

## SOCIAL SCIENCE-II FOCUS AREA SSLC MARCH-22

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# Seasons and Time SS2-1

## Seasons and apparent movement of the Sun

- As a result of the apparent movement of the sun between Tropic of Cancer ( $23\frac{1}{2}^{\circ}\text{N}$ ) and Tropic of Capricorn ( $23\frac{1}{2}^{\circ}\text{S}$ ), the different seasons get repeated in a cyclic manner.
- The seasons are Spring, Summer, Autumn and Winter.
- Seasonal changes are not usually very obvious in the tropical regions because of the incidence of large amount of Sun's rays throughout the year.
- Characteristics of different seasons are clearly felt in the mid latitudinal or temperate zones.

## Seasons and apparent position of the Sun

Months	The apparent movement of the sun	Seasons	
		Northern hemisphere	Southern hemisphere
From March 21 to June 21	From the Equator to Tropic of Cancer	Spring	Autumn
From June 21 to September 23	From Tropic of Cancer to the Equator	Summer	Winter
From September 23 to December 22	From the Equator to Tropic of Capricorn	Autumn	Spring
From December 22 to March 21	From Tropic of Capricorn to the Equator	Winter	Summer

### Summer Solstice

- From 21 March onwards, the Sun apparently shifts from the Equator northwards and reaches vertically over the Tropic of Cancer ( $23\frac{1}{2}^{\circ}\text{N}$ ) on 21 June.
- 21 June is known as the Summer Solstice in the Northern Hemisphere.
- On this day the Northern Hemisphere experiences its longest day and shortest night.
- But Southern Hemisphere experiences its longest night and shortest day.
- From 21 March to 21 June Northern Hemisphere generally experiences spring season and Southern Hemisphere experiences Autumn.

### Equinoxes

- The apparent position of the Sun during the Earth's revolution will be over the Equator on March 21 and September 23.
- The length of day and night will be equal during these days on both the hemispheres.
- These days are called equinoxes.

### Winter solstice

- The Sun continues its southward apparent shift from the Equator from 23 September and reaches vertically above Tropic of Capricorn ( $23\frac{1}{2}^{\circ}\text{S}$ ) on 22 December
- 22 December is known as Winter Solstice in the Northern Hemisphere.
- On this day the Northern Hemisphere experiences its shortest day and longest night.

### What is the peculiarity of the day and the night in the Southern Hemisphere on 22 December?

- This day the Southern Hemisphere experiences its longest day and shortest night.

### Spring season

- The Northern Hemisphere generally experiences spring season between 21 March and 21 June.
- Spring is the season of transition from winter to Summer. Features are :-
- The plants sprouts,
- Mango trees blooms.
- Jack fruit trees bearing buds.

### **Summer season**

- The Northern Hemisphere generally experiences Summer season between 21 June and 23 September. (Southern Hemisphere experiences Winter season)
- The southward apparent movement of the Sun begins from 21 June and reaches vertically above the Equator on 23 September.

### **What are the changes observed in nature during the summer season?**

- Increase in atmospheric heat,
- Water bodies getting dry,

### **Autumn Seasons**

- The period of the Sun's apparent shift from the Equator to the Tropic of Capricorn (23 September - 22 December), the Northern Hemisphere experiences Autumn season.
- Autumn is the transition from summer towards winter.
- During this period, the atmospheric temperature decreases considerably.
- There is shortening of day and lengthening of night during the period.
- This is the season during which the trees generally shed their leaves.
- The shedding of leaves is a form of adaptation to survive the forthcoming dry winter.

### **What is the season in the Southern Hemisphere, when it is autumn in the Northern Hemisphere?**

- Spring

### **Winter season**

- The northward apparent shift of the Sun begins by 22 December and reaches vertically above the Equator on 21 March.
- This period marks the winter season in the Northern Hemisphere.

### **What are the peculiarities of Winter Season?**

- Falling snow
- Freezing cold temperatures

### **Which will be the season in the Southern Hemisphere when it is winter in the Northern Hemisphere?**

- Summer

### **Rotation and calculation of time**

- Day and night occur due to rotation of the Earth
- The Earth rotates from west to east
- It takes 24 hours to complete one rotation.
- As the Earth rotates from west to east, the Sun rises in the east.

### **The people of which Indian State can see the Sun rise first?**

- Arunachal Pradesh

### **Local time.**

- The time estimated at each place, based on the position of the Sun is termed as the local time.
- In the ancient period, time was calculated based on the apex position of the Sun and the length of the shadow
- When the Sun is vertically overhead, it is noon.

### **What will be the hardships if there are several local times in a country?**

- Cannot prepare a railway time table applicable throughout the country.
- Cannot give announcements about radio programmes.
- Cannot conduct an examination with same question paper all over the country.

### Calculation of Time

- The angular distance of the Earth is  $360^\circ$ .
- We will get 360 longitudes if we draw one longitude each for each degree of angular distance.
- The time required to complete a  $360^\circ$  rotation is 24 hours.
- On converting 24 hours into minutes  $24 \times 60 = 1440$  minutes
- That is, the time required for the completion of one rotation = 1440 minutes.
- The time required for the Earth to complete the rotation of  $1^\circ$  longitude is  $1440/360 = 4$  minutes.
- So the time required for the rotation of  $15^\circ$  longitudinal area is  $15 \times 4 = 60$  minutes (1hour).
- In other words,  $15^\circ$  longitudinal area of the Earth passes by the Sun within a period of one hour.
- From a definite longitude, the time is estimated to increase by 4 minutes towards the east and decrease by 4 minutes towards the west for every degree of longitude.

