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DIRECTORATE OF DISTANCE EDUCATION

Global Tourism Geography

Paper Code : MBTM 3002

MBA - TOURISM

III Semester

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- To be familiar with major tourism destinations worldwide;
- To study locale and accessibility to major tourist destinations across the continents; and
- To be able to plan tour itineraries of various countries across time zones.

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World Geography: Physiography, Drainage, Climate & Vegetation of North, South and Central America – Europe – Africa - Asia & Australasia.

Unit – II

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Unit – V

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UNIT – I Global Tourism Geography

Unit Structure

Lesson 1.1 - North America (Physiography Drainage, Climate & Vegetation)

Lesson 1.2 - South America (Physiography Drainage, Climate & Vegetation)

Lesson 1.3 - Central America (Physiography Drainage, Climate & Vegetation)

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Lesson 1.7 - Australia (Physiography, Drainage, Climate & Vegetation)

Learning Objectives

After going through this unit you should be able to:

- Have an insight into the world geography,
- Explain Physiography Drainage, Climate & Vegetation of America,
- Elaborate about Physiography Drainage, Climate & Vegetation of Europe,
- Discuss Physiography Drainage, Climate & Vegetation of Africa,
- Know about Physiography Drainage, Climate & Vegetation of Asia,
- Explain Physiography Drainage, Climate & Vegetation of Australia.

Introduction to World Geography

The study of world in its geographical perspective is the essence of world geography. In this unit, you are going to find much description on the condition of physiography, drainage, climate and vegetation of North, South and Central America-Europe-Africa-Asia and Australia. But first of all, what is Physiography? Physical geography (also known as geo-systems or physiography) is one of the two major subfields of geography. Physical geography is that branch of natural science which deals with the study of processes and patterns in the natural environment like the atmosphere, hydrosphere, biosphere, and geo-sphere, as opposed to the cultural or built environment, the domain of human geography.

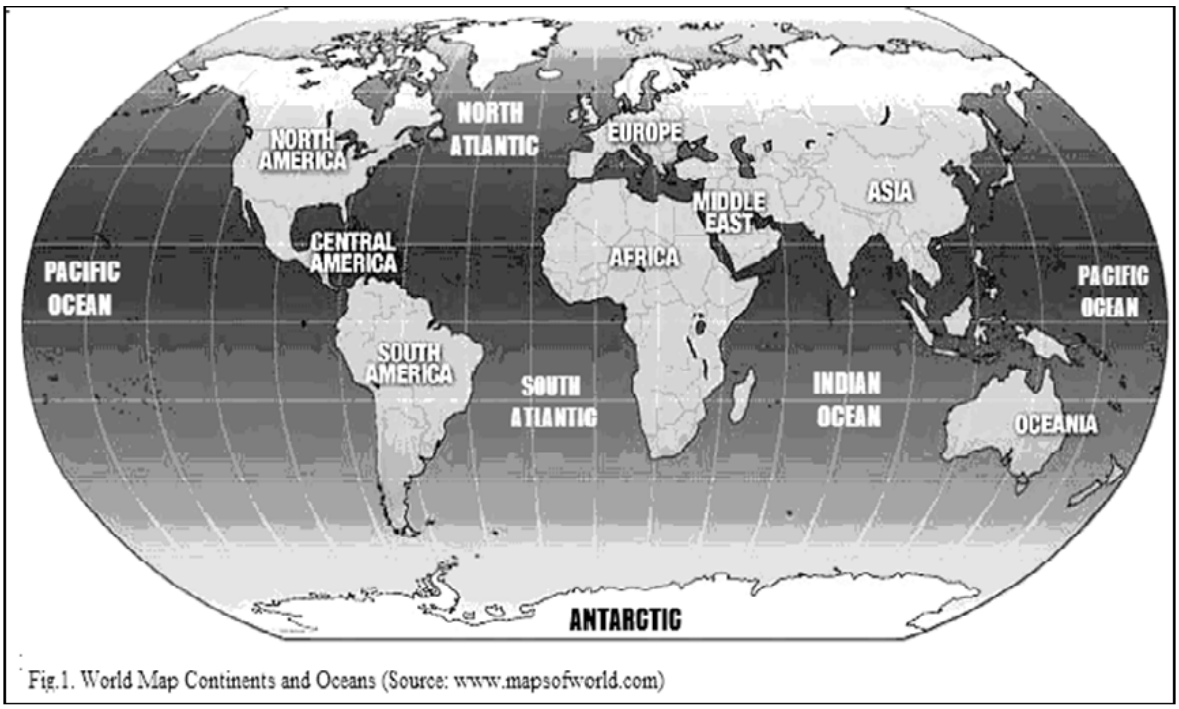

Fig.1. World Map Continents and Oceans (Source: www.mapsofworld.com)

Continents and Oceans of the World

Source: www.nationalgeographic.com

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Lesson 1.1 - North America

Introduction

America is often mistaken for the United States of America, though it is a larger geographical landmass. America or The Americas are the lands in the western hemisphere. It includes the continents of North America and South America along with the numerous island groups all around especially the Caribbean. The entire American landmass share 28.4% of the land area and 8.3% of the surface area of the earth. The topography of the Americas is predominantly dominated in the west by a chain of mountain ranges called as Western Cordillera. It consists of an almost continuous sequence of mountain ranges that extend across North America, Central America, South America and Antarctica. The east is wholly influenced by the rivers such as Mississippi, Missouri, La Plata, Amazon and other forming large river basins and flat and fertile plains. The climate and natural vegetation is also varied from tundra and alpine in the north to the grasslands in the lower parts, tropical and rain forests in the Central and South America to dry and cold climate in the extreme southern part of South America. Human settlements though date back to 40, 000 BC, this region had the migrated population from different parts of Asia. Indigenous people are the red Indians and they were the dominant settlers. In the subsequent time, they were completely eliminated by the European settlers. With the explorations in the 15-16 centuries AD, these so called new lands were occupied by Europeans and brought bonded slaves from Africa and Asia. Today, American continents are more of multicultural human societies with the influences in their lives from Europe Africa and Asia.

In the subsequent sections, you will learn about the continents of the America in details. The country profiles are also added to with the physiography, drainage systems, climate and natural vegetation of these regions. Following is the list of American regions:

a) North America
b) Central America
c) South America

North America

North America is the third largest continent with an estimated population of 460 million and an area of 24,346,000 km² (9,400,000 mi²). It is located in the northernmost of the two continents of the Western Hemisphere bounded by the Pacific Ocean on the west; the Atlantic Ocean on the east; the Caribbean Sea, Atlantic and Pacific oceans, and South America on the south; and the Arctic Ocean on the north. The northern half of North America is sparsely populated and covered mostly by Canada, except for the north-western portion which is occupied by Alaska, the largest state of the U.S.

North America Fact file	
Area	24,709,000 km²(9,540,000 sq mi)
Population	528,720,588 (2008,
Pop. density	22.9/km² (59.3/sq mi)
Countries	23 (including the Central America)
Dependencies	11
Languages	English, Spanish, French and many others
Time Zones	UTC-10 to UTC
Largest cities	Mexico City New York City Los Angeles Toronto Chicago Houston Havana Montreal

It is the third-largest continent in area, following Asia and Africa.

Percent of Earth's Land: 16.5%

Highest Point: Mt McKinley in Alaska, 20,322ft (6,194m)

Lowest Point: Death Valley in California, -282 ft (-86m) below sea level.

Geographic Center: The United States Geographical Survey states that the geographic center of North America is 6 miles west of Balta, Pierce County, North Dakota" at approximately 48° 10' N 100° 10' W.

Horizontal Width: From San Francisco, California, east to New York City, NY: 4,156 km

Vertical Length: From Barrow, Alaska, directly southeast to Panama City, Panama: 8,605 km

North America Fact file

Source: www.wikipedia.org/continents and www.worldatlas.com

Political Map of North America

Source: www.worldatlas.com

Physiography

North America may be divided into the following major physiographic regions:

a. Atlantic Coastal Plain
b. Appalachian Mountains
c. Canadian Shield and Greenland Shield
d. St. Lawrence Lowlands
e. Central Lowlands
f. The Great Plains
g. Rocky Mountains
h. Cordilleran or Intermontane Plateaux
i. The Pacific Border System

Physiographic divisions of North America

Source: www.worldatlas.com

The division of North America into physiographic units has been detailed by various authors (Atwood 1940; Hunt 1967, 1974; Brouillet and Whetstone 1993). They include:

Atlantic Coastal Plain: It is a lowland area bordering the ocean into which it slopes and extending from Cape Cod south along the Atlantic Ocean and then west along the Gulf of Mexico into Yucatan. It is an area of generally low relief (altitudes less than 150 m), with some of the major hills and ridges rising only some 60 to 90 m. The surface of the Coastal Plain has been extensively reworked by coastal and fluvial processes over the last 2-3 million years. The Mississippi alluvial plain divides this province into the Atlantic and eastern Gulf coasts, the Mississippi flood plain, and the coastal band of Texas.

Appalachian Highlands: It extends from the Maritime Provinces of eastern Canada south-westward through the eastern U.S.A. It consists of an association of 3000 km long mountain ranges, plateaux and rolling uplands with altitudes ranging from 150 to 2300 m. The Highlands include several physiographic units: Maritime and New England, Adirondack Mountains, Piedmont Plateau, Blue Ridge, Valley and Ridge, and Appalachian Plateau.

Canadian Shield: It is geologically ancient area occupying much of Canada, extending from Baffin Island in the Arctic Ocean, south to northern Wisconsin and east to Labrador. Altitudes range up to 1500 m, but there is little local relief. To the north is found the Arctic Lowlands and Coastal Plain province.

Greenland Shield: It is an ice-cap (2500 km long, 1000 km wide and up to 3 km thick/avg. 300 m) covering 84% of the total land area, and an ice-free zone (generally very narrow, but sometimes broadening to 200-300 km) borders the coast (IUCN 1992).

St Lawrence Lowlands: It is located between the Canadian Shield and the Appalachians. It is characterized by flat limestone and sandstone outcrops. Elevations are above the sea level up to 150 m.

Central Lowlands: It is gently rolling prairies and it forms a vast central plain extending from Ohio north-west to central Saskatchewan and south to the Gulf Coastal Plain. Elevations are 150 to 600 m.

The Great Plains: It is semi-arid western extension of the Central Lowlands, rising westward from 600 to 1500 m, and forming a broad belt extending from Rio Grande north almost to the Arctic Ocean, and from the Rocky Mountains in the west to the Central Lowlands in the east. Although appearing relatively flat, it slopes to the east.

Interior Highlands: It is situated between the southern end of the Central Lowlands and the Gulf Coastal Plain, and south of glacial limits. It includes the Ozark Plateau, a rolling upland mostly above 300 m, and the Ouachita province, with altitudes of 150-800 m, and the Interior Low Plateau east of the Mississippi River, mostly below 300 m. It is an area composed mostly of sedimentary rock.

Rocky Mountains: Alaska, from the Brooks Range southward, to north-western Wyoming, where the mountain ranges are interrupted by a large plateau (not part of the province), and then continuing south into Mexico (the Sierra Madre ranges). The mountains of this province originated in the early Tertiary, primarily through anticline folding. The southern mountain ranges have altitudes of 1500-4265 m; the semi-arid Wyoming Basin has altitudes mostly of 1200-3000 m; the middle Rocky Mountains have altitudes mostly of 1525-2135 m and contain some semi-arid intermontane basins (major ranges were glaciated, and snow and ice still cover most of the mountains above 2400 m); the Northern Rockies are highly irregular granitic mountains with altitudes mostly between 1220 and 2135 m.

Cordilleran or Intermontane Plateaux: It is a disjunctive province comprised of a series of plateaux extending from central Alaska southward into south-central Mexico. The Colorado Plateau section has the highest plateaux in the U.S.A., with its surface rising to 3355 m. It has numerous canyons and is semi-arid. The Basin and Range section, with its blocky mountains separated by desert basins, has altitudes from below sea-level to over 3660 m. However, relief between its mountains and basins is usually not more than 1525 m. The Columbia Plateau is primarily composed of lava flows. Altitudes are mostly below 1525 m. Although semi-arid, two major rivers, the Columbia and the Snake, traverse it.

The Pacific Border System: It extends from western Alaska to Baja California, fronting the Pacific Coast. The ranges of the Cascade-Sierra Nevada province are north-south trending. The Cascades are a series of volcanoes, while the Sierra Nevada is composed of blocky granite. Altitudes reach 4270 m; western slopes are humid and eastern slopes semi-arid. The Pacific Border province consists of coastal ranges with altitudes mostly below 600 m. These ranges are separated from the Cascade-Sierra Nevada province by troughs 155 m or lower in altitude. The Lower California province is comprised of the northern end of a granitic ridge forming the Baja California Peninsula. In Alaska, a belt of mountains forms the South Central Alaska province, leading into the Alaska Peninsula and Aleutian Islands province.

Drainage System

Drainage system in North America is today supporting the major industrial and agricultural hubs providing them with the natural transportation arteries. The most important of them are the following:

a. **St. Lawrence**: Great Lakes: This river and lake system can be navigated halfway across the continent.

b. **Mississippi and its Tributaries:** This river system with the tributaries such as Missouri, Arkansas and Ohio drains the entire central part of the continent. It is known to be the second only to Rhine river transportation in the world for being the best natural inland water transport system. Mississippi is connected to Lake Michigan with Illinois – Michigan barge canal.

c. Western River System: Major rivers are The Colombia, The Sacramento, Colorado. The Colombia can be navigable upto Idaho barge. The Sacramento can be navigable till the city of Sacramento.

Colorado, though not suitable for navigation, is a vital source of water for the dry and arid region of the west.

Climate

North America has considerable climatic variety; nevertheless five principal climatic regions are identified. The northern two-thirds of Canada and Alaska, as well as all of Greenland, have subarctic and arctic climates, in which long, dark, bitterly cold winters alternate with brief, mild summers. Most of the region, which receives relatively little precipitation, is covered with snow and ice during much of the year. A second climatic region is made up of the eastern two-thirds of the United States and southern Canada. It is characterized by a humid climate in which all four seasons are evident, and weather changes are frequent. The southern part of this region has a warmer average temperature. A third region includes the western interior of the United States and much of northern Mexico. It is mostly mountain and desert country, generally receiving small amounts of precipitation, but with significant local variations due to altitude and exposure. A fourth climatic region is made up of a narrow zone along the Pacific Ocean from southern Alaska to southern California. It has relatively mild but wet winters and almost rainless summers. Most of southern Mexico has a tropical climate, with year-round warmth and considerable precipitation, especially in summer.

