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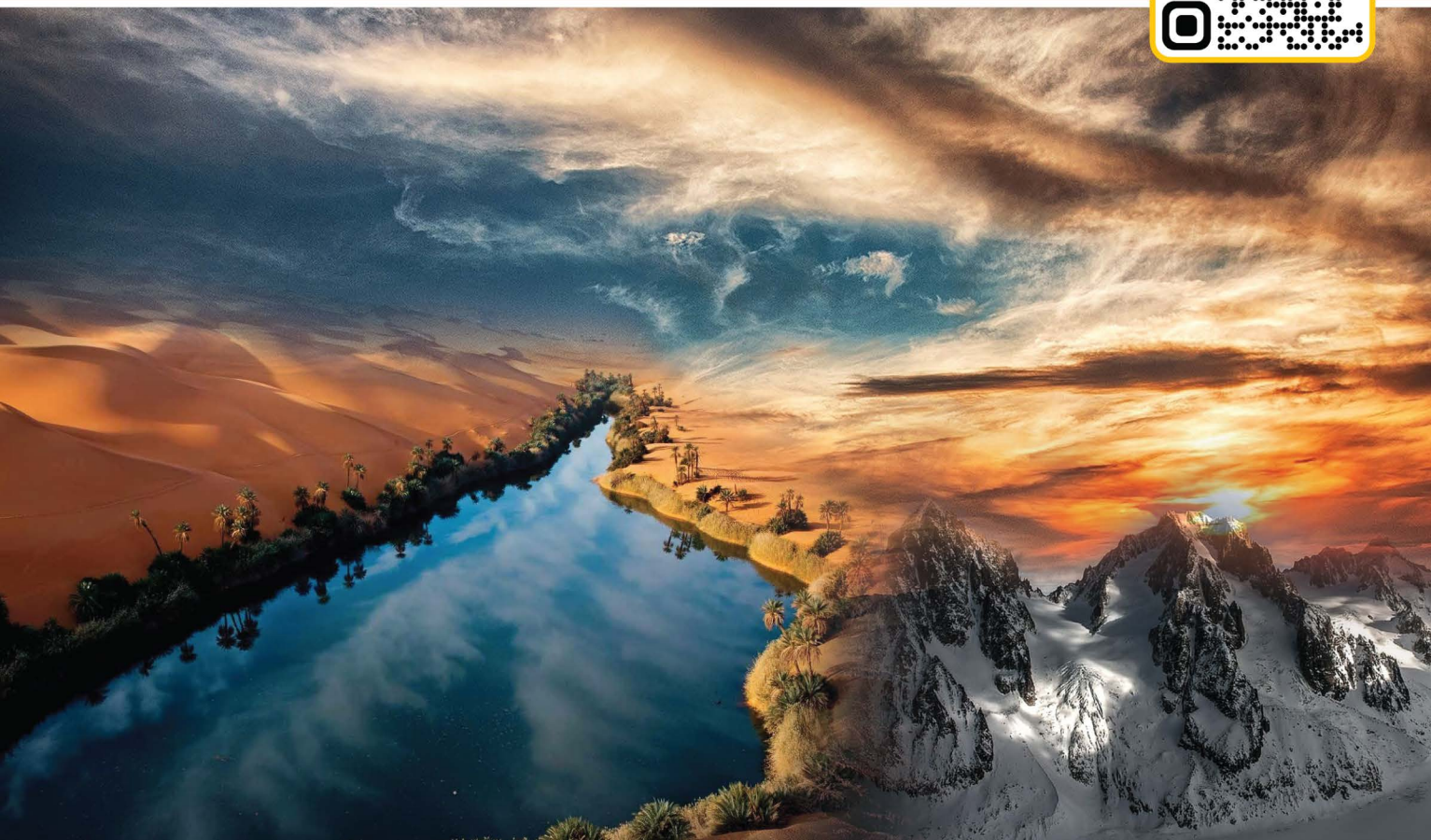

GEOGRAPHY

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Editor - N.N. Ojha

Solved by - Chronicle Editorial Team

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Nurturing Talent Since 1990

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GEOGRAPHY

PAPER-I

PHYSICAL GEOGRAPHY

GEOMORPHOLOGY

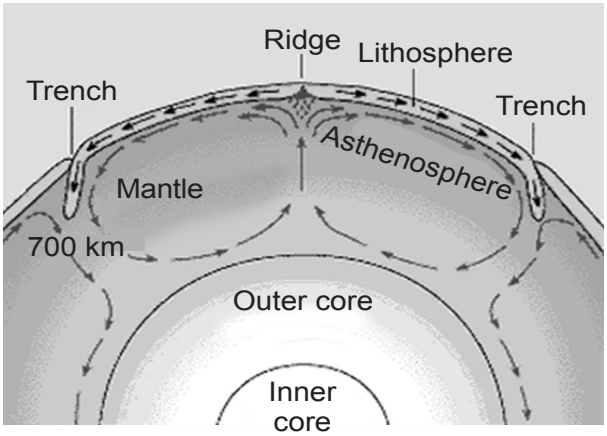
Q. "Evidences from palaeomagnetism and sea floor spreading have validated that continents and ocean basins have never been stationary." Elucidate with suitable diagrams.

Ans. The theory of plate tectonics is nowadays more or less universally accepted by geologists.

- The basic thought is, instead of being permanent fixtures of the earth's surface, the continents and ocean basins undergo continuous change.
- Both are parts of lithospheric plates that move against each other, and in the process new crust is created at mid-oceanic ridges (spreading centers), and old crust is consumed at convergent plate boundaries (subduction zones).
- To understand the concept of Seafloor Spreading, we must first understand some basic concepts that form the cornerstones for the concept of Seafloor Spreading.
- These cornerstones are Convectional Current Theory and Paleomagnetism.

Convection Current Theory

- Convection Current Theory is the soul of Seafloor Spreading Theory. Arthur Holmes in 1930s discussed the possibility of convection currents in the mantle.
- Wherever rising limbs of these currents meet, oceanic ridges are formed on the seafloor due to the divergence of the lithospheric plates (tectonic plates), and wherever the failing limbs meet, trenches are formed due to the convergence of the lithospheric plates (tectonic plates).

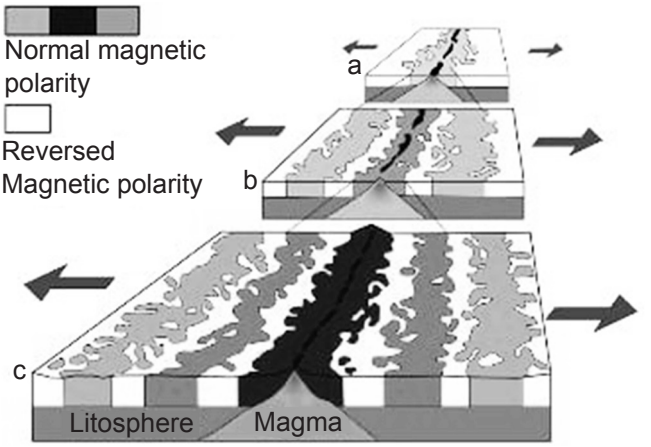


Paleomagnetism

- Paleomagnetism is the study of the record of earth's magnetic field with the help of magnetic fields recorded in rocks, sediment, or archaeological materials.
- The polarity of the Earth's magnetic field and magnetic field reversals are thus detectable by studying the rocks of different ages.
- Basalt contains magnetic minerals, and as the rock is solidifying, these minerals align themselves in the direction of the magnetic field.
- This locks in a record of which way the magnetic field was positioned at the time.

Sea Floor Spreading

- Harry Hess proposed the idea of See Floor Spreading. When oceanic plates diverge, tensional stress causes fractures to occur in the lithosphere.
- Basaltic magma rises from the fractures and cools on the ocean floor to form new seafloor.
- The newly formed seafloor (oceanic crust) then gradually moves away from the ridge, and its place is taken by an even newer seafloor and the cycle repeats.



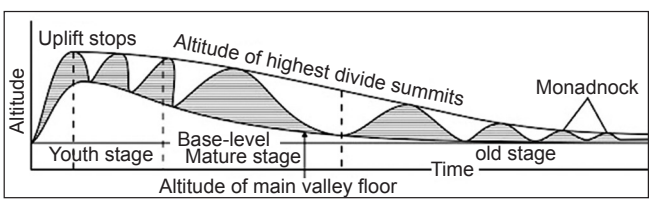
- Therefore, paleomagnetism and sea-floor spreading have proven that continents and ocean basin are not stationary.
- This is further substantiated by plate tectonics and new age technologies such as SONAR, etc. Plate tectonics theory explains the large-scale motions of the earth's lithosphere. The term plate was first coined by JT Wilson in 1965.

