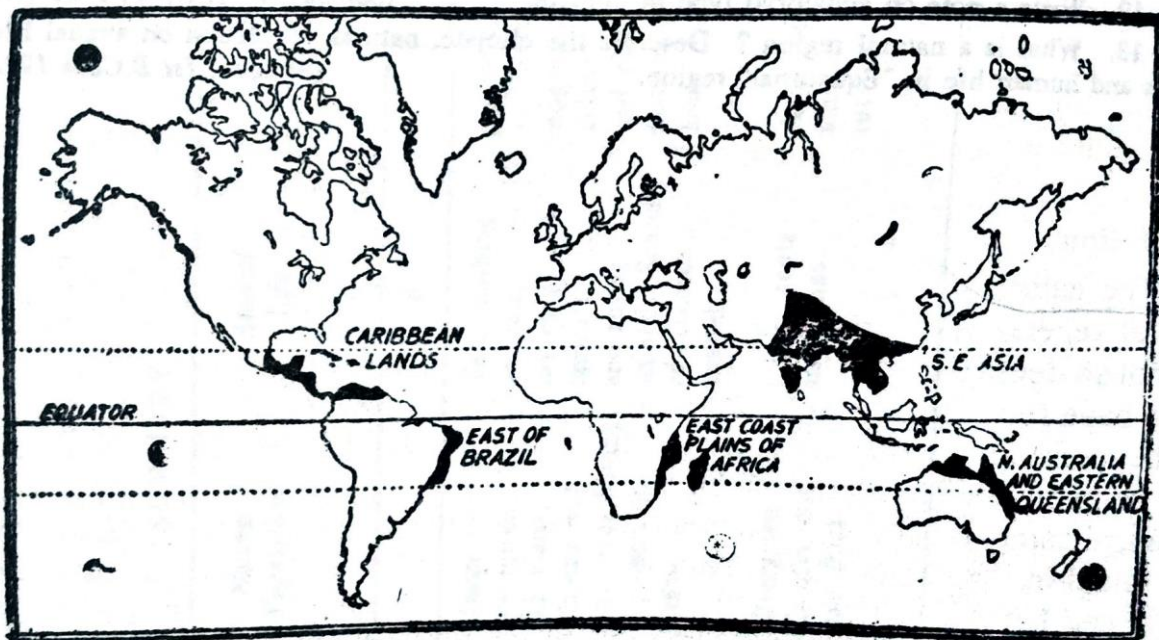


TROPICAL REGION

TROPICAL MONSOON REGION OR THE MONSOON TYPE

Situation and Extent

- The monsoon regions mostly occupy the eastern margins of masses within the latitude **18° and 25°** on both sides of the equator.
- They include India, Bangladesh, Burma, Thailand, Indo-China, Philippine Islands, Southern China, Central America, West Indies, Caribbean Seaboard (Venezuela and Colombia), East Africa Coastlands, Madagascar, Eastern Queensland and North Australian Coastlands.



Monsoon Regions

Climate

The word 'monsoon' is derived from an Arabic word '**mausim**' meaning '**season**'. To a large populace living in India and South-East Asia the monsoon means life-giving rain. Nowhere in the world, so many people anticipate and depend so much upon a phenomenon of nature. The main climatic features of this region are as follows :

- (i) This is a region of *seasonal or periodical winds*. Winds blowing in this region reverse their direction with change in season. In summers, they blow from sea to land and in winters from land to sea. Thus rainfall occurs only in summers and winters are dry.

The mechanics of the monsoon are based on the differential heating of land and water. During late May and early June, the low pressures that have been created over the Asian land mass induce a flow of warm tropical air from the sea towards the continent. The air has passed over warm ocean water and is laden with water vapour- this becomes the source of heavy rains. In the winter months, the winds are reversed, since the air from the cooled continent and its high pressures blows towards the lower pressures of the warm ocean. Thus when winds blow from the land (i.e., during winters), the dry season occurs in the Monsoon Tropics. However, if the winds pass over water in certain areas, such as Taiwan and the east coast of peninsular India, such areas have a second season of rain in winter.