Vegetation

The geography of North America is very diverse. Much of the land is covered in thick forests. There are several kinds of forested vegetation zones in North America. One kind is rain forest, which is a dense evergreen forest that receives at least 100 inches of rainfall each year. Deciduous and mixed forests receive less rain and have many trees that lose their leaves in winter. Other parts of the continent have few trees or none at all. These areas include grasslands, deserts, and tundra. Tundra is found in the far north, where only small bushes and other low-growing plants survive. Each type of vegetation zone presents challenges and opportunities to the people who live there. Following is the list of vegetation zones of North America.

a. **Temperate Rain Forest:** Close to the Pacific coast and to the extreme western borders of Canada, North West of US and south west borders of Alaska

b. **Tropical Rain Forest:** In the Hawaiian Islands

c. **Tropical Grasslands:** A small stretch of tropical grasslands in southern regions of Florida.

d. **Desert and Dry Shrubs**: Dry shrubs and desert type of vegetation in the rain shadow regions in the states of Idaho, Nevada, Utah, Arizona and of Colorado and Wyoming.

e. **Temperate Grasslands**: Large parts of the central parts of United States starting from Montana to Texas in the south. A portion in Canada to the north of Texas also has similar vegetation.

f. **Mediterranean Shrubs**: This vegetation is found in to the southwest parts of California State.

g. **Deciduous and Mixed Forest**: Extending from along the north of Temperate grasslands in Canada to most of the eastern parts of United States and south east of Canada this type of vegetation is widely seen in the US.

h. **Coniferous Forest**: Coniferous vegetation is the trademark of the northern parts of the continent covering all of Canada and eastern, south eastern regions along the Rockies.

i. **Tundra**: Tundra vegetation is found all along the northern edges of Canada extending into the northern and northwestern borders of Alaska.

j. **Icecap:** Icecaps are found in the higher altitudes as well as in the higher latitude spreading across in the parts of Canada and Greenland.

Conclusion

The North American geographical region possesses unique features of high tourism potential. The countries in the region have already positioned themselves as some of the leading tourist destinations such especially the United States of America and Canada and find themselves in the top list. The natural advantage of this region spread across the northern hemisphere, having great chains of mountains in the east and west, vast plains in between, some of the longest rivers of the world, thick vegetation of different kinds and suitable climate make it one of the best place for human habitation, industrial growth and tourism activities.

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Lesson 1.2 - Central America and the Caribbean

Introduction

Between North America and South America lie Central America and The Caribbean. This region consists of countries from Mexico (though politically often included in the North American continent), Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and The Caribbean. The Caribbean includes nineteen island nations known for their tourist attractions with a great influence of European countries as an effect of colonization. Amongst them Mexico is the largest country with highest tourist arrivals. These regions have an advantage of their proximity to industrially developed countries such as USA, Canada and many of the European countries in the central Atlantic region.

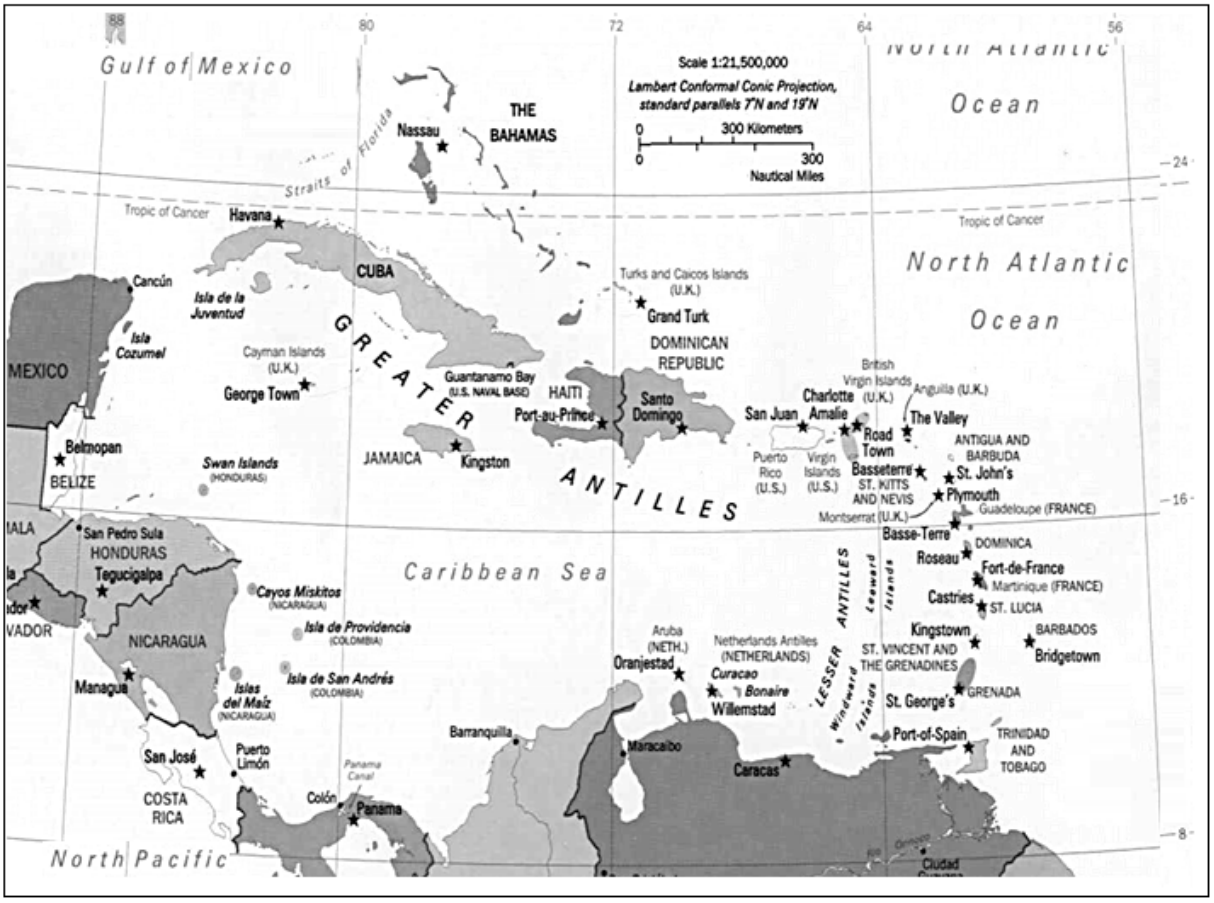

Fig. 4. Caribbean Islands (Source: www.mapsofworld.com)

Central America Fact file	
Area	523,780 km²(202,233 sq mi)
Population	41,739,000 (2009 est.)
Density	77 /km² (200 /sq mi)
Countries	7
GDP	$107.7 billion
Languages	Spanish, English, Garifuna, Kriol
Time Zones	UTC - 6:00, UTC - 5:00
Largest cities	Guatemala City San Salvador Tegucigalpa Managua San Pedro Panama City San José Costa Rica Santa Ana El Salvador León San Miguel

Percent of Earth's Land: 0.1%

Highest Point: Tajumulco Volcano, Guatemala, 13,845ft

Lowest Point: Caribbean Sea, 0ft

Geographic Center: 116 miles northeast of Lake Managua, Nicaragua

Horizontal Width: From Guatemala's southwestern border with Mexico, directly east to the Caribbean Sea border of Honduras and Nicaragua: 958 km

Vertical Length: From Belmopan, Belize directly SE to Panama City, 1416 km

Central America Fact file

(*Source:* www.wikipedia.org/continents and www.worldatlas.com)

Caribbean Islands Fact file	
Land area	239,681 km² (92,541 sq mi)
Population	39,169,962
Density	151.5 /km² (392 /sq mi)
Ethnic groups	Afro-Caribbean, European,Indo-Caribbean, Amerindians (Arawak, Caribs, Taínos)
Demonym	West Indian, Caribbean person, Caribbean
Languages	Spanish, English, French, Dutch, others
Government	13 sovereign states, 17 dependent territories
Time zone	UTC-5 to UTC-4

Land Area: 239,681 sq km (92,541 sq miles)

Water: 2,514,319 sq km (970,459 sq miles)

Percent of Earth's Land Surface: 0.16%

Highest Point: Pico Duarte - 3098 m

Largest cities	Santo Domingo Havana Santiago de los Caballeros Port-au-Prince Kingston Santiago de Cuba San Juan Port of Spain	**Lowest Point:** Lake Enriquillo - -39 m **Deepest Point:** Cayman Trough- 7,686 m **Horizontal Width:** 2,197 km from Cancun, Mexico, east to San Juan, Puerto Rico **Vertical Length:** 1,799 km from Miami, Florida, southeast to Oranjestad, Aruba

Caribbean Islands Fact file

(*Source:* www.wikipedia.org/continents and www.worldatlas.com)

Physiography

Mexico and the Central America

There is great difference in the landforms, climate, soils and vegetation with short distances in this region. It is a highly diversified region. Physiography of Mexico and Central America is divided into the following categories:

a. The Mexican Plateau
b. The Balsas Depression
c. Plains of the Yucatan Peninsula
d. The High Mountain Range of Southern Mexico and Central America
e. Coastal Plains

The Mexican Plateau: This plateau is one of the largest landforms of Middle America and a major region of human settlement especially in Mexico. It extends from south of Mexico City to the Mexico border with the United States in the north. The plateau is divided into two northern plateau (the Mesa del Norte) and southern plateau (the Mesa Central). The Mesa del Central is characterized by basins between low mountains and is extremely dry. The Mesa Central in its southern half is an active volcanic area. Crater lakes, low cinder cones, lava flows and volcanic crates are a common sight in this region. High precipitation and fertile volcanic soils support the dense population of Mexico. The steep escarpments in the east, west and south of the plateau give a spectacular view and attract tourists in large numbers.

The Balsas Depression: The Balsas depression is located immediately to the south of the Mexican plateau between the high volcanic

mountain ranges of Central America. The Balsas Depression is a low, dry, hot area with low hills bisected by the Balsas River. In comparison to the basins, the Balsas region is less densely populated due to hot and dry climate and limited water supply. A large area south of The Central America is similar to this across the plains.

Plains of the Yucatan Peninsula: The plains of Yucatan Peninsula are rich in limestone. Having limestone predominately across the region has resulted in one of the largest *karst* topographical zones. Karst topography occurs in the limestone as water dissolves the stone to create underground caves and beautiful limestone structures of pillars, sinkholes etc. These plains are full of such topography. To the south of the Yucatan plains between Mexico and Petén of northern Guatemala one can witness extensive plains separated by limestone hills. This region has lakes and surface streams.

The High Mountain Range of Southern Mexico and Central America: Peaks over 3000 meters can be found in this extremely rugged, high mountain ranges extending from the south of Mexico into Central America except with a small gap at the Isthmus of Tehuantepec. These are series of high mountain ranges extending from north to south and to east upto some of the Caribbean islands are typically rugged and are both volcanic and non-volcanic. Non-volcanic mountain ranges in the Guatemala and southern Mexico continue into the Caribbean forming the Greater Antilles and the volcanic mountain ranges of Central America continue into the Caribbean forming Lesser Antilles. These are the most beautiful of the ranges with fertile soils and have also attracted a large population for settlements.

Coastal Plains: The coastal plains are relatively narrow in the western side than the the east of Mexico and Central America which are widest and vast. One can find large agricultural areas with huge productivity in Costa Rica and Mexico as the eastern coastal plains are low, fertile with alluvial soils which is not so the case of west as they are narrow.

The Caribbean

The Caribbean landforms may be viewed as an extension of the high mountain ranges of the Southern Mexico and The Central America into the Gulf of Mexico forming numerous island groups. These island groups can be classified into two: a. The Greater Antilles b. The Lesser Antilles

The Greater Antilles: The Greater Antilles include the four large islands of Cuba, Jamaica, Puerto Rico and Hispaniola (Haiti and Dominican Republic). Together these four islands share 90 percent of the area of the Caribbean Islands. Among all the Caribbean islands Cuba is the largest island with an area of 4,000 miles. The subtropical climate rainy climate and relatively flat terrain makes it one of the largest producers of sugar in the world. The second largest island in the Caribbean is Hispaniola. It has mountainous topography with four major mountain systems. This is largely populated by the Hispanic and the European especially in the coastal and lowlands. Jamaica is the third largest island of heavily dissected limestone plateau. Pockets of it are inhabited by farmers. Sugarcane is the major agricultural produce. Puerto being the smallest of the four is also limestone dissected plateau. Along the wet coastal plains sugarcane cultivation is predominantly practiced.

The Lesser Antilles: Lesser islands are the semicircular extension of islands chain stretching from the south of Puerto to the southern coast of Venezuela. There are two rings of islands spread with an outer ring of low island and old volcanoes and limestone and the inner ring of islands with higher volcanic peaks. Some of the major low islands are Antigua, Barbuda and Anguilla where as the high volcanic islands are St. Kitts, Grenada, St. Lucia, Montserrat etc. The low islands are dominated by large sugarcane estates.

Drainage System

There are a number of rivers and lakes in this continent. Panama has several important rivers. **The Chagres** in north of Panama City and flows into the Caribbean just west of Colon. **Gatun Lake**, one of the largest artificial reservoirs in the world, allows ships to transit the canal at an elevation of 26 m (85 ft) above sea level. Panama's largest river**, the Tuira**, flows south into the Gulf of San Miguel.

The San Pablo River in the south central portion of the country drains into the Montijo Gulf**. The Chepo River** flows southwest into the Pacific near Panama City and it is dammed to create Lake Bayano, an important hydroelectric power source.

Lake Nicaragua, known as the Great Lake, is the regions' largest lake dotted with more than 350 islands, including Ometepe, the site of two volcanoes. The lake is connected to the Caribbean by the San Juan River**. The Tipitapa** River links Lake Nicaragua to Lake Managua. The Navigable

Atlantic Rivers in Honduras include the Ulua. It drains approximately one-third of the country, and the Coco.

The principal rivers of Guatemala are the Montague, Usumacinta, Dulce, Polochic, and Sarstun. Lake Izabal, near the Caribbean ports, is Guatemala's largest lake and El Salvador has the largest natural lake, Lake Guija, and a major river called Lempa. Apart from these there are several small streams, waterfalls in the Caribbean islands as well which form the principal source of drinking water and agricultural source.

Climate

Central America is highly influenced by its location between two oceanic climates, its chain of high mountains and its highly heterogeneous physiography. Generalizations can be made about the climate based upon average temperatures, annual precipitation and duration of the dry season (Leonard 1987). The lowlands are warmer on both coasts, with gradual change in ascending to the cool and pleasant climate in the temperate zones of the interior.

The total average precipitation tends to increase from north to south. Local climates range from semi-desert areas which receive only 400 mm of precipitation a year to areas of cloud forest with annual precipitation up to 7500 mm. Two seasons exist - the dry or summer season which begins in November, and the rainy season which begins in May. The amount of annual precipitation and the duration of the rainy season are the two factors that determine the three principal climatic zones in Central America:

a. The tropical lowlands of the Caribbean region, which are hot and humid, receiving some rain all year

b. The interior uplands of the isthmus where the temperate climate is cool and damp in the intermontane valleys and plateau, to cold and cloudy higher on the mountains; and

c. The lower Pacific slope and coastal plains, which have hot and dry conditions, except for intermittent periods of torrential rain between May and October

Vegetation

Vegetation in this part of the world varies from rain forests to grasslands and desert shrubs. One can find the thick evergreen rain forests in the southern parts and in the Caribbean islands in the highlands one

can also find the mosses of the tundra. Some of the important vegetation types found in the Caribbean are:

a. **Coastal swamp and mangroves:** Swamps and mangroves are abundantly spread all along the coastal line housing rich marine life which are centre of attraction for many visiting this belt.

b. **Semi-arid scrub:** Semi arid scrub vegetation is found in the arid regions especially in the central parts of the region and are conditioned by dry climate.

c. **Pine (Pinus) savanna:** The lowlands, plains and some parts of the plateaus have the savanna or pine vegetation in Central America.

d. **Conifer forest:** The highlands especially extended cordillera from the north of the continent in the eastern parts of Middle America one can find the alpine vegetation and coniferous trees are a common sight in these areas.

e. **Tropical deciduous and semi-deciduous forests:** Deciduous and semi-deciduous vegetation are spread across the region especially in the eastern parts.

f. **Evergreen rain forest:** The southern parts of the Central America and most of the Caribbean islands have the evergreen type of rain forests.