### Greenwich Time (GMT) and Time Zones

- The zero degree longitude is known as the Greenwich Meridian.
- It acquires its name from Greenwich, the place where the Royal British Observatory is situated and through which this line passes.
- Time is calculated worldwide based on the Greenwich Line.
- Hence this line is also known as the prime meridian.
- The local time at the prime meridian is known as the Greenwich Mean Time.
- Based on the Greenwich Meridian, the world is divided into 24 zones, each with a time difference of one hour.
- These are known as time zones.

### What would be the longitudinal extent of each time zone?

- $15^\circ$

### Standard Time

- Each country in the world considers the longitude that passes almost through its middle as the standard Meridian.
- The local time at the longitude that passes through the middle of a country is known as the standard time.
- The time at the longitude that passes through the middle of a country is selected as the common time for the whole country.

### Indian Standard time (IST)

- The longitudinal extent of India is from  $68^\circ\text{E}$  to  $97^\circ\text{E}$ .
- The  $82\frac{1}{2}^\circ\text{E}$  longitude which passes almost through the middle has been fixed as the standard meridian of India.
- The local time along this longitude is generally considered as the Standard Time of India.
- This is known as the Indian Standard Time.

**Find the difference between the Indian Standard Time and the Greenwich Mean Time?** -5 .30 hour plus.

### International Date Line

- $180^\circ$  longitude is known as International Date Line.
- There is a difference of 24 hours, at  $180^\circ$  longitude to the east and west of Greenwich.
- If  $180^\circ$  longitude passes through a country, the places situated East and West of this line will be having two different days.
- To avoid this difficulty the line is drawn with bend.
- It passes through Bering - strait in Pacific Ocean.
- The travellers who cross this line from the East calculate the time by advancing it by one day and those who cross the line from the west deduct one day.

## In Search of the Source of Wind SS2- 2

### Atmospheric pressure

- Atmospheric pressure is the weight of atmospheric air at the surface of the Earth.
- Winds are caused by atmospheric pressure fluctuations.

### Variations in atmospheric pressure

- The average weight that air exerts on the earth's surface is 1034 mg per cm<sup>2</sup>.
- The atmospheric pressure is measured using an instrument called Mercury Barometer.
- It is recorded in units like millibar (mb) and hectopascal (hPa).
- The level of mercury at normal atmospheric pressure will be 76 cm.
- The atmospheric pressure at that point will be 1013.2 mb or 1013.2 hPa.

### Factors affecting Atmospheric pressure

- Altitude
- Temperature
- Humidity

### Atmospheric pressure and altitude

- The atmospheric pressure decreases with altitude.
- The pressure decreases at the rate of 1 millibar (mb) per an altitude of 10 meters.
- There is a decrease in atmospheric pressure in high altitudes, due to decrease in the density of air with altitude.
- The atmospheric pressure and the altitude are inversely proportional.

### Temperature and atmospheric pressure

- When the air warms up, it expands and goes up.
- This causes a decrease in atmospheric pressure
- Heat and atmospheric pressure are inversely proportional.
- During the day the atmospheric pressure decreases as the result of the heat the Sun.
- However, because of the lack of sunlight at night, atmospheric pressure increases.

### Humidity and atmospheric pressure

- Humidity is the amount of water (vapour) in atmospheric air.
- Vapour is lighter than air.
- If the quantity of water vapour is more in a unit volume of air, then naturally the atmospheric pressure will be less.
- On the seashore, which receives plenty of sunlight, the humidity is high and the pressure is low.
- In areas far from the sea, humidity is low and atmospheric pressure is high.
- Humidity and atmospheric pressure are inversely proportional.
- Altitude, temperature and humidity experienced in a region influence the atmospheric pressure.
- If the atmospheric pressure of an area is higher than that of the surrounding regions, it can be designated as high pressure(High - H).
- And if the atmospheric pressure of an area is lower than that of the surrounding regions, it can be designated as low pressure (Low – L)

### Isobars

- isobars are the imaginary lines joining places having the same atmospheric pressure.
- We can easily understand the distribution of the atmospheric pressure of any region by observing the isobars.

### Global pressure belts

- At certain latitudes the atmospheric pressure is almost the same.
- Based on this, the earth's surface is divided into different pressure belts.

- Equatorial low pressure belt 0°
- Sub tropical high pressure belt 30°N, 30°S
- Sub polar low pressure belt 60°N, 60°S
- Polar high pressure belt 90°N, 90°S

These are known as the global pressure belts.

### **Equatorial low pressure belt 0°**

- The area where the sun rays are perpendicular throughout the year.
- The air expands due to sun's heat and rises up on a massive scale in this area.
- This is the reason for the low pressure experienced throughout this zone.
- The equatorial low pressure belt is situated between 5° North and South latitudes.
- As the air in this zone ascends on a large scale, winds are very feeble here.
- This pressure belt is also known as 'doldrum', meaning 'the zone with no winds'.
- The region was a nightmare for the ancient mariners.

### **Sub tropical high pressure belt-(30 °N & 30 °S)**

- This pressure belt is located at 30 ° latitude in both hemispheres.
- The warm air rising from the equatorial low pressure belt (0°) gradually cools and drops to 30° latitudes under the influence of the Earth's rotation.
- And there it becomes high pressure belt.

### **Sub polar low pressure belt (60°N & 60°S latitudes)**

- As this zone is close to the Pole, the air is colder here.
- The air in this zone thrown away due to the rotation of the earth.
- As a result, low pressure is experienced all along the sub polar region.

### **Polar high pressure belt (90°N & 90°S)**

- This zone experiences severe cold throughout the year.
- As a result, the air remains chilled under the extreme cold that prevails over the Poles, and this contributes to the steady high pressure experienced here.