(ii) The rainfall is uncertain and unevenly distributed and depends upon relief features. Lands having mountains opposite the sea experience heavy rainfall, e.g., in India, Western Ghats and Assam have heavy rainfall. As we move away from the sea, the rainfall becomes lesser and lesser. Thus certain areas have heavy rainfall-more than 200 cm. (80"), some have moderate rainfall-about 100 cm. (40"), while others have scanty rainfall-less than 50 cm (20").

(iii) Summers are hot and winters are warm to hot. In summers, the temperature is between 27°C and 32°C while in winters, it varies from place to place.

Vegetation

- The nature of vegetation varies from place to place.
- In rainy places, the natural vegetation is similar to that of the equatorial region, though the forests are not so dense as those found in the equatorial region. Sri Lanka and Southern India have such forests, with rubber and cinchona as typical trees. In most parts of the monsoon region, however, deciduous trees or tall grasses grow.
- Teak, sal and bamboo are the important trees of the monsoon forests. Sandalwood, lac, gum and camphor are other important products of monsoon forests. Sal and teak are found in India, Burma, Vietnam, Thailand and Java, sandalwood is found in India and bamboos grow all over the monsoon lands. In those areas where the rainfall is between 100 cm (40") and 200 cm. (80"), lands have been cleared for agriculture and a variety of crops are cultivated.
- In areas of poor rainfall, the main vegetation is stunted plants and thorny bushes known as scrubland (as in Rajasthan in India). Mangrove forests are found on the coastal mudbanks and on the low deltaic plains of rivers of Monsoon Asia (e.g., Sunderbans in India).

Animal Life

- ✚ Monsoon region has a variety of animal life. **Wild animals** like lions are found in dense evergreen forests; elephants are found in Sri Lanka, Southern. India and Burma;

✚ *domestic animals* like cattle, sheep, goats, horses, donkeys and mules are reared in the grasslands; while camels are most common in dry regions. In spite of a large number of cattle and sheep found in this region, cattle or sheep rearing industry has not developed on a commercial scale because of unsuitable climate, poverty of the farmers and the religious bias against killing of animals or eating their flesh in some parts of this region. Bullocks and buffaloes are primarily used as draft animals and for ploughing.

Human life and Economic Development

- ✓ Monsoon region is *densely populated* because of the immense possibilities for agriculture. More than half of the world population lives in this region. The land capable of supporting people under existing conditions is almost fully occupied in India and Bangladesh, but in South-East Asia, there is an incomplete development of cropland. There is an extreme overcrowding in and pressure on the best lands of the river valleys.
- ✓ Tropical climate, sufficient rainfall, vast plains and fertile river basins favour the growth of a number of agricultural crops. Thus agriculture is the main occupation of the people. In summers, crops like rice, sugarcane, jute, cinchona and rubber are cultivated in places where rainfall is heavy while cotton, maize, pulses and oilseeds are grown in areas having moderate rainfall. The facilities for irrigation extend cultivation to dry areas.
- ✓ Tea and coffee are cultivated at higher altitudes and this region is the largest producer and exporter of tea in the world.
- ✓ In winters, agriculture is practised with the help of irrigation, and wheat, barely, jowar and bajra are the principal crops. However, in spite of the development of irrigation facilities in some countries, in most parts of the monsoon region, agriculture depends upon the monsoons which are never certain as to their strength and time of occurrence. Their failure or untimely occurrence results in famine. In fact, agriculture in this region is still a gamble in the monsoon. This has made the people fatalistic in outlook.
- ✓ The climate is not generally wholesome and tells upon the health and vigour of the people. However, this region has harboured some of the great Civilisations of the world. The ancient Chinese and Aryan civilisations had their birth and growth in this region.

Mineral resources

Most of the monsoon lands are very rich in minerals ;

- ❖ copper and tin in Central America ;
- ❖ copper in Caribbean Sea Islands :
- ❖ oil, lead, silver and tin in Burma ;
- ❖ copper, lead, tin and silver in South China, and
- ❖ iron-ore, coal, mineral oil, mica, manganese, salt and gold in India clearly indicate the variety and richness of minerals found in this region.
- ❖ Today, however, most of the mineral wealth of this region remains unknown or untapped. This is primarily because of inadequate development of industries. However, in certain parts, a few mineral resources are being discovered and gradually developed with foreign assistance.