Conclusion

The Central America and the Caribbean regions are the heart of the western world off to west of the Atlantic Ocean. The central region has been in the picture for global tourism with Mexico playing as a major tourist destination. Given the extent of physical diversity this region has everything needed for tourism benefits. The plateau of the central region has some of the best terrain for adventure and eco tourism. Besides this there can very little necessity to introduce the Caribbean as they are the jewels in the Mexican Gulf and depend heavily on tourism for their existence. The locational advantage and the geographically exceptionality of these islands make them collectively the best leisure and adventure destinations in the world for any kind of island based tourism activity.

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Lesson 1.3 - South America

Introduction

South America is the fourth largest continent in the world and it lies to the south of the North American continent in the Western Hemisphere. It is divided politically into 12 independent countries viz., Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela and the French islands of French Guiana. The continent extends for 7,640 km from Punta Gallinas, Colombia, in the north to Cape Horn, Chile, in the south. At its broadest point, near where it is crossed by the equator, the continent extends for 5,300 km from east to west. South America is connected to North America by the Isthmus of Panama. It is enclosed by the Caribbean Sea in the north, Atlantic Ocean in the east and Pacific Ocean in the west. Most South Americans speak Portuguese or Spanish.

South America Political (*Source:* www.worldatlas.com)

South America Fact file	
Area	***17,840,000 km***^{2} (6,890,000 sq mi)
Population	387,489,196 (2011, 5th)
Pop. density	21.4 per km^2
Countries	12
Dependencies	3
Languages	Portuguese, Spanish, English, Dutch, French, Italian,
Time Zones	UTC-2 to UTC-5
Largest cities	Sao Paulo Buenos Aires Rio de Janeiro Bogota Lima Santiago Caracas Medellin Belo Horizonte Cali

It is the fourth-largest continent in area, following Asia, Africa and North America

Percent of Earth's Land: 12%

Highest Pt: Cerro Aconcagua, Andes Mtns, Argentina 22,833ft (6,959m)

Lowest Pt: Peninsula Valdes, Argentina -151 ft (-40m) below sea level

Geographic Center: Chapada dos Guimarães, in the State of Mato Grosso, Brazil; at 15° 27′ S 55° 44′ W.

Horizontal Width: From Lima, Peru, to Fortaleza, Brazil: 2,705 miles (4,353 km)

Vertical Length: From Cartagena, Colombia, south to Ushuaia, Argentina: 4,443 miles (7,149 km)

South America Fact file

(*Source:* www.wikipedia.org/continents and www.worldatlas.com)

The Physiography

Topographically, the continent is divided into three sections:

a. The South American cordillera
b. The interior lowlands
c. The continental shield

The South American Cordillera: Paralleling the Pacific shore is the great cordillera composed of the Andes ranges and high intermontane valleys and plateaus. The Andes rise to numerous snowcapped peaks; Mt. Aconcagua (22,835 ft/6,960 m) in Argentina is the highest point in the Western Hemisphere. The Andes region is seismically active and prone to earthquakes. Volcanoes are present but mostly inactive. Patagonia, a windy, semiarid plateau region, lies to the E of the Andes in S Argentina. On the

Pacific coast, the land between the Andes and the sea widens northward from the islands of S Chile. In N Chile lies the barren Atacama Desert.

South America Physical

(*Source:* www.worldatlas.com)

The interior lowlands: Extending down the middle of the continent is a series of lowlands running southward from the llanos of the north, through the dense equatorial forests of the great Amazon basin and the Gran Chaco, to the Pampa of Argentina.

The continental shield: The continental shield, in the east, which is separated into two unequal sections (the Guiana Highlands and the Brazilian Highlands) by the Amazon geosynclines, contains the continent's oldest rocks. Geologic studies in South America have supported the theory of continental drift and have shown that until 135 million years ago South America was joined to Africa; a Brazil-Gabon link has been established on the basis of tectonic matching.

Drainage

South American continent is identified with its great river basin. The continent's river systems empty into the Atlantic Ocean in the east and

the Caribbean Sea in the north. The major rivers which have influenced the geography of the continent for centuries from north to south are the Magdalena, Orinoco, Amazon, and Paraguay-Paraná systems. Only short streams flow into the Pacific Ocean. South America is home to the largest river (by volume) the Amazon River which stretches some 4,000 miles across equatorial South America. The volume of water, as it carries, surpasses that of all other rivers, constituting one-fifth of the total flowing fresh water of the world. The second most important drainage system, estimated to cover at least 1,600,000 square miles, is formed by the Paraguay, Parana, and Uruguay rivers. These empty into the Rio de la Plata, which actually are an estuary and not a river. The Orinoco River basin is the third largest drainage system, covering about 366,000 square miles. With a length of some 1,700 miles, the river first flows west and then north, plunging down a series of steep slopes. It then flows northeast and east along the edge of the Llanos, a flat plain that stretches westward to the Andes. Excluding the continent also houses Lake Titicaca, on the Peru-Bolivia border, is the largest of the continent's lakes and the highest commercially navigable lake in the world. Another major lake is Lake Maracaibo, which is actually an arm of the Caribbean Sea. The continent also boasts of the world's highest waterfall, Angel Falls in Venezuela.

Climate

South America embraces every climatic zone—tropical rainy, desert, high alpine—and vegetation varies accordingly.The climate of Latin America ranges from the hot and humid Amazon River basin to the dry and desert-like conditions of northern Mexico and southern Chile. Following zones can be classified:

Tropical Climate Zones: Tropical wet climates are hot wet with heavy rains found in the northern parts of the continent and support thick rain forests. Tropical wet and dry climates, found to the south of wet zone support savannas, which are grasslands dotted with trees common in tropical and subtropical regions. These areas have hot climates with seasonal rain.

Dry Climate Zones: Dry climate zones are found in central and southern parts of South America. Semiarid climate is generally dry, with some rain. Vast, semiarid, grass-covered plains are often found in such climates. Desert shrubs also grow in semiarid regions. Such regions are found in Brazil, Uruguay, and Argentina.

Mid-Latitude Climate Zones: The mid-latitude, moderate climate zones in the region are located south of the equator, from approximately Rio de Janeiro in Brazil southward. Humid subtropical areas have rainy winters and hot, humid summers.

Mediterranean climate zones: These zones experience hot, dry summers and cool, moist winters. Part of Chile along the west coast is in this zone. Marine west coast climate zones are characterized by cool, rainy winters and mild, rainy summers. Highland climates are found in the mountains of Mexico and South America.

Vegetation

The vegetation of South America varies from rain forests to grasslands and desert scrub. It ranges from the thick trees of the rain forests to mosses of the tundra. Vegetation of any region is influenced by its climate. The wet tropical climate in the north has given rise to thick evergreen rain forests. The Amazon forests are the best example of it. Much of this rain forest is located in Brazil. Rain forests contain many exotic plants and creatures. Grasslands or Savannas are spread across the central parts of the South America's table lands. The Atacama Desert is in northern Chile. Likewise, Argentina's southern zone, Patagonia, contains a desert. The deserts of the region are made up of shrubs, thorny plants and other types of desert vegetation.

Conclusion

The South American continent is home to some of the world's best geographical features supporting the development of tourism. The physiography of the continent with the Andes Mountains, pampas, Amazon basin, Patagonian plateau and the Brazilian highlands make it one of the unique landmasses on earth. With the long coastal line enabling it to be accessed from both east and west this region has flourished over the years. Though famous for the ecotourism in and around the Amazon River, Amazon forests and the basin the South American continent is also famous for its historical and cultural richness. Home to leading destinations like the Machu Picchu, Christ the Redeemer, Rio Carnival and the pristine beaches, this continent has huge potential in all spheres more particularly tourism sector.

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Lesson 1.4 - Africa

Introduction

Africa is the second largest continent with an area of 30,244,050 sq km including all the islands around it. Africa is geographically stretched wider in the north and becomes narrower as we move towards south extending for about 8,050 km from Cape Blanc (Tunisia) in the north to Cape Agulhas (South Africa) in the south. It is connected with Asia by the Sinai Peninsula (from which it is separated by the Suez Canal) and is bounded on the North by the Mediterranean Sea, on the West and South by the Atlantic Ocean, and on the East and South by the Indian Ocean. The largest offshore island is Madagascar. Some of the major other islands include St. Helena, Mauritius, Pemba, and the Comoros and Seychelles.

Africa Fact file		
Area	30,221,532 km^2(11,668,599 sq mi)	
Population	1,032,532,974[1] (2011, 2nd)	
Pop. density	30.51/km^2 (about 80/sq mi)	
Demonym	African	
Countries	54	
Dependencies	07	
Languages	Arabic, Somali, Berber, Amharic, Oromo, Swahili, Hausa, Igbo and Yoruba	
Time Zones	UTC-1 to UTC+4	
Largest cities	Cairo Pretoria Johannesburg Durban	Nairobi Casablanca Lagos Harare

Percent of Earth's Land: 12.7%

Highest Point: Mt Kilimanjaro, Tanzania, 19,341 ft (5,895m)

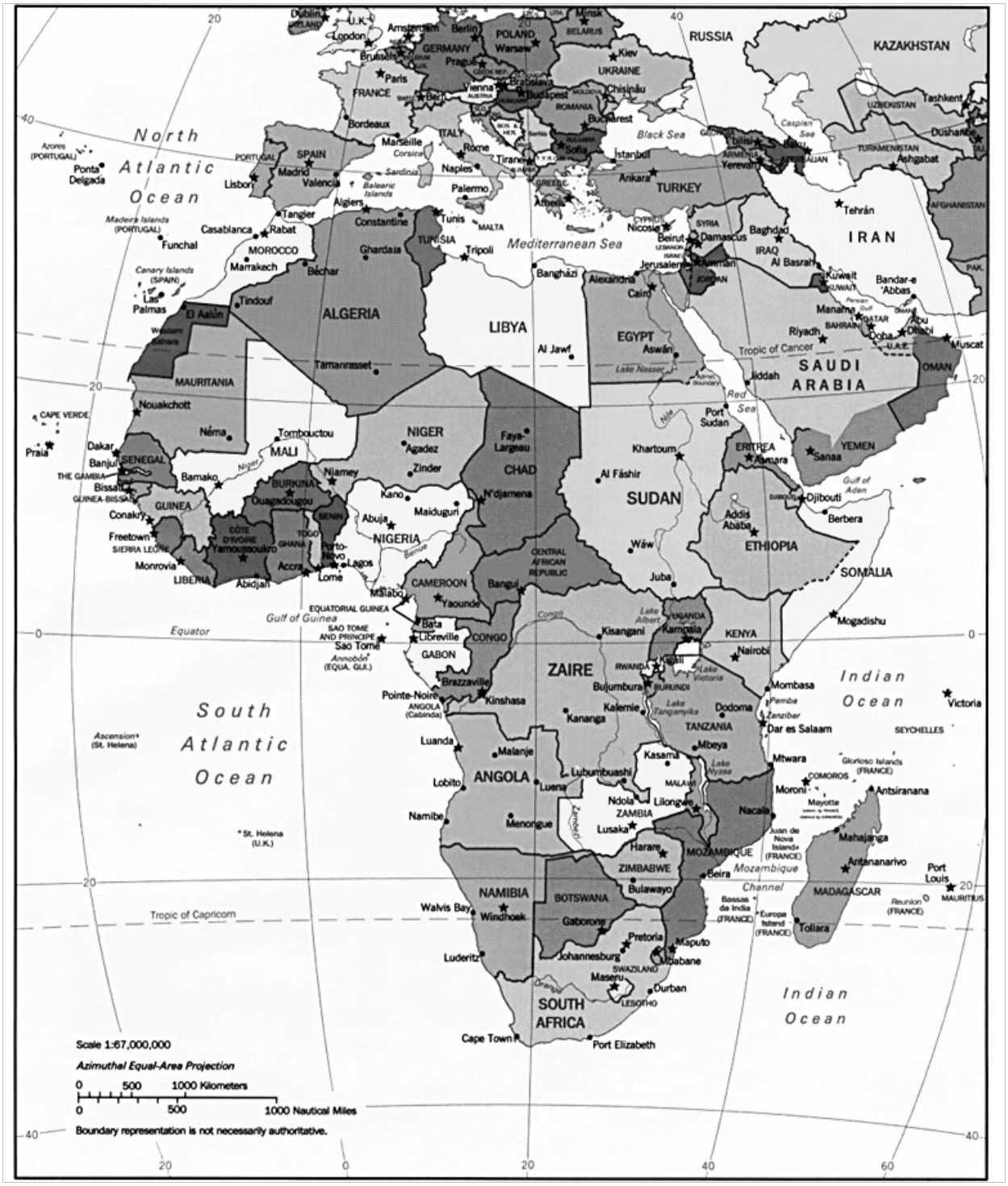
Lowest Point: Lake Assal, Djibouti (-512 ft)

Horizontal Width: 7,009 km from Dakar, Senegal, east to Mogadishu, Somalia

Vertical Length: 7,248 km from Cape Town, South Africa north to Tripoli, Libya:

Africa Fact file

(*Source:* www.wikipedia.org/continents and www.worldatlas.com)



Africa Political

(*Source:* www.mapsofworld.com)

The Physiography

Following physiographic divisions can listed for the continent of Africa: a. Highlands of East and South b. Great Rift Valley c. The Great River Basins d. Coastal Plains e. The Deserts of Africa f. The Sahel

Africa Physical

(*Source:* www.worldatlas.com)

Highlands of East and South: Much of Africa is covered by plateaus. These are flat or gently rolling areas of land that are relatively high in elevation. Much of the southern and eastern parts of Africa are high plateaus. The east region has the highest elevations on the continent. The eastern region is also home to the highest mountain in Africa, Mount Kilimanjaro. Ethiopian highlands and East African Highlands are typical extensions of plateaus.

Great Rift Valley: Mount Kilimanjaro is on the edge of the Great Rift Valley, also in the east region. This is one of the most distinct physical features of Africa. It is a very large valley formed by the earth's crust pulling apart. The Great Rift Valley begins in Syria north of Africa and goes all the way down to Mozambique in the south region. It is over 4,000 miles long. Some of Africa's largest lakes are found near the Great Rift Valley.

The Great River Basins: The river basins in Africa have altered the fortunes of the continent for otherwise it would have been completely dry. Some of major river basins are Nile river basin, Congo River basin, Niger river basin and Zambezi basin. Nile flowing from central parts of

the continent as two tributaries of White and Blue form Nile by merging. It supports whole of east and north east of Africa. The Congo River flows through rainforests in central Africa. It flows out to the Atlantic Ocean. Two other important rivers in Africa are the Niger River and the Zambezi River. The Niger River is the third longest river in Africa.

Coastal Plains: The coast of Africa is very even with few natural harbors. Along the coast is a thin strip of coastal plain. This quickly rises to the plateau. The coastal plans especially on deltas of Nile, Congo, Niger and Zambezi, the eastern Africa, North and North-West support agriculture, industry and well developed ports for transportation.