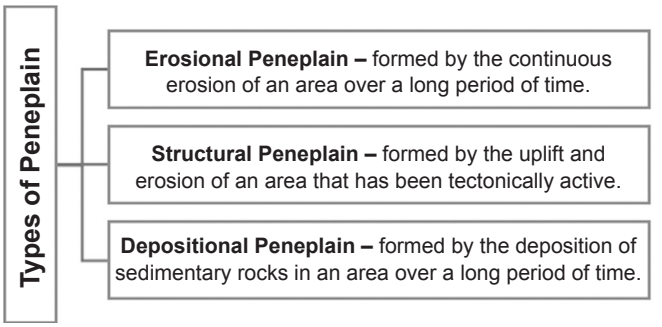
Q. Define Peneplains. Describe the landscape features associated with peneplains under different geomorphic cycles.

Ans. The term Peneplain was coined by William Morris Davis. It is a geological feature that refers to a broad, nearly level, plain that has been worn down by erosion over a long period of time. Peneplains are flat and gentle topped with a convexo-concave in shape.

Formation of Peneplain

- Peneplains are formed by a combination of erosion and weathering processes. The uplift of an area leads to the exposure of rocks, which are then subjected to weathering processes such as chemical breakdown, mechanical disintegration, and biological decay.
- Erosion then removes the loose material, leaving behind a relatively flat and featureless surface.

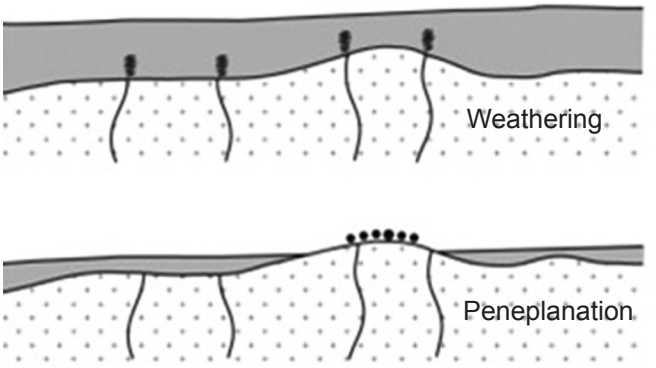




Landscape Features are Associated with the Peneplain under Different Geomorphic Cycles

Normal Cycle of Erosion Featuring Peneplain

- The locally produced featureless plain of subdued relief with a larger landmass is local or incipient peneplain as it represents **1st phase of peneplanation**.
- Regional peneplain as a second stage of peneplanation represents the coalescence of local peneplain together
- **Monadnocks** – Resistant rock remains as residual and projects above the general peneplains. **Example:** Stone Mountain in Georgia, Aravallis, Telangana Plateau, etc.



- **Peneplain of 2nd Cycle of Erosion:** Uplifted peneplains are topographic expressions of rejuvenation under 2nd cycle of erosion. Uplifted Peneplains are represented by their remnants of accordant summit of the present day plantation surface.
- **Example:** Schooley peneplain, Harrisburg peneplain, etc.
- **Next Cycle of Erosion:** Resurrected Peneplains also called buried peneplains are submerged under the sea is indicative of accelerated alluviation (deposition).
- **Example:** Chhechari basin of Palamau upland (Bihar).

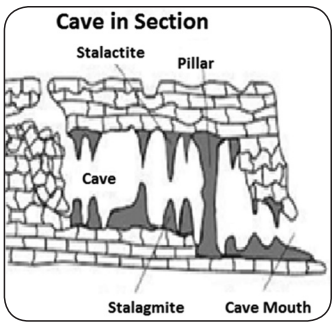
1

GEMORPHOLOGY

Q. Define 'speleothem'. Discuss the various forms and features of speleothems.
(CSE 2022)

Ans. The term 'speleothem' refers to the mode of occurrence of a mineral—i.e., its morphology or how it looks—in a cave, not its composition. For example, calcite, the most common cave mineral, is not a speleothem, but a calcite stalactite is a speleothem. However, a stalactite may be made of other minerals, such as halite or gypsum. There are various types of speleothems and numerous subtypes and varieties found in Karst topography.

- **Stalactites** are the most common and most familiar of all speleothems; they resemble icicles or carrots hanging from cave ceilings. Stalactites range in size from small, slender, soda straws to thick, massive pendants tens of feet long and wide. Stalactites are usually composed of calcite, but they may consist of other minerals also.
- **Stalagmites** are convex floor deposits built up by water dripping from an overhead stalactite or from the cave ceiling. Because falling water droplets tend to splash, stalagmites spread out as they gradually build up from the floor. Hence, they do not have central, hollow tubes like stalactites. Stalagmites are usually larger in diameter than the stalactites above them and they generally have rounded tops instead of pointed tips.
- When water drops flow down a sloped ceiling before dripping to the floor, calcite can build up in a line. These lines gradually form **"draperies"** or **"cave bacon."** This type of speleothem is found in almost every cave in the world and is universally popular because of the close resemblance to its namesake.



Speleothems are characteristics features of Karst topography generally develops in those areas where thick beds of massive limestones lie just below the layer of surficial materials.

Besides, karst topography also develops on dolomite, dolomitic limestones and chalks. karst topography has well developed in Yugoslavia, Causes Region of southern France; Spanish Andalusia; northern Puertorico; western Cuba; Jamaica; southern Indiana, west-central Kerntucky, Virginia, Tennessee and central Florida of the USA.

Q. Explain how various aspects of channel morphology are used in transportation, settlement and land use planning, flood control and flood management?
(CSE 2022)

Ans. Channel can be defined as the path of a river or a stream outlined by its bed and banks. The whole system of river channels with its joining branches in the form of tributaries that dissect the earth's surface is in proportion to the valley size.

Channels are occupied by permanent streams, those that flow throughout the year, some have **intermittent streams** and some have **ephemeral streams**, which are active only during and after the rains.

Although the water of the river flows in its channel but during floods, the water flow exceeds the capacity of the channel and the water spills out of the channel over the floodplain causing **flood**.

Channel Structure consists of three main features such as:

1. **Channel Banks:** The two sides of the river bed are called channel banks.
2. **Channel Bed:** The main path taken by the river, through which it flows, is called the channel bed.
3. **Thalweg:** It is continuous line joining the lowest points in a stream channel.

2

CLIMATOLOGY

Q. With suitable examples describe the impacts of movement of air masses on weather and winds in different parts of the continents. (CSE 2022)

Ans. When the air remains over a homogenous area for a sufficiently longer time, it acquires the characteristics of the area.

The homogenous regions can be the vast ocean surface or vast plains. The air with distinctive characteristics in terms of temperature and humidity is called an air mass.

Air mass is defined as a large body of air having little horizontal variation in temperature and moisture. The homogenous surfaces, over which air masses form, are called the source regions.

The air masses are classified according to the source regions. There are five major source regions:

1. Warm tropical and subtropical oceans;
2. The subtropical hot deserts;
3. The relatively cold high latitude oceans;
4. The very cold snow covered continents in high latitudes;
5. Permanently ice-covered continents in the Arctic and Antarctica.

Accordingly, following types of air masses are recognised:

(i) Maritime tropical (mT);
(ii) Continental tropical (cT);
(iii) Maritime polar (mP);
(iv) Continental polar (cP);
(v) Continental arctic (cA).

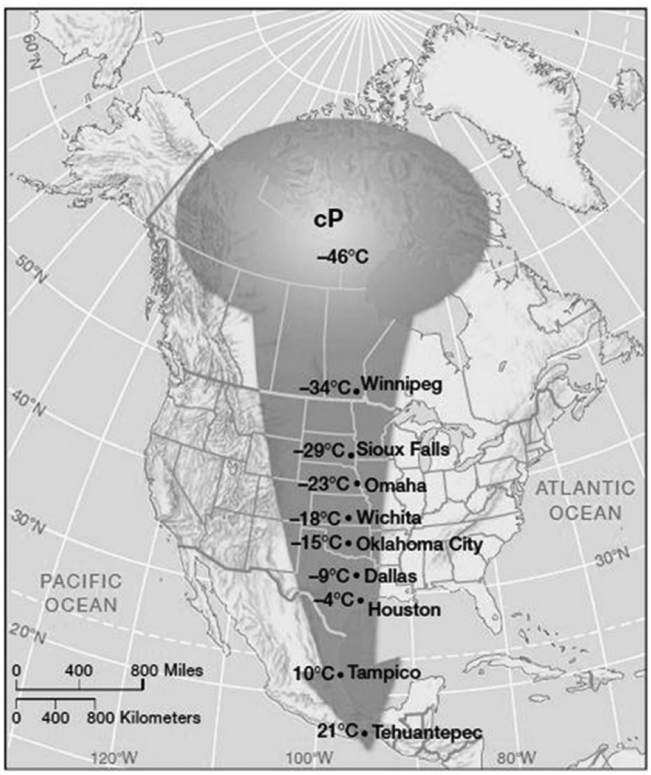
Tropical air masses are warm and polar air masses are cold.