Manufacturing industries are still in the early stages of development. India and China have, however, made sufficient development in this respect. India has developed cotton textiles, jute, sugar, iron and steel, and many other industries. China has also developed cotton textiles, iron and steel and a number of other industries. Other countries, though still backward in this respect, are struggling hard to industrialise themselves and improve their economic conditions.

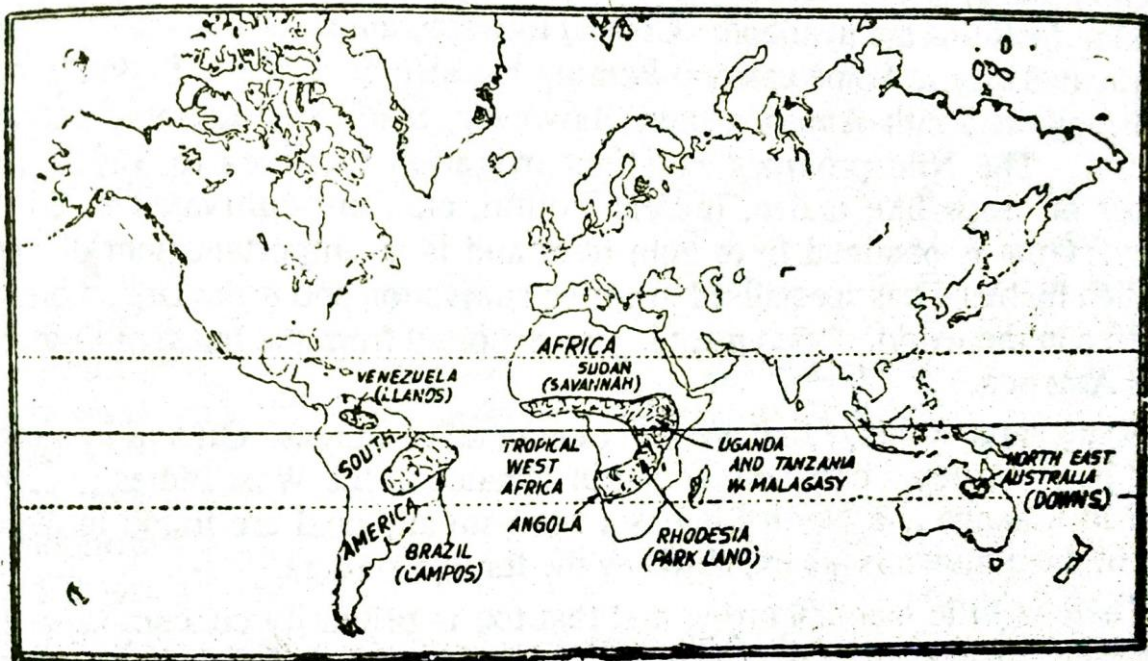
The principal articles of export are agricultural and mineral products. However, some countries in this region also export certain manufactured goods.

It should be noted that the monsoon region is today one of the important centres of change. After World War II, Burma, Indonesia, India, Pakistan, Sri Lanka and the Philippines emerged as independent States. All these countries are now engaged in planned programmes to raise the standard of living of the people through fuller exploitation of resources and improved technology. At the same time, they are also gaining importance and recognition in world affairs.

(B) TROPICAL GRASSLAND REGION OR THE SUDAN TYPE

Situation and Extent

- The region lies between the **latitudes 5° and 20° both to the north and south** of the equator and includes mostly tablelands, situated away from the sea.
- It includes Sudan, Uganda, Malawi, western part of Malagasy, Tanzania, Zambia and Angola in Africa ; the plateau of Brazil and Guiana in South America and the western plains of Queensland in Australia.



Tropical Grassland Region or Sudan Type

Climate

- The whole of this region lies in the **“Torrid zone,”** and as such the climate is hot tropical with moderate rainfall in summer. There are two seasons—a very hot season and a slightly less hot season. In summers, the temperature rises beyond 38°C, while in winters, the temperature is around 21°C.
- Rainfall is moderate and varies between 37 cm. (15") and 100 cm. (40"). It occurs mainly in summers and the winters are dry. The rainfall is uncertain, and there are wide fluctuations in the amount of rainfall from year to year.

