmu division where the farmers are totally depend on rainfall for the cultivation of wheat.

The land under wheat cultivation in Jammu region is 273031 thousand hectares while it is only 991 thousand hectares (Budgam, Pulwama, Baramulla) in Kashmir region. The production of wheat in Kashmir valley was 8 thousand quintals i.e. only 0.16% of the total production of the wheat in the state. On the other hand Jammu region contributes 4913 thousand quintals which is 99.07% of the total production of the wheat. The total production of wheat in the state was 1122 thousand quintals in 1964-65, 3992 thousand quintals id 1995-1996, which rose to 4959 thousand quintals in 2007-2008. The increase in area and production show that farmers are taking interest in the cultivation of this crop in the state mostly in Jammu division.

**Maize**

Maize is the staple food of the people who live in higher elevations mostly occupied by the Gujjars and Bakerwals. It is cultivated by the inhabitants of the Kandi areas of the state. Maize is also an important cattle food, fed to farm cattle, poultry birds and pony's. Maize is a kharif crop which required high temperature and good amount of rainfall with high manures. Maize is grows well mainly in semi-tropical areas and needs a lot of humidity. The annual range of temperature should be broadly 21°C to 27°C and there should be at least 140 frostless, days. There should be at least 8-15 cm of rainfall during growing months. The growing period of maize cultivation varies from 120 to 170 days and the annual rainfall expected is 60-125 cm. In case of soil clayey ordinary loams or deep well drained loom is necessary for cultivations. Usually leveled surface is ideal but it is also grown on rough undulating surface.

It is grown in hill slopes and kairewas of Kashmir Valley. In case of sown area nearly one third of the total cropped area was devoted to this cultivation of maize i.e. 30.44% in 2007-2008. Maize is grown in almost all the districts of the state except Leh and Kargil due to the suitability of the climate for the cultivation of Maize.

The land under maize cultivation in Jammu region was 197788 thousand hectares which lies 65.39% and in Kashmir region it was 104653 thousand hectares which was 34.60% of the total sown area uder maize cultivation. The production of maize in Kashmir valley was 964 thousand quintals (20.31%) and 3781 thousand quintals in Jammu region (79.69). The total production of maize in the state was 4745 thousand quintals in 2007-2008. In Jammu division districts like Udhampur, Ramban, Reasi, Doda, Poonch, Kishtwar maize cultivation occupies major share of the total cropped area. On the other hand in Kashmir valley Kupwara and Shopian districts gives major share to maize cultivation out of the total cropped area.

**District wise Area Sown under Different Crops 2007-08**

*(Area in 000 Hectares)*

| District | Food Crops | | | | | | |
|---|---|---|---|---|---|---|---|
| | Rice | Jowar | Bajra | Maize | Wheat | Barley | Millets |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Anantnag | 25086 | — | — | 12566 | — | — | 14 |
| Kulgam | 17961 | — | — | 4928 | — | — | 3 |
| Pulwama | 16734 | — | — | 5509 | 350 | — | — |
| Shopian | 556 | — | — | 1479 | — | — | — |
| Srinagar | 2100 | — | — | 116 | 3 | — | — |
| Ganderbal | 8363 | — | — | 3397 | — | — | 59 |
| Budgam | 23092 | — | — | 12012 | 380 | — | — |
| Baramulla | 21205 | — | — | 22199 | 231 | — | 311 |
| Bandipora | 9588 | — | — | 5144 | — | — | 150 |
| Kupwara | 15241 | — | — | 24730 | — | — | 87 |
| Leh | — | — | — | — | 2676 | 94 | 4909 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Kargil | — | — | — | 4 | 1603 | 4016 | 553 |
| Jammu | 50716 | — | 7817 | 11275 | 80558 | 293 | 10 |
| Samba | 11236 | — | 5521 | 3219 | 29011 | 724 | — |
| Udhampur | 8649 | — | 562 | 36188 | 28735 | 593 | 89 |
| Reasi | 1721 | — | 359 | 23540 | 11353 | 233 | — |
| Doda | 1868 | — | — | 25281 | 3701 | 2551 | 2 |
| Kishtwar | 943 | — | — | 11962 | 2579 | 2181 | 2989 |
| Ramban | 1261 | — | — | 16912 | 3997 | 1910 | — |
| Kathua | 27573 | — | 2279 | 21305 | 55982 | 1822 | 31 |
| Rajouri | 15684 | — | 278 | 36967 | 42196 | — | — |
| Poonch | 3669 | — | — | 23712 | 14946 | — | — |
| Jammu & Kashmir Total | 263246 | — | 16816 | 302445 | 278301 | 14417 | 9206 |

# HORTICULTURE AND SERICULTURE

**B.A. Sem-II** **Unit-II**
**GG-201** **Lesson-7**

Horticulture includes the cultivation of fruits, vegetables and ornamental plants. The term is derived from the Latin word hortus meaning 'garden' and culture meaning 'cultivation'. Today's horticulture encompasses much more than garden cultivation. It is a tremendous industry composed of numerous commercial enterprises and even more numerous home gardens, orchards, lawns and ornamental plantings. Millions of people are engaged in horticulture world over on full time, part time, leisure time or amateur basis. It is a field that affects and influences world over all people. Fruits and vegetables constitute a major part of this whole industry.

These commodities play a vital role in satisfying the nutritive requirements of the human body. Most vegetables and fruits are sources of one or more kind of vitamin or vitamin complexes needed for good health. In many instances of vitamin deficiency, fruits and green leafy vegetables have not been part of the diet. If people eat adequate amount and variety of fruits and vegetables there is rarely any need for vitamin pills as a supplement to the regular diet.

In the hilly region of the country terrain is not suitable for the cultivation of cereals due to which farmers preferred to cultivate horticultural crops like fruits and vegetables. The cultivation of these crops is an important mean of economic growth in the hills. Agro climatic conditions of the region are suitable for cultivation of sub-tropical to temperate kind of fruits and vegetables. Apple and other temperate fruits can only be grown in this region of the country. This paper based on secondary data, attempts to study the growth of horticulture in Himachal Pradesh and the variations in area and production of horticultural crops mainly fruit and vegetables in the hilly region and factors associated behind these variations. (Singh and Kaur,2010)

The diverse soil and climate comprising of several agroecological regions in our country provide ample opportunity for growing a variety of horticultural crops. These crops form a significant part of total agricultural produce in the country comprising of fruits, vegetables, root and fiber crops, flowers, ornamental plants, medicinal and aromatic plants, spices, condiments, plantation crops and mushrooms. However, horticultural development had not been a priority in. India until recent years. In the period 1948-80, the main focus of the country was on producing cereals. Planned efforts had not been made for horticultural development, except for some technical support and development efforts for specific commodities like spices, coconut and potato. During 1980-92 there was consolidation of institutional support and a planned process for the development of horticulture. It was in the post-1993 period that a focused attention was given to horticulture development through an enhancement of plan allocation and knowledge-based technology. Despite this decade (1993-2004) being called a "golden revolution" in horticultural production, the productivity of horticultural crops increased only marginally from 7.5 tonnes per hectare in 1991-92 to 8.4 tonnes per hectare in 2004-05 (National Horticulture Board, 2005).

Jammu and Kashmir is basically an agrarian economy. The favorable agro climatic conditions, fertile soil, subtropical climate are ideally suited for cultivation of fruit and vegetables in the state and offer immense scope for development of horticulture. I view of the potential available fruit, growing has become a major industry and contributes largely to the export trade of the state. It absorbs a large chunk of people in the various processes through whichit passes. Horticulture has a substantial share in the State Domestic Product. Looking on the importance of horticulture crops the State government is placing considerable emphasis to the development of horticulture crops i.e. fruits, vegetables, spices, plantation crops, floriculture etc.

The major fruit grown in the state are Apple, Mango, Walnut, Almond, Cherry, Apricot, Peach, and Plum etc. Kashrniri apple is famous both in taste and appearance. It has gained fame in the export market and fetches a very good return. The major vegetables grown in the state are .onion, Potato, Tomato, Turnip, Mutter, Radish, Carrot, Green vegetables etc. and species like Chilies, Garlic, and Turmeric etc

**District wise Area under Major Horticulture Crops in Jammu and Kashmir**

**(2007-2008P)**

(Area in Hectares)

| Distric | Fresh Fruit | Dry Fruit | Total of Fresh and Dry Fruit |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Anantnag | 14398 | 14299 | 28697 |
| Kulgam | 13601 | 5325 | 18926 |
| Pulwama | 7711 | 9953 | 17664 |
| Shopian | 20527 | 3546 | 24073 |
| Srinagar | 4441 | 1570 | 6011 |
| Ganderbal | 4787 | 3534 | 8321 |
| Budgam | 16217 | 13355 | 29572 |
| Baramulla | 24759 | 3272 | 28031 |
| Bandipora | 4482 | 1749 | 6231 |
| Kupwara | 17396 | 8187 | 25583 |
| Leh | 1328 | 51 | 1379 |
| Kargil | 1439 | 15 | 1454 |
| Jammu | 10490 | 0 | 10490 |
| Samba | 6889 | 0 | 6889 |
| Udhampur | 5280 | 3212 | 8492 |
| Reasi | 4011 | 2119 | 6130 |
| Doda | 6584 | 5954 | 12538 |

Contd.....

Contd.....

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| Kishtwar | 2779 | 3944 | 6723 |
| Ramban | 3869 | 4116 | 7976 |
| Kathua | 9846 | 3542 | 13388 |
| Rajouri | 7498 | 7336 | 14834 |
| Poonch | 7813 | 3926 | 11739 |
| Jammu and Kashmir | 196136 | 99005 | 295141 |

P: Provisional.

Source : Directorate of Horticulture Kashmir /Jammu.

Depicts the district wise area under major horticulture crops in hectares in Jammu and Kashmir. The horticulture crops further demarcated as fresh fruits and dry fruits. The main varieties of fresh fruits includes Apple, Pear, Peach, Mango, Apricot, Cherry etc. while dry fruits includes Walnut, Almond etc. the state of Jammu and Kashmir is famous for some of the exclusive varieties of fresh and dry fruits which are exported in large number in other parts of country and outsiop the country. So far as fresh fruit are concerned, the total are occupied by our state is 1,96,136 hectares. The Bararrtulla district is having largest area (24,759 hectares) which is followed by Shopian (20,527 hectares), Budgam (16,217 hectares), Anantnag (14,398 hectares) and so on. The districts of Leh and Kargil comprised of lowest area under fresh fruits-as 1,328 hectares and 1,439 hectares. According to this table the districts of Kashmir province are having more area under fresh fruits in comparison to districts of Jammu province.

On the other side, the total area occupied by dry fruits is 991105 hectares which is less than area occupied by fresh fruits in the state of Jammu and Kashmir. Among the prevalent of 22 districts, the district Anantnag leads with 14,299 hectares. The district Budgam occupies 2nd position with 13,355 hectares area while Pulwama stands at 3rd rank with 9,953 hectares of area under dry fruits. The districts of Jammu and Samba of

Jammu province are completely devoid of dry fruit areas. On the whole, the total area under horticulture fruits which inculcates both fresh and dry fruits in the state of Jammu and Kashmir is 2,95,141 hectares. The district of Budgam leads in total area in hectares in all fruits which is nearly 29,572 hectares. It is followed by Anantnag (28,697 hectares), Baramulla (28,031 hectares) and so on. The Leh district is having least area under all fruits which is merely 1379 hectares.

**District wise Production of Major Horticulture Crops in Jammu and Kashmir (2007-2008P)**

*(Quantity in metric tonnes)*

| Distric | Fresh Fruit | Dry Fruit | Total of Fresh and Dry Fruit |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Anantnag | 111634 | 41376 | 153010 |
| Kulgam | 106572 | 18752 | 125324 |
| Pulwama | 96425 | 11672 | 108097 |
| Shopian | 223218 | 7311 | 230529 |
| Srinagar | 27241 | 2048 | 29289 |
| Ganderbal | 39500 | 6166 | 45666 |
| Budgam | 69942 | 14626 | 84568 |
| Baramulla | 463180 | 6403 | 469583 |
| Bandipora | 56385 | 2509 | 58894 |
| Kupwara | 156555 | 22103 | 178658 |
| Leh | 6650 | 110 | 6760 |
| Kargil | 5550 | 12 | 5562 |
| Jammu | 12378 | 0 | 12378 |

Contd.....

Contd.....

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| Samba | 26675 | 0 | 26675 |
| Udhampur | 8548 | 3773 | 12321 |
| Reasi | 2811 | 2158 | 4969 |
| Doda | 5972 | 3563 | 9535 |
| Kishtwar | 3765 | 2642 | 6407 |
| Ramban | 6309 | 2020 | 8329 |
| Kathua | 27911 | 2865 | 30776 |
| Rajouri | 12804 | 6607 | 19411 |
| Poonch | 6895 | 1567 | 8462 |
| Jammu and Kashmir | 1477920 | 158283 | 1636203 |

P : Provisional.

Source : Directorate of Horticulture Kashmir/Jammu.

The highlights the districts wise production of major horticulture crops in the state of Jammu and Kashmir. As far as fresh fruits are concerned the total production is 1,47,7920 metric tonnes in the state of Jammu and Kashmir. The district Baramulla is the highest producer of fresh fruits as it encompasses around 6,43,180 metric tonnes of production. The district Baramulla is followed by Shopian (2,23,218 metric tonnes) and Kupwara (1,56,666 metric tonnes). The newly formed district Reasi is the lowest producer of fresh fruits as it accounts only 2,811 metric tonnes. The total production of dry fruits in the state of Jammu and Kashmir is 1,58,283 metric tonnes. The highest producer of dry fruits is district Anantnag (41,376 metric tonnes) followed by district Kupwara (22,103 metric tonnes), Kulgam (18,752 metric tonnes) etc. the Kandi districts of Jammu and Samba shares no hold in dry fruits production.

So far as overall production of fruit is concerned in the state of Jammu and Kashmir, the total production of around 16,36,203 metric tonnes. The district Baramulla leads in the overall production of all fruits with 4,69,583 metric tonnes.