Movement of Air Masses

Some air masses remain in their source region for long periods, even indefinitely. In such cases, the weather associated with the air mass persists with little variation. However, some air masses move into other regions.

When an air mass departs from its source region, its structure begins to change. This change is due in part to thermal modification (warming or cooling from below), in part to dynamic modification (uplift, subsidence, convergence, turbulence), and perhaps also in part to addition or subtraction of moisture. For example, if a continental polar air mass moves into warmer areas and over the ocean the air will warm and moisture may evaporate from the ocean surface into the air, adding humidity.

Also, an air mass modifies the weather of the regions into which it moves: it takes source-region characteristics into other regions.



3

OCEANOGRAPHY

Q. When corals are affected by stress it causes them to turn completely white. Explain the reasons of such an occurrence. (CSE 2022)

Ans. Coral polyps are short-lived microscopic organisms, which live in colonies. They flourish in shallow, mud-free and warm waters. They secrete calcium carbonate.

The coral secretion and their skeletons from coral deposited in the form of reefs.

They are mainly of three kinds

- Barrier reef,
- Fringing reef, and
- Atolls.

The Great Barrier Reef of Australia is a good example of the first kind of coral reefs. Atolls are circular or horse shoe-shaped coral reefs.

Coral Bleaching

When water is too warm, corals will expel the algae (zooxanthellae) living in their tissues causing the coral to turn completely white. This is called coral bleaching. When a coral bleaches, it is not dead. Corals can survive a bleaching event, but they are under more stress and are subject to mortality.

In 2005, the U.S. lost half of its coral reefs in the Caribbean in one year due to a massive bleaching event. The warm waters centered on the northern Antilles near the Virgin Islands and Puerto Rico expanded southward.

In January 2010, cold water temperatures in the Florida Keys caused a coral bleaching event that resulted in some coral death. In 1998 when the El Niño weather pattern caused sea surfaces in the Pacific Ocean to heat up; this event caused 8% of the world's coral to die. Second Mass Bleaching took place in 2002.

In the past decade, however, mass bleaching occurrences have become more closely spaced in time, with the longest and most damaging bleaching event taking place from 2014 to 2017.

Global Coral Reef Monitoring Network (GCRMN), which is supported by the United Nations, showed that 14% of the world's coral on reefs had been lost between 2009 and 2018.

Causes

- **Rise in Sea Temperature:** Most coral species live in waters close to the warmest temperature they can tolerate i.e., a slight increase in ocean temperature can harm corals. El Nino elevates the sea temperature and destroys coral reefs.
- **Ocean Acidification:** Due to rise in carbon dioxide levels, oceans absorb more carbon dioxide. This increases the acidity of ocean water and inhibits the coral's ability to create calcareous skeletons, which is essential for their survival.
- **Solar Radiation and Ultraviolet Radiation:** Changes in tropical weather patterns result in less cloud cover and more radiations which induce coral bleaching.
- **Infectious Diseases:** Penetration of bacterium like vibrio shiloi inhibits photosynthesis of zooxanthellae. These bacteria become more potent with elevated sea temperatures.
- **Chemical Pollution:** Increased nutrient concentrations affect corals by promoting phytoplankton growth, which in turn supports increased numbers of organisms that compete with coral for space.
- **Increased Sedimentation:** Land clearing and coastal construction result in high rates of erosion and a higher density of suspended silt particles which can
  - smother corals when particles settle out (sedimentation),
  - reduce light availability (turbidity) and
  - potentially reduce coral photosynthesis and growth.
- **Human Induced Threats:** Over-fishing, pollution from agricultural and industrial runoff, coral mining, development of industrial areas near coral ecosystems also adversely impact corals.

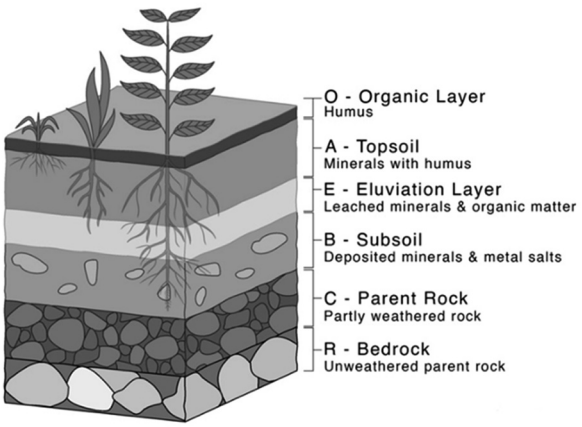
4

BIOGEOGRAPHY

Q. Well-developed soils typically exhibit distinct layers in their soil profile. Elaborate. (CSE 2022)

Ans. Soil as a natural body, consisting of minerals and organic constituents differentiated into horizons of variable depths, which differ from the material below in morphology, physical make-up, chemical properties and composition, and biological characteristics. It is, therefore, the upper loose layer of the earth's crust, which is rich in nutrients and minerals on which plants grow and depend on for nourishment.

Formation of soil from disintegration of parent material is a gradual process. It depends upon several factors like — climate, parent material, topography, plants and animals, life and time. Some soil formed at its parent material source while others are formed by deposition through agent. Those soils formed at parent material source show well developed horizon in comparison to soil deposited by agent. Horizon is soil layer developed during disintegration of parent material. Each horizon differs in feel (texture), colour, depth and chemical composition.



The uppermost horizon is generally dark in colour as it is rich in humus and minerals. This horizon provides shelter for many living organisms such as worms, rodents, moles and beetles. The roots of small plants are embedded entirely in the topsoil. The next horizon has a lesser amount of humus but more of minerals. This layer is generally harder and more compact and is called the B-horizon or the middle layer. The third layer is the C-horizon, which is made up of small lumps of rocks with cracks and crevices. Below this layer is the bedrock, which is hard and difficult to dig with a spade.

Clear distinct horizons are noticed in black soil formed from basaltic lava, however alluvial soil which are depositing in nature does not show clear horizon or soil profile. Thus, we can say well developed soils typically exhibit distinct layers in their soil profile.

Q. Plants and animals that exist in a particulars ecosystem are those that have been successful in adjusting to their habitat and environmental conditions. Elucidate with examples. (CSE 2022)

Ans. Plant community which has grown naturally without human aid and has been left undisturbed by humans for a long time is termed as a virgin or natural vegetation of that region. Thus, cultivated crops and fruits and orchards form part of vegetation but not natural vegetation. Similarly, animals which are adapted or grown in the natural environment are called native of that region. However, these plants and animals are not uniform over region it varies. Different region with different physical environment possess differ natural vegetation or animals.

Natural vegetation of any region is result of several factors like land, soils, precipitation, temperature etc.

- **Land:** Land affects the natural vegetation directly and indirectly. The nature of land influences the type of vegetation. The undulating and rough terrains are areas where grassland and woodlands develop and give shelter to a variety of wildlife.
- **Soils:** The soils also vary over space. Different types of soils provide basis for different types of vegetation. The sandy soils of the desert support cactus and thorny bushes, while wet, marshy, deltaic soils support mangroves and deltaic vegetation. The hill slopes with some depth of soil have conical trees.

5

ENVIRONMENTAL GEOGRAPHY

Q. What are the high altitude environmental hazards? Explain with suitable examples. (CSE 2022)

Ans. Environmental hazards are defined as extreme events or substances in the Earth and its ecological system that may cause adverse consequences for humans and things they value. Environmental hazards are of different types:

- Physical
- Chemical
- Biological

However, the high altitude environmental hazards are those which occur at hilly or mountain regions. These hazards can be physical, biological and chemical. However, most environmental hazards at high altitude are physical in nature and caused due to extreme weather events. Some of the examples of high altitude environmental hazards are flash floods, earthquakes, volcanic eruptions, landslide, avalanche, etc.