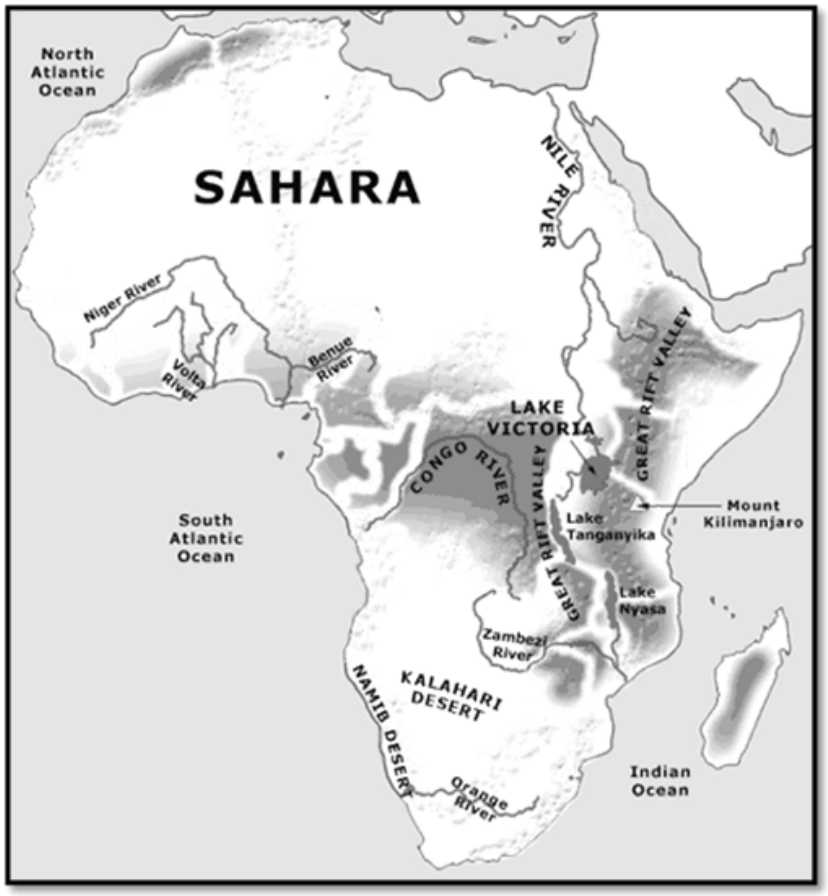
The Deserts of Africa: The Sahara Desert is the world's largest. It covers much of North Africa and is nearly as big as the United States. The area where the Sahara meets the savanna is called the Sahel. The Namib Desert runs along the Atlantic coast from Angola through Namibia. Also, in the south, the Kalahari Desert includes parts of Botswana, Namibia, and South Africa.

The Sahel: It is a region of semiarid grassland and desert along the southern edge of the Sahara Desert. This region is used for farming and herding that runs east to west along the southern edge of the Sahara. The Sahel is under increasing threat of desertification, or the expansion of dry conditions into moist areas that are next to deserts.

Drainage System

Africa is the home of the longest river in the world, the Nile River. The Nile begins with the merging of two tributaries, the White Nile and the Blue Nile. It then flows over 4,000 miles to empty into the Mediterranean Sea in Egypt in the north. Farmers have grown crops along the Nile for thousands of years because of the rich fertile soil there.

The Congo River flows through rainforests in central Africa. It flows out to the Atlantic Ocean. The watershed, as it drains, is very large. Two other important rivers in Africa are the Niger River and the Zambezi River. The Niger River is the third longest river in Africa. It runs through West Africa and empties into the Atlantic in Nigeria. The Zambezi is the fourth longest river and is in southern region. There are many waterfalls on this river, including the beautiful and dramatic Victoria Falls.



Africa Drainage System (www.mapsofworld.com)

Africa has good number of lakes. The largest of them are Lake Victoria (Lake Ukerewe), Lake Chad, in the centre of the continent, and Lake Tanganika, lying between the Democratic Republic of Congo, Burundi, Tanzania and Zambia.

Climate

The continent of Africa interestingly lies almost entirely within the tropics, and equally to north and south of the equator. Africa does not show excessive variations of temperature. Great heat is experienced in the lower plains and desert regions of North Africa. These deserts experience extreme weather conditions. It is evident from the Sahara where the rarity of the air and the great radiation during the night cause the temperature to fall occasionally to freezing point.

The most important climatic differences are due to variations in the amount of rainfall. The wide heated plains of the Sahara, and in a lesser degree the corresponding zone of the Kalahari in the south, have an exceedingly scanty rainfall, the winds which blow over them from the ocean losing part of their moisture as they pass over the outer highlands, and

becoming constantly drier. The highlands and northern mountain ranges exhibit alpine climate especially in the Atlas Mountains. Mediterranean climate can be experienced all along the northern coast.

Vegetation

The vegetation of Africa follows very closely the distribution of heat and moisture. The northern and southern temperate zones have a flora distinct from that of the continent generally, which is tropical. In the countries bordering the Mediterranean, there are groves of orange and olive trees, evergreen oaks, cork tree and pines, intermixed with cypresses, myrtles, arbutus and fragrant tree-health.

Atlas ranges have alpine vegetation in the heights. South of the Atlas Range, the conditions alter. Here one can find vast desert vegetation with shrubs and thorny plants spread all over the Sahara desert. The zones of minimum rainfall have a very scanty flora, consisting of plants adapted to resist the great dryness such as dates and palm trees. The Congo basin and parts of central Africa and around this basin have rain forests with heavy rains and plenty of water all through the year. To the south of it especially the Serengeti receives less rainfall but supports the vast region for the growth of grass. Here one can find vast region of savannah grasslands.

Conclusion

The African continent though was in dark for centuries is today steadily developing giving hope for the people of the continent. This continent has thick forests and vast desert spread and long coastal line making it the most promising for tourism development in all its sense. After the colonial rule though many parts of the continent were impeded by the civil wars, many of the countries have seen tremendous progress in terms of industrial growth and social enhancement. Known for the best of the best ecotourism destinations, the Africa imposes challenge to many tourists with its Sahara and Atacama deserts. The historical heritage of the continent makes it special for the tourists with monuments like the pyramids, amphitheatres of the Roman period, and the colonial architecture. Many of the national parks, thick tropical and rain forests and the river valleys are the central attraction to the visitors. The geography has helped it to flourish and the world belongs to the African continent in the coming centuries.

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Lesson 1.5 - Europe

Introduction

Europe is the most sought after continent to travel to. It has been the centre of modern civilization and industrial revolution. For years Europe has been attracting highest number of tourists explains the fact that it is most attractive continents for tourists. The whole of Europe is located in the northern hemisphere and in the middle and upper latitudes. The continent lies between 35 degree north and 73 degree north latitudes and 25 degree and 65 degree east longitudes, with an area of 10530750 square km (7.1 %) and 11.5% of world population.

Europe Fact file		
Area	10,180,000 km^2(3,930,000 sq mi)	
Population	739,165,030[n] (2011), 3rd	
Pop. density	72.5/km^2	
Demonym	European	
Countries	50	
Languages	English, French, German, Italian, Austrian, Dutch, Portuguese, Greek, Russian, Polish etc.	
Time Zones	UTC to UTC+6	
Largest cities	Paris London Rome Berlin Amsterdam Stockholm Athens Ankara	Dublin Frankfurt Zurich Moscow Kiev Vienna Copenhagen Budapest

Percent of Earth's Land: 6.8%

Highest Point: Mt Elbrus in Russia, 18,506 ft

Lowest Point: Caspian Sea, Russia -92 ft

Geographic Center: The geographic center of Europe is difficult to determine because of the continent's ambiguous borders. However, the most accepted answer is 54° 54' N 25° 19' E in the town of Vilnius, Lithuania.

Horizontal Width: 1,339 miles (2,154 km) from London, England, east to Kiev, Ukraine

Vertical Length: 2,076 miles (3,341 km) from Iraklio, Crete, north to Lulea, Sweden

Europe Fact file (*Source:* www.wikipedia.org/continents and www.worldatlas.com)

Globally, Europe's relative location, at the heart of the land hemisphere, is one for maximum efficiency for contact with the rest of the world. Almost nowhere in Europe is far from the sea and Europe interfaces with the land as it does nowhere else on Earth. Towards east is

Siberia part of Russia which is extended into two continents. To its south lies Mediterranean sea, to its north the arctic and to its west lies the Baltic sea and north Atlantic ocean.

Europe Political

(*Source:* www.mapsofworls.com)

Physiography

Physiography of Europe can be distinguished into four broad units. Northwest Highlands, the European Plains, Central uplands and plateaus, Rugged Mountains of Southern Europe and the Coastal and interior lowlands.a North-western highlands b. The European Plain c. Alpine Mountain systems d. Central uplands and plateaus e. Coastal and interior lowlands f. Southern Europe

North-western highlands: The ancient, often mineral-laden rocks of the northwestern highlands, their contours softened by prolonged erosion and glaciations, are found throughout much of Iceland, in Ireland, and in northern and western Britain and Scandinavia

Europe Physical

(*Source:* www.worldatlas.com)

The European Plain: This is an area of gently rolling low land. Drained by the central rivers it is a fertile area and supports agriculture, industries and dense populations of the continental Europe. The European plain comprises of the regions of southern England, Western Europe and across the northern half of Netherlands, Belgium, France Germany, Poland and Russia.

Alpine Mountain systems: Famously known as Swiss and Austrian Alps These mountain systems lie to the south of central uplands. They are upto 15,000 feet. The cool tourist attractions of Switzerland and Austria are the gifts of Alpine mountain system to the world.

Central uplands and plateaus: These lie between European plain and Alps. The central uplands and plateaus present distinctive landscapes of rounded summits, steep slopes, valleys, and depressions. Examples of such physiographic features can be found in the Southern Uplands of Scotland, the Massif Central of France, Bohemian Massif and the Meseta Central of Spain.

Coastal and interior lowlands: More than half of Europe consists of lowlands, standing mostly below 600 feet (180 meters). The coastal-

lowlands are extensive between White seas in the north and the Baltic. Interior lowlands are the parts of central England and the northern mainland.

Southern Europe: A world of peninsulas and islands, southern Europe is subject to its own climatic regime, with fragmented but predominantly mountain and plateau landscapes.

Drainage

Main rivers of Europe are Volga, Danube, Rhine, Po, Dnieper, Don, Vistula, Elbe, Order, Seine, Loire, Garonne, Douro, Tagus, and Ural. The drainage basins of most European rivers lie in areas originally uplifted by the Caledonian and Alpine mountain-building periods that receive heavy precipitation, including snow.The present courses and valley forms of the major rivers result from an intricate history involving such processes as erosion by the headstream, down cutting, capture of other rivers, faulting, and isocratic changes of land and sea levels. The Rhine, for example, once drained to the Mediterranean before being diverted to its present northerly course. In the East European Plain, the rivers are long and flow sluggishly to five seas.

Climate

Geographical position of Europe is in the temperate latitudes and the northern latitudes. Hence the climate of this continent is of a temperate, continental nature, with a maritime climate prevailing on the western coasts. Southern Europe comes under the influence of the Mediterranean climate. The climate is strongly conditioned by the Gulf Stream, which keeps mild air over the high latitude northwestern region over the winter months, especially in Ireland, the UK and coastal Norway. Parts of the Central European plains have a hybrid oceanic/continental climate. Four seasons occur in Eastern Europe, while southern Europe experiences distinct wet season and dry seasons, with prevailing hot and dry conditions during the summer months.

The heaviest precipitation occurs downwind of water bodies due to the prevailing westerly's, with higher amounts also seen in the Alps. Whilst Western Europe has an oceanic climate, Eastern Europe has a drier, continental climate determined as a result of blocking of easterly winds by the Ural Mountains.

Vegetation

a. In the highlands of Europe the rainfall is moderate, so the vegetation is also rich. The forest contains a number of large, ancient oaks.

b. Tundra vegetation occupies a relatively narrow zone in Iceland, Scandinavia and the extreme northern parts of Russia with mosses and lichens. A small portion also extends to southward in the mountains of Norway.

c. Alpine forests found in the higher altitudes with coniferous forests are the widely found type of vegetation across the continent especially in the northern parts.

d. Temperate deciduous forests are the other type of vegetation in the most parts of the central and southern parts of the continent. Parts of central plains southwestern Russia and Ukraine have wooded steppe and grass steppe vegetation.

e. Taiga forests or boreal vegetation can be seen in the upper northern parts of Volga River especially in the regions of northern Russia and Scandinavia. Conifers and birches are the best examples of trees found in this type of vegetation.

f. Mediterranean vegetation is found along the Mediterranean Sea. It has a distinctive character, containing broad-leaved evergreen trees, shrubs as well as areas of scrub, aromatic plants. Around the Caspian Sea one can find the dry and desert type of vegetation.

Conclusion

Europe is no doubt one of the foremost continents in the modern civilizations. It was one of the earliest to realize the importance of industrial development and education. For ages the Europeans have ruled the world and have also assimilated the global culture. Art and architecture of the regions in Europe stand testimony to the continuous experimentation done by the Europeans. The geographical features have supported the human development and the industrial growth has doubled the rate of development. Even to this day Europe attracts highest number of tourists from across the globe. Hundreds of world heritage sites, historical monuments, ecotourism destinations, fashion centres and business hubs have made the countries of Europe leading attractions in the world.

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Lesson 1.6 - Australia, New Zealand and the Islands of South Pacific

Introduction

The continent of Australia is often confused with Oceania. Geographers believe that Oceania is a wider geographical entity which comprises both the continent of Australia and all the islands in the South Pacific Ocean; New Zealand is part of this continent. This continent also comprises mainland Australia, Tasmania, New Guinea and the neighboring islands. It is smallest of the seven continents. The mainland of Australia is also a country in itself and is the sixth largest country in the world. Known for its colonial culture and beautiful landscapes this continent is very rich in its vegetation and marine life especially corals.

The total land area of the continent is 8,560,000 sq. km and it is the smallest and lowest lying continent with human habitation. The continental shelf on which whole of the continent lies connecting the majority of the islands with less than 50 metres deep, shares around 2,500,000 sq. km of the area. It is often referred to as an "island" continent, surrounded by oceans as the mainland Australia is mostly on a single landmass comprising most of the area of the continent.