The district Shopian ranks 2nd (230529 metric tonnes) and district Kupwara ranks 3rd (178658 metric tonnes) respectively in overall production of all fruits. The Kargil district is the lowest producer of all fruits with just 5562 metric tonnes of all fruit production,

**SERICULTURE**

The rearing of silk worn on mulberry trees for the production of raw silk is known as sericulture. In the State, mulberry trees in the wild form existed from antiquity. This is a labour intensive form of farming using cheap skilled labour or workers. Fresh mulberry leaves are fed to the silk worms and the thread is unraveled from the cocoons on small spinning machines. Sericulture involves the steps of

1. Rearing of silk worm
2. Collection of cocoons and their delivery for reeling purpose.
3. Reeling of raw silk from the cocoons and
4. Availability of mulberry trees from which fresh leaves the feed of the silkworms can be obtained.

Rearing of silk worms requires scientific and technical skill. For the development of healthy silkworms, various basic seed stations have been established in the state. These are located in Kashmir, Udhampur, Mirqund, Acchabal and Bangel in Kashmir. Besides this there are also found in Rajouri, Poonch, Jammu & Kathua.

Govt. has established various nurseries for the growth and development of there mulberry nurseries. There nurseries are at Doda, Banihal, Bhaderwah, Udhampur, Poonch, Rajouri, Kathua in Jammu division while these nurseries are established in Qazigund at Vissu village, Acchabad, Bangil, Sopore, Srinagar etc.

**JAMMU AND KASHMIR : SERICULTURE DEVELOPING 1974-94**

| Year | Mulberry Trees in (000) | Prod. of __ Silk in (000kg) | Value in Lakh |
|---|---|---|---|
| 1974-75 | 219.5 | 70.5 | 176.14 |
| 1980-81 | 601.00 | 78.85 | 234.98 |
| 1990-91 | 1668.00 | 20.75 | 155.35 |
| 1994-95 | 1685.00 | 19.98 | 271.00 |

*Source :* Directorate of Sericulture, Jammu & Kashmir

# LIVESTOCK AND FISHERIES

| | |
|---|---|
| **B.A. Sem-II** | **Unit-II** |
| **GG-201** | **Lesson-8** |

## FISH AND FISHERIES

Fishes constitute an important source of supplementary diet for human beings all over the world. Being rich in proteins, unsaturated fatty acids, vitamins and minerals, which fulfill the nutritional and energy requirements of man, fish happens to be the cherished diet. Besides, fish proteins owing to their palatability, easy digestibility and high biological flesh value, are preferred over other animal proteins. The demand of edible fish thus varies according to biochemical composition of the flesh and thus the life cycle stages of life. In other words. different fishes are consumed at different size and age classes during different seasons. Studies on the seasonal physiological rhythms in different fishes revealed a great deal of their diversity.

Our country occupies 4th position in the world production of marine fish and 2nd in Inland fish production (Chowhan 2004). India has 2 percent of the world's land and 4 percent of the total fresh water resources available on the face of earth but supports 16 percent of the world population. Despite its second rank in the inland fish production yet it is 136th among 162 countries in terms of per capita consumption of fish. The Indian average is around 3.12 Kg per capita against the world's average of 12.11 Kg. Out of about 23 percent of India's total animal protein supply in the diet, fish contributes merely 2.3 percent.

With the overwhelming increase in population, it is estimated that by the Year 2020, the demand of fish would be around 7.2 million tons and 0.60 metric tons for additional exports. In order to make the modest provision of recommended 9.85 Kg per person, about 5 million tons of fish productions are needed in the domestic market. The overall, requirement of fish has been estimated to be 4.0 million tons for aquaculture.

**Production of Fishes**

The statistical figures pertaining to fish caught along with the strength of fishermen/ licensed holders is documented in the exhibit 2.6 (A) and 2.6 (B).

The analysis of the table reveals that both the Jammu and Kashmir division, fish caught is practice to a large extent. Both the divisions marked the increasing trend in fish culture. Kashmir division records the fish caught of 92705 quintals in 1980-81 that increases to 100144 quintals in 1985-86, 118011 quintals in 1990-91 that finally stands at 156410 quintals in 2004-05 and 162758 quintals in 2010-11. Similarly, Jammu division that records 2713 quintals in 1980-81 reached up to 30240 quintals in 2004-05. The table further shows that fish caught increased from 95418 quintals in 1980-81 to 190557 quintals in 2004-05 and finally settled at 34342 quintals in 2010-11. Moreover, the fish caught is being done by licensed fishermen in the state which increases from 4176 in 1980-81, 11278 in 2000-01 and reached up to 13370 in 2004-05 with an increase of 259 fishermen in 2010-11. The distribution of licensed fishermen shows that Anantnag district recored the maximum of 2530 fishermen constituting to about 15.99 percent of total fishermen in the State which is very closely followed by 2189 in Srinagar district (13.84 percent), 2016 in Bandipur district (12.74 percent). Jammu district on the other hand registers 1212 (7.66 percent) fishermen as against 1061 (6.71 percent) in Baramulia district, 992 (6.27 percent) in Ganderbal district, 675 (4.27 percent) in Pulwama district, 594 (3.75 percent) in Udhampur district, 566 (3.58 percent) in Rajouri, 426 (2.69 percent) in Poonch, 66 (0.42 persent) in Kargil and lowest of 32 (0.20 percent) in Leh district of Ladakh division of the State.

**Fish caught and numbers of license holder (quintals)**

| Years | Kashmir division | Jammu division | Total | License holders |
|---|---|---|---|---|
| 1980-81 | 92705 | 2713 | 95418 | 4176 |
| 1985-86 | 100144 | 5030 | 105174 | 6323 |
| 1990-91 | 118011 | 17000 | 135011 | 6134 |

| | | | | |
|---|---|---|---|---|
| 1995-96 | 144531 | 20669 | 165200 | 7854 |
| 2000-01 | 156410 | 28257 | 184667 | 11278 |
| 2004-05 | 160317 | 30240 | 190557 | 13370 |
| 2010-11 | 162758 | 34242 | 197000 | 13629 |

**Source :** Directorate of Fisheries (J&K) Srinagar

**Numbers of licensed holders**

| District | Nos. of License Holders | % age |
|---|---|---|
| Srinagar | 2189 | 13.84 |
| Ganderbal | 992 | 6.27 |
| Budgam | 460 | 2.91 |
| Anantnag | 2530 | 15.99 |
| Kulgam | 738 | 4.66 |
| Pulwama | 675 | 4.27 |
| Shopian | 31 | 0.20 |
| Baramulla | 1061 | 6.71 |
| Bandipora | 2016 | 12.74 |
| Kupwara | 411 | 2.60 |
| Leh (Ladakh) | 32 | 0.20 |
| Kargil | 66 | 0.42 |
| Jammu | 1212 | 7.66 |
| Samba | 209 | 1.32 |
| Kathua | 594 | 3.75 |
| Poonch | 426 | 2.69 |
| Rajouri | 566 | 3.58 |

| | | |
|---|---|---|
| Udhampur | 594 | 3.75 |
| Reasi | 306 | 1.93 |
| Doda | 366 | 2.31 |
| Kishtwar | 219 | 1.38 |
| Ramban | 129 | 0.82 |
| **Total** | **15822** | **100** |

**Source :** Directorate of Fisheries (J&K) Srinagar

## LIVESTOCK RESOURCES

The undulating physiography well stretched meadow and extensive pasture land locally known as margs registers the rich diversity of animal resources. The important livestock being reared in the state includes cattle, buffaloes, sheep and goats. and many others. The livestock is playing a key role in transforming the economic profile of the state. The rearing of sheep and goats provides livelihood to nomadic grazers and bakerwal population in the state.

### Distribution

The distribution of livestock resources in the state is presented in the table 2.7 (A) and 2.7 (B). The livestock is unevenly distributed in the state. The highest numbers of cattle are records in Doda district (25.73 lakhs) followed by Samba, (25.61 lakhs), Anantnag (25.57 lakhs). However, Kupwara, Udhampur, Kathua, and Kishtwar registers 25.21 lakhs, 23.74 lakhs, 22.95 lakhs and 22.72 lakhs respectively against 6.72 Iakhs in Ramban, 9.93 lakhs in Rajouri, 11.19 lakhs in Shopian and 10.72 lakhs in Leh district for the census year 2007.

Contrary to this, buffaloes are largely domesticated Samba district that records 16.22 lakhs and zero percent buffalo population is found in Leh and Kargil district in 2007. Poonch, Jammu, Udhampur marked the registration of 15.42 lakhs. 14.59 lakhs and 11.94 lakhs respectively in the year 2007. Anantnag district and Baramulla respectively stands at 0.56 lakhs and 0.44 Iakhs buffalo's population in the state. Both the cattle and buffaloes represented the increasing trend in which the cattle are increased from 23.252

lakhs in 1982 to 34.431 lakhs in 2007 and buffaloes from 5.631 lakhs in 1982 to 10.503 lakhs in 2007.

Similarly, it is found that Ramban district again topped in numbers of sheep population and accordingly possessed highest numbers of 70.65 lakhs whereas, Kargil and Kishtwar stands at second and third position with the registration of 42.51 lakhs and 36.27 lakhs of Sheep population respectively. Doda and Rajouri occupied 36.10 lakhs and 33.97 laklis against 8.69 lakhs in Samba and lowest of 3.15 lakhs in Jammu district for the year 2007. On the other hand, Leh district occupied the higher ebb by recording highest numbers of goats (56.43 Iakhs) in the state while Kargil district becomes the second grazer of goat with the possession of 23.26 lakhs in 2007. It is interested to mention here that goats and sheep are largely concentrated in Jammu than Kashmir division because of higher nomadic population residing in Jammu. The state as whole records the population of 41.271 lakhs and 20.682 lakhs of sheep and goats in 2007 that increased from 19.087 and 10.039 lakhs in 1982.

However, other animals like donkey, horses, camels, pigs ponies, yaks and dogs are also widely distributed in the state whose highest numbers are registers in Shopian (73.28 lakhs) followed by 71.38 lakhs in Pulwama, and lowest of 14.50 lakhs in Leh district in 2007.

**Livestock Population (lakh) - 2007**

| District | Cattles | Buffaloes | Sheep | Goats | Other |
|---|---|---|---|---|---|
| Srinagar | 21.81 | 0.02 | 14.06 | 2.10 | 62.00 |
| Ganderbal | 16.48 | 0.29 | 21.98 | 4.11 | 57.14 |
| Budgam | 22.59 | 0.20 | 17.57 | 5.12 | 54.52 |
| Anantnag | 25.57 | 0.56 | 19.91 | 2.21 | 51.71 |
| Kulgam | 22.62 | 0.36 | 21.60 | 2.23 | 53.19 |
| Pulwama | 14.17 | 0.17 | 12.21 | 2.06 | 71.38 |
| Shopian | 11.19 | 0.24 | 14.75 | 0.54 | 73.28 |
| Baramulla | 16.49 | 0.44 | 15.59 | 4.21 | 63.27 |

| | | | | | |
|---|---|---|---|---|---|
| Bandipora | 19.44 | 0.27 | 25.87 | 5.42 | 48.99 |
| Kupwara | 25.21 | 0.35 | 15.17 | 5.16 | 54.12 |
| Leh (Ladakh) | 10.72 | 0.00 | 18.43 | 56.34 | 14.50 |
| Kargil | 11.99 | 0.00 | 42.51 | 23.26 | 22.24 |
| Jammu | 14.70 | 14.59 | 3.15 | 8.73 | 58.83 |
| Samba | 25.61 | 16.22 | 8.69 | 17.49 | 31.98 |
| Kathua | 22.95 | 7.91 | 26.06 | 19.52 | 23.0056 |
| Poonch | 15.67 | 15.42 | 28.51 | 11.47 | 28.94 |
| Rajouri | 9.93 | 9.89 | 33.97 | 22.28 | 23.94 |
| Udhampur | 23.74 | 11.94 | 25.09 | 16.51 | 22.72 |
| Reasi | 17.40 | 11.22 | 31.86 | 18.53 | 20.99 |
| Doda | 25.73 | 3.54 | 36.10 | 11.89 | 22.73 |
| Kishtwar | 22.72 | 2.45 | 36.27 | 12.42 | 26.13 |
| Ramban | 6.72 | 1.42 | 70.65 | 3.15 | 18.06 |
| **Total** | **17.04** | **5.20** | **28.79** | **10.24** | **38.73** |

**Source :** Livestock census. 2007

**Livestock Population (lakh.)**

| Year | Cattles | Buffaloes | Sheep | Goats | Other | Total |
|---|---|---|---|---|---|---|
| 1982 | 23.252 | 5.631 | 19.087 | 10.039 | 1.55 | 59.559 |
| 1988 | 27.657 | 5.958 | 24.939 | 13.960 | 1.59 | 74.100 |
| 1992 | 30.550 | 7.325 | 29.469 | 17.655 | 2.06 | 87.066 |
| 1997 | 31.754 | 7.878 | 31.695 | 18.095 | 2.33 | 91.751 |
| 2003 | 30.839 | 10.395 | 34.107 | 20.549 | 3.10 | 98.993 |
| 2007 | 34.431 | 10.503 | 41.271 | 20.682 | — | 179.342 |

**Source :** Livestock census, 2007

**Livestock Production**

In terms of livestock production there is a gap between demand and supply. The quantum of livestock products and by products has increased over the years still the output viz-a-viz the number of animals is not sufficient. The quantity of output from the hybrid and new breeds of cows are much more than the local one and as such the Government is taking steps to increase the quantum of such livestock to meet the domestic demand for the livestock products. The main livestock products are milk, meat, eggs and wool. As per the estimates of Integrated Sample Survey (ISS) of major livestock products, the production of milk for the year 2007-08 was estimated at 1515.29 thousand metric tonnes. Presently the per capita availability of milk is about 341 grams per day. The per capita egg production is 55 eggs per year while as the per capita meat production is 2260 gms/ year for the State. The cross breed programme of artificial insemination in the State implemented on large scale resulted in increase of milk production of cows.