Vegetation

- ✚ Climate is not suitable for the growth of big trees, and trees grow only along the banks of rivers, ponds and lakes.
- ✚ The typical vegetation of this region is tropical grass, which grows to a height of about 3 to 3-6 metres (10 to 12 feet). It is very thick and coarse and does not make good feed for domestic animals, Tropical grasslands are known as **Savannas in Sudan, Llanos in Guiana, Campos in Brazil, and Parkland in other parts** of this region.
- ✚ The gum tree and the eucalyptus are the most common trees. They are stunted and umbrella shaped.
- ✚ Teak, mahogany and various types of palms also grow. Excepting the palms, the trees are mostly deciduous and shed their leaves at the beginning of the dry season.

Animal Life

Though unsuited for domestic animals, this region inhabits a variety of other animals. Wild animals like lions, tigers, leopard and wolves and **herbivorous** (grass-eating) animals like giraffes, zebras, antelopes, deer and asses are found in large numbers.

Human Life and Economic Development

- Hot and dry climate, luxuriant growth of thick grasses and difficulty of entry have retarded the economic development of this region.
- The region is thinly populated and the native population is very backward economically.
- Hunting is the chief occupation.
- Little agriculture is practised in those areas where irrigation facilities are available. Cotton, tobacco, maize, millets and coffee are the principal crops. Some pastoral farming has also developed.
- Sudan in Africa and Brazil in South America have, however, made considerable economic progress. The Nile provides excellent irrigation facilities to Sudan, and a number of crops like maize, millets, cotton, etc., are cultivated in the Nile Valley.
- Gum is obtained from gum trees and is an important item of export. Brazilian highland has specialised in coffee cultivation and is the largest producer of coffee in the world. Dried meat is also exported from the basin of Orinoco in South America.

Mineral resources

Some parts of this region are rich in mineral resources.

- Oil and iron ore are found in Venezuela ;
- bauxite is found in Jamaica in the West Indies ;
- copper is found in Katanga and North Rhodesia ; and
- tin and coal are found in Nigeria.

Most of these minerals are exploited by the foreign settlers.

There is little manufacturing and that too is primarily concerned with the processing of agricultural products. Sugar is produced from sugarcane in Hawaii; cigars for export are manufactured in tobacco factories of Cuba ; and the tough beef for export is processed in a few slaughter houses of South America.

(C) TROPICAL DESERT REGION OR THE SAHARA TYPE

According to Webster's Seventh 'New Collegiate Dictionary' a *desert is an arid barren track incapable of supporting any considerable population without an artificial water supply*. Thus, deserts are those areas where the rainfall is so little that even the grass is difficult to grow. Deserts are found to exist in low, middle as well as high latitudes. However, the tropical deserts are by far the most important desert areas of the world.

Causes of Deserts

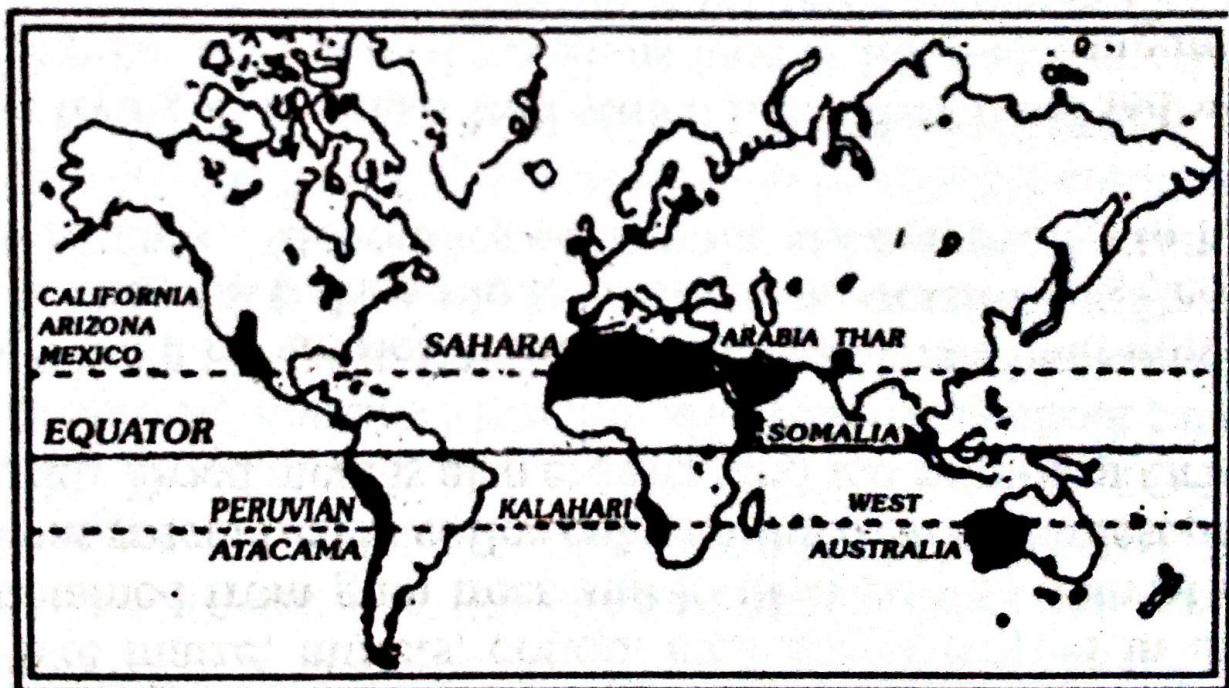
Deserts are caused as a result of any one or several of the following reasons :