## **Planetary Winds**

### **Which are the Planetary Winds**

- Trade winds
- Westerlies
- Polar easterlies

### **Trade winds**

- The winds are constantly blowing from the sub tropical high pressure belt of both hemispheres towards the equatorial low pressure belt is known as Trade winds.
- The Trade winds blows From 30°N & 30°S latitude to 0° latitude.
- As these winds blow from the north east in the Northern Hemisphere, they are known as north east trade winds..-
- This wind is blowing from the south east in the Southern Hemisphere, so it is known as the South east trade winds
- The equatorial low pressure zone where the trade winds from both the hemispheres converge is known as the Inter Tropical Convergence Zone (ITCZ).

### **What could be the reason for the trade winds blowing from the south east and the north east directions?**

- Winds change direction due to the Earth's rotation (through the Coriolis force).
- In the northern hemisphere,trade winds are blowing in the north-east direction as they move to the right.
- In the southern hemisphere, trade winds are blowing in the south-east direction as they move to the left.

### **Westerlies**

- The Westerlies are blow continuously from the sub tropical high pressure zones (30 ° latitudes) into Sub polar low pressure zones (60 ° latitudes) In both hemispheres.

- As the direction of these winds is mostly from the west, they are known as the westerlies.
- Due to the vast expanse of oceans in the Southern Hemisphere the westerlies are stronger in the Southern Hemisphere than in the Northern Hemisphere.
- The ancient mariners had given different names to the rough westerlies in the Southern Hemisphere, such as 'Roaring Forties' (along 40° latitudes), 'Furious Fifties' (along 50° latitudes) and 'Shrieking Sixties' (60° latitudes).

### **Polar Easterlies**

- The cold polar regions are centres of high pressure.
- The polar winds are the cold winds that blow from these high pressure areas towards the sub polar low pressure belts.
- These winds blow from the East in both the hemispheres due to the Coriolis Force.
- Hence these are known as polar easterlies.
- These winds play a significant role in determining the climate of North America, the eastern European countries, and Russia.

## **Human Resource Development in India SS2-3**

### **Education and human resource development**

#### **How education helps in the development of a country.**

- Education
- Improves the skills of individuals
- Better the technological know-how
- Helps to secure better job and income
- Improves the standard of living.

#### **Argument about education and national income**

- Experts argue that at least 6% of the national income must be spent for providing facilities in the education sector.
- During the year 2017 – 18 Government of India spent only 3.7% of the Gross Domestic Product (GDP) on education.
- Hence the literacy rate could not be improved along the expected lines.

#### **Literacy rate**

- Literacy rate refers to the percentage of population that can read and write with comprehension.

#### **India's literacy rate according to Census of 2011**

Total-74.04

Female - 65.46

Male – 82.14

#### **Which are institutions at various levels to provide education in a country.**

- Schools,
- colleges,
- Universities,
- Technical education institutions.

#### **Right to Education Act (RTE Act)**

- India has made education a fundamental right and has passed the Right to Education Act (RTE Act) in 2009.
- The constitution ensures the goal of "elementary education for all" through RTE

### **What are the problems still exist in the education sector of India which need to be solved.**

- Certain sections drop out from schools without completing primary education.
- There is a lack of availability of basic facilities in the education sector.
- Quality of education has to be improved.

### **Which are the projects implemented in India to develop education and skills.**

Integrated Child children upto 6 years Development Scheme (ICDS)	To ensure integrated development of children upto 6 years -To provide healthcare for pregnant and lactating women
Samagra Shiksha Abhiyan (SSA) (It was formed by integrating institutes like Sarva Shiksha Abhiyan (SSA) and Rashtriya Madhyamik Shiksh)	<ul style="list-style-type: none"><li>• To ensure universal education to all up to higher secondary level</li><li>• To ensure quality and equity</li><li>• To promote the vocational education strengthen</li><li>• To the teacher training institutes like SCERT/DIET</li></ul>
Rashtriya Uchthal Shiksha Abhiyan(RUSA)	<ul style="list-style-type: none"><li>• To increase the access to higher education</li><li>• To improve the quality of higher education</li></ul>
National Skill Development and Monetary Reward Scheme	<ul style="list-style-type: none"><li>• To improve the working skills of the youth</li><li>• To ensure the availability of people with employable skills</li></ul>

## **Human resource development and health care**

### **What is health?**

- According to the World Health Organization (WHO), health is a state of physical, mental and social wellbeing.
- Along with physical conditions, importance is given to mental and social conditions as well.
- It is the government's responsibility to ensure health care for all.
- Only then can each individual work for the economic development of a country.

### **Explain how healthy persons can participate in the progress of a country.**

- Production increases with the increase in efficiency and the number of working days.
- Natural resources can be utilized properly.
- Medical expense can be reduced, thereby reducing the government's expenditure.
- Economic development is possible through increase in production.

### **What are the facilities to be ensured for health care.**

- Availability of nutritious food
- Availability of clean water
- Preventive measures
- Cleanliness
- Medical facilities
- Ensuring of leisure and entertainment
- Healthy environment

### **Government institutions that work at different levels in the medical sector.**

- Medical Colleges
- District Hospitals
- Community Health Centres
- Primary Health Centres
- Health Sub Centres

### **Other institutions that work in the medical sector.**

- There are various hospitals in the cooperative and private sectors.
- Multi specialty hospitals operate to make available modern treatment facilities.
- There are several institutions which provide different systems of medicine like ayurveda, yoga, naturopathy, unani, sidha and homeopathy.



### **National Rural Health Mission (NRHM)**

- Function to make available quality health services to all in the rural sector.
- Multi specialty hospitals operate to make available modern treatment facilities.

### **National Urban Health Mission (NUHM)**

- It provides improved health services to the residents of urban slums and other marginalised people in towns with a population of more than 50,000.

### **Life expectancy**

- Life expectancy is the expected average years of life of a person lives.