**Production of Livestock**

| **Particulars** | **2006-07** | **2007-08** | **Percentage change** |
|---|---|---|---|
| Milk production (lakh Kgs) | 1485.16 | 1515.29 | 2.03 |
| Wool production (000 Mts) | 68.57 | 70.83 | 3.30 |
| Egg production (Lakhs) | 6263.63 | 6667.74 | 6.45 |
| Total milk consumed (lakh Kgs) | 846.54 | 833.41 | -1.55 |
| Total milk sold ( lakh Kgs) | 475.25 | 500.04 | **5.22** |
| Total milk converted into milk Products (lakh Kgs) | 163.37 | 181.84 | 11.31 |
| Total eggs consumed (Lakhs) | 4697.23 | 5000.81 | 6.46 |
| Total eggs sold (Lakhs) | 1566.4 | 1250.0 | -20.20 |
| Dung production 000 (Tonnes) | 6138.87 | 6284.49 | 2.37 |

| | | | |
|---|---|---|---|
| Meat Production (Lakh kgs) | 266.12 | 275.42 | 3.49 |
| Red meat (Lakh kgs) | 209.3 | 215.59 | 3.01 |
| White meat (Lakh kgs) | 56.82 | 59.83 | 5.30 |
| Per capita milk production (gm. /day) | 343 | 341 | -0.58 |
| Per capita egg production (No./ year) | 57 | 55 | -3.51 |
| Per Capita Meat Production (Gms per year) | 2412 | 2260 | -6.30 |
| Red meat | 1897 | 1769 | -6.75 |
| White | 515 | 491 | -4.66 |

**Source :** ISS (2006-07)/2007-08

# MINERAL RESOURCES-COAL AND GYPSUM

**B.A. Sem-II** **Unit-III**
**GG-201** **Lesson-9**

Mineral resourecs are the materials which lie deep in the earth and are exploited for the progress and development of a country. The mineral and power resources are the backbone of industrial and technological development of a country. The mineral resources are however exhaustible. Once the mineral are extracted they cannot be replaced. Most of the minerals are thus finite, exhaustible and non-renewable.

## COAL

**Introduction :** Coal is an important energy resource used in industry and generation of power. Coal is a combustible rock which had its origin in the accumulation and partial decomposition of vegetation. Coal exists in four forms depending upon the precentage of carbon content.

These forms include - Lignite, Anthracite, Bituminous and peat.

The State of Jammu & Kashmir has very limited coal deposits. It is the Raisi subdivision of the Udhampur district in which coal of anthracite quality occurs in some widely distributed seams of 30cm to 6cm in thickness.

The major coal deposits of the state are found at Kalakote, Jangalgali, Metka, Chinka, Dhansal, Swalkote, Mohogala, Sangar-Marg.

Trace of coal have also been found in Baramulla, Handwara and Pulwama areas, as well as in Ladakh region.

It has been estimated by the Geological survey of India that the Kalakote coal mines have a workable reserve of about 5.4 million tonnes upto a depth of about 300m. An analysis of the Kalakote coal reveals that it is of low volatle anthracite grade with ash content varying from 10 to 20 percent and fixed carbon about 60 to 80 percent.

In ladda and Jangalgali coal field reserves are estimated to be about five million tonnes. The coal of Ladda also has about 50 percent carbon and about 20 percent impurities and moisture contents.

The Geological survey of India has carried out explorations at Mohogala and Metka (Poonch District) and arrived at the result that these places, upto a depyh of 300m have about 9 million of coal. The fixed carbon in the coal of these deposits is about 57 percent, volatile 30 percent and ash and moisture 10 and 3 percent repectively.

At present coal is being mined near Kalakote to feed the only thermal power plant of the state at Kalakote. The rated capacity of the plant is 7.5MW and 35,000 tonnes of coal is being mined actually. The energy generation capacity of the plant may be enhanced substantially if new generators are installed in the Kalakote plant and new technology is applied for the mining of coal.

**Lignite deposits:** In J&K occur in the Kerawas of Western Kashmir from Shaliganga upto Chowkibal. Huge deposits of coal, Lignite are present in Handwara. Kashmir Lignite consists of only 7 to 20% of carbon. In 1981-82 the production of lignite was 5.2 thousand tones. Lignite is a black brown coal, that is intermediate in coalification between Peat and Sub bituminous. Lignite is used as a fuel in the vally of Kashmir. Field survey and prospecting conducted by the Geological survey of India in the 1980's reveals that lignite, anthracite and peat deposits are found in small quantities in some area of the Jammu & Kashmir divisions. The coal deposits of the state do not belong to the carboniferous period. They have their origin to the Lower Tertiary, Eocene, or Oligocene periods and are found in association with Nummulitic Limestone. They have low carbon contents, ranging between 50 to 60 percent.

Coal is a useful mineral resource in J&K. It occurs in Poonch, Rajouri and Udhampur.

**OCCURANCE:**

The coal is extracted from coal fields in Udhampur and Kalakote are which extends from Jangalgali in the east to Jigni in the west, fallimg in districts of Udhampur and Rajouri and lies between latitude 300 - 150 to 330 - 150 and longitude 740 - 200 and 750 - 100.

This coal which is semi anthractitic in rank occurs as black in form though about 10% of the production is in the form of steam coal. This coal is of generally high heat value.

**EXTRACTION:**

Depending on the depth of the layers or seams, coal is extracted in open pit or ground wines. Whatevr the technique used, extracting this precious ore from the bowels of the earth is a huge undertaking.

**UNDERGROUND EXTRACTION:**

To reach the coal, if the deposits are not too deep, wells are drilled sideways so trucks can circulate. If it is very deep down, vertical wells are drilled and a system of elevators and connections to the surface are installed. The well is then drilled horizontally to follow each coal layer as for as possible.In a region like J&K, where mountains have covered most of the area, this type of extraction is quite useful. In underground mines, galleries are formed and they can even extend over dozens of kilometres. In mountaineous region, galleries can be drilled horizontally into the side of the hill, so infrastructure for bringing the ore back up to the surface is not needed. It should be kept in mind that it is very dangerous to extract coal from underground coal mines. They can even cause floods and several disasters.

**OPEN-PIT MINING:**

An open-pit mine is a huge hole that looks like a sports-stadium, with terraces along which earth moving vehicles drill into layers. But what a stadium! The largest open-pit mines are several kilometres long and hundreds of metres deep.

Each coal layer is called an excavation. The mine start to look like a big amphitheatre, where the terraces are made up of coal layer being extracted. Huge excavators harvest the coal (the biggest of there is 240 metres long, longer than 2 football stadium and 96 metres high, higher than a 38 story building!). The buckets on these excavators can contain upto 300 tons of rock. Open-pit mining costs less than underground mining.

**PROXIMATE ANALYSIS:**

The general proximate analysis of the coal is as under-

| | | |
|---|---|---|
| Ash | – | 20 to 30% |
| Volatile matter | – | 10 to 13% |
| Moisture | – | 1 to 15% |
| Calorific Value | – | 6000 Kcal/kg to 7800 K.cal/kg |

**USES:**

The coal is used in:

1) Manufacture of cement using high class technology.
2) Brick kiln industry
3) Steam coal is used in industries using boilers
4) In manufacture of battery covers.

Now, the J&K state govt. has decided to develop a new coal mine in Rajouri district as part of efforts to achieve self-sufficiency in the state.

The previous minister for industries and commerce SS Slathia had put a step towards the elevation of the mineral resource. He had a massive hand in constructing a new coal mine in Badhog in Rajouri district.

## GYPSUM

Gypsum is a non-metallic mineral. It is a hydrous sulphate of calcium having chemical formula $CaSo_4$, $2H_2O$. Gypsum forms large bedded masses or aggregates occuring in association with rocks of a number of different geological formations. Gypsum is an evaporite mineral found in clays and limestone sometimes associated with Sulphur. It is an non-metallic mineral of great economic importance. It occurs in a sizeable quantity and of fairly good grade in various parts of the state. Thus cheapest mineral is used for surface dressing of agricultural land. Its uses also include the manufacture of wallboards, cement, plaster of paris, soil conditioning etc. Varieties of gypsum known

as “satin span and alabastar” are used for a variety of ornamental purposes, however their low hardness limits their durability.

**SOURCES**

Extensive deposits of gypsum are found in Ramban, Batote, Assar, Thathri along the river chenab in Jammu region. In Kashmir region, the rich deposits occur at Baramulla, Lachipora, Anantnag and Uri Sector. It has been recently discovered in Ladakh district also. The total reserves of Gypsum in the state have been estimated at about 100 million tonnes. Anantnag alone have about 15 million tonnes of mineral reserves. The annual extraction of gypsum is more than 1000 tonnes in Jammu and Kashmir state.

**USES**

As Gypsum is a non-toxic mineral, it can be helpful to humans, animals, plant life and the environment. It is used as a soil additive to improve the soils workability and receptivity to moisture and to overcome the corrosive effect of alkalinity. Gypsum specifically benefits such crops as corn cotton, wheat and peanuts where substantial amount of sulphate is required. It is also used as an additive in turbid water, particularly ponds, to settle dirt and day particles without injuring aquatic life. It can also be used as a color additive for drugs and cosmetics and also as a primary ingredient in toothpaste.

# HYDEL POWER RESOURCES

**B.A. Sem-II** **Unit-III**
**GG-201** **Lesson-10**

Power is the key to high level of economic development. Its level of consumption in any country is a significant indicator of development. The J&K State is among the most backward states of India and will continue to stay in the backwardness unless adequate steps are taken to improve its power situation. The state is poor in cool and because of the unfavourable geological structure the prospects of striking gas and petroleum are also not every promising. The state has been however tremendous potential for hydel generation which has been tapped inadequately. The Indian average per capita consumption is 133 units which is far away from the developed countries. We need electricity not only to light our houses and streets, but also to run our tubewell, lift irrigation, pumps, rural industries, machines and factories. Regular supply of cheap electricity boosts all round development of an area.

## HYDEL POWER

### INTRODUCTION

Power development in Jammu and Kashmir has a long and distinguish history 9MV Mohra Hydro electric plant, among the first of its kind in the subcontinent was developed as 1905. The estimated hydel potential is about 20,000 MV out of which projects of about 16,200MV capacity have already been identified. These projects are techno-econically viable, besides being eco-friendly and socially beneficial. In order to harness, this potential in a sustained manner, the Government of J&K state establish Jammu and Kashmir State Power Development Corporation Limited which has incorporated as private limited company on 16th February 1995. The corporation was incorporated to takeover execute complete, operate and maintain all power stations and power projects of the state. The assets of all the power projects in the state, both

existing and under implementation were transferred to the corporation. The corporation presently has 20 hydroelectric projects with installed capacity of 758.70 located in various district of Jammu&Kashmirincluding 400Mv of BHEP. J&K State is one its achievements took lead in award of a mega hydro power scheme tariff based competitions bidding process. J&K is the first state in India to award 690Mv Rate HEP, (mega hydro-power project) on Boot basis through a tariff based competitive process.

**(A) KASHMIR**

**1. Kashmir-Hydro Electric works-Mohra:**

Mohra was the second Hydro electric power project in the Indian subcontinent which was commissioned in 1907 in J&K state, while sivasamundnm project, constructed on cavery river in Karnatka in the year 1902, was the first project of its kind in Asia. The Mohra project is situated in Baramulla district. A ten kilometer long canal is taken from the river Jhelum at Boniyar. The electricity from this project is fed to state grid.

2. **The Lower Sind Hydro Electric Project Ganderbal**

This power project is situated near Ganderbal on the bank of the river Sind. The waters of the sand stream have been diverted into 914Kms long canal at Prag and carries water to the power projects at Ganderbal. The first phase of the projects at Ganderbal. The first phase of the project was commissional in 1955.

**3. The Upper Sind Hydro Electric Project Sumbal:**

A second Hydel Project was constructed on the Sind stream at a place 35kms, upstream of Ganderbal. the power house is at Sumbal. At 11kms long canal brings water Kulan. The project was commissioned in 1975. It introduces 11Mv of power in summer and only 12Mv in winter.

**4. The Lower Jhelum Hydro Electric Project Buniyar:**

This Project harnesses the waters of river jhelum for the generation of 105Mv of electricity. The first phase was commissioned in 1978.

**5. The URI Power Projects:**

The Uri Hydel project is about 100kms from Srinagar on the Srinagar Uri

National Highway. The biggest component of this project is Headrace tunnel, which is about 10Kms long, and utilizes the watersof river jhelum. Uri Project is one of the largest power projects constructed in the Kashmir valley so far. Besides, there are minor power projects in the Kashmir division, the most significant among them are Pahalgamprojects and Gurez Hydel scheme.

**(B) JAMMU**

**1. Jammu Hydro Electric Power House Canal:**

It is small power house built on the Ranbir canal in Jammu city with Mohra, it is the second power house, commissioned in the state before 1947. The height of the waterfall is 2.5 metres and the electricity generated is 600Kws.

**2. Chenani Hydro Electric Project Udhampur:**

The Power house at Chenani on the Jammu-Srinagar National Highway utilizes the waters of river Tawi. The canal is 20Km in length. It is built over a ridge of the middle mountains. The project was commissioned in 1971. The installed capacity of project is 24Mws.

**3. Salal Dam Project:**

The project was constructed by the National hydroelectric corporation under the central sector. The project has been constructed at side called Salal in Reasi. The waters of the river Chenab are stored in a big reservior and are fed into anumer ground powerhouse. The project was started in 1970 and completed in 1987. It has a capacity of 345Mvs of electricity.

**4. LADAKH:**

In Kargil district, the Iqbal mini Hydel Project was commissioned in 1995. The crore project has agenerating capacity of 3.75Mvs. Three more mini Hydel projects, i.e Haftal project in Zanskar

# INDUSTRY – FOREST BASED INDUSTRIES, AGRO-INDUSTRIES AND HANDICRAFTS INDUSTRY

**B.A. Sem-II** **Unit-III**
**GG-201** **Lesson-11**

## INTRODUCTION

An overview of carpet industry of Jammu and Kashmir whose roots are deeply connected with the culture and economy of Jammu and Kashmir.

Thus, carpet industry is not only a good contributor to the Kashmir economy, but it is intimately associated with the culture of Kashmir. Therefore, it is obligatory to protect this industry.