- (i) Location in areas dominated by the sub-tropical high pressure belt of settling, therefore, dry air ;
- (ii) Location in the belt of persistent trades, whose drying action gives rise to the term "Trade wind Deserts" ;
- (iii) Location on the leeward side of high mountains where the moisture-laden winds cannot penetrate ;

- (iv) Location in the interior of the continents far away from the source of oceanic moisture; and
- (v) The presence of offshore cold waters due to cold ocean currents. Winds passing over these cold waters reach the land with lowered temperatures, but become warmed as they pass over the land and act as drying agents inland.

Situation and Extent

This region includes mostly the areas on the western margins of the continents lying between the **latitudes 18° and 32° both** to the north and south of the equator.



The **principal deserts** of the world lie in this region.

- This region includes the Sahara and Somali deserts of North Africa,
- Kalahari Desert of South Africa,
- the Arabian deserts of Saudi Arabia,
- the Thar desert of India,
- the Arizona and Colorado deserts of Western U.S.A. and Mexico,
- the Peruvian and Atacama deserts of South America, and
- the great Australian desert in West Australia.

Climate

(i) Climate is extremely **dry**. **Rainfall is scanty** throughout the year, average annual rainfall being **less than 5 cm. (two inches)**. There are **rarely any clouds** and the sun shines with great intensity.

(ii) The rainfall occurs in **torrential showers** for a short period and many centimetres of rain may fall in a single day. This is highly damaging to lands without any vegetation because it causes floods, which are extremely destructive.

(iii) Day and night temperatures range very widely. Days are extremely hot, temperatures rising above 38°C while nights are cool, even cold.

(iv) The atmosphere is often vitiated by dust storms known as **'Simooms'**,

However, along the seacoasts of the deserts, these climate characteristics are modified to a great extent. The cool ocean currents affect the climate along the desert coast of Kalahari in South-western Africa, the Moroccan Sahara, Somaliland, Peru, Northern Chile and North-western Mexico.

Vegetation

- In the absence of rainfall, there is **very little vegetation** in the desert regions.
- Only those plants, which can find water for themselves or require very little water, grow here.
- Some of the plants have **very long roots**, which go down to great depths and there reach water, some have **fleshy stems and leaves** in which they can store up water and some prevent the loss of water by covering their stems and leaves by a thin coating of wax. e.g. the Australian eucalyptus.
- Ordinarily, the plants have **no leaves**, and are armed with sharp spines and thorns. This checks **evaporation and protects** them from animals. Furthermore, plants grow far apart, thus allowing more room for the roots of each. These types of vegetation furnish sustenance for pasturage.
- The **Cactus** is the most common plant of the deserts.
- Greasewood, sage brush, salt bush, jharberries, Yucca and date palm are other trees growing in the deserts.