Due to anthropogenic intervention, there are rise of environmental hazards in hilly region. Deforestation, slope cutting, construction of roads and heavy rainfall are highly responsible factors resulting in frequent landslides, flash floods and soil erosion in hilly regions.

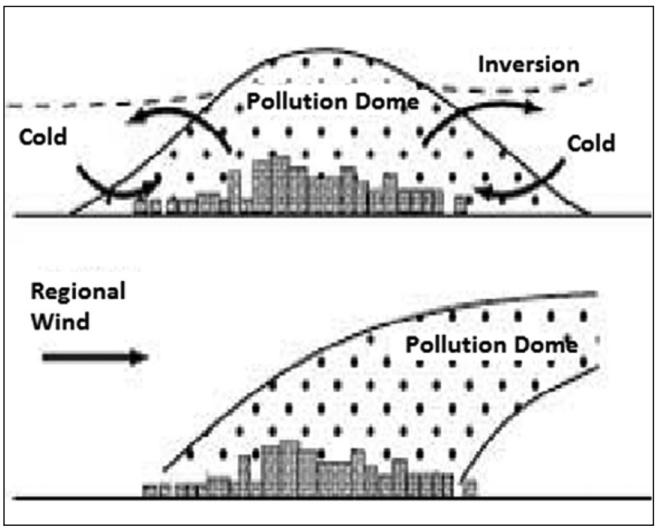
In the flash flood event of Uttarakhand (2013) more than 2000 people have been declared dead and almost 12000 people were disappeared and there was loss of 50 billion dollars to the state.

Mitigation Measures

- **Afforestation:** Forest is the mainstay of a mountainous ecosystem because forest protects the rocks from exposing and keeps these rocks strong through their root system. Forest canopy intercept 60% of rainfall which falls over the forest.
- **Ecological Sensitive Development:** Environmental friendly development should be allowed to complete. The ecological processes and flora and fauna of that region should be allowed to complete.
- **Nature Supportive Roads and Habitats:** The connectivity is dependent on the presence of roads. Therefore, roads should been environmental friendly also, and it should not be on margins of hills. Roads should be constructed according to natural aspect of the region.
- **Risk Assessment System:** Risk assessment comprises the area, intensity of flash floods, assessing of damage, etc.

Q. What is pollution dome? Discuss its formation and impacts. (CSE 2022)

Ans. Pollution dome refers to mass of polluted air in and above a city or industrial complex which is prevented from rising by the presence of an inversion above it.



Formation

Due to human activity, the temperature in an urban microclimate is higher than that of the surrounding areas. Urban areas are said to be urban heat islands as under calm conditions, temperatures are highest in the built up city centre and decrease towards the suburbs and countryside.

6

PERSPECTIVES IN HUMAN GEOGRAPHY

Q. Analyse the effects of Globalisation on languages. (CSE 2022)

Ans. Globalization is a general term mostly associated with economic integration at global level. However, globalization is not limited to economic integration it also involves integration across social, cultural and political terrains.

In cultural sphere, globalization is exchange of ideas, languages, values, lifestyle, and foods, etc. resulting assimilation of cultural values. With the advancement of transportation and communication technologies in recent time, the cultural exchange has risen exponentially through social media. This has both positive and negative impacts.

The major consequences of globalization have been:

- Adverse impact on family institution.
- Entry of non-native food and lifestyle.
- Dominance of foreign language on native language.

Threat to Indian Languages: A Recent Example

Many Indian languages have become threatened and even endangered under the pressure of globalization. Globalization is affecting languages in the sense that many languages under pressure are losing oral literature and words related to culture, especially, food items, dress and ornaments, rituals, flora and fauna.

Moreover, interaction of cultures bring about a lot of pressure on languages in the sense that languages, which co-exist at different levels and for different functions come together, and as they do, they begin to compete against each other for speakers.

So, such languages that speakers find to be of limited potential at the global stage, if abandoned they might come under threat or even die. A language dies when its speakers die. For example, a language of Andaman and Nicobar Islands, namely, **Aka-Bo** has died recently when its last speaker died in 2010.

The government of India, through Central Institute of Indian Languages (CIIL), has initiated a scheme known as **'Protection and Preservation of Endangered Languages of India'**. Under this scheme, CIIL is documenting all the languages used by the tribal and non-tribal people and non-scheduled languages/ mother tongues spoken by less than ten thousand persons.

Q. "Culture is a dynamic concept". Elucidate with examples. (CSE 2022)

Ans. A **society** describes a group of people who share a community and a culture. Culture represents the *beliefs and practices* of a group, while society represents the *people* who share those beliefs and practices. Neither society nor culture could exist without the other.

Almost every human behavior, from shopping to marriage to expressions of feelings is termed as culture. However, culture is not static over a region, **it is a dynamic concept**.

For example, in the **United States,** people tend to view marriage as a choice between two people, based on mutual feelings of love. In other nations and in other times, marriages have been arranged through an intricate process of interviews and negotiations between entire families, or in other cases, through a direct system, such as a "mail-order bride."

To someone raised in New York City, the marriage customs of a family from Nigeria may seem strange or even wrong. Conversely, someone from a traditional Kolkata family might be perplexed with the idea of romantic love as the foundation for marriage and lifelong commitment.

Although, cultures vary with region, it shows certain similarity as well. One example of a cultural universal is the family unit: every human society recognizes a family structure that regulates sexual reproduction and the care of children.

7

ECONOMIC GEOGRAPHY

Q. "Shifting global trade patterns create new opportunities". Examine this statement.
(CSE 2022)

Ans. The past few decades have seen important shifts that have reshaped the global trade landscape.

Rise of Emerging Market Economies

As a share of global output, trade is now at almost three times the level in the early 1950s, in large part driven by the integration of rapidly growing emerging market economies (EMEs). The expansion in trade is mostly accounted for by growth in non-commodity exports, especially of high-technology products such as computers and electronics.

It is also characterized by three important trends:

(i) the rise of EMEs as systemically important trading partners comparing to erstwhile developed economies;

(ii) the growing role of global supply chains; and

(iii) an ongoing shift of technology content toward dynamic EMEs comparing to early agriculture based product.

Factors behind increased Global Trade

Several factors underlie the expansion in global trade and increased interconnectedness:

- trade liberalization since the early 1950s has certainly contributed by lowering trade barriers first in advanced economies and more recently in many developing countries,
- emergence of global supply chains.
- introduction of innovation and technology at production level, and
- technology-led declines in transportation and communication costs allowed the fragmentation of production processes.

Example

China, India, and Bangladesh are moving upstream in the value added chain. They are contributing significantly to advanced countries' high-technology exports. Moreover, China, India and other emerging market economies (EMEs) increasing their presence in sectors traditionally dominated by advanced economies opening to new opportunities.

Thus, this will improve opportunities for emerging market in global trade of high end technology product, consumers goods, etc. which were earlier in domain of developed economies.

Q. "Automation is rapidly changing the economies of labour and will affect trade patterns in significant ways". Clarify
(CSE 2022)

Ans. Industrial robots, 3D printing, and artificial intelligence are rapidly changing the face of global production and trade.

Economies of Labour

- Today companies, government organization are introducing automation instead of human labor. This has improved the production efficiency and also impacting trade. Automation improves time and cost of production. Thus, automation is rapidly changing the economies of labour.
- For example, in India, low skilled manual works are being switched to automation like robots, artificial intelligence. Although, it has improved the production efficiency of an organization, but at the cost of labour. However, in developed nations, automation has significantly contributed to organizations' growth. Technologically skilled labors are utilizing AI, IOT and thereby diversifying the production pattern of companies.

Trade Pattern

- Automation is also impacting trade pattern in significant ways. Automation of various outsourcing services like software testing, calling - has resulted in cut of jobs of developing countries. It has been expected that developing countries might lose the opportunity to link into Global Value Chains (GVCs), as firms in rich countries relocate robot-driven production closer to home.

8

POPULATION & SETTLEMENT GEOGRAPHY

Q. Examine the morphological factors that influence the origin and growth of towns.
(CSE 2022)

Ans. Towns are different from villages which have functions like manufacturing, retail and wholesale trade, and professional services besides agriculture. Towns are transition between villages to big cities.

The **origin of towns** in any region depends upon several factors such as:

- Conditions favorable for industrial units
- Hilly areas to achieve the objects of defense
- Plain areas useful for business activities
- River banks
- Sea or ocean fronts
- Proper central location to provide education, health, etc.