## FOREST BASED INDUSTRY

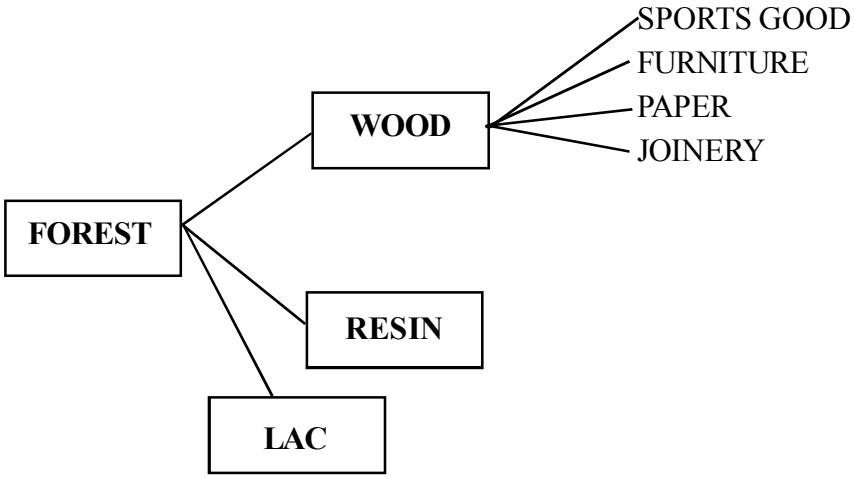
The state of Jammu and Kashmir has one-third area under forest. Most of the forest specis in the higher altitude belong to conifers, while in lower altitude fine and deciduous broad-leaves trees are more prominent. These forest provide raw material to number of forest based industries. Paper, pulp, sports goods, furniture, joinery and decorative are some forest based industries well developed in the state of Jammu and Kashmir.

Although, number of joinery mills have been established in Srinagar along the Srinagar-Barmulla Road, Pampore.

In Jammu, sports goods are manufactured at Miran Sahibh.

The willows, mulberry and walnut tree can provide raw material required for the development of sports good, furniture and wood artifacts. nearly 5000 workers earn their livilihood from the forest -based industries and their Annual production amount to more than Rs. 5 crore.

**FOREST BASED PRODUCT**




Forest also provide variety of Resin, used in several chemical Industries. It has diversified property. It is collected from the pine tree of Jammu and Kashmir division. Resion processing and manufactoring centre are situated at Miran Sahib, Sunderbani and Rajouri. These three factories employ about 450 workers and produce resin worth Rs. 10 lakh.

Lac obtained from forest can be ultilized for the manufacture of foolish, adhsive, printing ink etc.

The Boat Industry of Kashmir is also of great importance. The Boat Industry is quite old in Kashmir. Now forest conservancy and reduction in forest area have made good quality Deodar more expemive whichis coming in the way of Boat Industry.

## AGRO BASED INDUSTRIES

**INDUSTRY :**

Production of goods in large quantities after processing from raw materials to more valuable products is called 'Manufacturing'. And the production of an economic goods or service in an economy is called an 'Industry'. In simple words, It can be defined as the process ofmaking products by using machinary & factories. The economic strength of a country is measured by the development of manufacturing industries.

Since, we use a variety of manufactured products in our daily life. Hence, there are a variety of ways in which an industry is classified.

On the basis of Raw Materials-

i) Agro based industries.

ii) Mineral based industries.

i) Agro based industries:

- Agro based industry would mean any activity involved in cultivation, under controlled conditions of agricultural & horticultural crops, including floriculture & cultivation of vegetables. They use plants and animal products as their raw material.

- India is the largest producer of milk, sugarcane & tea as well as the second largest producer of rice, wheat, fruits & vegetables. Nearly 70% of the population here depends on argiculture & agro based industries. J&K is the largest producer of Apples & 6th largest producer of walnuts in the world. Agro-based industry is broadly divided into the following ways–

    i) Village industries owned & run by rural households with very little capital investment & large level of manual labour e.g. papad, pickle, etc.

    ii) Small Scale industries are characterised by medium investment & semi-automation e.g. edible oil, rice, etc.

    iii) Large scale industries involves large investment & automation e.g. sugar, jute, cotton, etc.

- Agrobased industries in J&K:

    J&K state is basically an agricultural state where the yield not only adds to state's income but also provides raw materials to a no. of industries.

Chief food crops in J&K are–

1. Staple crops like Rice, Maize, Wheat, Barley.
2. Commercial crops like Saffron, Mustard
3. Fruits like Oranges, Lemon, Litchi, Fig, Guava, Pomegranate, Grape, Mangoes, Cherries & Apples.
4. Dry Fruits like Almond, Walnut & Apricot.

**In the year 2008-09**

| | |
|---|---|
| Rice production | 562000 tonnes |
| Apple production | 13.5 metric tonnes |
| Walnut production | 126000 metric tonnes |
| Almond production | 1200 metric tonnes |
| Saffron production | 6.5 metric tonnes |
| Pear production | 12000 metric tonnes |

## AGRO INDUSTRIES IN J&K

**Rice :** Rice production in the state of Jammu and Kashmir is pre-dominantly a mono cropped activity. Jammu division and kashmir valley especially the Jhelum valley floor produces a large quantity of rice.

**Production -** The are under rice cultivation is about 40% in Jammu and 60% in Kashmir valley.

**Industries -** There are so many large and small industries. Barbarshah in Srinagar has a large rice mill and modern rice plant is established at laithpore near Pampore.

**Maize -** It is cultivated in the Karewas land in the valley of Kashmir and in the hilly areas of the state.

**Production -** An area of about 303000 acses in under the cultivation of maize.

Wheat - It is the staple food of the people of J&K. Jammu district area leads in sown area under wheat followed by Kathua, Rajouri, Samba and Reasi.

**Production -** Total area under wheat in the three divisions is under:-

Jammu - 31000 acres.

Kashmir - 78000 acres.

Ladakh - 7000 acres.

**Saffron -** It is a cash crop. Its cultivation is confined to Pampore, Kathua only. The Pulwama district produces 73% of the total saffron area, leads in area and production. It requires alluiral and lucstrine soil.

**Production -** About 3000 acres land is under Saffron cultivation in Pampore.

Mushroom - It is a perishable crop that needs skill and care during transportation. Kathua district is opted for Mushroom cultivation as they found it profitable.

**Production-** During 2009-10, the department of argiculture had supplied 67,277 spoon bottles for establishment of 138000 trays of button mushroom and 8748 bottles of establishment of 17417 blocks of Dhinagr. Production rises from 6000 quintals to 8000 quintals in past three years.

**Dry Fruits-** Dry fruits include almonds, walnuts and apricots. The apricots are dried and then exported as dry fruit.

**Production-** Almonds are restricted to Pulwama and Budgam districts while walnuts are raised in all parts of the valley. The apricots are grown in kargil and Leh.

**Fruits -** Fruits like apples, Pears, Cherries, Plums, Grapes, Pomengrate, Mulberry, Peaches require cool climate, moderate rainfall and bright sunshine. The climate of Kashmir suits the cultivation of fruits. It is an important source of wealth to the state.

**Production -** About 3.50 lakh tonnes of fruits are produced annually.

**Silk -** It is obtained from silkworms which fed on mulberry trees that are available all over the state. Silk cocoons are grown in abundance in the valley of Kashmir.

**Production -** There are two silk factories one at Jammu and another at Rambagh in Srinagar, producing slik yarn from these cocoons.

**Mustard -** Mustard is also grown in the state with other oil seeds. It is the main source of edible oils. Oil is extracted from mustard and its remain is locally known as 'Khal' which is used as cattle feed. It also finds its use in medicines, perfumes, soaps etc.

**CONCLUSION -**

Agro based industries are coming up and are receiving increasing attention from the centre as well as state. The industries of Jams, Jellies etc have enormous potentials especially in Baramulla and Anantnag districts. The food corporation of India has to take initative in this direction so that the scope of these industries are however comping up in Jammu and Kashmir Govt. has established many canning centres in various parts of the state where fruit processing is done.

**HANDICRAFT**

**Introduction :** Handicrafts are unique expression adn represent a culture, tradition and heritage of a country. The handicraft Industry is one of the important productive sector. Various attempts have been made to define this broad and diversified Industry.

**Defining Handicraft:-**

According to United Nations Educational, Scientific and Cultural Organiztion Information Technology community (UNESO/ ITC) Internation Symposi

"Crafts adn the International Markets: Trade and Customs Codification".

Handicrafts can be defined as products which are produced either completely by hand or with the help of tools. Mechanical tools may be used as long as the direct

manual contribution of the artisan remains the most substantial component of the finished product.

The Kashmir valley is known for its severe winters and people remain mostly indoor. The leisure time during winter is used for making handicraft by the people who also make use of their creative intellegence in this art.

**The Famous Handcraft of State are:-**

**(A) JAMMU :** Knitting, Bamboo craft, straw work, spinning and weaving, wicker craft, palm leaf, wood carving etc.

**(B) KASHMIR :** Carpets, Namda, Shawls, Chain Stitch, Paper machine, willow-wicker, Metal ware, Poltery, Knitting, Tapestry, Precious Jwellery, Copper ware and other.

The main handicraft of the state which find both home and foreign markets are:-

**1. CARPETS :** Central Asia and Persia (Iran) has been the home of carpet weaving. This art of carpet weaving was introduced in Kashmir by Zainul-Abidin who ruled Kashmir from 1420-1470 AD. The oldest Kashmir carpet were floral design with garden, wild animal. There were 7211 carpet units in Sin districts of the valley duirng (1978-79) which employed of 3055 workers.

**2. NAMDA :** The art of Namda making orginally come from Yarkand. Wool of sheep is the main raw material for Namda making. The Namda is a hand made felt rug that makes excellent floor covering for the winter.

- The main process involved in Namda making are carding, Rolling, pressing, Washing.
- All these operation are done by hand. The main market of his handicraft are Russia and United Kingdom.
- The number of Namba units in all the Sin district of Kashmir valley in 1978-79 were 393 employing 1521 workers.

**3. Wood Carving :** It is one of the famous handicraft of Kashmir. The artist i.e wood carves, carves beautiful design out of wood especially the walnut. The speciality of the Kashmir wood work is the Khatambund. The wood carving articles attract the tourist in the state. Wood carving unit in Kashmir during 1978-79 were 385, and no. of Ustaker were 2427.

**4. Paper Machie :** Paper machie is of Persian origin, but Kashmir has a monopoly in this handicraft. The rich fauna and flora designs are painted on paper machie article which include vases, powder boxes, table lamps, paper knife and other articles of decoration. The paper machine work is known as Kari-i-Kalamadua the best specimen of the old worker wer ethe pen boxes.

- Paper machie is confined to Srinagar and Baramulla areas.
- The total unit during 1978-79 were 957 and the number of people engaged in these unit were 2362.

**5. Willow Work :** The willow work, is a gift of French of Kashmir. The article made up of wicker-willow, include wall baskets, flower baskets lampshade, curtain rings, sofa sets, chair, table, fruit tray which are made n a stylish design.

- Shalabag, Soura in Sringar are the main centres of willow work. It is confined to other parts of Kashmir division also about 3145 unit during 1978-79 employs about 4269 workers.

**6. Shawls:** The shawl is one of the most distinguished handmade fabrics of Kashmir which excels in artistic crafts manship. Srinagar city is th elocalized centre of shawl making.

- The main markets of theshawl are both UK and USA.
- The number of units of both Kari and Sozni shawl during 1978-79 was 168 & 10068 respect employing 199 and 32683 people.

**CONCLUSION :-**

In the end what is most important to make this all possible is good management of the handicraft. Enterpricers commitment by artisans and consistent high quality of products.

# TRANSPORT AND COMMUNICATION

**B.A. Sem-II** **Unit-III**
**GG-201** **Lesson-12**

## TRANSPORT

### INTRODUCTION

The world has shrunk, due to the advancement in the means of transport and communication. All the three domains of the world-land, water and air, provide excellent media of transport. Development of cheap and efficient means of transport is prerequisite for the speedy and balanced economic development of the state. Without an effective transport network, the natural endowment of a region cannot be exploited judiciously. The development of transport depends upon physical, historical, technological, economic and political factors.

"Transport means movement of passengers and goods from one place to another. Transportation is the life blood of commerce necessary for the development of internal as well as external trade.

The remote areas of the state are yet inaccessible by road and man is still the beast of burden in some mountain areas of the state. The Marnath cave in Kashmir is not connested by surfaced road. The pilgrims either foot the distance from Chandawart or ride on ponies upto the cave. In some parts of Ladakh, yaks and ponies help in carrying loads.

Transportation involves the movement of passengers and goods. In general, the transport and communication network involves the transfer of people, commodities and information over space. Transportation has been an important activity of the man since the primitive ages. The atmosphere offers scope not only for air travel through aeroplanes.

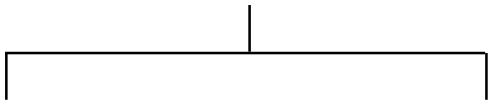
**The means of transport linked with land, water and air are:**

1) Land (Roadways and Railways)

2) Water (Waterways)

3) Air (Airways)

**1) Land:**



a) Roadways b) Railways

**(a) Roadways:** Roadways are easily built and can negotiate higher gradients of slopes and as such can transverse mountains. They can pass through mountains, forests and deserts. They can be brought to our door steps. Roads are generally recognized as surfaced or metallic and unsurfaced or kaccha.

**(b) Railways:** Railways in Indian sub-continent was introduced in 1854A.D. Railways are very costly, for construction and maintenance. They cannot negotiate high gradients of slopes as do the roads. Railways are very useful for hauling heavy goods over relatively long distances. In the state, the railway station at Jammu is connected with other parts of the country.

Before 1947, the Kashmir was connected with the sub-continent by three routes:

1) Jehlum Valley Road

2) Banihal Cart Road

3) The Moughal Road

1) **Jehlum Valley Road:** The construction of Jehlum valley road in 1891 A.D is regarded an engineering feat. It is one of the finest mountain roads in the world. This road measures about 196 miles in length from Srinagar to Rawalpindi (Pakistan).

After partition the road is blocked beyond Uri for common people. Beyond Uri, the road is under military control. The first bus from Srinagar - Muzzarfabad piled on 7th August 2005.