Oceania Fact file		
Area	8,525,989 km² (3,291,903 sq mi)	
Population	35,670,000	
Pop. density	4.18/km²	
Demonym	Oceanic; Oceanian	
Countries	14	
Dependencies	25	
Languages	28	
Time Zones	UTC+8 (Australian Western Standard Time) to UTC-6(Easter Island) (West to East)	
Largest cities	Sydney Melbourne Brisbane Perth Auckland Adelaide	Wellington Christchurch Honolulu Suva Port Moresby

Percent of Earth's Land: 5.3%

Highest Point: Mt. Wilheim, Papua New Guinea, 18,506 ft (5,642m)

Lowest Point: Lake Eyre, Australia -52 ft

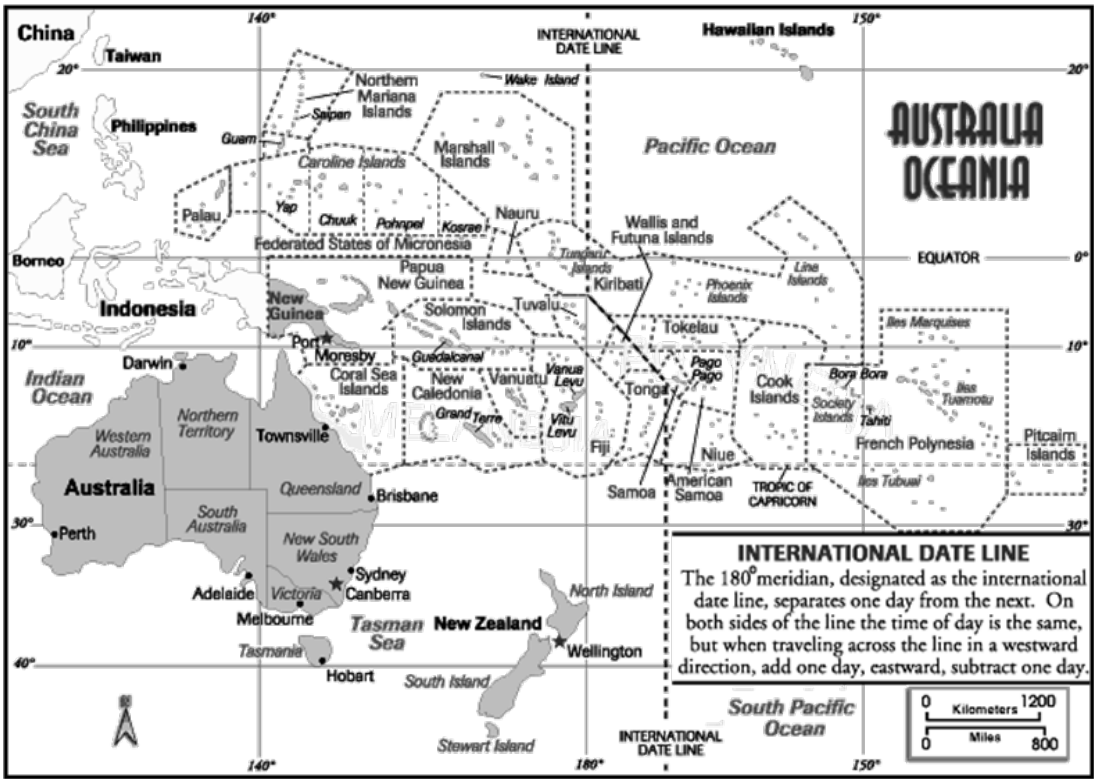
Geographic Center: unavailable

Horizontal Length: 5,889 miles (9,478 km) from Perth, Australia, east to Papeete, Tahiti

Vertical Length: 3,910 miles (6.292 km) from Auckland, New Zealand northwest to Guam

Oceania Fact file

(*Source:* www.wkipedia.org and www.worldatlas.com)



Australia and Oceania (*Source:* www.worldatlas.com)

Physiography

For our convenience let us refer to the huge region of the Australian Continent keeping aside the contradictions of Oceania. In such a scenario following broader physiographic divisions can be made: The Australian continent is mainly divided into three broad regions:

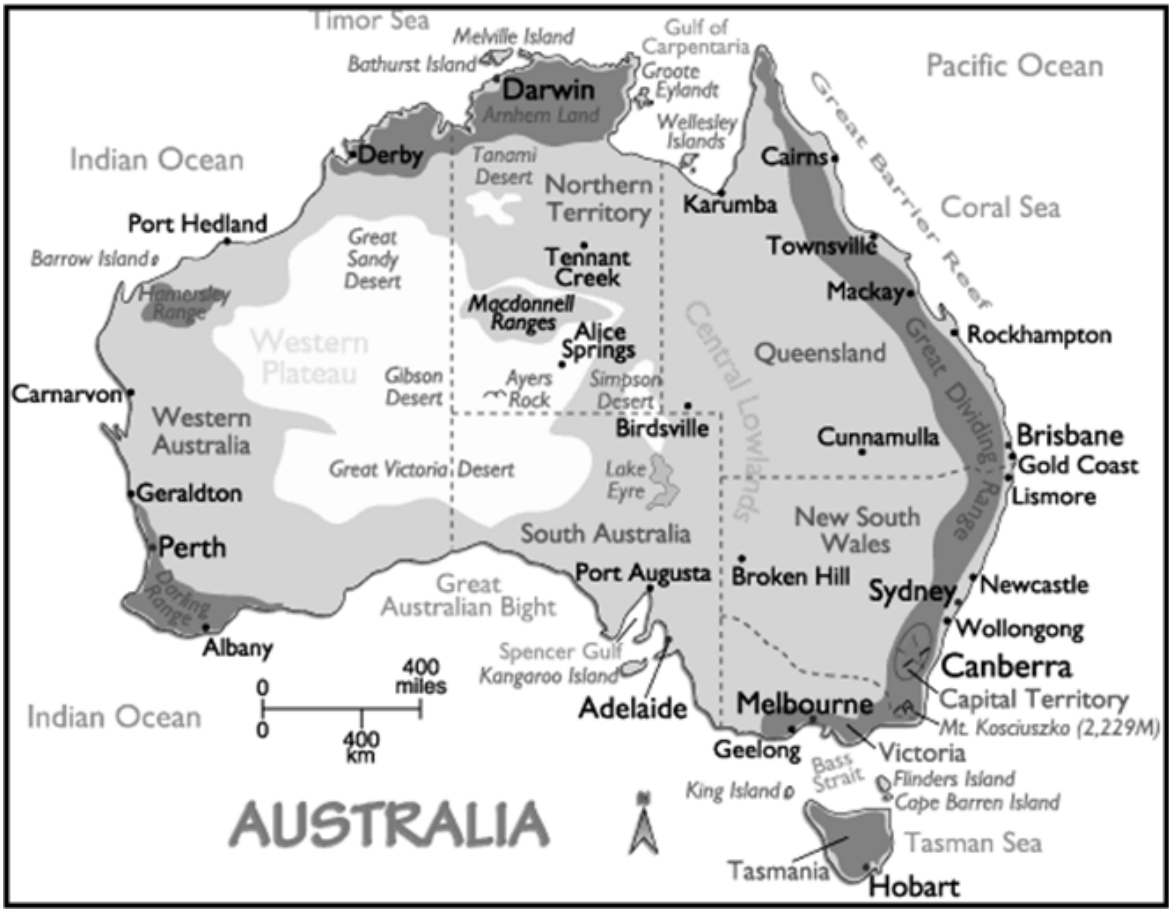
1.6.1.1 Australia mainland

1.6.1.2 New Zealand

1.6.1.3 Islands of South Pacific Ocean

Australia

Australia is broadly divided into four major landform regions, each of which is comprised of smaller-scale constituent landform regions - eastern highlands, central lowlands, western plateau and the coastal plains.



Australia Physical

(*Source:* National Geographic Society)

Coastal Plains: The Coastal Plains are a narrow strip of land along the eastern coast of Australia that extends from Queensland to Victoria. This area is flat and has relatively high rainfall. It is therefore well suited to building large cities. Australia's largest cities, including Sydney, Melbourne and Brisbane, are all located along the coastal plains.

The Eastern Highlands: Also referred to as the Great Divide or the Great Diving Range, runs for about 4,000 km from the tip of Cape York to the Grampian Ranges in Victoria. It divides the runoff into eastern and western-flowing rivers.

East of the ranges the rivers empty into the Pacific Ocean. To the west the rivers tend to be centrally draining, often ending in ephemeral salt lakes. Erosion of the Great Divide has formed the Great Escarpment on their eastern, seaward, side. About half of all Australian rivers run inland; many ending is salt lakes that are mostly dry.

The Central Lowlands: From the Murray-Darling Basin and north to the Gulf of Carpentaria, are mostly flat, with occasional higher ground in the form of desert ranges such as the MacDonnell Ranges and the Musgrave Ranges. Also found here are a number of deserts, Sturt's Stony Desert, Strzelecki Desert and Simpson Desert, the world's largest sand ridge desert. The lowest point on the Australian continent, Lake Eyre, is also situated in this region.

The Western Plateau: This includes much of Western Australia, and parts of South Australia and the Northern Territory. This is the oldest part of the continent, the rocks being some of the most ancient in Australia. Some of the plateaus in this region are the Kimberley, Hamersley and Yilgarn. The inselbergs like Uluru and Kata Tjuta are found here.

The Great Barrier Reef: As the world's most extensive coral reef ecosystem, the Great Barrier Reef is a globally outstanding and significant entity. Practically the entire ecosystem was inscribed as World Heritage in 1981. The Great Barrier Reef is a site of remarkable variety and beauty on the north-east coast of Australia. It contains the world's largest collection of coral reefs, with 400 types of coral, 1,500 species of fish and 4,000 types of mollusk.

New Zealand

New Zealand is an island country located in the southwestern Pacific Ocean comprising two main landmasses (the North Island and the South Island) and numerous smaller islands. The geography of New Zealand is highly varies, from snowcapped mountains to lowland plains.

Mountain ranges and country dominate New Zealand's landscape; one of the most striking physical features is the Southern Alps. To add to the variety of the South Island scenery, there are fiords, glaciers and lakes, and the coastal plains of Canterbury and Southland.

In the North Island is New Zealand's largest lake, Lake Taupo. The country's most active volcanoes, Ruapehu, Ngaurahoe, Tongariro and Taranaki, are also found in the central North Island. Hot springs, geysers and mud pools are found in Taupo and Rotorua.

Islands of South Pacific Ocean

The island groups of South Pacific Ocean can be divided into three groups as listed below:

a. **Melanesia** Melanesia lies in the southwest Pacific Ocean comprising the islands northeast of Australia and south of the equator. It includes the Solomon Islands, Vanuatu, New Caledonia, the Bismarck Archipelago, various other island groups, and sometimes New Guinea. All of Melanesia lies within the tropics of Cancer and Capricorn and is south of the equator.

b. **Micronesia** This is a group of associated islands in the Caroline Islands of the western Pacific Ocean. It includes the Mariana, Caroline, Marshall, and Kiribati island groups, and Nauru Island.

c. **Polynesia** A division of Oceania including scattered islands of the central and southern Pacific Ocean roughly between New Zealand, Hawaii, and Easter Island. The larger islands are volcanic, the smaller ones generally coral formations.

New Zealand Physical

(*Source:* www.worldatlas.com)

Drainage

Rivers: Most of rivers in Australia are seasonal rivers. The Murray River and its tributary, the Darling River, are the main rivers in the Murray-Darling River Basin. This drainage basin comprises the major part of the interior lowlands of Australia, covering more than one million square kilometers, or about 14 percent of Australia.

The Darling River flows south from the junction of the Culgoa and Barwon rivers. The Waikato River is the longest river in New Zealand and the Clutha River has the greatest flow.

Lakes: Australia's only large permanent lakes have been artificially created. They include Lake Argyle in Western Australia and Lake Gordon in Tasmania. Both are reservoirs for water conservation projects. Most of Australia's natural lakes are dry for months or years at a time. Dry lakes called *playas* are common in South Australia and Western Australia. Most of the time, a playa is simply a dry bed of salt or clay. The largest playas are in South Australia. They include Lake Torrens, Lake Eyre, Lake Gairdner, and Lake Fromme. Lake Taupo is a lake situated in the North Island of New Zealand.

Climate

Australia is an essentially arid continent, with 80% of the land having rainfall less than 600 mm per year and 50% having even less than 300 mm per year. It is located in the southern hemisphere so the seasons are opposite from the northern hemisphere. The weather in Australia can range from the below zero temperatures of the Snowy Mountains region to the extreme heat of the northwest. The tropical north regions of Australia have high temperatures and humidity and distinct wet and dry seasons. The centre of the country is the dry, desert regions with daytime temperatures that are high, and low amounts of rain. The southern regions of Australia are temperate with temperatures ranging from hot to cold with moderate rainfall. The dry climate of Australia, especially in the northern region leads to droughts, heat waves and bushfires.

Most of Oceania is divided into two climate zones. The first of these is temperate and the second is tropical. Most of Australia and all of New Zealand are within the temperate zone and most of the island areas in the Pacific are considered tropical. Oceania's temperate regions feature high levels of precipitation, cold winters and warm to hot summers. The tropical regions in Oceania are hot and wet year round. In addition to these climatic zones, most of Oceania is impacted by continuous trade winds and sometimes hurricanes.

Vegetation

Since most of Oceania is tropical or temperate there is an abundant amount of rainfall. It produces tropical and temperate rainforests throughout the region. Tropical rainforests are common in some of the

island countries located near the tropics, while temperate rainforests are common in New Zealand. It is important to note however, that not all of Oceania receives abundant rainfall and portions of the region are arid or semiarid. Australia, for example, features large areas of arid land which have little vegetation. Here one can find large stretches of desert vegetation especially in the central and western deserts shrubs and thorny plants. The coasts have rich mangrove forests and tropical rain forests. This is more evident along the west coast though one can find such vegetation along the coastal line all around Australia. The vast lands lying immediately to the west of the great divide or the eastern highlands have grasslands.

Conclusion

The Islands of the South Pacific, Australia and New Zealand together form a large region of great geographical importance. Quote often referred to as Oceania, these regions are exceptionally different from the other parts of the world. The physiography differs from region to region with Australia having barely any habitation in the central region due to arid climate and desert nature of the area. Coastal regions of the country are thickly populated and support the development. On the other hand to its south is the island nation of New Zealand which is naturally rich and best suited for refreshingly unspoilt destinations for eco and adventure tourism activities. The third region is the islands in the south Pacific which are wonderful places for natural beauty and classy lifestyle of the tribes. Overall these three regions put together make up a true example of geographical marvel.

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Lesson 1.7 - Asia

Introduction

The land of oldest civilizations and highest diversity is the continent of Asia. This continent is the largest continent in the world in both, in terms of area and population, constituting nearly one-third of the landmass, lying entirely north of the equator except for some Southeast Asian islands. It is connected to Africa by the Isthmus of Suez and borders Europe as Russia extends between both the continents separating along the Ural Mountains and across the Caspian Sea.

The estimated area encompassed by Asia is 44,000,000 square kilometers. It covers 8.8% of the Earth's total surface area (or 30% of its land area), and has the largest coastline, at 62,800 km. On the one hand there are deserts like Gobi in China, and on other, there are towering snow-capped peaks of the Himalayas. Rivers and lakes are also aplenty. Asia is oldest of the landmasses inhabited by humans. It incorporates diverse regions and peoples than a physical entity of homogeneity. Asia differs very widely among and within itself from region to region with regard to political systems, ethnic groups, cultures, environments, economics and historical ties. Yet differentiating itself from the other continents with a tag of 'Eastern world' or 'Oriental world'.

Asia Fact file	
Area	44,579,000 km^2 (17,212,000 sq mi)
Population	4,164,252,000 (1st)
Pop. density	87/km^2 (225/sq mi)
Countries	49 (list of countries)
Dependencies	04
Unrecognized	06
Languages	Out of hundreds of them major ones are Mandarin, Urdu, Hindi, Arabic, Russia, Malaya, Tamil, Thai, Japanese, Korean

Percent of Earth's Land: 29.5%

Largest Country: Russia, including European Russia, at 17,075,200 sq km, (6,592,768 sq m)

Highest Point: Mt. Everest in Nepal at 29,029ft (8,848m)

Time Zones	UTC+2 to UTC+12		**Lowest Point:** Dead Sea, Israel and Jordan at -1.388 ft below sea level. **Geographic Center:** Located in China at approximately 43° 40′ N 87° 19′ E. **Horizontal Width:** (as the crow flies)From Ankara, Turkey east to Tokyo, Japan: 5,515 miles (8.876 km) **Vertical Length:** (as the crow flies)From Vorkuta, Russia, south to Jakarta, Indonesia: 5,465 miles (8,795 km)
Largest cities	Tokyo Jakarta Seoul Delhi Mumbai Shanghai	Manila Osaka Kolkata Beijing Singapore	

Asia Fact file

(*Source:* www.wikipedia.org/continents and www.worldatlas.com)

Asia Political (*Source:* www.mapsofworldonline.com)

Physiography

The continent of Asia can be divided into five major physical divisions: a. The Northern lowlands b. The Central mountain belt c. Intermontane plateaus and the southern plateaus d. The great river valleys and inland water bodies e. The island groups f. The Coastal plains

The Northern lowlands: The northern lowlands are made of the Siberian plans and the Turan plains. The Siberian plain is the greatest continuous lowland in the world to the north of the continent extending from the east of Ural mountains where it is the widest to the extreme

northeastern coast of Asia blocked by the Yablanoi and Stanavoi ranges where it becomes narrow. The land is higher in the South and slopes gently towards northwards to the Arctic Ocean. The lowlands are drained by three major rivers Ob, Yansei and Lena. And the Turan plain is the lowland area around the Aral Sea.