The towns grow during passage of time in number of ways and various forces which contribute to the overall development of a town are transportation facilities, industries, safety for public, proximity of agricultural lands, availability of electric power, political importance, etc.

For example, some towns are originated at bank of rivers like Varanasi, Patna, Bombay, etc.

Growth of Town

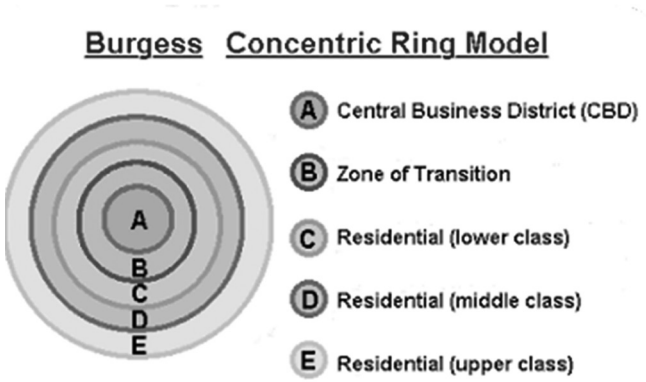
Facilities of transport and communication increase the population and leads to the growth of towns. Other factors like employment opportunities, migration from village to town, industrial development, rise of other services also contribute to growth of town.

For example, town connected with railways or roadways will see rapid growth.

Example of Growth of Town

Concentric Spread

- It is the natural tendency of the people to be as near as possible to town or city, therefore the town develops in form of concentric rings with nucleus as town.
- These type of growth create many complicated problems such as traffic congestion, narrow streets, concentration of population, improper housing, etc.
- The town growth is represented by a series of concentric circles or rings.
- The first zone represents central business like commercial and social life of the town.
- The second zone represents low-income housing, better-class residences and high-class residences are subsequently formed.
- The idea of concentric spread is based on the fact that similar or functionally related activities will be located at the same distance from the center of an urban area.



Q. "Over-crowding leads to chronic problem of shortage of housing in Indian cities". Explain citing relevant examples.
(CSE 2022)

Ans. India's population stood at 1210 million in 2011, with an urbanisation level of **31.1**%. Notwithstanding a low level of urbanisation, India's urban population is 11% of that of the world.

9

REGIONAL PLANNING

Q. Sequential changes in land use and land cover have brought global and regional ecological changes and imbalances. Elucidate.
(CSE 2022)

Ans. Land use pattern means the use of land resources under different ecological settings. The pattern of land use of a country at any particular time is determined by the physical, economic and institutional framework taken together.

In other words, the existing land use pattern in any regions of world has been evolved as a result of the action and interaction of various factors, such as such as topography, climate, soil types as well as human factors such as population density, technological capability and culture and traditions, etc.

In addition, the geographical location of the region in relation to other aspects of economic development, viz., those relating to transport, industry, trade, etc. influence the land use pattern.

However, Land-use and land-cover changes are reshaping landscapes all over the world at unprecedented rates, affecting environmental processes at multiple scales.

The ever increasing demand for land resources (e.g. food, fresh water, fuel) together with unsustainable land management practices have resulted in increasing environmental degradation, which is seriously menacing the world's food production capability.

Therefore, understanding **man-induced landscape** changes and providing decision makers with reliable information on the status of the environment have become crucial.

India & Land-use Changes

India has undergone major changes within the economy over the past four or five decades, and this has influenced the land-use changes in the country. For example, between 1960- 61 and 2008-09, four categories have undergone increases, while four have registered declines. Share of area under forest, area under non-agricultural uses, current fallow lands and net area sown have shown an increase.

The four categories that have registered a decline are barren and wasteland, culturable wasteland, area under pastures and tree crops and fallow lands.

This is due to following reasons:

- As the pressure on land increased, both from the agricultural and non-agricultural sectors, the wastelands and culturable wastelands have witnessed decline over time.
- The decline in land under pastures and grazing lands can be explained by pressure from agricultural land. Illegal encroachment due to expansion of cultivation on common pasture lands is largely responsible for this decline.

Land-use Changes in Brazil

Highlands of central Brazil, the area of occurrence of the Cerrado biome (Brazilian savannas), Brazilian biome, the second in extent after the Amazonian, has undergone profound landscape transformations recently, being among the world's hotspots of cultivated land expansion in the past 50 years .

This region carries a "double burden" of being a complex and rich natural environment, placed among the world's biodiversity hotspots and at the same time being perceived as favorable land for agricultural expansion, which has emerged as a key factor transformation for this region which threatening its biodiversity and leading to ecological imbalances.

Thus, we can say sequential changes in land use and land cover have brought global and regional ecological changes and imbalances.

CIVIL SERVICES (MAIN) EXAM 2023

GEOGRAPHY

PAPER-II

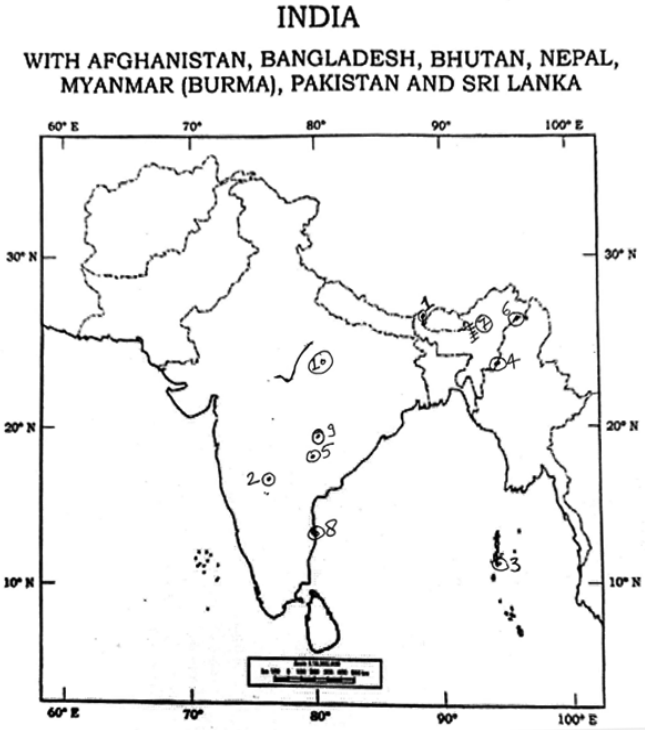
GEOGRAPHY OF INDIA

MAP SECTION

Q. On the outline map of India, mark the location of all of the following. Write the significance of these locations, whether physical/ commercial/ economic/ ecological/ environmental/ cultural, in not more than 30 words for each entry:

1. **Nathula:** Nathu La Pass is one of the major passes in India that was built to connect the Indian state of Sikkim with Tibet. This is one of the ancient routes which was used as the Silk Route in ancient days. Built at an altitude of 4,310 m or (14,140 ft), it is one of the three trading routes located at the border of India and China. Nathu La Pass is located at a distance of 54 kms from Gangtok, the capital of Sikkim.
2. **Hutti:** Economic deposits of gold associated with sulfides occur in the Precambrian (Dharwar) rocks of the Hutti-Muski schist near Hutti village (16 degrees 12′ N, 70 degrees 39′ E) in the northern part of Karnataka State and have been exploited since 1904.
3. **Ross Island:** Ross Island (Netaji Subhash Chandra Bose Island) is a small island, less than a square kilometre in size, lies right across Port Blair. This island served as a capital to the British from 1858 to 1941, when the Japanese occupied it and converted it into a Prisoner of War (POW) site.
4. **Moreh:** Located on the Indo-Myanmar border, the busy commercial town of Moreh is a paradise for shopping lovers and introduces tourists to the rich culture and lifestyle of neighbouring Myanmar. Moreh holds immense geographical significance as the border town allows tourists to get acquainted with the culture of Myanmar through the border town of Tamu, which lies at a short distance of 5 km across the border.
5. **Ramappa:** Rudreshwara, popularly known as Ramappa Temple, is located in the village of Palampet approximately 200 km north-east of Hyderabad, in the State of Telangana. It is the main Shiva temple in a walled complex built during the Kakatiyan period (1123–1323 CE) under rulers Rudradeva and Recharla Rudra. The temple's sculptures of high artistic quality illustrate regional dance customs and Kakatiyan culture.
6. **Namdapha National Park:** Namdapha, a National Park and Tiger Reserve, a true wilderness and enchanting beauty of lush green vegetation, impenetrable pristine and virgin forests covered an area of 1985.23 square kilometres having diverse flora and fauna lies in the international border between India and Myanmar (Burma) within Changlang District in the state of Arunachal Pradesh in the northeast India.
7. **Sela Tunnel:** The Project costing Rs. 687 crore being constructed by the Border Roads Organisation (BRO) under Project Vartak covers a total distance of 12.04 kms, connecting Tezpur, Assam to Tawang in the West Kameng district of Arunachal Pradesh. Further, the tunnel provides all weather connectivity to Tawang and forward areas along with reduction in more than one hour of travelling time from Tezpur to Tawang.
8. **Ennore Port:** Kamarajar Port Limited, formerly Ennore Port, is located on the Coromandel Coast, Chennai about 18 km north of Chennai Port. It is the 12th major port of India, and the first port in India which is a public company. The Kamarajar Port Limited is the only corporatised major port and is registered as a company.
9. **Ramagundam:** Ramagundam is a city under municipal corporation in Ramagundam district of the Indian state of Telangana. It is the most populous city in the district and falls under the Ramagundam revenue division. It is located on the banks of the Godavari River.