2) **Banihal Cart Road:** The Banihal cart road connects Srinagar with Jammu across the Pir Panjal range through Banihal Ramsoo, Ramban, Batote, Patnitop, Kud and Udhampur. The boring of the Jawahar Tunnel at 2300 m height has discarded the snow bound bops of the Banihal cart road.

3) **The Moughal Road:** The Moughal road, during the Moughal period was the main road link between Srinagar and the Indian Sub-continent. This road passes through Shopian. This road is now a mere skeleton being very rough and tough.

**JAMMU-SRINAGAR-LEH NATIONAL HIGHWAY**

After August 1947, the Jammu Srinagar-Leh Road was given the status of National Highway No 1-A, the Jammu - Poonch Highway and a number of state roads radiating in all transport system of the state. Over 80 percent of the surface transport in the state is carried on by roads, while in the Kashmir & Ladakh. Divisions roads are the only dominant mode of transportation carrying about 99 percent of the people & goods. The Border Roads organisation has also constructed one road connecting Manali (H.P) with Leh (Ladakh). This is one of the highest roads in the world N. Highway from Jammu to Leh measures 680Kms in length. From Jammu to Srinagar the Highway is 293Kms & from Srinagar to Leh, it is 387 Kms in length.

**RAILWAYS:**

Railways in Indian sub-continent wer introduced in 1854 A.D. on the state, the railway station at Jammu is connected with other parts of the country. The railway line form Pathankot to Jammu which is 101 kms in length was completed in October 1972. Jammu is one of the important railway station of the northern railways.

**WATER TRANSPORT:**

In Kashmir division, the vyeth or river Jhelum, has been the main source of transport before 1947, due to lack of road network in the state. The river Jehlum is navigable from Khanabal to Baramulla & even today the people transport “sand” to

different areas lying on the banks of the river. At various places, the areas lying on the opposite side of the river Jhelum are connected by the 'Boats' which carry passengers from one bank to another.

**(2) Waterways or Water Transport:-**

Inland navigation is almost insignificant in the state. However, in the Kashmir vidisin, the river Jhelum has been the main source of transport before 1947, due to lack of road network in the state. The Jhelum is navigable from Khanabal to Baramulla and even today the people transport "Sand" to different areas lying on the banks of river. At various places, the areas lying on the opposite side of the river valley or Jhelum are connected by the "Boats" which carry passengers from one place to another.

**(3) Airway or Air Transport:-**

The state has a mountainous topography and the development of roadways and railways is difficult and expensive. The remote areas of the state are not easily accessible. Under such conditions air transport has a big role of play. The importance of air transport is significant during times of emergency i.e wars, epidemics, famines, Floods and earthquakes. During poor visiblity air transport remains suspended.

**CONCLUSION:-**

To conclude we can say that transport is the lifeline of every Nation because without transport the development of the nation will be stopped and there will be no mobility of people and it will remaind us of stoneage.

## COMMUNICATION

Communication is the activity of conveying information through the exchange of thoughts, messages, or information as by speech, visuals, signals, writing or behaviour. It is the meaningful exchange of information between two or more living creatures.

Communication require a sender, a message, a receipient, although the receiver don't have to be present or aware of the sender's intent of communication.

**TYPES OF COMMUNICATION:**

- **Verbal Communication :** It includes body language, eye contact, sign language etc.
- **Non Verbal Communication :** It includes clothing, hair style, symbols etc.
- **Oral Communication :** It refers to spoken verbal communication.
- **Business Communication:** In order to flourish business organisation must be able to coney message properly.
- **Written Communication :** in this information is depected through novels, stories etc.
- **Effective Communication :** It occurs when desired effect is the result of intentional or unintentional information sharing.
- **Non Human Communication :** It includes cell signals, cellular communication and chemical transmission between perimitive organisms.

**COMMUNICATION IN INDIA:**

**India** is the largest country of south Asia. It has 28 states and 7 union teritories. J&K is the northern most state of India. It is also knwon as crown of India. Official language of J&K is Urdu. English is one of the fifteen official language in India. It is only language which is spoken universally by the educated sectors of the society.

In 2000, India had a population of more than 1 billion and 28.5m telephones, mostly landlines. In 2012, there were nearly 900 m sim cards alone. Now, mobile phones are more in quantity than population of human beings.

**COMMUNICATION IN J&K**

**Introduction:**

The present day world has shrunk, due to advancement in the means of transport and communication. Development of cheap and efficient means of transport and communication is prerequisite for the speedy and balanced economic development of state. Without an effective transport and communication network, the natural endowment

of region can not be exploited judiciously.

**COMMUNICATION SYSTEM:**

In modern world, the post and telecommunication plays an important role in its development. The number of posts, telegraphs officies and telephones can be in the state as on 31.03.1992, were:-

Number of head post offices = 09

Number of sub post offices = 272

Number of branch post officies = 1286

Number of Extensions = 6,387

The main cities and towns have STD, ISD, FAX and TELEX facility as well.

**CONCULUSION:**

Communication is very essential to represent your ideas in front of others. Common language helps to be comfortable all around the world. Mobile phones and other sources of communication has made life less hectic one can exchange information even sitting at his/her place . In J&K, being tourist place, communication plays vital role in attracting more and more tourists. Communication leads to profit in business. So, in every field, communication is important for being socially stable in human society.

# POPULATION, DISTRIBUTION, GROWTH AND DENSITY

| | |
|---|---|
| **B.A. Sem-II** | **Unit-IV** |
| **GG-201** | **Lesson-13** |

Over 7 billion people in habit the world as per the latest estimates. The first ever census taken in India is known as census of 1872, however, the entire population of the country was nto enumerated during this census. It was in the year 1881 and in the subsequent census years that the population of the entire country was enumerated. The billions of humanity are not distributed evenly over the globe. In J&K the distribution and density of population also differe from district to distri ct and from hilly to plain regions. Physical, socio-cultural, economic and political factors directly or indirectly controlled the distribution, density, composition, growth, and migration of population. Population geographers have traditionally been interested in the uneven spatial expression from region to region and from place to place. The spatial distribution of population in Jammu and Kashmir is highly uneven. The spatial variations in the distribution, density, composition, migration and growth of population have a direct bearing on the utilization of resources and the levels of development of a region.

Jammu and Kashmir States registered a marked increase in its population. Some basic information about the population of the state from 1981 to 2011 has been given in table.

**Table-1**

**Demographic Attributes of Jammu & Kashmir 1981-2011**

| | *1981* | *1991 (Projected)* | *2001* | *2011* |
|---|---|---|---|---|
| Total population | 59,87,389 | 77,18,700 | 100,69,197 | 125,48,926 |
| Density | 59 | 76 | 99 | 124 |
| Decadal Growth Rate | 29.69 | 28.92 | 25.00 | 24.34 |
| Urban Population | 21.05 | 23.83 | 24.81 | 27.21 |
| Sex-ratio | 925 | 923 | 892 | 883 |
| Literacy rate | 26.67 | 46.25 | 55.52 | 68.74 |

Source : Census of India, 2011.

## POPULATION DISTRIBUTION

The distribution of population is more locational and refers to the spatial pattern in which the population finds its location such as linear, dispersed, nucleated, afflomerated, etc. It is mostly concerned with the patter of spread of population. There are several means of describing the spatial distribution of population and one of the simplest ways, of measuring population distribution has been percentage distribution, whereby the percentage of people living in the geographic areas of a given class has been computed. In simple words distribution refers to the actual pattern of spacing of units of individuls

**District Wise Distribution of Population in Jammu and Kashmir (in figures)**

| *Districts* | *Total Population* | *Male* | *Female* |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Kupwara | 875564 | 475126 | 400438 |
| Budgam | 735753 | 390705 | 345048 |
| Leh | 147104 | 92907 | 54197 |

Contd.. . .

Contd.....

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| Kargil | 143388 | 80791 | 62597 |
| Punch | 476820 | 252240 | 224580 |
| Rajouri | 619266 | 332424 | 286842 |
| Kathua | 615711 | 327953 | 287758 |
| Baramulla | 1015503 | 542171 | 473332 |
| Bandipora | 385099 | 201531 | 183568 |
| Srinagar | 1269751 | 675667 | 594084 |
| Ganderbal | 297003 | 158900 | 138103 |
| Pulwama | 570060 | 297988 | 272072 |
| Shupiyan | 265960 | 136302 | 129658 |
| Anantnag | 1070144 | 552404 | 517740 |
| Kulgam | 422786 | 216672 | 206114 |
| Doda | 409576 | 213091 | 196485 |
| Ramban | 283313 | 149032 | 134281 |
| Kishtwar | 231037 | 120496 | 110541 |
| Udhampur | 555357 | 298094 | 257263 |
| Reasi | 314714 | 166392 | 148322 |
| Jammu | 1526406 | 815727 | 710679 |
| Samba | 318611 | 168948 | 149663 |
| Jammu & Kashmir | 12548926 | 6665561 | 5883365 |

*Source :* Census of India 2011

## POPULATION DENSITY

The density of population denotes the pressure of population on land resources in an area or a country. Density is concerned with the ratio between the size of population and the area. When one is dealing with density, the concern is more for some kind of man land ratio. The geographers have been making more frequent use of the concept of density of population. It is a simple concept of relating population size to the land area with a view to assessing crudely the pressure of population upon the resources of the area. Thus, it is a measure of the incidence of population concentration and is generally expressed in terms of persons per sq. km.

### Tpes of Density

- Arithmetic Density or General
- Nutritional Density
- Agricultural Density
- Economic Density

*Arithmetic Density :* The simple ratio between total population and the total land area and expressed in terms of persons per unit of area was designated as AD.

*Nutritional Density :* It is a ratio between total population and total cultivated area and is expressed in terms of persons per sq.km. of cultivated land.

*Agricultural Density :* The agricultural density is expressed in terms of agricultural population per unit of cultivated area.

*Economic Density :* It is ratio between the requirements of a population and the resources made available to it by production in the areas it occupies.

| Density of Population of Jammu and Kashmir | | |
|---|---|---|
| Districts | 2001 | 2011 |
| 1 | 2 | 3 |
| Kupwara | 273 | 368 |
| Budgam | 443 | 537 |
| Leh | 03 | 03 |
| Kargil | 09 | 10 |
| Punch | 223 | 285 |
| Rajouri | 184 | 235 |
| Kathua | 193 | 232 |
| Baramulla | 250 | 305 |
| Bandipora | 884 | 1117 |
| Srinagar | 559 | 703 |
| Ganderbal | 845 | 1151 |
| Pulwama | 467 | 598 |
| Shupiyan | 677 | 852 |
| Anantnag | 294 | 275 |
| Kulgam | 862 | 925 |
| Doda | 62 | 79 |
| Ramban | 162 | 213 |
| Kishtwar | 103 | 125 |
| Udhampur | 174 | 211 |
| Reasi | 144 | 184 |
| Jammu | 526 | 596 |
| Samba | 272 | 318 |
| Jammu and Kashmir | 99 | 124 |

*Source :* Census of India 2011, Jammu & Kashmir, Provisional Population Totals 2011.

If the entire population of the Jammu a.."1d Kashmir state is uniformly distributed over the total surface, the density of population has been 99 percent per sq.km as per the 2001 census and 124 person's persons per sq.km. in 2011 census in table 6.7. As per 2011 census reports, the district Ganderbal leads the state with highest density i.e. 1151 persons per sq.km followed by Bandipore (1117 persons per sq.km) Kulgam (925) Shopiyan (852) Pulwama (598) Jammu (596) and so on. On the other hand the mountainous districts Leh and Kargil (Ladakh) have lowest density of 3 persons per sq. km and 10 persons per sq.km due to their difficult terrain and harsh climatic conditions.

**GROWTH OF POPULATION**

The size of population and its growth trend have a direct bearing on the economic development, social well-being, cultural values and political stability of a region. Population growth is, thus, pivotal to the regions demographic dynamism. It is this attribute with which all other characteristics of population are intimately related. The change in population can be measured both in terms of absolute numbers and in terms of percentage.

In India, enumeration of population is being carried on since 1871, but reliable data on the population of Jammu and Kashmir is far from satisfactory. The state has had a very checkered demographic history. In general, prior to 1921, the population of the state grew at a slow pace. It was because the state experienced a number of famines and epidemics. After 1921, however, the population increased steadily. In 1951, just after independence, the population of the state was 32.5 million. In 1961, it grew to 35.6 million, which went upto 46.1 million in 1971. The last census in the state was held in 1981 which recorded a population of about 59.5 million . The projected population for 1991 was 77.19 million, while he estimated population for 2001 and 2011 are 101.23 and 117.88 million respectively. The growth pattern of population between 1091 and 1981 has been plotted in Table-2.

The growth of population in the state during the last five decades has been stupendous. This phenomenal increase in population may be attributed to the declining death rate and constant high birth rate. As a matter of fact, the medical service has been extended in the rural areas as a result of which the death rate has declined substantially. The district-wise population of the state has been given in Table-3 and plotted in Fig.3.

**Table-2**

**Jammu and Kashmir State : Growth of Population 1951-2011**

| Year | Population in Million | Growth Rate |
|---|---|---|
| 1901 | 21.39 | |
| 1951 | 32.5 | 0.84 |
| 1961 | 35.6 | 9.54 |
| 1971 | 46.1 | 29.49 |
| 1981 | 59.5 | 29.06 |
| 1991* | 77.19 | 28.95 |
| 2001* | 101.23 | 25.00 |
| 2011* | 117.88 | 23.95 |

*Source :*

1. Registrar General, India, Population Projections for India and States, 1996-2016.
2. Report of the Technical Group on Population Projections, August, 1996.
3. Census of India.

# MIGRATION AND TRANSHUMANCE

| | |
|---|---|
| **B.A. Sem-II** | **Unit-IV** |
| **GG-201** | **Lesson-14** |

**INTRODUCTION:–**

Migration is an important instrument of cultural diffusion and social integration which results into more meaningful distribution of population. Migration is a process which has three-folds impact : (i) on the area from which the people move out (ii) on the area to which the people move in; and (iii) on the migrants themselves. Whenever the migration takes place, in whatever form it takes place, it modifies the area of origin, the area of destination and the way of life of the migrants.