### **Life expectancy of India According to census of 2011**

Female – 67.7

Male – 64.6

Total -66.1

## **Landscape analysis through maps SS2-4**

### **Topographic Map**

#### **What is Topographical maps?**

- Topographical maps depict in minute detail all the natural and man made features on the earth's surface.
- These maps contain the important surface features such as the undulations of the terrain, rivers, other water bodies, forests, agricultural land, barren land, villages, towns, and transport and telecommunication systems.
- These maps show both natural and man-made features in details.
- Topographic maps are large-scale maps.
- Large-scale maps are maps depicting detailed information of relatively small areas.

#### **Who is responsible for making the Topographic map in India? Why?**

- Survey of India
- Certain restrictions have been imposed on the use of topographic maps of strategic regions owing to the national security concerns.

#### **Uses of topographical maps?**

- Analysis of the physical and the cultural features of the earth surface.
- For military operations and the preparation of military maps.
- Identification and studying of the natural and the cultural resources of a region as part of economic planning.
- For urban planning.
- To understand land use.
- To understand the topography.
- For resource conservation and allocation.
- For computerized form of maps – GIS

### **Grid reference**

- In Toposheets include red lines in the north-south and east-west directions.
- The north-south lines are called eastings.
- And east-west lines are called northings.
- The grids formed jointly by the eastings and the northings are called reference grids.
- Grid reference is the determination of the position of the terrestrial objects using this grid.
- In 1:50000 toposheets each grid with 2 cm width & 2 cm breadth covers an area with 1 kilometre length & 1 kilometre breadth on the earth's surface.

-Eastings and Northings lines are used to solve the difficulty of accurately determining the location of small geographical features on toposheets.

### **Eastings**

- These are north-south lines.
- Their value increases towards the East.
- The value of the easting immediately left to the geographic features is considered for identifying a location.

### **Northings**

- These are lines drawn in the east-west direction.
- Their value increases towards the north.
- The value of the northings immediately to the south of the feature in the map is considered for identifying a location.

### **4 - figure grid reference**

- In the 4 - figure grid reference method, the value of the easting to the immediate left of the feature is to be written first.
- Then the value of the northing just south of the feature is to be written.
- This positioning method is known as four-figure grid reference.

## **Public expenditure and public revenue SS2-5**

### **Public revenue**

#### **What is Public revenue?**

- The income of the government is known as public revenue.

#### **What are the sources of revenue to the government?**

- Tax Revenue.
- Non Tax Revenue.

### **Taxes**

#### **What is tax (What is tax revenue)**

- Taxes are the main source of income to the government.
- Tax is a compulsory payment to the government made by the public for meeting expenditure towards welfare activities, and developmental activities etc.
- The person who pays tax is called tax payer.
- The reduction in the income the taxpayer receives by paying taxes is known as the tax burden.

#### **Classify the tax on the basis of bearing tax burden**

- Taxes can be divided into two categories on the basis of bearing tax burden
- Direct Tax
- Personal Income Tax

#### **Direct Tax**

- When a person pays taxes on himself, it is called direct tax.
- The unique feature of direct tax is that the tax payer undertakes the burden of the tax.

## Major direct taxes in India

- Personal Income Tax
- It is the tax imposed on the income of individuals.
- The rate of tax increases as the income increases.
- Income tax is applicable to the income that is above a certain limit.
- In India the income tax is collected by the central government as per the Income Tax Act 1961.

### Corporate tax

- This is the tax imposed on the net income or profit of the companies.

### Indirect tax

- In the indirect tax the tax burden can be shifted from the person on whom it is imposed to another person.
- in the case of sale tax the tax burden initially falls on the trader.
- But the trader transfers the burden of the tax along with its price to the consumer.
- The tax is included in the price paid by the consumer.
- This is the peculiarity of indirect taxation.
- With a view to simplify the indirect tax system and to introduce one tax across the country Goods and Services Tax (GST) was introduced by incorporating majority of existing indirect taxes.
- The prevailing system will continue for those items that are not included in GST.

## Goods and Services Taxes (GST): Types

### Types of Goods and Services Taxes (GST)

- Central Goods and Services Tax (CGST)
- State Goods and Services Tax (SGST)
- Integrated Goods and Services Tax (IGST)

### Central Goods and Services Tax (CGST) & State Goods and Services Tax (SGST)

- The Central and State government impose GST on goods and services traded within the state.
- The tax imposed by the central government is known as Central GST (CGST).
- And the tax imposed by the state government is known as State GST (SGST).
- These taxes are collected jointly from the consumers and are shared equally by the centre and state governments.

### Integrated Goods and Services Tax (IGST)

- The GST on interstate trade is imposed and collected by the central government.
- This is known as Integrated GST (IGST).
- The share of the state government on IGST is given by the Central government.

## Eyes in the Sky and Data Analysis SS2-6

### Remote Sensing

#### What is Remote Sensing?

- Method of collecting information about an object, place or phenomenon without actual physical contact is known as remote sensing.
- Devices used for data collection in remote sensing are called sensors.
- Cameras and scanners are examples of sensors.
- The sensors record the electromagnetic radiations reflected by objects.

## **Classification of Remote Sensing based on the platform**

- The remote sensing can be divided into three types based on the platform.
- Terrestrial Photography
- Aerial Remote Sensing
- Satellite Remote Sensing

### **What is terrestrial photography?**

- The method of obtaining the earth's topography using cameras from the ground is known as terrestrial photography.
- The images we take using cameras are examples of terrestrial photography.

### **Aerial Remote Sensing**

- Aerial remote sensing is a continuous process of taking pictures from the sky with the help of a camera mounted on balloons or aeroplanes.
- Aerial remote sensing is generally used to gather information about comparatively smaller areas.
- The advantage of aerial remote sensing is that information of any region can be gathered in accordance with our requirements.
- Another merit of this method is that contiguous pictures of the areas along the path of the air crafts are made available.
- The photographs obtained through this method are called aerial photographs.