Animal Life

- Absence of vegetation restricts the number and variety of animals found in the deserts.
- Animals which can bear dry heat and can live for days without water are found here.
- The horned toad, the **Gila monster and the gazelle** are the typical Native animals of the deserts.
- Among the domestic animals, camel is the most important animal of this region. Horses, mules and donkeys are also reared. Sheep and goats are reared in the oasis.

Human Life

The desert population can be divided into

three broad classes-

1. *the typical desert people,*
2. *the people living in the oasis, and*
3. *the mining population.*

1. The typical desert people are **nomads**; they are always moving about ; they build **no houses** and have but a few possessions. They rear animals like camels, donkeys and horses and these are their most valuable possessions. They are bold, courageous and hardy. **Bedouines of Arabia** are a typical example of this category.
2. The people **living in the oasis** lead settled life. They **build houses, cultivate land** and live like the people of the regions having **hot and wet climate**. With the help of irrigation facilities available in these areas cotton, coffee, sugarcane, wheat, millets and Mediterranean fruits are grown. These crops and dates figure prominently in the export trade of this region. **Egypt** provides the most typical example of this category.
3. The third categories of people have settled near the **mining centres**. Some of the desert areas possess valuable minerals.
 - ✓ Gold is found in the region of Kalgoorlie and Coolgardie in West Australia as well as in the Colorado desert of the U.S.A. ;
 - ✓ diamonds in the Kalahari desert of Africa ;
 - ✓ copper and nitrate in the Atacama desert of Chile ;
 - ✓ salt in Sahara, and Thar desert of India ;
 - ✓ oil in Peru and Arabia ; and lead and zinc in the desert region of New South Wales.

To these mining centres food and water are **brought from great distances** and, therefore, in spite of **local scarcity of water and food**, these areas have been inhabited.

Economic Development

In tropical deserts, manufacturing activity is limited due to inadequate raw materials, power resources, markets, capital and technology.

Most of the manufacturing industries are concerned with the processing of local agricultural products.

However, there are certain **exceptions** ;

- ✓ oil refining is significant in the Middle East ;
- ✓ sugar refining, cotton ginning and cement manufacturing are important in Egypt ;
- ✓ processing of agricultural products and general manufacturing in the major urban centres are important in the American South West.

In spite of all the **limitations** imposed by deserts on

- economic development,
 - the desert people have made much progress in philosophy,
 - religion,
 - mathematics and
 - astronomy.
-
- People face a constant struggle with nature in which they realise the futility of man's effort and the supremacy of nature. Thus, they develop a philosophical attitude.
 - People have plenty of time to think.
 - They must study the stars to guide them by night.
 - These deserts have produced great mathematicians and astronomers.
 - It is also interesting to note that world's three great religions and all the monotheistic faiths grew up in the desert of Arabia.

Mineral resources

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- ✓ diamonds in the Kalahari desert of Africa ;
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- ✓ oil in Peru and Arabia ; and lead and zinc in the desert region of New South Wales.

(D) TROPICAL RAIN FOREST REGION OR CARIBBEAN TYPE

Situation and Extent

This region comprises **the tropical islands and eastern coastal strips of continents** lying within the tropics on both sides of the equator. It includes

- **the land around the Caribbean Sea**, viz., The coastal plains of Central America, The West Indies Islands and the coastal plains of Guiana, Venezuela and Brazil ;
- The narrow coastal margins of East Africa ;
- Eastern Malagasy and the coasts of Queensland.
- It also includes the tropical islands of Pacific Ocean-the Hawaii.

Climate

- Climate is hot and humid.
- High temperatures prevail throughout the year and the range of temperature, daily as well as seasonal, is very low.
- Rainfall occurs throughout the year, the average **annual rainfall being 200 cm (80")**.
- Rainfall is heavy in summer and moderate in winter.
- However, the oceanic influence on climate makes it quite mild and pleasant, with bright sunshine, and the cool sea breeze blowing all the time.

Vegetation

- ❖ The abundance of moisture and heat gives rise to a luxuriant growth of vegetation.
- ❖ Forests are quite dense and consist of evergreen trees. They are, however, not so dense as the equatorial forest, and have lesser undergrowth.
- ❖ Coconut, palm, cinchona and rubber are principal trees.