Migration is spatial movements of people including migration, circulation etc. Circulation refers to movements that do not involve a change in residence and are cyclic and repetitive in nature. The term circulation would cover all those movements where the migrants return to the place of origin after some time. But migration refers to only those movements that involve a permanent or semi-permanent change in residence from one settlement to another. Thus, migration involves two things : (i) movement for some physical distance; and (ii) change in normal place of residence.

**TYPES:–**

Migration has often been classified into various types on the basis of motivation, distance, time and area. On the basis of motivation, migration has been classified into types like economic migration, social migration, political migration etc. depending upon the factors that are responsible for the same. For example, migration for seeking employment is economic migration, migration due to marriage is social migration, migration of Han community of China into the erstwhile Tibet is political migration etc. Similarly, migration has been classified as long distance and short distance, on the basis of

distance traveled by the migrants. Distance is most commonly used criterion to classify migration. But this classification ignores cultural or social distance traveled by the migrant. For example, a European migrant moving from one country to another European country may not be traveling as much social distance as an Indian ruralite would be traveling while moving from a village in Orissa to Calcutta city.

A distinction has been made between short-term migration and long-term migration on the basis of time. The same have been termed as permanent and semi-permanent or temporary migration. Many temporary migrants may ultimately turn into permanent migrants and some permanent migrants may decide to return to the area of origin. No classification on the basis of any single criterion like motivation, time and distance etc. is complete. In fact, there is need to combine some or all these criteria.

Geographers normally classify migration on the basis of area. It is an attempt to combine the criteria of time, distance and motivation. All those migrations that take place within the territorial jurisdiction of a country are known as internal migrations. Those migrations which take place across the international border are known as external migrations. The internal migrations are further classified into four categories of rural to urban, urban to urban, rural to rural and urban to rural migration depending upon the rural/urban status of place of origin/destination. This type of classification of migration has proved to be very useful.

The Census of India determines the migration by place of birth or residence. If a person was born at a place other than the place of enumeration, then he is treated as a migrant. Movement of population from one country to another, across the international borders, is called international migration.

**CAUSES OF MIGRATION**

Migrations area caused by a variety of factors including economic, social and political factors. They briefly described as under

- Marriage
- Employment

- Education
- Lack of security

**'Pull' and 'Push' factors**

Urban centres provide vast scope for employment in industries, transport, trade and other services. They also offer modern facilities of life. Thus, they act as 'magnets' for the migrant population and attract people from outside.

People also migrate due to 'push factors' such as unemployment, hunger and starvation. When they do not find means of livelihood in their home villages, they are 'pushed' out to the nearby or distant towns.

**Migration streams**

*Rural-to-rural (Rural turn over)*: This stream of migration dominates over all other streams in terms of volume of migration.

*Rural- to urban:* Rural-to-urban migration is next only to rural-to-rural migration in terms of volume of migration. Rural-urban migration is caused by both push of the rural areas as well as pull of the urban areas.

*Urban-to-urban (Urban turn over):*This is a stream of migration which is believed to be dominated by the middle class people. About 9.10 per cent of the total migrants belonged to this stream of migration in 1991.

*Urban-to-rural (Pushback or reverse migration) :* This stream has the lowest volume of migrant accounting for 5.84 percent only in 1991.

**FACTORS:–**

Some of the important factors may briefly be discussed as under:

1. **Economic factors:**The most important determinant of migration is economic. It has been established in several studies that the low agricultural incomes and agricultural unemployment and under-employment in developing countries, are the major factors pushing migrants towards areas with greater job opportunities. In short, people move from areas of low economic

opportunity to those of high economic opportunity. We find people going from East to West in search of better economic prospects. West is more industrialized and needs manpower of all kinds. In the words of Thompson and Lewis, "It is merely a recognition of the fact that far and away the most important cause of migration during the great emigration from Europe was the desire to improve economic status." In short, migrants are attracted to areas of new industrial development and regions of higher per capita income.

2. **Demographic factors**: The pressure of population, resulting in a high man-land ratio, has been widely regarded as one of the important causes of rural out-migration. With a given mode of production, in many developing countries, particularly in India only, a part of the labour force can be absorbed by agriculture. Hence surplus population must move to the urban centres to be gainfully employed. But the pressure of population is certainly not the only cause of increasing rural unemployment and underemployment. Equally important causes seem to be the low rate of investment in agriculture, fragmentation of land ownership, inequalities in the distribution of land and other productive assets, allocative mechanisms which discriminate in favour of the owners of wealth, and a pattern of investment and technological change which is biased against labour. The main reason for this bias is the fact that much of the farm technology is imported from labour-scarce countries, and favours the use of capital against the use of labour.

   The other biological determinants of demographic processes – birth rate and death rate – bears a positive relationship with the migration. People migrate to the area where male specific birth rate is high, and vice-versa. In countries where death rate is high, as compared with the birth rate, obviously mal population will be tempted to migrate as chances of employment are bound to be there. Similarly, in the countries of low population growth-rate, emigration is discouraged and immigration is encouraged.

3. **Geographical Factors.:** People migrate to places where there is better climate or where minerals are found in abundance. In India, Massoorie, Simla, Darjeeling, etc., are the places where people move for climatic changes. Similarly, Switzerland is a place where migrants from all parts of the world may be seen. Similarly

people move out to places proved to be flood affected or earthquakes are quite frequent. In short, people prefer to migrate to places which are comparatively safe and where the climate is salubrious.

4. **Social Factors:** Social factors are also responsible for migration. People quit their place or country of origin where social barriers are rigid which do not afford the development of the individual. The people also migrate to be away from family feuds and disputed family life. The girls are migrant for ever after marriage and have to move to the places where they are asked or accompanied by their husbands.

5. **Political Factors:** These days political factors are becoming important for migration. People migrate to other countries when they find that political systems and institutions of their country are not suited to them. Some people do not tolerate totalitarian regimes or dictatorship and leave their country. In many cases fear of war or likely breakout of disturbances, inflation, etc., prompt many to leave their country. Racial or regional discrimination also results in migration.

   Policies of the state also exercise a powerful influence on the migrants. Important among them are: policies which foster a concentrated growth of industrial infrastructure in the cities, a pattern of investment and technological change which is biased against labour, social investments which are preponderantly urban. As a result of such state policies, the income differential between urban and rural sector has been widening, and has encouraged further migration for rural to urban areas. Similarly, Government's policy of discrimination towards a particular community can result in the migration of the people belonging to that community.

6. **Religious Factors:** The migration is also caused by the religious motives or religious conflicts. The people migrate to religious places where they find religion of their taste prevails. Similarly the people migrate to new places when there is religious intoleration and conflicts. Today, Iran and Iraq and many other countries are facing home-war owing to the religious reasons.

**Transhumance :**

Is the reasonal migration or movement of people with their livestock b/w fixed time is six months during summer season and six months during winter season (from higher to lower altitudes).

The word Transhumance comes from French but it derives from the latin word 'Trans' means 'across' and 'humus' means land/ground.

Gujjars and Bakerwals are the unique and significant ethnic group which perform large scale transhumance in Jammu and Kashmir. They are dependent largely cattle, sheep and horses for their survival.

**The Gujjars and Bakerwals are divided into two groups**

i) Those who practice transhumance and more with their cattles between alpine pastures (Margs) and low altitudes of the Swaliks and Jammu plains and

ii) The sedentary Gujjars and Bakerwals who settled in most of the villages situated along the annual routes of migration.

On the basis of occupation, the Gujjars and Bakerwals are divided into two groups:-

a) Cultivators - who have settled on the slopes and on the side valleys and practice agriculture.

b) The Gujjars and Bakerwals who practice transhumance.

This catogory is divided into Baniharas or Dudhi Gujjars (Milkmen) and the Bakerwals (who rear sheep and goats) The Baniharas or the Dudhi Gujjars have tend buffaloes, sell Dudh (Milk) and milk products and for this reason they are called Dudhi Gujjars (Milkmen).

The Bakerwals Seasmally migrate from lower altitude to higher altitudes of the himalayas in summer and to lower altitudes in the winter season. The Gujjars who keep buffaloes mane within a short distance of about 50 km.

The Economy of Gujjars and Bakewals depend mainly on the season. (Spring season)

**Major Points of Gujjar and Bakewals**

Two major points

a) Pir Panjal Routes

b) Banihal Route

**a) Pir Panjal Route -** The qafilas of G & B who follow Pir Panjal route starts their winter moment in the third week of April and take about 60 days to reach the dhoks. Out of the 60 days, 22 are journey days and 38 are halt days.

The quafilas starts from

Lanberi - Sialsui - Kesargala - Dangri- Rajouri - Saj - Thana - Mandi - Neelideri.

From Neelideri they move to Mara - Poshina - Chandimar and cross the stream at Chitta - Pani. In which pieces of ice flow in winter. In this track they face a lot of difficulties.

From Poshina they move to Gadsar-maidan, traning the Mara Ghandimar, Posluana and Sathri Dubjan. It is in this tract where they cross the Pir Panjal pass. Subsequently, from the Gadsar Maidan, they move to Sanger and then to Shalimar, situated to the north-east of Duinagar city on the bank of Dal Lake.

After staying for about 2-3 days at Shalimar, they move forward towards Wayil, Kangan, Wangat and Naranag. From Naranga there is a steep ascend towards Gudsar. Gadsar is basically the base for this quafilas. They grase their sheeps and goats in the dhoks situated around the Gadsar.

**b) Banihal Route :-** The second important channel through which Gujjar and Bakerwal migrate from winter to summer pastures and back is Banihal Route - Around 20 April, they commence their journey from Kirangyla and up to dhoks. They break their journey at tweleve places.

Friday and Monday are considered as the important days for upward and downward migration. Starting from Kirangyal they break their journeys at Manwal, Khattar, Surinkund, Banihal, Achbal, Salar, Masitnar, Chandanwari, Panjtarni and Sukhnala. The journey b/w Khattar and Banihal is full of anxiety and tension. Between these two places the quafilas is to travel on the N.H. This is a Coutinouse 23 hours journey. Being a very busy route, there is great fear of accidents lack of padder and animal lose. This journey is broken at Shaitani-Nala (near Banihal) for one day rest. Crossing the Banihal tunnel the quafilas enter the valley of Kashmir. In their route they pass through Verinag, Aish - Mugam and finally reach the pastures of Daksum, Chandanwari and Sukhnala.

Despite hazardous journeys transhumance is a necessity for the Gujjar and Bakerwals of these transhuman won't come down in the summers, the sheeps and goats would die.

# URBANIZATION

**B.A. Sem-II** **Unit-IV**
**GG-201** **Lesson-15**

Urbanization is an index of transformation from traditional rural economics to modern industrial one. It is progressive concentration of population in urban unit. Quantification of urbanization is very difficult. It is a long term process. Kingsley Davis has explained urbanization as process of switch from spread out pattern of human settlements to one of concentration in urban centers. It is a finite process, a cycle through which a nation pass as they evolve from agrarian to industrial society. He has mentioned three stages in the process of urbanization. Stage one is the initial stage characterized by rural traditional society with predominance, in agriculture and dispersed pattern of settlements. Stage two refers to acceleration stage where basic restructuring of the economy and investments in social overhead capitals including, transportation communication take place. Proportion of urban population gradually increases from 25% to 40%, 50%, 60% and so on. Dependence on primary sector gradually dwindles. Third stage is known as terminal stage where urban population exceeds 70% or more. At this stage level of urbanization remains more or less same or constant. Rate of growth of urban population and total population becomes same at this terminal stage. The onset of modern and universal process of urbanization is relatively a recent phenomenon and is closely related with industrial revolution and associated economic development. As industrial revolution started in Western Europe, United Kingdom was the initiator of Iridustrial Revolution. Historical evidence suggests that urbanization process is inevitable and universal.

Currently developed countries are characterized by high level of urbanization and some of them are in final stage of urbanization procss and experiencing slowing down of urbanization due to host of factors. A majority of the developing countries, on the

other hand started experiencing urbanization only since the middle of 20th century. Thus the urbanization may leads to following changes.

1. **Demographic attributes:** In the demographic sense, urbanization is an increase in the proportion of urban population to the total population over a period of time. As long as urban population to total population increases there is urban growth which is a process of urbanization.
2. **Structural changes:** On the basis of structural changes, urbanization means more concentration of secondary, tertiary and quaternary activities leading to increased productivity and industrialization.
3. **Behavioural process:** In the behavioural point of view urbanization is a process leading to changes in attitudes, values, characterized with large population, high density and heterogeneity of its inhabitants. Urbanization is a characteristic of economically advancing nations and it is closely linked with industrialization.

**Indian Census Definition of Urban Area**

In Census of India, 2011 two types of town were identified

**(a) Statutory towns :** All places with a municipality, corporation, Cantonment board or notified town area committee. etc. so declared by state law.

**(b) Census towns :** Places which satisfy following criteria:-

(i) A minimum population of 5000:

(ii) At least 75% of male working population engaged in non agricultural pursuits; and A density of population of at least 400 persons per sq km

**Basic Feature and Pattern of India's Urbanization**

Basic feature of urbanization in India can be highlighted as:

1. Lopsided urbanization induces growth of class 1 cities.
2. Urbanization occurs without industrialization and strong economic base.

3. Urbanization is mainly a product of demographic explosion and poverty induced niral urban migration.
4. Rapid urbanization leads to massive growth of slum followed by miser). poverty unemployment, exploitation, inequalities, and degradation in the quality of urban life.
5. Urbanization occurs not due to urban pull but due to rural push.
6. Poor quality of rural-urban migration leads to poor quality of urbanization.
7. Distress migration initiates urban decay.

**Percentage of Urban Population and Households**

The percentage of urban population in the state is presented in the table which clearly showed that Srinagar district registered the highest urban population of 98.60 percent followed by Jammu with the urban percentage of 50percent. Both of these district registered urban household of 98.52 percent and 49.30 percent respectively. The lowest urban population concentrated in Ramban district with the percentage of 4.16 percent as against 3.90 percent of urban households in the state. The state of Jammu and Kashmir registered the urban population of 27.38 percent with the urban households of 26.72.