10. Betwa River: The Betwa or Betravati is a tributary of the Yamuna River in Northern India. The Betwa, also known as the Vetravati, rises in the Vindhya Range just north of Hoshangabad in Madhya Pradesh and flows north-east through Madhya Pradesh and Orchha before reaching Uttar Pradesh. The confluence of the Betwa and the Yamuna rivers is in Hamirpur district in Uttar Pradesh.



PHYSICAL SETTING

Q. Describe the origin, distribution and economic significance of Gondwana system of rocks in India.

Ans. India's geographical land area can be classified into:

- ❖ Archaean Rock System
- ❖ Purana Rock System
- ❖ Dravidian Rock System, and
- ❖ Aryan Rock System.

The Aryan Rock System in India has the following four systems:

(i) Gondwana Rock System
(ii) Jurassic Rock System
(iii) Cretaceous System/ Deccan Trap, and
(iv) Tertiary Rock System.

Origin

- ❖ The intra-cratonic Gondwana succession of Peninsular India represents about a 5.5 km thick sequence of strata ranging in age from Permo-Carboniferous to Early Cretaceous.
- ❖ It is dominantly clastic and characterized by glacial and glaciogenic sediments at the base followed by coal measures in the middle and red beds at the top.
- ❖ Besides minor marine ingression in the basal part (Talchir Formation), the rest of the Gondwana sequence is of fluvial origin.
- ❖ The Middle Triassic riftogenesis and Late Triassic intense transgression in eastern India Gondwana basins followed by Late Jurassic/Early Cretaceous rifting and dispersal terminated Gondwana sedimentation in Peninsular India.
- ❖ This has occurred since the Permian era (250 million years ago)

Distribution

- ❖ Gondwana systems are found mainly in Ranigunj, Jharia regions of Jharkhand, Damodar valley, Pench valley in Chhattisgarh and Madhya Pradesh.

Economic Importance

- ❖ Gondwana rocks contain nearly 98 per cent of India's coal reserves. For example, the Damodar Valley Basin in Jharkhand and West Bengal.
- ❖ Gondwana coal is much younger than the Carboniferous coal and hence its carbon content is low.

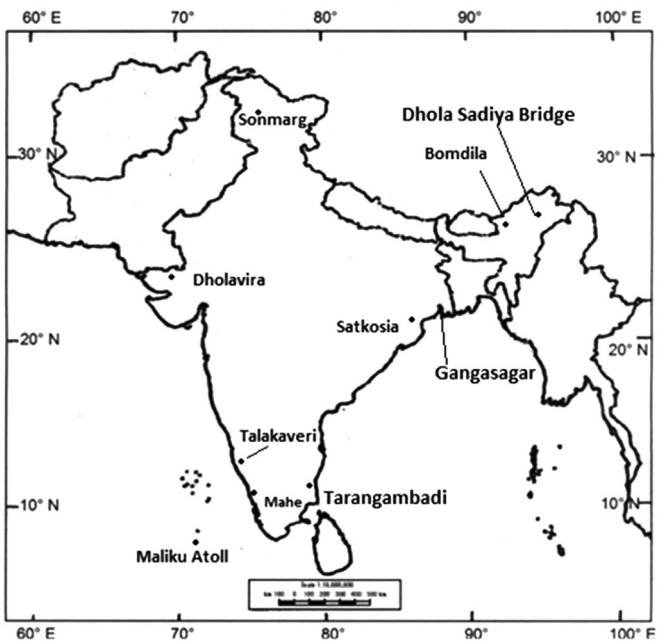
INDIA-MAPS

Q. On the outline map of India, mark the location of all the following. Write the significance of these locations whether physical/ commercial/ economic/ ecological/ environmental/ cultural, in not more than 30 words for each entry.

(CSE 2022)

INDIA

WITH AFGHANISTAN, BANGLADESH, BHUTAN, NEPAL, MYANMAR (BURMA), PAKISTAN AND SRI LANKA



(i) Tarangambadi

- Tarangambadi formerly Tranquebar is a small town located in the Mayiladuthurai district of Tamil Nadu on the Coromandel Coast. It lies 15 kilometres north of Karaikal, near the mouth of a distributary named Uppanar of the Kaveri River.
- Tranquebar was established on 19 November 1620 as the first Danish trading post in India. King Christian IV had sent his envoy Ove Gjedde who established contact with Raghunatha Nayak of Tanjore. Tarangambadi, then known as Tranquebar, remained under Danish rule between 1620 AD and 1845 AD and governed by Danish Governors.

(ii) Mahe

- Mahe is one of the four districts of the Union Territory of Puducherry. Surrounded by Kannur district on three sides and Kozhikode on the other, it lies at the mouth of the majestic Mahe River.
- It is located about 10km from Thalassery in Kannur. It was once a French colony and traces of the same can still be seen today. The famous St. Teresa's Church is at Mahe and believers flock in large numbers here. It is among the most visited shrines in the country and people of all religions make this trip, especially during the Fete de Mahe.

(iii) Bomdila

- Bomdila is the headquarters of West Kameng District of Arunachal Pradesh. The place is inhabited by tribes like Aka (Hrusso), Miji (Sajalong), Monpa, Sherdukpen, and Khawas.
- It is famous for craft centres, monasteries, ethnographic museum and emporium, etc. It has tropical to temperate vegetation and rich in wildlife resource. Culturally, Bomdila includes Bomdila Monastery, Gentse Gaden Rabgyel Ling (GRL) Monastery, etc.

(iv) Dhola Sadiya Bridge

- The Bhupen Hazarika Setu, also referred to as the Dhola–Sadiya Bridge, is a beam bridge in India, connecting the northeast states of Assam and Arunachal Pradesh. The bridge spans the Lohit River, a major tributary of the Brahmaputra River, from the village of Dhola (Tinsukia District) in the south to Sadiya to the north.

- The bridge is the first permanent road connection between the northern Assam and eastern Arunachal Pradesh.
- At 9.15 kilometers (5.69 mi) in length, it is the longest bridge in India over water.
- Since the Sino-Indian War, China has disputed India's claim to Arunachal Pradesh, politically and militarily, along the Line of Actual Control, making the bridge an important tactical asset in the ongoing dispute.

(v) Talakaveri

- Talakaveri or Talacauvery is the place that is generally considered to be the source of the river Kaveri and a holy place for many Hindus. It is located on Brahmagiri hills near Bhagamandala in Kodagu district, Karnataka State. It is located close to the border with Kasaragod district.
- Talakaveri stands at a height of 1,276 meters above sea level.
- A tank or *kundike* has been erected on a hillside, at the place that is said to be the origin. It is also marked by a small temple, and the area is frequented by pilgrims mainly it is the worship place of kodavas. The river originates as a spring feeding this tank, which is considered to be a holy place to bathe on special days.
- It is situated in the dense forests of the Western Ghats and gets very heavy annual rainfall.

(vi) Satkosia

- Satkosia Gorge is a gorge in eastern Odisha, India, carved by the Mahanadi River. The gorge is located within the Satkosia Tiger Reserve which is a United Nations Protected area. It is also a Ramsar Site designated in 2021.
- Satkosia Gorge is located along the border between Angul and oudh districts of Odisha. It extends for a length of 22 km from Sunakhania village in Boudh to Badmul village downstream. It is a patchwork of rivers, tropical evergreen forests at the meeting point of the Deccan Peninsula and the Eastern Ghats. The habitats here support a variety of flora and fauna. Satkosia Gorge was established in 1976 as a wildlife sanctuary.