Human Life and Economic Development

- ✓ Most of these lands are **densely populated**.
- ✓ Climate is suitable for carrying on agriculture throughout the year.
- ✓ Thus, agriculture is the main occupation of the people.
- ✓ Rice, sugarcane and spices are the chief crops.
- ✓ Cuba and Mauritius produce large quantities of sugarcane.
- ✓ East Africa produces spices, and Zanzibar and Pemba produce cloves.
- ✓ Cane sugar, coconut, copra and spices are the Principal items of export.
- ✓ Fishing is another important occupation, and is carried on all along the coast.
- ✓ Certain areas have developed as fine holiday resorts and attract a large number of tourists. For example, the Hawaii and Honolulu islands in the Pacific attract a large number of American tourists.
- ✓ The region is, however, still backward in regard to mining and manufacturing.
- ✓ This is partly due to the **ease** in Cultivating land, and partly due to lack of capital and technical know-how.

Summary

<i>Region</i>	<i>Location North and South of the equator</i>	<i>Areas or countries</i>	<i>Climate</i>	<i>Natural vegetation</i>	<i>Animal Life</i>	<i>Human occupation</i>	<i>Economic development</i>
1	2	3	4	5	6	7	8
Tropical Monsoon	18° to 25° along the eastern margins of the land masses.	India, Bangladesh, Burma, Thailand, Indo-China, Philippine Islands, Southern China, Central America, West Indies, Venezuela and Colombia, E. Queensland, North Australia Coastland.	Hot and wet in summers, and warm to hot and dry in winters. Rainfall uncertain and unevenly distributed.	Depends on rainfall, (i) Dense ever-green forests (ii) Deciduous monsoon forests (iii) Scrublands, and (iv) Mangrove forests.	Large number of domestic and wild animals like cattle, sheep, goats, horses, elephants, tigers, and lions.	Agriculture supports 70% of the people. Mining and manufacturing developed in some areas.	Backward industrially excepting India and China where cotton textiles, iron and steel and other industries are developed. Political freedom in the recent past augurs development.
Tropical Grasslands or Sudan Type	5° to 20° including mostly tablelands away from the sea.	Sudan, Tanzania, Zambia, Angola, Plateau of Brazil and Guiana : Western plains of Queensland,	Hot tropical with moderate rainfall in summer. Rainfall uncertain.	Tropical grass growing to a height of 300-360 cm. unsuitable for feeding domestic animals. Also scattered trees.	Wild animals like lions, tigers, leopards, wolves, giraffes, zebras, antelopes and deer. Domestic animals not generally found.	Hunting, agriculture in irrigated areas, mining and manufacturing based on agricultural products.	Thinly populated due to water scarcity, but bright future if irrigation facilities are provided and minerals are fully exploited.

Tropical Deserts	18° to 32° along the western margins of the continents.	Principal deserts of the world, namely Sahara, Somali, Kalahari, Arabian, Thar, Arizona, Colorado. Peruvian, Atacama and Great Australian Deserts.	Extremely dry-annual rainfall less than 5 cm. Days extremely hot, nights cool and cold. Climate modified along the sea-coast.	Scrub vegetation has adapted itself to dry climate.	Horned toad, Gila Monster and the gazelle typical native animals. Domestic animals like camel, horse, mule, donkey, sheep and goats.	Nomadic herding, agriculture in the oasis and river valleys and mining.	Thinly populated due to water scarcity, but bright future if irrigation facilities are provided and minerals are fully exploited.
Tropical Rain forests	Tropical Islands and eastern coastal strips within the tropics on both sides.	Islands around the Caribbean Sea. Venezuela and Brazil, coastal margins of East Africa, Eastern Malagasy, Coasts of Queensland and the Hawaii Island.	Hot and humid throughout the year. Rainfall heavy in summer, but moderate in winters. Oceanic influence makes climate mild and pleasant.	Dense evergreen forests, but not as dense as equatorial forest. Also lesser undergrowth.		Agriculture, Fishing and Tourism, Mining and manufacturing still undeveloped.	Densely populated because of suitability for agriculture. Agricultural products main items of export. Backward in mining and manufacturing due to lack of capital and technical know-how, as also due to ease in cultivating land.

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