**Percentage of Urban population and households- 2011**

| District | %age of Urban Population | Urban Household |
|---|---|---|
| Kupwara | 12.03 | 10.53 |
| Badgam | 12.99 | 13.49 |
| Leh (Ladakh) | 34.21 | 31.97 |
| Kargil | 11.60 | 11.95 |
| Poonch | 8.10 | 7.99 |
| Rajouri | 8.14 | 5.95 |
| Kathua | 14.55 | 15.00 |

| | | |
|---|---|---|
| Baramula | 18.10 | 17.88 |
| Bandipore | 16.66 | 16.44 |
| Srinagar | 98.60 | 98.52 |
| Ganderbal | 15.81 | 15.36 |
| Pulwama | 14.36 | 12.35 |
| Shopian | 6.15 | 5.75 |
| Anantnag | 26.23 | 23.43 |
| Kulgam | 18.99 | 18.73 |
| Doda | 7.97 | 8.44 |
| Ramban | 4.16 | 3.90 |
| Kishtwar | 6.44 | 5.99 |
| Udhampur | 19.50 | 20.51 |
| Reasi | 8.58 | 8.87 |
| Jammu | 50.00 | 49.30 |
| Samba | 16.81 | 16.31 |
| State | 27.38 | 26.72 |

**Source :** Census of India-2011

**Urban Agglomeration**

Urban agglomeration is a continuous urban spread constituting a town-and its adjoining urban outgrowths or two or more physical contiguous town together and any adjoining urban out growths of such towns/Examples of out growths are railway colonies, university campus, port area, militan campus etc. that may come up near a statutory town or city. For census of India 2011 it was decided that the core town or at least one of the constituent towns of an urban agglomeration should necessarily be a statutory town and the total population of all the constituents should not be less than 20,000. With

these two basic criteria having been met the following are the possible different situations in which urban agglomerations could be constituted.

(i) A city or town with one or' more contiguous outgrowths.

(ii) Two or more adjoining towns with or without their outgrowths.

(iii) A city or one or more adjoining towns with their out growths all of which form a continuous spread.

Keeping this in mind, the census of India classified the urban places into the following six categories :

Class I, those having a population of 100.000 or more,

Class II, those having a population between 50,000 and 99.999;

Class III. those having a population between 20,000 and 49,999;

Class IV, those having a population between 10,000 and 19,999;

Class V, those having a population between 5,000 and 9,999. and

Class VI, those having a population below 5,000

**Urban agglomerations of Jammu and Kashmir - 2011**

| Rank | Name | District | Population | Male | Female | Population below 5 yrs | Literacy Rate |
|---|---|---|---|---|---|---|---|
| 1 | Srinagar | Srinagar | 1,273,312 | 677,260 | 596,052 | 157.100 | 71.45 |
| 2 | Jammu | Jammu | 951,373 | 496,331 | 455,042 | 58,424 | 88.98 |
| 3 | Anantnag | Anantanag | 158.785 | 82.023 | 76,762 | 26,001 | 76.26 |

The constituents of Urban Agglomerations in Jammu and Kashmir, with a population of 1 lakh or above, are Jammu, Srinagar and Anantnag according to census 2011.

## Trends of Urban Cities

The state of Jammu and Kashmir shares most characteristic features of Urbanization in the developing countries like India. Number of urban agglomeration / town has grown from two in 2001 to three in 2011 having the population of more than one lakh. Number of total population has increased in different classes show upward trends from 2001 to 2011 whereas numbers of towns have also increase during one decade from 2001 to 2011. The detail of cities and urban agglomeration are presented in the table. The class — I cities of Jammu and Srinagar alone registered the urban population of 1.35 lakhs in 2001 which increase to 1.79 lakhs in 2011 only with the addition of urban population of Anantnag.

**Trends of Urban Cities**

| Classes | Population Range | 2001 | | 2011 | |
|---|---|---|---|---|---|
| | | Total Population | Name of Town | Total Population | Name of Town |
| Class I | 100,000 or more | 1,357,535 | Jammu, Srinagar | 1,792,200 | Anantnag, Jammu, Srinagar |
| Class II | 50,000 and 99.999 ; | 234,646 | Sopore, Udhampur, Baramula, Anantnag | 171,142 | Kathua, Baramula, Sopore |
| Class III | 20,000 and 49,999 ; | 203,295 | Rajauri, Punch, Bandi-pore, Leh (Ladakh), Jammu Cantonment, Bari Brahamana, Kathua | 432,335 | Raipur Domana, Akhnoor, Karli Khalki, Doda, Pampora, Kupwara, Badami Bagh, Bijbehara, Duru Verinag, Kulgam, Punch, Ganderbal, Jammu Cantonment, Rajauri, Leh (Ladakh), Udhampur, Bandipore |
| Class IV | 10,000 and 19,999; | 342,428 | Muthi, Nagrota, Bhaderwah, Handwara, Sumbal, Kargil, Deeli, Akhnoor, Doda, Pattan, Tral, Badgam, Chhani Raman, Shupiyan, Kulgam, Ganderbal, Raipur Domana, Pulwama, Bhalwal, Kupwara, Kishtwar, Samba, Pampora, Duru Verinag, Badami Bagh, Bijbehara | 432,335 | Nowshehra, Safa Pora, Bishna, Chuglamsar, Mehmood Pora, Bhaderwah, Charar-i-Sharief, Arwani, Yari Pora, Awantipora, Samba, Drug Mulla, Quimoh, Hajan, Handwara, Nagrota, Kral Pora, Bhalwal, Sunjwan, Kishtwar, Sumbal, R.S. Pora, Badgam, Bari Brahamana, Trehgam, Kargil, Shupiyan, Achhabal, Tral, Pulwama, Pattan |

| Classes | Population Range | 2001 | | 2011 | |
|---|---|---|---|---|---|
| | | Total Population | Name of Town | Total Population | Name of Town |
| Class V | 5,000 and 9,999 and | 255,153 | Ramgarh, Chhani Beja, Kral Pora, Seer Hamdan, Chhatha, Nagam, Achhabal, Chak Kalu, Bhore, Rathian, Bashohli, Tangdhar, Pahalgam, Ichgam, Awantipora, Beerwah, Shangus, Khore (Khour), Mattan, Birpur, Narwal Bala, Vijay Pur, Ram Nagar, Rehambal, Wail, Pa-role, Khrew, Charar-i-Sharief, Reasi, Katra, Hiranagar, Trehgam, Arnia, Drug Mulla, Bishna, Sunjwan, Hajan | 1,792,200 | Naka Majiari, Dharam Bagh, Talwara, Frisal, Chak Ratnu, Lasjan, Deeli, 'Bashohli, Magam, Thanamandi, Ashmuji Khalsa, Ramgarh, Nowangabra, Kanis Pora, Ram Nagar. Bagh-i-Mehtab, Heri, Bhore. Rathian, Chadura, Kral Pora, Aishmuquam. Koker Nag, Surankote, Sunderbani, Khore (Khour), Watra Gam, Birpur, Rehambal, Nagam, Ichgam, Rakh Gadi Garh, Parole, Reasi, Now Pora Kalan, Shangus, Vijay Pur, Chak Jalu, Narwal Bala, Beerwah, Seer Hamdan, Hiranagar, Wail, Dara Pora, Arnia, Katra, Mattan, Pahalgam, Uri, Devsar, Khrew, Qazi Gund, Tangdhar |
| Class VI | below 5,000 | 244677 | Khirman Dooni Pahoo, Chanthal, Thil, Nuha, Chak Hari Singh, Chak Khuni, Rakh Raipur, Taraf Manjali, Bagh Nowgam, Delichak, Chiti Pai Bug, Chak Gulami, Karli Khalki, Chak Pratap Singh, Gangera, Rakh Tenday, Charee, Bagh-i-Sakloo, Shajalta, Shamsi Pora, Rakh Sarkar Palahi, Chak Ram Singh, Kamini, Thanda Padar, Kotli Pain, Sui, Purana Daroorh, Hazuri Bagh, Chak Sheikhan, Khetriar, Setani, Dandyal, Frastahar, Gulmarg, Sambal, Danori, Mir Gund, Raipur, Khanpur, Omara, Kalar Himti, Sail Saloon, Gotiyar, Barian, Rakh Chee, | | Chak Sheikhan, Rakh Sarkar Palahi, Chanthal, Fateh Garh, Nuha, Chak Gainda, Thil, Delichak, Chak Khuni, Khirman Dooni Pahoo, Chak Hari Singh, Chiti Pai Bug, Charee, Gangera, Shajalta, Chak Gulami, Chak Pratap Singh, Bagh-i-Sakloo, Rakh Raipur, Bagh Nowgam, Barian, Chhani Beja, Khetriar, Shamsi Pora, Purana Daroorh, Kamini, Sui, Hazuri Bagh, Kotli Pain, Rakh Bahu, Thanda Padar, Taraf Manjali, Chanor, Chhani Kamala, Chak Sohna Nupa, Sambal, Gangial, Dharmal, Raipur, Dandyal, Mir Gund, Badali, Omara, Danori, Kalar Himti, Gotiyar, |

| Classes | Population Range | 2001 | | 2011 | |
|---|---|---|---|---|---|
| | | Total Population | Name of Town | Total Population | Name of Town |
| | | | Kud, Uttarsoo Naji Gund, Takia Sultan, Ghat Pushwari, Rount, Takai Bahram Shah, Chee, Shanker Pora, Lakhanpur, Haji Danter, Gopal Pora, Amar Garh, Kunzer. Dharmal, Dalah, Sangur, Khansahib, Chenani, Dooni Pahoo, Chak Sohna Nupa, Jakhan, Badali, Chak Gainda, Batengo, Brak Pora, Chak Jalu, Mong Hall, UI Bug Nowgam, Satwari, Fateh Pora, Machwa (Nusrat Pora), Bona Dialgam, Banihal, Dharam Bagh, Chhani Kamala, Govindsar, Chanor, Gujral, Khandi Pahari, Bagh-i-Mehtab, Thanamandi, Chadura, Qazi Gund, Gadi Garh, Jourian, Ghomanhasan, Rakh Bahu, Batote, Kanis Pora, Sunderbani, Ashmuji Khalsa, Gorah Salathian, Barnayi Talwara, Naka Majiari, Uri, Magam, Ramban, Rakh Gadi Garh, Wathora, Dara Pora, Nowshehra, Dhande Kalan, Billawar, Nowangabra, Chak Ratnu, Frisal, Heri, Kral Pora, Now Pora Kalan. Gangial | | Rakh Chee, Rount, Kud, Frastahar, Chak Ram Singh, Kunzer, Gulmarg, Fateh, Pora, Keran, Sangur, Haji Danter, Takai Bahram Shah, Gadi Garh, Takia Sultan, Setani, Gha Pushwari, Amar Garh Dalah, Khanpur, Now Gam, Uttarsoo Naji Gund, Chenani, Khansahib, Khonmoh, Jakhan, Satwari, Sail Saloon, Chee, Batengo, Chwadi, Gopal Pora, Dooni Pahoo, Machwa (Nusrat Pora), Gujral, Rakh Tenday, Govindsar, Lakhanpur, Barnayi, Ramban, Shanker Pora, UI Bug Nowgam, Mong Hall, Brak Pora, Khandi Pahari, Muthi, Nihalpur Simbal, Banihal, Bona Dialgam, Jourian, Ghomanhasan, Sool Koot, Chhani Raman, Spituk, Batote, Maralia, Marhi, Gorah Salathian, Chak Kalu Chhatha, Dhande Kalan, Wathora, Billawar. |

**Source :** Census of India - 2011

## Characteristics of Urbanization in Jammu and Kashmir

1. The history of urbanization in the state is quite old as towns and urban places like Panderathan, Naranag, Awantipur flourished during the ancient period.

2. During the ancient and medieval periods, urbanization was associated with the seats of administration, capitals and trading centres.

3. During the period of Sikhs and subsequently after the arrival of English people, the rate of urbanization accelerated.

4. Urbanization in the state is of subsistence nature. It implies that the migrants from rural areas are attracted to the urban centres not for urban environment but for employment. They may be residing in poor houses and may be undernourished but they stick to the cities for employment. This affects adversely the quality of life in the urban places, especially in the cities of Jammu and Srinagar.

5. The cities of Srinagar and Jammu are exploding in their population while rests of all the towns are stagnating.

6. Urbanization in the state of Jammu and Kashmir has a bi-metropolitan apex in which the cities of Srinagar and Jammu dominate, accounting for two-thirds of the total urban population.

7. The urban system in the state is not integrated both spatially and, functionally as a result of which there are breaks and imbalances in urban hierarchy. The Class II cities with a population of 50,000 to 99,999 are missing in the hierarchy. At the present rate of urban population growth it is not expected that Anantnag and Baramulla (at present class Ill towns) will achieve the status of Class II towns.

8. Towns of Jammu And Kashmir State are growing more on the basis of tertiary rather than the secondary sector.

9. There is not much decentralized urban/industrial development in the state. Most of the district headquarters resemble to the paragon towns of the neighbouring states of Punjab, Haryana and Himachal Pradesh.

10. Urban centres are mostly concentrated in the plain areas. The urban places in the hilly and mountainous areas are generally small falling mainly in the Class V and Class VI towns with a population of less than 10,000 and 5,000 respectively.

# TOURISM DEVELOPMENT AND ITS IMPACT

| | |
|---|---|
| **B.A. Sem-II** | **Unit-IV** |
| **GG-201** | **Lesson-16** |

The practice of holiday-making away from one's normal place of residence is known as tourism. Tourists are defined as people visiting a place other than that in which they normally reside, for a period including an overnight stay, for any reason other than following an occupation remunerated in the place visited. This operational definition, therefore, includes certain people traveling for reasons other than holiday-making, (e.g., conference participants, pilgrims) but it is normally impracticable to exclude them when data are collected. The distinction between Recreation and Tourism is that recreation involves leisure activities of less than 24 hours' duration away from home, whereas tourism involves a longer time scale and therefore, requires more infrastructure in the form of accommodation provision. The International Association of Scientific Experts on 'Tourism (AIEST) has defined tourism as the sum of phenomena and relationships arising from the travel and stay of non-residents, in so far as they do not lead to permanent residence and are not connected with any earning activity.