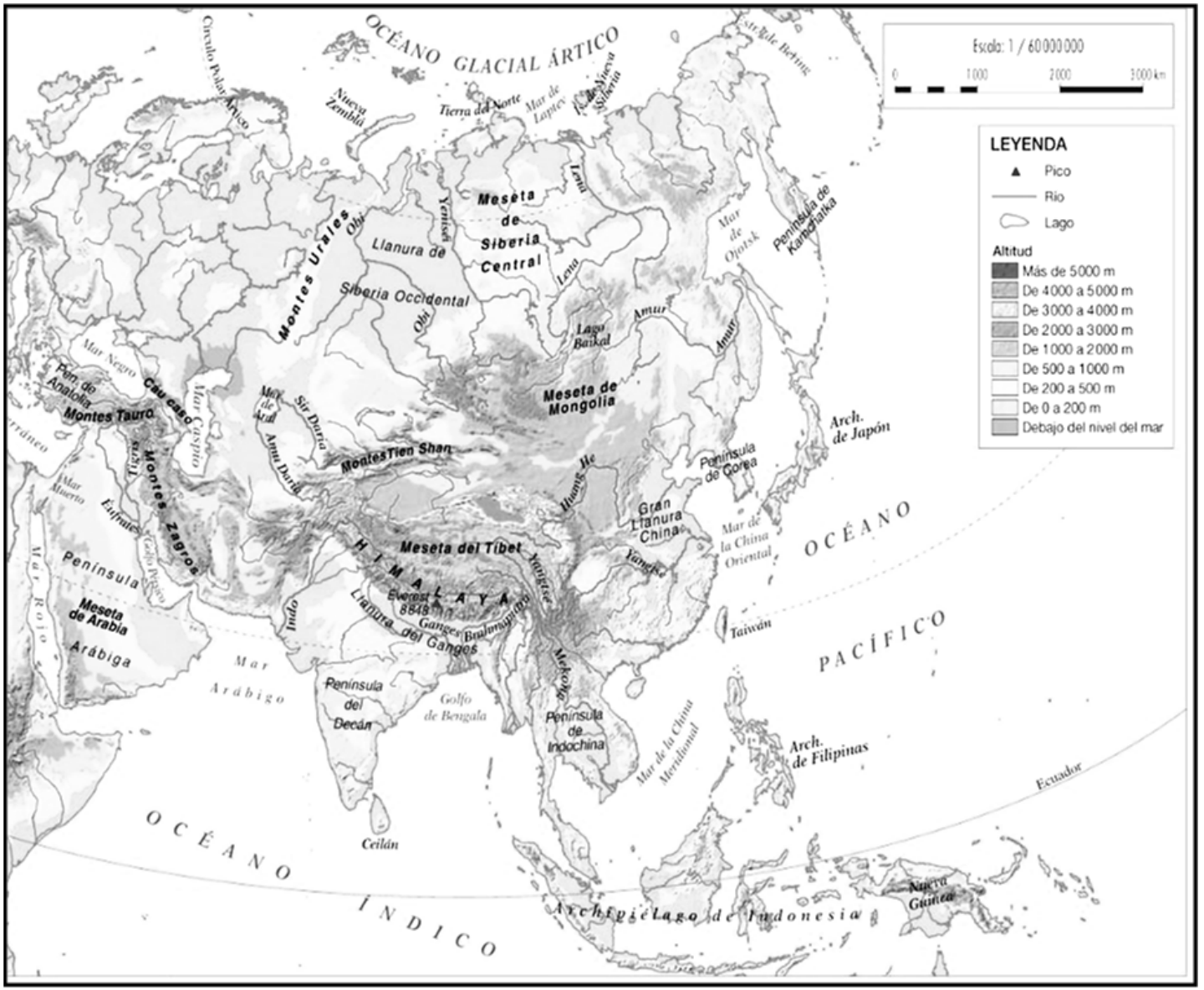
The Central mountain belt: The Central mountain belt comprises of fold mountains and plateaus which originate and stretch out from the Pamir knot located to the south of central Asia. To the west of Pamir knot are the Suleiman ranges extending the south west direction and the Hindukush ranges which run westwards through Tajikistan, Pakistan and Afghanistan to the border of Iran. There are two intermontane plateaus between Suleiman and Hindukush ranges before they merge at the Armenian knot, they are the plateau of Iran and the plateau of Anatolia in Turkey.

To the east of Pamir knot lie four mountain ranges Himalayan mountain ranges extending from North West of India to the east, through Nepal, Bhutan, Myanmar and Bangladesh to its south. Mount Everest is in these ranges in Nepal which is the highest peak on earth with 8,848 meters.

The second range is Karakoram which lies to the north of the Himalayas and extends upto the north of Pakistan through Jammu and Kashmir in India. Mount K2 in Kashmir in these ranges is the second highest mountain peak in the world at 8,611 meters.

The third range is Altai Mountains which extend towards northeastwards from Kunlun mountains in China and the fourth range is Tien Shan which is the northernmost range extending from the Pamir knot. Central mountains are the nerves of this vast region as they determine the climate of the region and also originate most of the rivers.

Intermontane plateaus and the southern plateaus: There are two intermontane plateaus between Himalayas and Kunlun lie the Tibet plateau which is also known as the roof of the world for being the highest plateau in the world and the second plateau is the Mongolian plateau which is in the central Asia between Altai mountains in the north and Tien Shan in the west. The great cold desert Gobi is in this plateau. There are three major plateaus in the southern Asia. The Arabian plateau lies to the north of Red sea and slopes towards the sea from north. It is dry desert



Asia physical (*Source:* www.nationalgeographic.com/maps)

region. Indian peninsular plateau is the second important plateau. It rises from the east of Arabian Sea and slopes towards east. Also gives rise to several south Indian rivers. And the third major southern plateau is The Plateau of Shan and Yunnan. The Shan lie in the state of Myanmar and The Yunnan lies in the state of China.

The great river valleys and inland water bodies: The Great River Valleys of Asia are the most important regions of Asia. They are made up of vast stretches of deep alluvial soils and are the most densely populated regions of the world. The valley of Euphrates and Tigris lie in Iraq and Iran and flow into the Persian Gulf. The valley of Indus lies in Pakistan and Punjab state of India drained by five tributaries of Indus Rabi, Jhelum, Beas, Sutlej and Chenab. The great valley of Ganga – Brahmaputra in the northern India are formed by rivers Ganga and Brahmaputra and are drained by hundreds of their tributaries. This valley extends from Indus valley in the west to Brahmaputra River in the east. The Great plains of China are formed by the three major rivers of China, Huang He, Shang Jiang and Sikiang.

The island groups: The island groups of Asia are the un-submerged parts of the Fold Mountains. The Malaya Archipelago is the largest island groups in the world between the Indian Ocean and the Pacific Ocean. Some of the important island groups among them are Andaman and Nicobar Islands, Maldives Islands, Lakshadweep islands, Sumatra, Java, Bali, Timor, Celebes, Philippines, Taiwan and New Guinea.

The Coastal plains: There are large coastal plains with fertile soils are found in Asia. Some of them are the Eastern coastal plains and Western coastal plains of India, Eastern coastal plains of China, Coastal plains of Bangladesh, Myanmar, Malaysia, Thailand, Indonesia, Vietnam and Cambodia.

Drainage

As learnt in the above section drainage system in Asia is highly influenced by the rivers originating from the Central Mountains especially The Himalayas as they supply water throughout the year by melting of snow in the glaciers. The river valleys of this have been influencing the human settlements for ages to this day. Dense population can be seen

in these river basins. Ganga – Brahmaputra valley is the worlds thickest alluvial belt and supports almost one – half of the population of India and Bangladesh.

There are also rivers in the southern peninsular which are seasonal and most of them flow from the Western Ghats and join Bay of Bengal cutting through the Eastern Ghats. Deltas of these rivers are the food bowels of the country. Indus river basin is the major food supplier for both Pakistan and India. With five major tributaries Rabi, Jhelum, Beas, Sutlej and Chenab Indus River supplies water for agriculture, industry and livelihood of the people of this region.

The third major river valley lies in China which is formed by three major rivers Huang He, Shang Jiang and Sikiang in central China. Fourth important river belt has been for ages is Euphrates and Tigris in Iran and Iraq though the rivers are dry today still support the region. There are rivers in the Northern lowlands and rivers Ob, Yansei and Lena are the major ones. In the region between Shan Plateau in Myanmar and Yunnan Plateau in China rivers Salween and Mekong flow. There are also landlocked seas in Asia such as Caspian Sea, Black Sea bordering with Europe and Aral Sea. Also one can find some of the largest lakes such as Poyang, Chilka, Baykal, Toba and Dal.

Climate

Asia is the biggest continent in the world. Due to its great size and extensive area which it covers from North to South and from East to West, a wide variety of climates exist. The climates of Asia can broadly be divided into following types:

The Equatorial Climate: This climate is found in areas located very close to the equator. The climate is hot and humid all the year round with excessive rainfall. There is no dry season and the rainfall is equally distributed in all months of the year. This type of climate is also called the climate of three eighties i.e., 80 F (27 C) temperature throughout the year, 80 in (2000 mm) or more total annual rainfall and 80% relative humidity throughout the year. This type of climate is found in Indonesia and Malaysia.

The Monsoon Climates: This type has a definite dry season and a definite wet season. The cooler season is dry while the hot season is very wet indeed. The best example is the monsoon of the Indian Sub-Continent. Mumbai for example records more than 2000mm (80 inches) of rain in a year but months from December to February are absolutely dry. During the summer season, warm and moist winds blow from the Indian Ocean towards India which brings heavy rain. In the cooler months the wind direction is from the land towards the sea so the winds are drier and bring little or no rain. China also experiences this type of climate but the temperatures are cooler than those of Indian monsoon so it is called China type of monsoon.

The Desert Climates: These types of Climates are found in Central Asia, Saudi Arabia, Iran, North-West India and South-East Pakistan. Although the deserts of Central Asia like Gobi and Taklimakan lie outside the tropics, the excessive heat they face in summer make them similar to the deserts of the lower latitudes. All deserts have the same characteristic features: very low rainfall and extremes of temperature. The rainfall is generally less than 10 inches (250 mm). The difference between the hottest and coldest month is great.

The Middle Latitude Grassland Climates: This type of climate is found in the west of Central Asia where Asia meets with Europe at Ural Mountains and on the fringes of Mongolia. The summers are warm, the winters cold with moderate rainfall falling mostly in the summer months. The summer temperature generally does not rise above 75 F (23 C) but winters are quite cold with two to three months below 32 F (0 C).

The Cold Temperate Climate: This type of climate is found at higher latitudes normally above 50 degrees North and have moderate to cool summers and very cold winters. Since these area are very far off from the nearby sea it has got extremes of temperature. The climate is so extreme that such type of extremes are not found anywhere else in the world. Such a climate is found all across the South Siberia and southern edges of it.

The Arctic or Tundra Climate: This type of climate occurs in the extreme north of the continent near the North Pole. The climate is extremely cold all the year round and no month is above 43 F (6 C) so no plantation or vegetation can survive. Only Eskimos who have adapted

themselves to this sort of harsh climate can survive in this climatic zone. They have special type of houses made of snow locally called igloos to keep them warm. Most of the central and northern Siberia has such a climate.

The Mediterranean Climate: This type of climate with hot dry summers and cool wet winters occur in Turkey, Syria and along the coastal areas of Israel and Lebanon. Istanbul in Turkey is the best example. The hottest month records 74 F (23 C), the coolest 43 (6 C). Total annual rainfall is 29 in (736 mm) of which 20 inches occurs from November to March and the summers are very dry indeed.

Vegetation

Asia is divided into five major vegetation regions based on the richness and types of each region's flora: tropical rain forests in Southeast Asia, temperate mixed forests in East Asia, tropical rain dry forests in South Asia, desert and steppe in Central and West Asia, and taiga and tundra in North Asia.

Tropical Rain Forests: The Asian regions richest in flora, tropical rain forests, are found in the island nations of Southeast Asia, which extend from Kinabalu in the north to Java in the south and from New Guinea in the east to Sumatra in the west. In this vast archipelago, the longest island chain between Asia and Australia, are thirty-five thousand to forty thousand vascular plant species. Tropical rain forests grow there year-round because of the region's warm temperatures and plentiful rainfall.

Tropical Mixed Forests: Second in floral richness, East Asia's temperate mixed forests contain thirty thousand to thirty-five thousand plant species. This region ranges from Japan in the east to the Himalayan nations (Bhutan, Sikkim, and Nepal) in the west, and from Russia's Amur River Valley in the north to China's Hainan Island in the south. From south to north and from the east coasts to lower elevations in mountainous areas in the west, the vegetation changes from evergreen to deciduous broad-leafed forests, with dense shrubs, bamboo, and herbs in different layers beneath the forest canopy.

Tropical Rain/ Dry Mixed Forests: The third-richest region, tropical rain/dry forests, is found in South Asia, which reaches from the Philippines in the east to Pakistan in the west, and from the Himalayas in the north to Thailand in the south. Twenty five thousand to thirty thousand

species of plants grow there. This region has both tropical rainforests and tropical seasonal dry forests. The tropical rain forest is mainly found in the region's lowlands and the seasonal dry forests in the highlands or mountainous areas. More often, these two types of forests are combined.

Desert and Steppe: The desert and steppe region in Central and West Asia has twenty to twenty-five thousand species of plants. This region stretches from north and northwest China and Mongolia in the east to Turkey in the west and from Kazakhstan in the north to the Arabian Peninsula in the south. This region's vegetation changes from semi desert or desert to the temperate grassland called the steppe.

Taiga and Tundra: This region is primarily Siberia, the eastern part of Russia, reaching from the Ural Mountains in the west to the Bering Strait in the east and from the Arctic Circle in the north to Mongolia and Kazakhstan in the south. The predominant vegetation in North Asia is coniferous (boreal) forest. This region, called the taiga, contains mainly pine, spruce, fir, larch. Farther north is the cooler Arctic area called the tundra. Plants that grow in tundra are resistant to the cold climate. Tundra has peas, grasses, and reeds.

Conclusion

Asia is the fastest growing continent in the world in terms of economy with countries like China, India and Japan being its front runners. Worlds oldest and the most scientific civilizations have flourished in Asia in the Indus Valley civilization and the Chinese civilization on Huang Ho. The geography is always special as everything that is a geographical feature finds its place in Asia from the Himalayan Mountains to the cold deserts of Gobi and Ladakh. There are longest rivers like Brahmaputra and the Ganges and arid regions of the Gulf with rich oil resources. World's half of the population lives here. With the surge in the economy and base of rich historical heritage and support of the natural resources Asia has now become the hotspot for not only businesses but also tourism activities.

The Southeast Asia countries have shown an entirely different model of tourism to the world and are some of the leading destinations of the world. Asia is the abode of diversity something that every tourist seeks for.