### **What is overlap in aerial photographs**

- In each aerial photograph, nearly 60% of the places depicted in the adjacent photo is included.
- This is done for ensuring contiguity and to obtain three dimensional vision with the help of stereoscope.
- This is called overlap in aerial photographs.

### **What is Stereo Pair in aerial photographs?**

- Two photographs of adjoining areas with overlap are called a stereo pair.
- The instrument which is used to obtain three dimensional view from the stereo pairs is called stereoscope
- When viewed through a stereo scope, we get a three dimensional view of the area depicted in the stereo pair.
- Such a three dimensional view obtained is called Stereoscopic vision.

### **Limitations of aerial photographs**

- The shaking of air crafts affects the quality of photos
- The air crafts require open space for take off and landing.
- It is not practical to take photographs of regions that are vast and extensive.
- Landing the air crafts frequently for refuelling increases the cost.

### **Satellite Remote Sensing**

- The process of collecting information using sensors fixed on artificial satellites is called satellite remote sensing.
- The artificial satellites are mainly divided into two types.
- Geostationary satellites
- Sun synchronous satellites

## **Geostationary satellites**

### **Features of Geostationary satellites**

- They orbit the earth at an elevation of about 36000m kilometres above the earth.
- One third of the earth comes under its field of view.
- As the movement of these satellites corresponds to the speed of rotation of the earth, it stays constantly above a specific place on the earth.
- This helps in continuous data collection of an area.
- It is used in telecommunication and for weather studies.
- India's INSAT satellites are examples of geostationary satellites.

## Sun synchronous satellites

### Features of Sun synchronous satellites

- The orbit of these satellites is about 900 km in altitude.
- The surveillance area is less than that of the geostationary satellites.
- The repetitive collection of information of a region at regular interval is possible.
- Used for the collection of data on natural resources, land use, ground water etc.
- These satellites are mainly used for remote sensing purposes.
- Satellites in IRS, Land sat series are examples of sun synchronous satellites.

## Analytical Capabilities of GIS

- Overlay Analysis
  - Buffer Analysis
  - Network analysis
- are the major analytical possibilities of the geographical information system.

## Overlay analysis

- Overlay analysis is used for understanding the mutual relationship among the various features on the earth's surface and the periodic changes undergone by them
- Overlay analysis is helpful in understanding the changes in the area of crops, the changes in land use etc.

## Buffer Analysis

- Buffer Analysis is a technique used to analyse circular operations around a point, and for linear features at fixed distances.
- Suppose if we want to find out the number of houses located within three kilo metres radius of your school, the possibility of buffer analysis can be used effectively.
- Buffer analysis helps to identify the number of houses to be acquired when the existing road is widening from 5 m to 8 m as per the government decision.
- A circular zone created around a point feature or a parallel zone created aside a linear feature in buffer analysis is called buffer zone.

## India: The Land of Diversities SS2-7

### In the Himalayas

#### India Physiographic divisions

- Northern Mountain Ranges
- Northern Great Plains
- Peninsular plateau
- Coastal plain
- Islands

### Northern Mountain Ranges

- In Northern mountain region there are three mountain ranges
- They are:-
- Trans Himalayas
  - Himalayas
  - Eastern Highlands

### Trans Himalayas

- Trans Himalayas include Karakoram, Ladakh, and Zaskar mountain ranges.
- Mount K2 (8661m) also known as Godwin Austin, the highest peak in India, is in the Karakoram range.
- The average height of the Trans Himalayas is 6000 meters.

## Himalayas

- The Himalayan mountain range forms an arc shaped physical division extending between the north - west trans himalayas and the south-east eastern highlands.
- These mountain ranges have a length of about 2400 kilometers.
- Many of the world's highest peaks are situated here.
- The height of these mountains tend to decrease towards the east.
- The width of these mountain ranges is just about 150 kilometers in Arunachal Pradesh, whereas it is around 400 kilometers in the Kashmir region.
- This physical division extending over 5 lakh square kilometers comprises of three parallel mountain ranges.

### Characteristic features of Himalayan ranges

- Himalayan ranges are divided in to three. They are :-
- Himadri,
- Himachal,
- Siwaliks.

### Himadri

- The highest mountain range.
- Average altitude is 6000 meters.
- Origin of the rivers Ganga and Brahmaputra.
- Has a number of peaks above 8000 meters (Eg: Kanchenjunga, Nandadevi)

### Himachal

- Situated to the south of the Himadri.
- Average altitude is 3000 meters.
- The hill stations like Shimla, Darjeeling, etc. are situated in the southern slopes of this range.

### Siwaliks

- Situated to the south of the Himachal.
- Average altitude is 1220 meters.
- As the Himalayan rivers cut across this range, its continuity breaks at many places.
- Broad flat valleys seen along these ranges are called Duns. (Eg: Dehradun)

### Natural vegetation of Himalaya

- Oak, chestnut, maple etc. are seen at an altitude of 1000 to 2000 metres
- Above 2000 meters are the coniferous trees such Deodar, Spruce, etc.

### Human life in the lap of the Himalayas

- The major means of livelihood is animal rearing that depends purely on the grasslands here.
- Sheep are commercially reared in Kashmir and Himachal.
- Potato, barley, and saffron, fruits like apple and orange are cultivated in Siwalik valleys.
- The largest production of tea in India comes from Assam mountain ranges.
- The northern mountains are described as the paradise of tourists due to its natural beauty.(Tourism)
- Hill stations like Shimla, Darjeeling, Kulu, Manali, etc. are situated here.

## Eastern Highlands

- This region which is at an altitude of 500 to 3000 meters is also known as Purvachal.
- Cherrapunji, the place receiving the highest rainfall in the world is situated here.
- This region is covered by dense tropical rain forests.