**Tourism Development**

The background of tourism can be traced in the earliest historical period when man set sail and tied laces to know the immediate world around him. His inherent yearning for unknown lands and curiosity for new worlds culminated into early travels. Travel, to achieve these ends is not new, but tourism, as we understand the term today, is of relatively modern origin. Tourism is distinguishable by its mass character from the travel undertaken in the past. At the start of the century, travel and tourism was confined only to affluent few, namely the rich, religious zealots, conquerors, the well educated and the elites who were fascinated by the call of newer parts of the globe. Tourism has grown from the pursuits

of a privileged few to a mass movement of people, with the "Urge to discover the unknown, to explore new and strange places, to seek changes in environment and to undergo new experiences".

The sudden transformation of rudimentary tourism into an industry resulted from a variety of factors. The Political and academic institutions of the seventeenth century can legitimately be a notable legacy for today's tourism. Modern tourism upsurged after the Second World War, commencing with a spurt in human mobility and intensive application of mechanization. These two factors appreciably gave an impetus to industrialization and urbanization. Commercialism, rise in living stand ards, accumulation of disposable income, paid holidays and leisure resulted from the industrial Revolution. Urbanisation introduced a new leisure society instigating people to own travel and recreation as a better life style.

Migration can be seen as a latter development of tremendous increase in population, particularly in urban areas, and a response to stress. Wolfe (1966) identifies three migration patterns in his society. The first, migration to the city, is continuation of the nineteenth-century phenomenon, and, in the opinion of some, may have run its course in the developed world. The second, the journey to and fro work, is a result of our large scale urbanization and spatial separation of work place and home. The third, recreational travel, is the newest migration and a function of the other two. It has been stimulated by the stress and uniformity of urban life and been accommodated by the stand of living and mobility provided by the same urban economic system. The new migration brought in vogue by all these factors is termed as "Mass Tourism".

## Impact of Tourism

### Positive Impacts

#### Growth Affluence and Aviation Facilities

This phenomenon has been made possible by two major factors. The first is growing affluence in certain parts of the world which enable large numbers of people to spend the money is necessary to go on holiday because without this affluence it would not have been possible for international tourism. To have achieved the dimension that we see before us.

Secondly pre-requisite is the technological break through in the field of aviation which has now made it possible for large numbers of people to be transported to the far corners of the earth at a reasonable cost a cost that is steadily declining thanks to the charter business. So we have reached a situation in which tourism is no longer confined either to the very rich or to the accentic as it was in the Ist half of the century, but something that has becomes a genuinely mass movement cutting across race and religion nationality and political ideology language and vacation and making the people mingle and mix.

**Economic Implications**

A major phenomenon of this nature has for reaching implications, both in the short term and in the long run. The economic implication of tourism is simply that it is the world's biggest industry. Million of people throughout the world now depend for their employment upon tourism, both those who are directly used by tourists and those who are indirectly involved: whether it is the transportation industry the travel agencies the entertainment industry arts and crafts the souvenier industry and soon unfortunately the developing nations still enjoy only very small tractions of the total tourism turnover. In J&K it can become a major economic factor.

**Sociological Implications**

Then there are the sociological implications, tourism brings together people belonging to different nations, practicing different speaking different languages. It throws them go together. There is great cultures and this naturally has its effects some of the effects are something negative. There is a lot of talk now a days about culture shocks and the fact that when people belonging to the more affluent countries come face to face with poverty they feel very uneasy. It helps to break down prejudices, barriers, suspicious that exist between nations.

**Environmental Implications**

There are the environmental implications of tourism. These deserve serious attention. The importance that the people attach to improving the quality of life on this planet is a great deal of controversy among ecologists. But tourism development

can become a positive factor for improving the environment. In tourism new efforts are full to try and safeguard beautiful animals and to preserve the environment in which these animals live so that they can continue to be a source of joy and interest to future generations. Any type of development without controls without any thought given to the environmental factors can in fact prove to be and ultimately will be counter productive for tourism itself.

**Tourism and Harmony among Nations**

In recent decades, tourism has also been working as a bridge between leftists and rightists. Tourism, if tackled positively, can be a good tool in establishing harmony not only between individuals and nature but also among countries, races and religions, some of which have exhibited confrontations since time immemorial. The idea of 'inter-ethnic tourism' can prove fruitful as a means of promoting peace, harmony and goodwill.

**Tourism and Service Quality**

Studies have also been conducted to identify the quality of tourism services by focusing on the interaction between the customer and the service provider . These interactions are known as 'the service encounter'. As each person behaves differently in such encounters, the customers' perception of this 'moment of truth' is the central consideration when evaluating the quality of service.

**Tourism and Hi-tech Communications**

Hi-tech amenities such as fax, subscriber trunk dialing (STD), international subscriber dialing (ISD), e-mail and mobile phone networking need to be developed in the tourist areas. These facilities are useful not to the tourists alone but also to the local residents in their day to day needs and emergencies. The addition of these facilities in the tourism sector helps the tourists to plan their journey in advance. The world wide web (WWW) is a new concept of modern networking that is revolutionizing hotel business and tourism. It has been predicted that by the year 2000, 80% of the European banks would offer full banking service through the Internet, although a few were doing so in 1997.

## Negative Impacts

Let us not forget that like other sectors with positive impacts, tourism also has negative impacts on the environment and the host community. Today, the world-over, environmental issues are at the forefront of any discussion. Therefore, negative environmental impacts of tourism, have to be examined and many studies of tourism pertain to these negative impacts.

### Pollution

Ecologists and environmentalists, across the globe, lament the over exploitation of flora and fauna, the spoiling of the scenery, and the litter and pollution that tourism causes. These are the most glaring negative impacts of tourism on our natural environment. The natural environment, the central ingredient that establishes tourism in the first place includes the seashore, the mountains, the forests, the valleys and the countryside. The large scale inflow of tourists, attracted by the natural beauty of a place, promotes many activities that have an adverse effect on the environment, such as : air pollution from vehicles of all kinds, water contamination arising from sewage and solid waste disposal and ecological damages caused by trampling and road construction. The discharge of untreated wastewater and sewage generated by hotels into local streams is frequently noticed in hilly areas. Environmental damage caused by tourism is also linked to the construction of general infrastructure, particularly airports and roads and other tourism infrastructure like resorts, hotels, restaurants and shops.

The large number of visitors to a particular place tgransforms the region. Tourism accounts for 60% or more of all air travel, so it is responsible for a significant share of the air pollution emitted by aviation. Himalayan region, in general, has begun to experience air pollution due to the large number of vehicles and smoke from various fuels.

### Solid Wastes

Solid waste generated by tourism is a threat to environmental health particularly in developing countries. These countries generally lack the technology, financial capacity

or awareness among people to handle waste generated from large numbers of tourists. In the J&K Himalaya the refuse generated by tourists, trekkers and expedition members during their visits cause widespread ecological problems as all the routes are littered with non-biodegradable wastes. The large quantity of such waste is that of cold drink bottles, tin containers, cans, plastic and other packing material. Tourists themselves are not sensitive enough about the impact of their activities on the environment. This negligence of tourists and other visitors degrades the beautiful pristine spots.

**Biodiversity Degradation**

At the Rio Earth summit in 1992 loss of biodiversity was recognized as one of the major environmental challenges faced by humankind (Agenda 21, 1992, pp. 189-195). While recognizing the fact that tourism should certainly be part of the efforts for sustainable use of bio-resources, it has to be acknowledged that the impact of tourism on bio-resources can be detrimental in several ways. The trade in exotic species and changes in the ecosystem that tourism spells can disrupt both vegetation and wildlife. The tourist activities also have secondary impacts on the fragile mountain ecosystems.

**Pressure on Local Resources**

Tourists, trekkers and expedition members consume local resources. They consume locally available resources such as water, food, firewood, medicinal plants and other raw material that may be in short supply and thus cause severe pressures on the limited resources. In the hills, water supply is a major issue and the impact of tourism on this resource is even greater because of the seasonal influx of tourists during the dry summer months.

The high income earned by tourism has been used to construct large hotels and houses, both of which depend on increased use of timber for construction and subsequently fuel wood for heating and cooking. Tourism thus accelerates the over exploitation of forest resources. In the temperate areas like the Himalaya, this may have far reaching adverse impacts on the environment.

To meet the dairy requirement of tourists, large numbers of cows and buffaloes are kept. These animals overgraze the surrounding forests and degrade the sites.

### Cultural Degradation

While it is true that tourism provides important economic benefits, it also has the potential to disrupt the cultural and social structure of the hosts. Tourism is responsible for many adverse social impacts. Tourism transforms the societies and introduces unwanted and undesirable changes in the value system, lifestyle, creative expressions, language and individual behaviour of the host communities. As an impact of acculturation and unplanned tourism, there arise many harmful effects such as, drugs addiction, crime, prostitution, and moral degradation. In most of the Himalayan tourist towns, drugs addiction has become a common social problem among the youth. Moreover, unregulated tourism during summers bring in its wake, price hikes, traffic congestion and scarcity in essentials such as water, electricity, vegetables and milk to the indigenous population.

## Important Tourist Destinations in J&K

### Srinagar

Srinagar is also called as the land of lakes and is thriving on both the sides of River Jhelum in the western part of the state of Jammu and Kashmir situated at an altitude of 1730 m above sea level. With its unparalleled wonders, the city is famous for its lakes and the charming rows of houseboats floating on them. Srinagar enjoys an alpine weather and receives heavy snowfall in December-February. The best time to visit Srinagar is during summers between April and June.

### Dal Lake

Dal Lake is one of the most picturesque lakes in the country. This second largest lake in Jammu and Kashmir is divided into four parts by causeways and are named Gagribal, Lokut Dal, Bod Dal, and Nagin Lake. Nagin Lake is the most lovely part of this water body. Divided by a causeway from Dal Lake, Nagin Lake is often considered a separate lake. These water bodies also serve as major fishing destinations of the city. The lake is full of Shikaras giving rides to people from the banks to the house boats in

the lake. Several ferrymen can also be seen floating in the Dal Lake selling products like soft drinks, handicrafts etc.

**Gulmarg**

Gulmarg is known as the mountain resort with exceptional beauty and is located at the distance of 57kms form the capital city Srinagar in Baramulla district. Gulmarg is a hill station with unparalleled natural beauty. The place is situated in a pine surrounded basin of the Pir Panjal range an altitude of 2730 meters above sea level. Surrounded by dense forests on all sides, Gulmarg is known for natural beauty and is rated as one of the matchless hill resort of the world. Besides its natural charm it also famous for golf hikes. It is country's premierwinter sports resort. It is an ideal place for Skiing and Skating.

**Amarnath Cave**

Amarnath cave is situated about 48 KMs from Pahalgam that attracts devotees from all over the world. It is located in the upper reaches of the Anantnag district at an altitude of about 13000ft. above mean sea level and is believed to be an abode of lord Shiva. Chandanwari, lying 16 km from Pahalgam, is the starting point of the Amarnath Yatra. Mostly people trek this route in the months of Sawan according to the Hindu calender (July to September). Chandanwari is the mountain lake of Sheshnag. Amarnath Cave is just 6 km from Chandanwari. The cave and holy shrine at Amarnath is devoted to Lord Shiva. Its main attraction is the natural Shivalinga formed by an ice stalagmite. This shivalinga waxes and wanes with the phases of the moon.

**Vaishno Devi Shrine**

Mata Vashno Devi is the manifestation of Goddess Shakti is the one of the most revered sacred sites of the Hindus, the shrine of Mata Vaishnodevi is located 16 km north of Jammu and 13 kms of Katra, in the mountains of Trikuta Hills at a height of 1700 m. The cave temple is devoted to Goddess Vaishnavi, the incarnation of Goddess Lakshmi, Goddess Kali and Goddess Saraswati. The shrine of Vaishnodevi is situated at an altitude of 1,700 mt. People believe that anybody who walks to the abode of Mata Vaishnavi to ask for a boon rarely goes back disappointed. The shrine is located

at the distance of 13 kms from Katra town with an ideal trek route. Trekking on this steep route offers a glimpse of the ancient temples and the scenic surroundings.

**Bahu Fort**

The fort was constructed by Raja Bahulochan over 3,000 years ago and is located at the distance of 5 km from Jammu city. It was renovated by the Dogra rulers and lies on the left bank of the river tawi. The famous temple of "Bave wali Mata", devoted to Goddess Kali, is located inside the Bahu Fort. This highly revered temple is considered second to Mata Vaishno Devi in terms of mystical power. The fort is surrounded by Bagh-E-Bahu, a famous Mughal garden. It is a renowned historical temple of Goddess Maha kali popularily known as Bawe-Wali Mata. The fort overlooks the river Tawi flowing placidly down the Jammu City.

**Mansar Lake**

Mansard is an oval shaped lake and is fringed by forest covers hills, the beautiful Mansar lake is known for several sacred values as well. Located 62 km from Jammu, Mansar is visited for Hindu rituals, be it the Mundan ceremony (First hair cut) of any baby or three circumambulations (`Parikrama') around the lake by the newlyweds. People also take a holy dip in the water of the lake on festive occasions. This holy lake is a much sought after place because of the ancient shrine of Sheshnag (a mythological snake with six heads) on the eastern bank and the ancient temples of Umapati Mahadev and Narsimha and Goddess Durga. The lake is also an ideal spot for boating.

**Patnitop**

Patnitop is a hill-station with unmatched beauty and adventure is located in the Shivalik belt of the Himalayas, Patnitop lies at an altitude of 2024 metres with all its natural beauty. This charming plateau is surrounded by dense woods and lush greenery of Pines and is considered one of the best-developed tourist spots in the Kashmir valley. it is situated about 1.2 km from Jammu on the Jammu-Srinagar highway. Because of its tranquility, and refreshing sites, Patnitop draws a number of tourists throughout the year. The River Chenab flows in close proximity. to the location. In ancient times, there was a pond "Patan Da Talab" (meaning pond of the princess) where the princesses used

to take bath. The town was called -Patnitop' in the British era because of this pond. There are three ice-cold freshwater springs in Patnitop which are believed to have medicinal properties. Although it is relatively unknown in comparison to other hill stations of the state, it is unbeatable in terms of natural beauty and adventure sports.