(vii) Dholavira

- Dholavira is an archaeological site at Khadirbet in Bhachau Taluka of Kachchh District, in the state of Gujarat in western India, which has taken its name from a modern-day village 1 kilometre south of it.
- This village is 165 km from Radhanpur. Also known locally as Kotada timba, the site contains ruins of an ancient Indus Valley Civilization/Harappan city. Dholavira's location is on the Tropic of Cancer. It is one of the five largest Harappan sites and most prominent archaeological sites in India belonging to the Indus Valley Civilization.
- It is also considered as having been the grandest of cities of its time. It is located on Khadir bet Island in the Kachchh Desert Wildlife Sanctuary in the Great Rann of Kachchh. The 120 acres quadrangular city lay between two seasonal streams, the Mansar in the north and Manhar in the south.

(viii) Sonamarg

- Sonamarg, which means 'Meadow of Gold' is one of the most picturesque tourist destinations situated in environmentally fragile zones.
- It is 87 km north-east of Srinagar city, in close vicinity of great Himalayan glaciers.
- Nallah Sindh, the largest tributary of the Jhelum River in the valley of Kashmir drains through the Sonamarg valley adding beauty to its golden surrounding hillocks.
- Sonamarg has historical significance and was a gateway on ancient Silk Route along with Gilgit connecting Kashmir with China and other Gulf countries. It is the last destination point in Kashmir Valley enroute to Ladakh and Holy Amarnath cave through Baltal.

(ix) Maliku Atoll

- Minicoy, locally called "Maliku", is the southernmost island of Lakshadweep, an Indian Union Territory, app. 400 km west of South India, in between the eight and nine degree channel, and old shipping routes from west to east.
- It is located app. 200 km south of Kalpeni, the nearest island of the U.T. of Lakshadweep, and app. 125 km north of the nearest atoll of the Maldives.
- The crescent shaped island, about 10 km long and with a maximal width of less than one kilometre, is the home of 10,444 people (Census of India 2011).
- Once, it was the northernmost part of the Sultanate of the Maldives, but it became a tributary of the South Indian Ali Rajas sometime around 1500 AD and has been part of the Indian Union since 1956. The people of Maliku speak Mahal, a dialect of

2

RESOURCES

Q. The process of desertification leads to soil desiccation and soil loss. Explain (CSE 2022)

Ans. Desertification is land degradation in arid, semi-arid, and dry sub-humid areas, collectively known as drylands, resulting from many factors, including human activities and climatic variations. However, the range and intensity of desertification have increased in some dryland areas over the past several decades. The highest numbers of people affected are in South and East Asia, the circum Sahara region including North Africa and the Middle East including the Arabian Peninsula. Other dryland regions have also experienced desertification.

Causes of Desertification

- Climate variability and anthropogenic climate change, particularly through increases in both land surface air temperature and evapotranspiration, and decreases in precipitation, are likely to have played a role, in interaction with human activities, in causing desertification in some dryland areas. Future climate change is projected to increase the potential for water driven soil erosion in many dryland areas.
- The major human drivers of desertification interacting with climate change are expansion of croplands, unsustainable land management practices and increased pressure on land from population and income growth.
- Uncontrolled grazing of pastures is the largest cause of desertification in the world. In India, overgrazing and encroachment of grassland for agricultural activities are the causes for land degradation in Gujarat. Acid rains, overuse of fertilizers, dumping of wastes in landfills, leaching of heavy metals, etc. can lead to soil degradation.

Impact

- Desertification and climate change, both individually and in combination, will reduce the provision of dryland ecosystem services and lower ecosystem health, including losses in biodiversity.
- Desertification and changing climate are projected to cause reductions in crop and livestock productivity modify the composition of plant species and reduce biological diversity across drylands.

Desertification in India

- 6.40 million ha, or **about 29.32% of the Total Geographic Area** (TGA) of the country is undergoing degradation.
- Around 23.95% of desertification/land degradation is contributed nine states: Rajasthan, Maharashtra, Gujarat, Jammu & Kashmir, Karnataka, Jharkhand, Odisha, Madhya Pradesh and Telangana.
- Jharkhand, Rajasthan, Delhi, Gujarat and Goa have more than 50% area under desertification/land degradation.
- Kerala, Assam, Mizoram, Haryana, Bihar, Uttar Pradesh, Punjab and Arunachal Pradesh had less than 10% area under desertification/land degradation.

Efforts to mitigate Desertification

- **United Nations Convention to Combat Desertification (UNCCD):** It is the sole legally binding international agreement linking environment and development to sustainable land management.
- **The Bonn Challenge:** To bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030.
- **Goal 15 of Sustainable Development Goals (SDG), 2030:** It declares that "we are determined to protect the planet from degradation, including through sustainable consumption and production."
- **Land Degradation Neutrality Fund:** The LDN Fund is a first-of-its-kind investment vehicle leveraging public money to raise private capital for sustainable land management and landscape restoration activities worldwide that contribute to the achievement of land degradation neutrality.

Q. The peninsular location of India provides scope for harnessing non-conventional energy resources. Discuss with examples. (CSE 2022)

Ans. Renewable energy sources also called non-conventional energy - are sources that are continuously replenished by natural processes. For example, solar

3

AGRICULTURE

Q. How do agro-climatic and land capability indicators assist in macro-agricultural regionalisation of India? Illustrate with an appropriate map. (CSE 2022)

Ans. Agricultural regionalization has attracted the attention of many scholars in the field of agricultural geography. The concept of regionalization is the process of dividing an area into territorial units of complexes of uniformities which is the result of a set of processes.

Regionalization in agricultural geography is not simply an operation of dividing the country or a region into a number of territorial units but it is also method of understanding the agricultural pattern.

Since the boundaries of agricultural regions are transitional and not sharply dividing lines, their precise delimitation is a difficult task.

The main techniques used by geographers for the delimitation of agricultural regions are:

1. Empirical technique.
2. Single element technique.
3. Multi-element (statistical) technique.
4. Quantitative-cum-qualitative technique and

Randhawa's Agricultural Regions

The great and well-known agricultural scientist Dr. M.S. Randhawa has divided India into five main agricultural regions on the **basis of climate, crops and livestock animals etc**. These regions are –

1. The Temperate Himalayas Region.
2. The Dry Northern Wheat Region.
3. The Eastern rice Region.
4. The Malabar Coconut (Western West) Region.
5. The Southern Millet (Medium Rainfall) Region.

1. The Temperate Himalayan Region

- The Temperate Himalayan region includes the states of Jammu and Kashmir, Himachal Pradesh, and Uttarakhand in the West, and Arunachal Pradesh and Upper Assam in the east.
- It has two sub-divisions:
  - **The eastern part** comprising of Arunachal Pradesh, Sikkim, Nagaland, Tripura and Upper Assam records heavy rainfall and are covered with thick forests. Here rice and tea are dominant crops.
  - **The western temperate Himalayan region** consists of Jammu Kashmir, Himanchal Pradesh and Uttarakhand, this region is characterized by Horticulture (apple, cherries, pears, peach, almond, apricot and walnut). Other crops grown are maize, rice, wheat and potatoes.

2. The Northern Dry (Wheat) Region

- This region stretches over Punjab, Haryana, Western Uttar Pradesh, north-west Madhya Pradesh, and irrigated part of Rajasthan.
- Average annual rainfall in this area is less than 75 cm. Parts of it are adequately irrigated by canals and tube wells.
- The main crops of this region are wheat, maize, cotton, mustard, gram, rice sugarcane and millets.

3. The Eastern Wet (Rice) Region

- It includes the greater parts of the states of Assam, Meghalaya, Manipur, Mizoram, West Bengal, Jharkhand, Bihar, Chhattisgarh, eastern Uttar Pradesh, Orissa and coastal Andhra Pradesh.
- This region records more than 150 cm rainfall. Rice, jute, pulses, oil seeds, tea, and sugar cane are the main crops of this region.

4. The Western Wet (Malabar) Region

- The region stretches over from Maharashtra to Kerala. The average annual rainfall in this region is over 200 cm.
- Rice is the main food crop although coconut and plantation crops (rubber, coffee, spices, cashew nut, etc.) are also the main crops.