### Major mountains in Eastern Highlands

- (1) Patkai Bum-Nagaland
- (2) Naga hills-Nagaland
- (3) Garo, Khasi, and Jaintia hills-Meghalaya
- (4) Mizo hills-Mizoram

### Significance of the Northern Mountains

- Have been protecting us from foreign invasions from the north since ancient times.
- Block the monsoon winds and cause rainfall throughout North India.
- Prevent the dry cold winds blowing from the north from entering India during winter.
- Caused the emergence of diverse flora and fauna.
- Source region of rivers.

### Himalayan rivers

Rivers	Origin	Length	Tributaries	Sea which it joins
Indus	Manasarovar lake in Tibet	About 2880 Km, in India 709 Km	Jhelum, Chenab, Ravi, Beas, Satlaj	Arabian Sea
Ganga	Gaumugh caves in the Gangothri glacie	About 2500 Km	Yamuna, Gomathi. Ghaghara, Kosi	Bay of Bengal
Brahmaputra	Chema-yung- dung glacier in Tibet	About 2900 Km, in India 725 Km	Tista, Manas, Luhid, Subensary	Bay of Bengal

### Peninsular rivers

River	Originate	Lebghth	Tributries	Sea it Jpins
Mahanadi- East flowing	Maikala Ranges (Madhya Pradesh)	857 Km	Ib, Tel	Bay of Bengal
Godavari - East flowing	Western Ghats (Nasik district of Maharashtra)	1465 Km	Indravathi, Sabari	Bay of Bengal
Krishna - East flowing	Western Ghats (Mahabaleswar in Maharashtra)	1400 Km	Bhima, Thungabhadra	Bay of Bengal
Kaveri - East flowing	Brahmagiri Ranges in Western Ghats (Karnataka)	800 Km	Kabani, Amaravathi	Bay of Bengal
Narmada - West flowing	Maikala Ranges (Chhattisgarh)	1312 Km	Hiran, Banjar	Arabian sea
Tapti – West flowing	Muntai Plateau (Baitul district in Maharashtra)	724 Km	Anar, Girna	Arabian sea

### Himalayan rivers and Peninsular rivers comparission

Himalayan rivers	Peninsular rivers
• Originate from the Himalayan mountain ranges	• Originate from the mountain ranges in the peninsular plateau.
• Extensive catchment area	• Comparatively smaller catchment area
• Intensive erosion	• Intensity of erosion is less
• Create gorges in the mountain region and meander in plains	• Do not create deep valleys as they flow through hard and resistant rocks
• High irrigation potential	• Less irrigation potential
• Navigable along the plains	• Potential for inland navigation is low

## Coastal plain of India

-The approximate length of this coast line is 6100 kilometres extending from the Rann of Kutchh in Gujarat to the Ganga-Brahmaputra delta.

-The coastal plain of India can be divided into two. They are:-

-Western coastal plain,

-Eastern coastal plain.

## Comparison between Western coastal plain and Eastern coastal plain

Western coastal plain	Eastern coastal plain
Between the Arabian Sea and the Western Ghats	Between the Bay of Bengal and the Eastern Ghats
From the Rann of Kutchh to Kanyakumari	From the Sundarban delta region to Kanyakumari
Comparatively narrow	Comparatively wide
Can be divided into Gujarat coast, Konkan coast, and Malabar coast	Can be divided into north Zircar plain and Coromandal coast
Backwaters and esturies are seen	Delta formation takes place

### Main occupation of the people in the coastal plains.

-Fishing

-Tourism

-Rice and coconut are the major agricultural crops along the west coast.

-Rice is extensively cultivated in the basins of the Mahanadi, Godavari, Krishna, and Kaveri along the east coast.

## South west monsoon season

-When the sun is over the northern hemisphere, North Indian regions experience intense low pressure.

-In the months of June, July, August and September India experience south west monsoon season.

-Owing to the high pressure over the oceans, wind blows from high pressure to low pressure regions, that is, from the Indian Ocean to the Indian sub- continent.

-As the winds deflect towards right due to coriolis effect, they reach India as southwest monsoon winds.

-Because of the peculiar shape of the Indian peninsula, the southwest monsoon winds bifurcate into two branches on entering the land.

- Arabian Sea branch

- Bay of Bengal branch

-The Arabian Sea branch that reaches the coast of Kerala by early June causes heavy rainfall here.

### Arabian Sea branch of South west monsoon season

-The Arabian Sea branch of south west monsoon that reaches the coast of Kerala by early June causes heavy rainfall here.

-Then it advances to the states of Karnataka, Goa, Maharashtra, and Gujarat and causes rainfall in the western parts.

-Rainfall is scarce in the Rajasthan region because the monsoon branch entering through Gujarat blows parallel to the Aravalli mountain ranges.

### Rainfall is comparatively less along the eastern slopes of the Western Ghats. Why?

-The western part of the Western Ghats receives a good amount of rain.

-As a result of Western Ghats blocking the Arabian Sea branch of the south-west monsoon wind.

-The south west monsoon winds will not be blowing to the east side of the Western Ghats.

-So the rainfall is comparatively less along the eastern slopes of the Western Ghats.



### **By what name is the southwest monsoon rain known in Kerala?**

-Edavappaathi

### **The Bay of Bengal branch of South west monsoon season**

-The Bay of Bengal branch of the monsoon advances northward by absorbing more moisture from the Bay of Bengal.

-On reaching West Bengal, crossing the Sundarban delta, it bifurcates into two branches.

-One branch reaches the northeastern states through the Brahmaputra plains and causes heavy rainfall there.

-The other branch enters the Ganga plains and causes rainfall in West Bengal, Bihar, Uttar Pradesh, etc.

-This branch merging with the Arabian Sea branch in the Punjab plains advances north further and causes heavy rainfall along the foothills of the Himalayas.