I.III Let Us Sum Up The Unit

The continents of the globe are individually unique in themselves as larger landmasses. The unique of the continents, however, varies as we further study about particular regions of continents. In this unit, we have leant about all the seven continents individually with regard to the continental profiles, their physiographic features, drainage systems, climatic zones and the natural vegetation.

While continents being large regions variations as discussed in the unit are common to find. Tourists seek for unique propositions which are offered by innumerable places across the globe. Most of the tourist attractions are the creation of geographical phenomena over millions of years on this earth. The human symbiosis with it has strengthened the tourism potential of the places. This unit has brought out this symbiosis of the geographic diversity of the continents and the tourism activities.

DO YOU KNOW ABOUT ?

The White Continent

The White Continent otherwise called as Antarctica officially has no population but government stations which shelter several scientists have been set up. It is a wonder continent where human habitation is close to impossible millions of penguins and seals happily live here. Close to 98% of the continent is completely solid ice was considered as a continent in 1840. It has an of 13.2 million km^2 ten times the size India.

It directly comes under the control of United Nations though many parts of the continent are being claimed by several countries. Of the many scientific research centres Maithri and Bharthi have been set up by India. Gangothri was the first of our station which was buried under ice in 1990-91 and hence abandoned. Today seasonal expeditions to Antarctica have become much common which take hundreds of tourists to visit this wonder continent.

CASELET 1. Tourism in Niagara

Niagara Region has shown for centuries the magnetic pull on tourists from every corner of the world. The attractions are appealing with its spectacular natural setting the Great Lakes and bordering the Niagara River. Niagara Falls may be the area's most famous natural attraction but it is just one of Niagara's many wonders. Niagara Falls is the collective name for the three waterfalls spread in the international border between the U.S. state of New York (the American Falls and the Bridal Veil Falls) and the Canadian province of Ontario (the Horseshoe Falls) which form the southern end of the Niagara Gorge.

Niagara is comprised of 12 distinct and vibrant communities and offers cultural vibrancy apart from the visual treat of the falls. Four international bridges, Peace Bridge, Rainbow Bridge, Whirlpool Bridge and Queenston-Lewiston Bridge, Niagara connect the region are also appealing. The oldest and best known tourist attraction at Niagara Falls is the *Maid of the Mist* boat cruise, named for an ancient Ongiara Indian mythical character, which has carried passengers into the rapids immediately below the falls since 1846. Cruise boats operate from boat docks on both sides of the falls. With its incredible diversity and proximity, Niagara, Canada is a true original and a world class destination that draws people back time and time again. Higher visitor traffic occurs in the summertime, when Niagara Falls are both a daytime and evening attraction. The number of visitors has been more than fifty millions during 2010. Recent upscale in the high rise buildings in the region has caused serious concerns about its sustainability in the long run.

Discussion Points

a. Analyse the reasons for the success of the Niagara tourist region.
b. Suggest sustainable measures to help tourism development in the Niagara.
c. List out the attractions other than the Niagara Falls and discuss the relative effective on the tourism in this region.
d. Design a master-plan to involve the communities for an integrated approach in developing the region.

I.IV Check Your Progress

a. **Short Answer Type Questions**

1. Define Geography.
2. Define Physiography with example.
3. List out major physiographic divisions of Asia
4. What is drainage? Write a note on drainage system of Europe.
5. Compare the climate of Europe with North America.
6. List out the physiographic divisions of Australia.
7. Name the major river basins of Asia.
8. Write a brief note on islands of south Pacific.
9. Name some of the important rivers of Europe.
10. What is The Great Barrier Reef famous for?

b. **Long Answer Type Questions**

1. Write a detail note on the climate and vegetation of South America.
2. Drainage system in North America has been a major influencing factor in its agricultural and industrial development. Analyse.
3. Discuss in detail the drainage basins of North America.
4. Explain the physiography of Asia and its importance for tourism.
5. Write in detail about the vegetation of Africa focusing on its unique features.
6. Compare and contrast the climate and vegetation of North and South America.
7. Analyse the relationship between physiography, climate and vegetation with examples from any of the continents.
8. Geography contributes to the major part of tourism resources. Elucidate your answer with appropriate examples.

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UNIT - II Geography of India

Unit Structure

Learning Objectives

- Have an insight to Indian geography,
- Explain Physiographic of India
- Elaborate about distribution of rivers of India
- Discuss mountains of India and their importance
- Know about plateaus and plains of India
- Explain climate & vegetation of India,

Introduction Geography of India

India is also referred as Bharat. Hindustan is a nation of multi-cultural representation. For centuries and since the first civilization of human settlements in the Indus Valley, this great land has been assimilating every migrated culture into it without diluting its originality. The country in its present shape is the result of political movement for freedom and then assuming itself as a sovereign, socialist, secular and democratic republic in the post independence. Its political boundary extends from the Himalaya mountains in the north to India ocean in the south and Kathiawar in the west to the Purvanchal Himalayas in the east. Given its vastness and dominance in South Asia study of its geography weighs a lot of importance. The geographic location, size and conditions play critical role in its success though in recent times as its human capital has steered the country to high reaches across the globe. This chapter deals with the physical geography of India in detail wherein we will study the physiography, climate, vegetation to understand how it has helped in creating platform for the development of tourism in particular and a holistic development of the country in general.

Lesson 2.1 - Location, Size and Neighbours

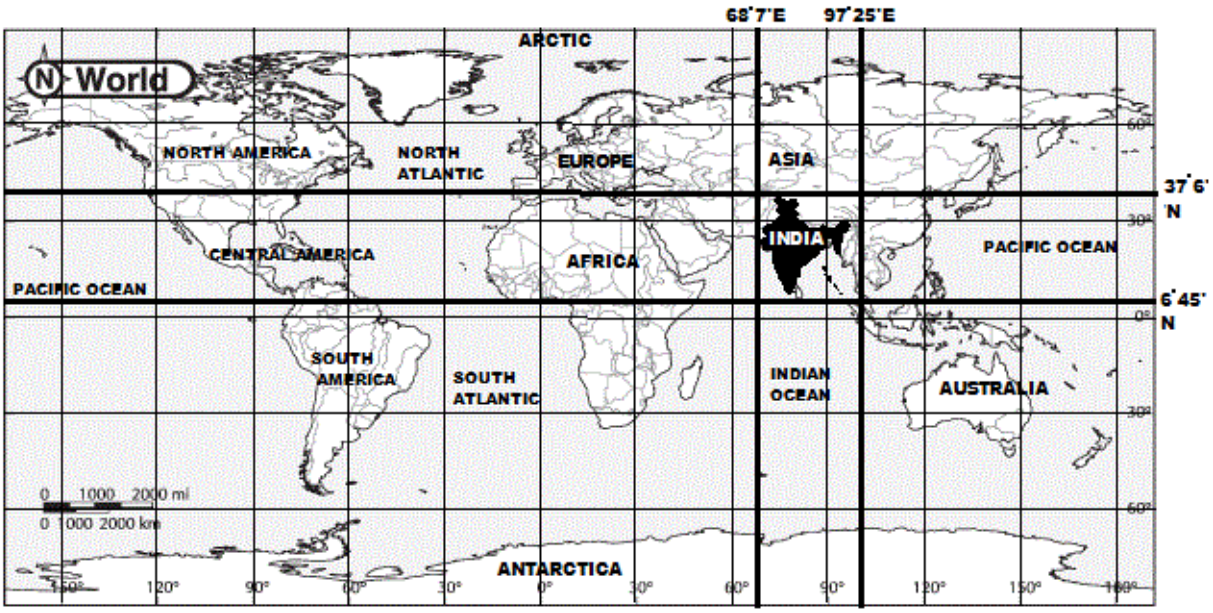
Introduction

The location is strategic as it connects India with both western and eastern countries enhancing its waterways and intercontinental businesses. Its location also determines the climate and vegetation of the country. The location of the country has given it several advantages to be the decisive role player in the geo-political issues of South Asia. The vast size of the country is measures upto a small continent hence it also referred as the sub-continent.

Location and Size

India is strategically located, the India ocean to its south and the Himalayan Mountain system to its North. The entire country is located in the Northern hemisphere. The longitudinal and latitudinal extension approximately is around 30^0 all ends which speaks about its vastness. The mainland extends between latitudes 8^0 4'N and 37^0 N and longitudes 68^0 7'E and 97^0 25'E. It should not be mistaken that India extends from 8^0 4'N in its southern end. The southernmost latitude is 6^0 45'N in Nicobar Islands in the Bay of Bengal. The longitudinal extension shows that India lies in the eastern hemisphere. The Tropic of Cancer which is 23^0 30'N passes through middle of the country dividing it into two equal parts. Two major island groups lying to the southwest include Lakshadweep Islands in the Arabian Sea and Andaman and Nicobar Islands in the Bay of Bengal to the Southeast. The peninsula of India merges into the waters of Indian Ocean to its south.

Size is another imposing feature of India. It is a vast country stretching from the north of the equator in the Indian ocean to the Hindukush in the north and the Rann of Kutch in the west to the Arunachal in the east. Its size with area of 3.287 million km^2 is the seventh largest country in the world only after Russia (17.07 Km^2), Canada (99.76 km), China (97.06 Km^2), the U.S.A. (90.72 Km^2), Brazil (85.11 Km^2) and



India Location and Size (*Source:* www.mapsofindia.com, edited by the author)

Australia (76.82 Km^2) accounting for 2.4% of the total surface area of the earth. As discussed earlier its physical extension is spread over thousands of kilometers from north to and west to east. The country measures 3,214 km (1,997 mi) from north to south and 2,933 km (1,822 mi) from east to west. It has a land frontier of 15,200 km (9,445 mi) and a coastline of 7,517 km (4,671 mi). The international boundary of India spreads along 15,200 km and at the same time it has a vast and smooth coast line of 7,516 km of the mainland and the island groups of Andaman and Nicobar Island and Lakshadweep Islands.

Such a long coast line stretching from Sir Creek in the West to Sunderbans in east has enabled us to develop several of the world-class sea ports. The longitudinal distance of about 30 degrees from west to east in the eastern hemisphere stretching between Gujarat and Arunachal Pradesh brings out a lot of variations in time. There is almost two hour difference between these two east –west extreme points of India so as to say, while people in Arunachal Pradesh already awake one may find people in Gujarat still sleeping early in the morning. To avoid such a difference India has taken 82.5^0 longitude as the India Standard Time meridian.

Our Neighbours and the Global Contacts

As it has already been discussed earlier, location of India is the centre of the Indian Ocean and it has enhanced its strategic proximity to

east and west of the globe. Peninsular extension into the Indian Ocean has enabled India to develop marine routes to the countries in Europe, Africa and Middle Asia in the west and also in the east with the east Asian and south east Asian countries. These locational advantages for ages in the past to this day have prompted us to strengthen our maritime routes to countries in the other continents. One can witness the influence of a strong and rich cultural saga of India in the south east Asia more particularly.

India and its Neighbours

(*Source:* www.flatworldknowledge.com)

India as the colony of the then British rulers had a vast external boundary though it has shrunk to the present condition during the post independence years. The present political boundaries within are divided into 28 states and 7 union territories of which two of our union territories are completely in the waters, Lakshadweep in the Arabian Sea and Andaman and Nicobar islands in the Bay of Bengal. Our immediate neighbours with whom India shares land boundaries are, Afghanistan and Pakistan in the north west, Tibet(claimed by China), Nepal, Bhutan and China in the north and Bangladesh and Myanmar in the east. Our

immediate neighbours to the south across the sea are Sri Lanka and a little further south is Maldives. The island country of Sri Lanka is separated from the Indian peninsula by Gulf of Mannar and Pak Strait and Maldives is to the south of the union territory Lakshadweep islands. There is a deep-rooted socio-cultural linkage between our immediate neighbouring countries and India.

Fact File of India

Capital		New Delhi 28°36.8′N 77°12.5′E	**Total coast:** 7,517 km (4,671 mi) **Major cities:** Mumbai,Delhi,Chennai, Kolkata, Bengaluru, Hyderabad, Ahmedabad, Pune **Offical Languages:** Kannada, Telugu, Tamil, Malayalam, Konkani, Marathi, Oriya, Bengali, Assamese, Bodo, Punjabi, Gujarati, Urdu, Dogri, Hindi, Kashmiri, Maithili, Manipuri, Nepali, Sanskrit, Santhali, Sindhi **Religions:** Hinduism, Budhism, Jainism, Sikhism, Zorastrian, Islam, Christianity
Largest city		Mumbai	
Official languages		Hindi English	
Recognised regional languages		22 languages as per the Eighth Schedule	
Demonym		Indian	
Government		Federal parliamentary constitutional republic	
Legislature		Parliament of India	
Area	Total	3,287,263 km^2 (7th)	
Population	2011	1,210,193,422 (2nd)	
	Density	373.9/km^2 (31st)	
GDP	Total	$4.711 trillion (3rd)	
	Per cap.	$3,851 (129th)	
Currency		Indian rupee (₹) (INR)	
Time zone		IST (UTC+05:30)	

Fact file of India

(*Source:* www.wikipedia.org and www.mapsofindia.com)

Administrative Divisions

India has been divided into 28 states and 7 union territories. States were linguistically carved out. Where one particular language has an influence over a large area, for administrative convenience and such states have been further divided in the later stage keeping in mind the regional identities. States are governed by the state legislature with Governor as the head of the state and Chief Minister and the state cabinet takes care

of the governance with other bodies of the democratic setup. Whereas union territories are under the direct control of the centre with lieutenant governor as the head of the union territory.

Following is the list of states and union territories in India:

State		Capital	UT with Capital	
1	**Andra Pradesh**	Hyderabad	1	**Andaman and**
2	**Arunachal Pradesh**	Itanager		**Nicobar Islands**
3	**Assam**	Dispur	2	Port Blair
4	**Bihar**	Patna		**Chandigarh**
5	**Chhattisgarh**	Raipur	3	Chandigarh
6	**Goa**	Panaji		**Dadra and**
7	**Gujarat**	Gandhinagar	4	**Nagar Haveli**
8	**Haryana**	Chandigarh		Silvassa
9	**Himachal Pradesh**	Shimla	5	**Daman and Diu**
10	**Mizoram**	Aizawl		Daman
11	**Jammu & Kashmir**	Srinagar/Jammu	6	**Lakshadweep**
12	**Jharkhand**	Ranchi		Kavarathi
13	**Karnataka**	Bangalore	7	**NCT of Delhi**
14	**Kerala**	Trivandrum		Delhi
15	**Madhya Pradesh**	Bhopal		**Puducherry**
16	**Maharashtra**	Mumbai		Puducherry
17	**Manipur**	Imphal		
18	**Meghalaya**	Shillong		
19	**Nagaland**	Kohima		
20	**Orissa**	Bhubaneswar		
21	**Punjab**	Chandigarh		
22	**Rajasthan**	Jaipur		
23	**Sikkim**	Gangtok		
24	**Tamil Nadu**	Chennai		
25	**Tripura**	Agartala		
26	**Uttar Pradesh**	Lucknow		
27	**Uttaranchal**	Dehra Dun		
28	**West Bengal**	Kolkata		

Administrative Divisions of India

(*Source:* www.gov.nic.in)

Conclusion

It is always said that India is fortunate to be in the Indian Ocean. It's mainly because of its great advantage of its location which becomes very strategic to the very existence of India in this modern world. The global businesses merge here from east and west making it the possible hub for marine trade in the future. Its location also helps the country in benefitting out of the long monsoon season otherwise which would be dry. The size as it has already been mentioned above makes it a sub-continent and one of largest countries of the world. The neighbours of India except for China are relatively weak in terms of economies and hence the significance of India increases in leading the region like a big brother to its prosperity.