4

INDUSTRY

Q. Discuss the salient characteristics of industrial complexes of Western India. Examine the impact of SEZ policy on the region.
(CSE 2022)

Ans. Industries are not evenly distributed in the country. They tend to concentrate on certain locations because of the favourable locational factors.

Several indices are used to identify the clustering of industries, important among them are:

- The number of industrial units,
- Number of industrial workers,
- Quantum of power used for industrial purposes,
- Total industrial output, and
- Value added by manufacturing, etc.

Industrial Complex of Western India

Mumbai-Pune Industrial Region

- It extends from Mumbai-Thane to Pune and in adjoining districts of Nashik and Solapur. Besides, industrial development has been rapid in Kolaba, Ahmednagar, Satara, Sangli and Jalgaon districts.
- Development of this region started with the location of cotton textile industry in Mumbai. Mumbai, with cotton hinterland and moist climate favoured the location of cotton textile industry.
- Opening of the Suez Canal in 1869 provided impetus to the growth of Mumbai port. Machineries were imported through this port.
- Hydro-electricity was developed in the Western Ghat region to meet the requirements of this industry. With the development of cotton textile industry, chemical industry also developed.
- Opening of the Mumbai High petroleum field and erection of nuclear energy plants added additional pull to this region.
- Besides, engineering goods, petroleum refining, petrochemicals, leather, synthetic and plastic goods, drugs, fertilisers, electrical, shipbuilding, electronics, software, transport equipment and food industries also developed. Important industrial centres are Mumbai, Kolaba, Kalyan, Thane, Trombay, Pune, Pimpri, Nashik, Manmad, Solapur, Kolhapur, Ahmednagar, Satara and Sangli.

Gujarat Industrial Region

- The nucleus of this region lies between Ahmedabad and Vadodara but this region extends upto Valsad and Surat in the south and to Jamnagar in the west.
- Development of this region is also associated with the location of the cotton textile industry since 1860s. This region became an important textile region with the decline of the cotton textile industry at Mumbai.
- Located in cotton growing area, this region has double advantage of the proximity of raw materials as well as of market. The discovery of oilfields led to the establishment of petrochemical industries around Ankleshwar, Vadodara and Jamnagar.
- The port at Kandla helped in the rapid growth of this region. Petroleum refinery at Koyali provided raw materials to a host of petrochemical industries. The industrial structure is now diversified. Besides, textiles (cotton, silk and synthetic fabrics) and petrochemical industries, other industries are heavy and basic chemicals, motor, tractor, diesel engines, textile machinery, engineering, pharmaceuticals, dyes, pesticides, sugar, dairy products and food processing.
- Recently, largest petroleum refinery has been set up at Jamnagar. Important industrial centres of this region are Ahmedabad, Vadodara, Bharuch, Koyali, Anand, Khera, Surendranagar, Rajkot, Surat, Valsad and Jamnagar.

Introduction of SeZ

- India was one of the first in Asia to recognize the effectiveness of the Export Processing Zone (EPZ) model in promoting exports, with Asia's first EPZ set up in Kandla in 1965.

5 TRANSPORT, COMMUNICATION & TRADE

Q. Discuss the significance of new ports on the Western Coast of India on the external trade of the country. (CSE 2022)

Ans. Maharashtra has only two major ports i.e.

- Mumbai and
- Jawahar Lal Nehru Port (JNPA) and

Mumbai Port are constrained in the evacuation of cargo for the past several decades due to the development of the city around it as well as due to limited depths in the harbour which allows only small ships to berth.

New Port

The Arabian coast at Vadhvan towards the north of Mumbai is most suitable and ideal for the development of a new port where natural a depth of 20 Meters is available at a distance of about 4 ½ nautical miles. The location is about 10 Km from the National Railway grid and about 35-40 Km from NH8. The JNPA has proposed to develop Vadhvan Port along with the participation of Govt. of Maharashtra.

Advantages

- No port in India has the draft to accommodate the largest container ship.
- Deep draft port will give advantage of economy of scale and will reduce the logistics cost.
- The Vadhvan Port has potential to be amongst the Top 10 Container Ports in the World.
- A natural water depth of 20 mtrs is available at a distance of 10 km and 15 Mtrs contour is available at 6 km from the shore, which allows safe voyage and mooring for the new generation vessels.
- No capital dredging required in navigational channel and harbour area as draft of 18m is naturally available.
- 1,473 ha. (3639.86 acres) land will be reclaimed and 571 Ha (1410.97 acres) land consists of private, tribal, forest and Govt. land will be acquired for rail and road connectivity. In addition 1000 Ha Govt. land will be available for Port related facilities.
- Mumbai-Delhi western railway line can be tapped at a distance of 12 kms only; flat terrain with no natural obstruction.
- NH-8 from Mumbai to Delhi is about 34 KM & Mumbai-Vadodara express way is at 18 KM only; will be linked to port by dedicated Rail and Road.
- The Vadhvan Port will add container capacity of 15 Million TEUs in the year 2035, which will increase to 23.9 Million TEUs by 2040.

Q. Critically examine the role of IRNSS-NavIC programme on the satellite navigation system of India. (CSE 2022)

Ans. IRNSS is an independent regional navigation satellite system being developed by India. It is designed to provide accurate position information service to users in India as well as the region extending up to 1500 km from its boundary, which is its primary service area.

An Extended Service Area lies between primary service area and area enclosed by the rectangle from Latitude 30 deg South to 50 deg North, Longitude 30 deg East to 130 deg East.

IRNSS will provide two types of services:

(i) Standard Positioning Service (SPS) which is provided to all the users, and

(ii) Restricted Service (RS), which is an encrypted service provided only to the authorised users.

The IRNSS System is expected to provide a position accuracy of better than 20 m in the primary service area.

Some applications of IRNSS are:

- Terrestrial, Aerial and Marine Navigation
- Disaster Management
- Vehicle tracking and fleet management
- Integration with mobile phones
- Precise Timing
- Mapping and Geodetic data capture
- Terrestrial navigation aid for hikers and travellers
- Visual and voice navigation for drivers

6

CULTURAL SETTING

Q. Discuss the impact of Forest Rights Act, 2006 on the local forest communities in India. (CSE 2022)

Ans. The Forest Rights Act (FRA), 2006 recognizes the rights of the forest dwelling tribal communities and other traditional forest dwellers to forest resources, on which these communities were dependent for a variety of needs, including livelihood, habitation and other socio-cultural needs.

The Act recognizes

- Rights of self-cultivation and habitation which are usually regarded as Individual rights;
- Community Rights as grazing, fishing and access to water bodies in forests;
- Habitat Rights for PVTGs;
- Traditional seasonal resource access of nomadic and pastoral community;
- Right of access to biodiversity and community right to intellectual property and traditional knowledge related to biodiversity and cultural diversity;
- Recognition of traditional customary rights and right to protect,
- Regenerate or conserve or manage any community forest resource for sustainable use. It also provides rights to allocation of forest land for developmental purposes to fulfil basic infrastructural needs of the community.

Impact

In 2015, in Madhya Pradesh, Baigachak, which comprises seven villages where the Baiga tribe lives, was the first area to receive Habitat Rights under the Forest Rights Act. After recognition of rights, the community social and economic status has improved.

Thus, the Act empowers the forest dwellers to access and use the forest resources in the manner that they were traditionally accustomed, to protect, conserve and manage forests, protect forest dwellers from unlawful evictions.

Q. Discuss the emergence of linguistic regions and states in India. (CSE 2022)

Ans. India is a vibrant country known for unity in vast diversity in the form of ethnicity, religion, cultural practices and also in the form of numerous languages and dialects spoken by the people residing in various parts of the country.

Linguistic Regions

- Populations residing in various regions or pockets developed their own languages or dialects giving distinct regional linguistic identities.
- Despite weak language boundaries and transitional zones there are linguistic regions in India which can be geographically distinguished.
- Linguistic regionalisation may be done based on linguistic family, state language and languages/ dialects, which characterise various regions as monolingual regions or composite regions.

Linguistic region are as follows:

Language Family Based Linguistic Region

- The regionalisation may be done based on the spatial distribution of the language families. The Indo-Aryan is the largest region.
- It covers all the northern and eastern states, Maharashtra and Goa in west and south west; and Assam and Tripura in North East.
- The Dravidian region is also very dearly demarcated in southern India covering Andhra Pradesh, Karnataka, Tamil Nadu, Kerala and Puducherry.
- The Tibeto-Chinese region is in a ribbon shape starting from Ladakh in Kashmir to all the north eastern states.