### **Retreating monsoon season(North East Monsoon)**

-By the end of September, as the sun apparently shifts towards the southern hemisphere, intense high pressure develops over the northern plains.

-Comparatively low pressure over the Indian Ocean causes wind to blow from the northern part of India towards the Indian Ocean.

-These winds known as north-east monsoon winds are dry winds that do not generally cause any rain in India.

-This season termed as north east monsoon

-This season is actually a transition period between the rainy season and the forthcoming winter.

-This season experienced during the months of October and November.

-This season termed as north east monsoon

-This season is actually a transition period between the rainy season and the forthcoming winter.

-This season experienced during the months of October and November.

-The winds blowing from land to sea due to the attraction of low pressure over the Bay of Bengal takes from northeast to southwest direction.

-It absorbs moisture from the Bay of Bengal and causes rainfall along the coromandal coast, especially the Tamil Nadu coast.

-This is the main rainy season of Tamil Nadu.

-Kerala and some parts of Karnataka also receive northeast monsoon rains.

### **October heat**

-The days in October and November unbearable due to high temperature and humidity.

-This phenomenon is known as October heat.

### **By what name is the northeast monsoon rain known in Kerala?**

-Thulaavarsham.

## **Resource Wealth of India SS2-8**

### **Different Agricultural seasons in India**

On the basis of the period of cultivation, we have three distinct cropping seasons.

-Kharif,

-Rabi,

-Zaid

### **Kharif**

-Sowing period – June (Onset of monsoon)

-Harvesting period - Early November (End of monsoon)

-Major crops - Rice, maize, millets, cotton, jute, sugar cane, groundnut

## **Rabi**

- Sowing period–November(Beginning of winter)
- Harvesting period – March (Beginning of summer).
- Major crops - Wheat, tobacco, mustard, pulses.

## **Zaid**

- Sowing period–March (Beginning of summer)
- Harvesting period – June (Beginning of monsoon)
- Major crops - Fruits, vegetables.

## **Food crops in India**

- The crops which can directly be consumed as food are called food crops. For example:-
- Rice,
- Wheat,
- Corn,
- Barley,
- Millets,
- Legumes.

## **Cash crops in India.**

- Cash crops are those having industrial and commercial significance. For example:-
- Fiber crops - Eg: cotton, jute.
- Beverage crops - Eg: tea, coffee.
- Spices - Eg: cardamom, pepper.
- Other crops Eg: sugar cane, rubber.

## **Rice-Factors required for cultivation**

- Crop season - Kharif (Rice the staple food crop of India)
- Soil - Alluvial soil is most suitable for rice cultivation.
- Temperature requires - above 24° C
- Rainfall - More than 150 cm.
- Rice is being cultivated in regions with less rainfall with the aid of irrigation.
- Rice is mostly cultivated in river basins and coastal plains.
- Rice is also cultivated by making terraces along the slopes of Siwaliks.

## **Wheat-Factors required for cultivation**

- Crop season - Rabi (The second major food crop produced in India)
- Soil - Well drained alluvial soil.
- Temperature requires -10°C to 26°C.
- Rainfall - 75 cm.
- Wheat cultivation in India is mainly dependent on irrigation as it is a winter crop.
- Farming states - Punjab, Haryana, Himachal Pradesh, Uttar Pradesh and Madhya Pradesh.

## **Maize-Factors required for cultivation**

- Crop season - In India, maize is cultivated in both summer and winter.
- Maize is the third major food crop produced in India.
- Soil - Well drained fertile soil is ideal.
- Rainfall - 75 cm.
- Cultivating states - Maize is mostly cultivated in Madhya Pradesh, Karnataka, Rajasthan and Uttar Pradesh.

## **Water transport**

- Water transport can generally be classified in to two:
- Inland water transport
- Marine transport

### **Inland water transport**

- Water bodies like rivers, lakes and canals are used for inland water transport.
- Inland water transport is utilised not only for passenger and cargo transport, but also for fishing and tourism.

### **Advantages of water transport.**

- The cheapest means of transport.
- Suitable for large scale cargo transport.
- Does not cause environmental pollution.
- Most suited for international trade.

### **Which are the water bodies largely used for inland water transport in India.**

- Ganga-Brahmaputra rivers and their tributaries
- Godavari-Krishna rivers and their tributaries
- Buckingham canal of Andhra -Tamil Nadu region
- Mandovi and Zuvari rivers of Goa
- Back waters of Kerala.

### **National Waterways after the formation of the Inland Water Transport Authority in 1986.**

<b>Waterway</b>	<b>River root</b>
National Waterway 1 (NW 1)	Allahabad to Haldia in the river Ganga (1620 Km)
National Waterway 2 (NW 2)	Sadia to Dubri in the river Brahmaputhra (891 Km)
National Waterway 3 (NW 3)	The west coastal canal in Kerala from Kollam to Kottappuram (205 Km)
National Waterway 4 (NW 4)	Canal from Kakinada to Puducherry linking Godavari and Krishna (1095 Km)
National Waterway 5 (NW 5)	Brahmani - Mahanadi delta river system linked to east cost canal (623 Km)

## **Financial institutions and services SS2-9**

### **Functions of Reserve Bank of India**

- Printing of currency.
- Controlling credit.
- Banker to government.
- Banker's bank.

### **How does the Reserve Bank print notes?**

- All currencies except the one rupee note are printed by the Reserve Bank of India.
- The one rupee note and its subsidiary coins are issued by the Central Finance Department.
- The gold or foreign exchange reserves which hold the fixed value of the note hold as security.

### **Specify how the Reserve Bank controls credit**

- Control of credit is one of the main functions of the Reserve Bank.
- This is made possible by bringing about changes in the rate of interest.
- As rate of interest increases, volume of loans decreases.
- When interest rates fall, the amount of debt increases.
- The Reserve Bank of India increases the money supply in Indian economy through the distribution of printed currency and through credit creation.

### **How does the Reserve Bank of India act as a Banker to government?**

- Another function of the Reserve Bank of India is to serve as the banker to the central and state governments.
- As a banker to the government, the Reserve Bank of India accepts deposits from the government, sanctions loans and renders other banking services to them.
- The Reserve Bank of India does not charge any fees for these services.

### **How does the Reserve Bank of India act as a Banker's bank?**

- The Reserve Bank is the apex bank of all banks.
- To advise and assist all banks in their operations is a function of the Reserve Bank.
- It acts as a last resort to all banks in their financial matters.

### **Why Reserve Bank of India is known as apex bank bank in India**

- The Reserve Bank controls all other banks.
- It controls and gives the necessary directions and advices to the financial institutions in the country
- So Reserve Bank of India is known as apex bank bank in India financial institutions
- Financial institutions are those institutions where financial transactions like deposits, loans etc. take place.

### **Function of Commercial Banks**

- Accepting deposits,
- Providing loans,
- Provide other facilities,
- Providing other services.

### **Deposits received by commercial banks**

- Savings Deposit,
- Current Deposit,
- Fixed Deposit,
- Recurring Deposit.

### **Savings Deposit**

- This scheme helps the public to deposit their savings.
- Banks provide low interest rate for such deposits.
- The depositor can withdraw the money from the deposit, subject to restrictions.
- Different banks have adopted different regulations regarding the number of times and the amount of money that can be withdrawn during a particular time period.
- The details of the amount deposited and withdrawn are stated in the passbook provided by the bank.

### **Current Deposit**

- This deposit facilitates depositing and withdrawing money many times in a day.
- This deposits are used mainly by traders and industrialists.
- This type of deposits does not receive any interest.

### **Fixed Deposit**

- Fixed deposits are ideal for depositing money in banks by individuals and institutions for a specific period of time.
- The interest rate is calculated on the basis of the time period for which the money is deposited.
- If the amount is withdrawn before the maturity of deposits, then the interest rate will be lower.

### **Recurring deposits**

- Recurring deposits receive a specific amount every month for a specified period of time.
  - The interest rate of recurring deposits will be higher than that of saving deposits but less than that of fixed deposits.
  - The interest rate will be less if the deposits are withdrawn before the maturity date.
- Loans provided by commercial banks
- The amount of money accepted as deposit from the public is granted as loans by the banks.

- The interest rate of loans will be higher than the interest rate of deposits.
- There will be differences in the interest rate depending on the duration of loan, its purpose, etc.
- Normally, bank loans are provided by accepting a collateral.

#### **Collateral that the banks accept to provide loans.**

- Physical assets - gold, property documents, etc.
- Fixed deposit certificates

#### **Loans issued by commercial banks.**

- Cash credit.
- Overdraft. are loans provided by commercial banks.

#### **What is Cash credit?**

- The loans given to individuals and institutions by accepting collaterals are called cash credit.

#### **What are the purposes for which banks provide cash credit to the public?**

- Agricultural purposes
- Industrial purposes
- Constructing houses
- Purchasing vehicles
- Purchasing home appliances

#### **What is overdraft?**

- This is an opportunity for a customer to withdraw money over and above the balance in his/her account.
- This facility is provided to individuals who have frequent transactions with the bank.
- Generally, this opportunity is provided to individuals who maintain current deposits.
- The bank will charge interest on the additional withdrawal amount.

### **Modern trends in banking sector**

- Electronic Banking and
- Core Banking are the modern trends in banking.

#### **What is Electronic Banking?(E- Banking)**

- Electronic banking is a method by which all transaction can be carried out through net banking and tele banking.
- Any time banking,
- Anywhere banking,
- Net banking,
- Mobile phone banking, etc. are part of electronic banking.
- For this, the assistance of the bank employees is not required.
- Bank account and net banking facility alone are required for this.

#### **Benefits (merits) of Net Banking?**

- Money can be sent and bills can be paid anywhere in the world from home
- Saves time
- Low service charge

#### **What is Core banking (Centralised Online Real-time Exchange Banking)?**

- Core banking is the facility which is arranged in such a way that the branches of all banks are brought under a central server so that banking services from one bank to another is made Possible.
- Core banking is the facility which is arranged in such a way that the branches of all banks are brought under a central server so that banking services from one bank to another is made possible.

#### **Advantages of Core banking**

- As a result, ATM, debit card, credit card, net banking, ele banking, mobile banking, etc have been brought together.
- Transactions have become simple.
- By using this facility, an individual can send money from his bank account to his friend's account elsewhere.

## Consumer: Satisfaction and Protection SS2-10

### Consumer Protection Act 1986

- The Consumer Protection Act of 1986 has clearly defined consumer rights and established special judicial systems in India for consumer protection.
- Consumer courts were established as a result of this law.

### What are the rights of consumers provided by the Consumer Protection Act of 1986?

- The right to be protected against the marketing of goods and services which are hazardous to life and property.
- The right to be informed about the quality related aspects of goods and services.
- The right to have access to goods and services at fair prices.
- The right to be heard and to seek redressal (solution) at appropriate forums.
- The right to consumer education.

### Administrative mechanism

Different departments and institutions working for the protection of consumers' interests.

Departments and Institution	working
-Legal Metrology Department	-Ensures the weights and measures standards.
-Food Safety Department	-Ensures the quality of food products
-Central Drugs Price Control Committee	-Eontrols price of medicines
-Drugs Control Department	-Ensures the quality and safety of medicines.
-Food Safety and Standard Authority of India	-Ensures the quality of food products at various stages like production, distribution, storage, sale and import.

ALL THE BEST

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### Major ports in India-Map