Lesson 2.2 - Physiography of India

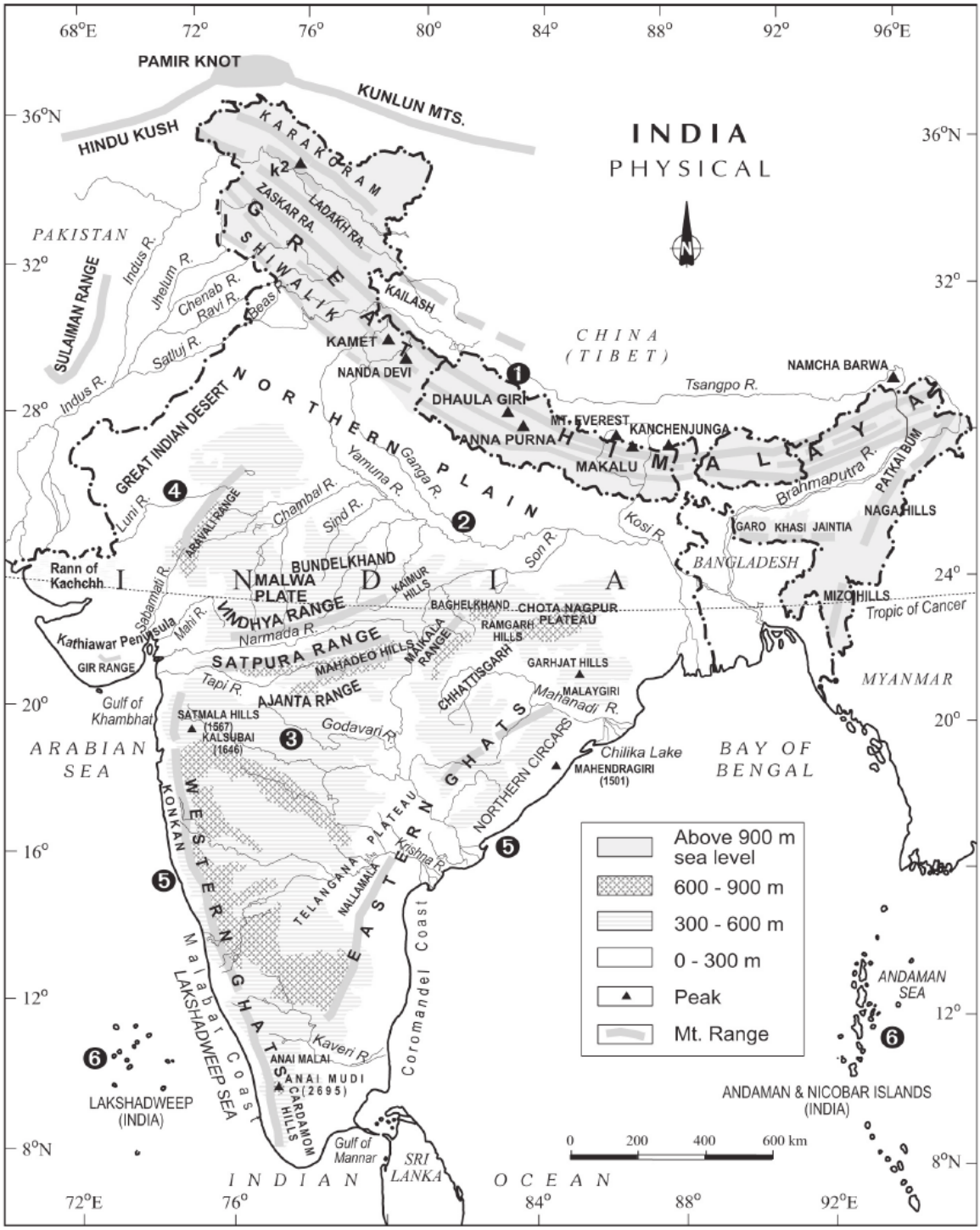
Introduction

Physiography of a region is the result of the interplay of many geological processes and structural developments over millions of years. Indian plate once was part of a larger plate to the south of the equator and later broke away from the African plate to move northward and parted away the Australian plate in the process. This northward movement of the plate is still on and has been one of the major factors in influencing the physical features of India today. The tectonic movement gave rise to young fold mountains in the north like continuous parallel chains originating from the Pamir not. As the rivers started to flow down towards the south which brought with them silt and sand filled in large lowland to form northern plains. So are many of the physical features formed over this landmass such as plateaus, plains, deltas, rift valleys etc.

One can witness the stable landmass in south referred to as the Deccan plateau which slopes towards east and walled by Western and Eastern Ghats along the west and east coasts of peninsular India. East flowing rivers have created large deltas and fertile flood plains supporting agriculture and the industries for years. Vast coastal plains are also result of the east flowing rivers which cut across the Eastern Ghats. The movement of the Indian plate has also resulted in the creation of two major island groups in the Arabian and the Bay of Bengal each. The diversity of such a scale is the uniqueness of Indian subcontinent of which India is the major decisive physical entity.

Physiographic Divisions of India

Having diverse physical patterns and variations India can be broadly classified into the following physiographic divisions: 1. The Northern and Northeastern Mountains 2. The Northern Plains 3. The Peninsular Plateau 4. The Great Indian Desert (The Thar) 5. The Coastal Plains 6. The Islands



India Physical Feature

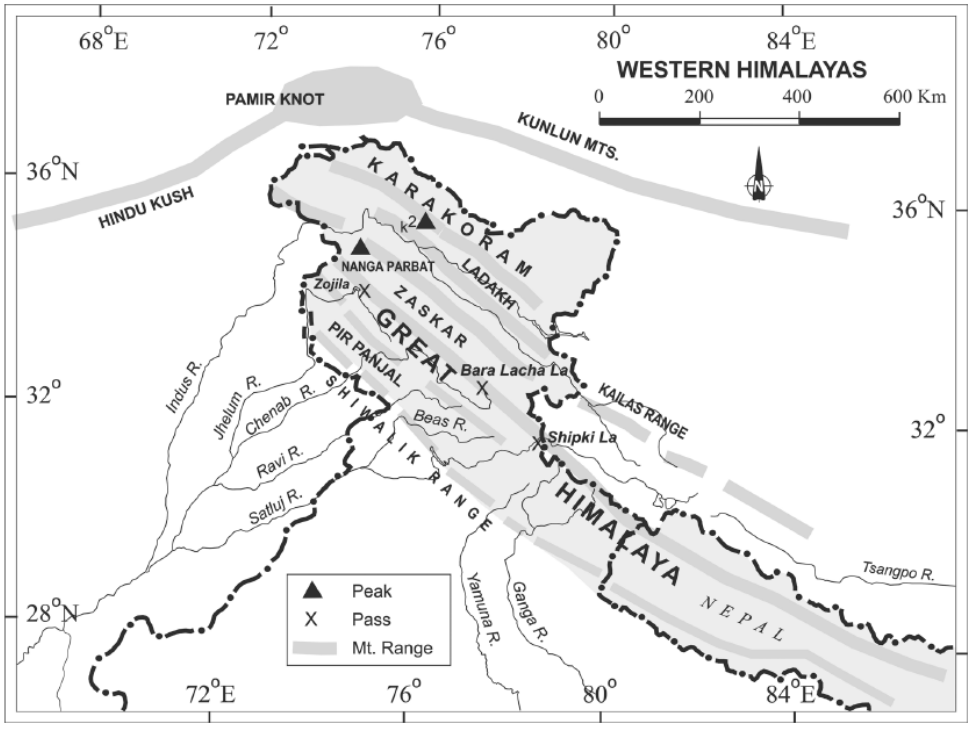
(*Source:* NCERT India, Physical Environment class XI)

The North and the Northeastern Mountains

The North and the Northeastern Mountains are the mountain chains of The Himalayas and The Purvanchal Mountains or the group of Northeastern hills put together. There are a series of parallel mountain ranges within the broader group of The Himalayan Mountains. These mountain ranges include a) The Greater Himalayan Range b) The Middle Himalayas and c) The Shiwalik Ranges. The Greater Himalayan Range includes the Great Himalayas and the Trans- Himalayan Range. The stretch of these ranges is from northwest to the southeast direction in the northwestern part of India. While these ranges move from southwest to northwest direction in Arunachal Pradesh, they are lying in the direction of east west in Sikkim and north West Bengal states and they are spread to the northsouth direction in the region comprising the states of Nagaland, Manipur and Mizoram.

The Himalayan Ranges are spread across thousands of kilometers. The Great Himalayan Ranges, for instance, stretch for about 2,500 kilometers from east to west. From north to south the width of the Himalayas varies between 160 to 400 kilometers. Though there is a larger similarity in the features of the Himalayas, sharp regional variations can be found. To understand in an easier way the Himalayas can be divided on the basis of relief, their alignment and other features. Followings are the sub-divisions of the Himalayas: a. The Northwestern Himalayas b. The Himachal and Uttaranchal Himalayas c. Darjeeling and Sikkim Himalayas d. Arunachal Himalayas e. Purvanchal or Eastern Himalayas

a. **The Northwestern Himalayas:** The Northwestern Himalayas, also referred to as Kashmir Himalayas, comprise a number of ranges in the northwestern part of India. These series of ranges include the Karakoram, Ladakha, Zanskar and Pir Panjal ranges. Between the Karakoram and the Greater Himalayas lies a cold desert which is the northeast of Kashmir Himalayas. The renowned Paradise on the Earth' or the valley of Kashmir lies between the Great Himalayas and the Pir Panjal ranges. Famous fresh water lakes such as Dal lake and Wular lake also lie in the same region. Kashmir Himalayas also house the vital glaciers of Siachen and Baltoro. The important passes in this belt are Zoji La pass on the Great Himalayas, Photu La on the Zaskar range, Khardung La on the Ladhak range. Kashmir



The Western Himalayas

(*Source:* NCERT India, Physical Environment class XI)

Rightly called as 'Jannat' (paradise), the region covered by the Kashmir Himalayas or the Northwestern Himalayas is the most sought-after place in the world for its beauty, adventure and romance with the nature amongst the tourists globally apart from millions of pilgrims visiting the shrines of Mata Vaishno Devi and Amaranth temples.

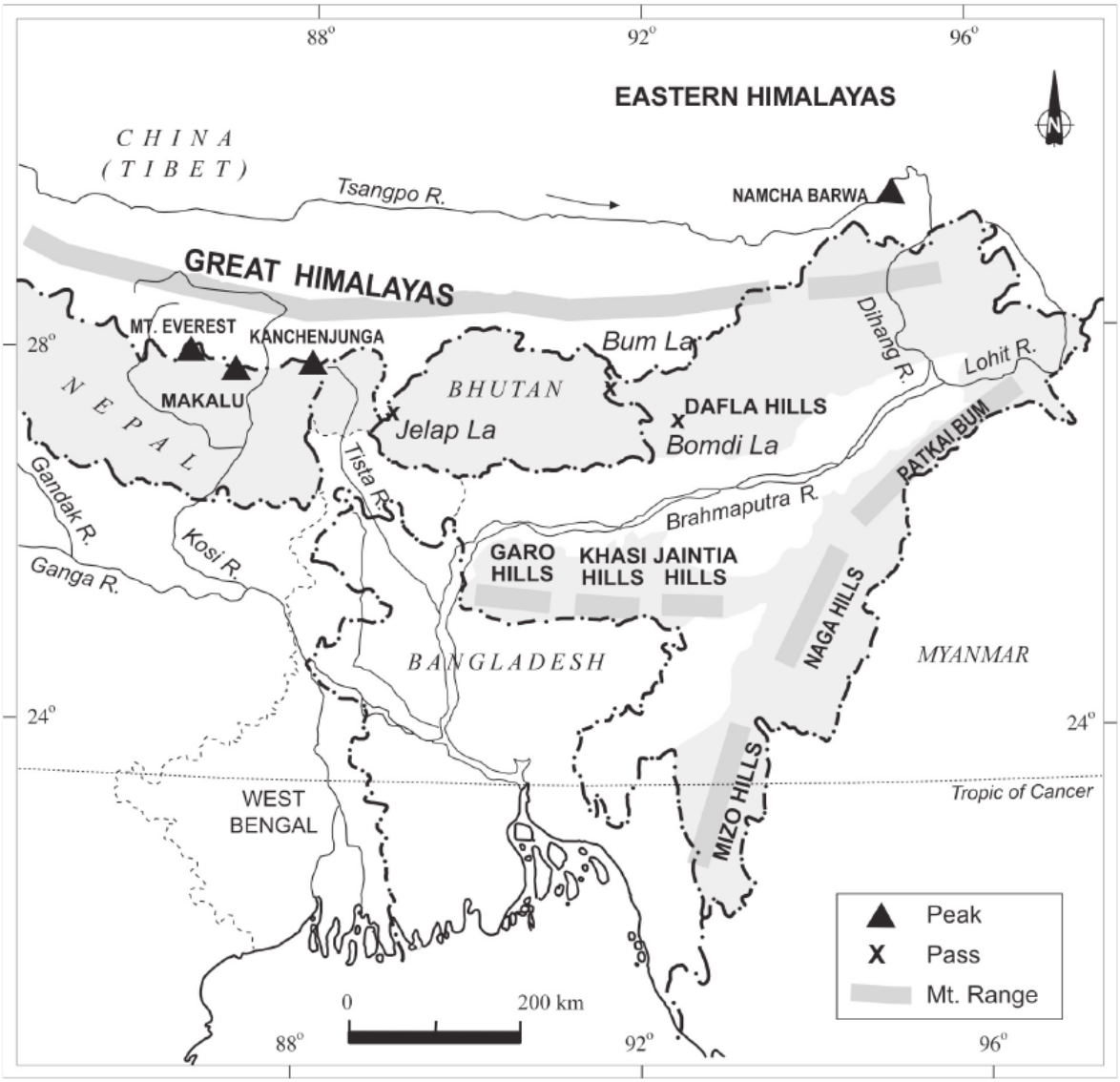
b. The Himachal and Uttaranchal Himalayas: Stretching between the rivers the Ravi in the west and the Kali, the tributary of Ghagra in the east lies The Himachal and Uttaranchal Himalayas. This region is drained by two important river systems of the Ganga with its tributaries Ghagra and Yamuna and the Indus river system with its tributaries such as the Ravi, the Beas and the Sutlej. It is clearly visible here in this region that all the three ranges of the Himalayas can be found. Some of the India's best hill stations are located in the Lesser Himalayas of this region such as Shimla, Mussoorie, Dharamshala, Kaosani, Raniket and Almora. These were especially developed by the British during the colonial rule for their summer retreats.

Altitudes of the Lesser Himalayas ranging between 1,000 and 2,000 meters are best suitable for hill stations. The Ladakha cold desert extends into the northernmost parts of the Himachal Himalayas in the Spiti division. 'Duns' are the special features of this region which are valleys between the ranges. Some of the famous duns are Dehra Dun, Chandigarh-Kalka Dun, Nalagarh Dun, Kota Dun and Harike Dun. Dehra Dun among all of these is the largest. This region boasts of some of the world famous tourist attractions such as 'Valley of Flowers', pilgrimage circuit of chardham including Bhadrinath, Kedarnath, Yamunothri, Gangothri and Hemakund Sahib. The famous five 'prayags' mentioned in the mythological stories are also found in this region.

c. **Darjeeling and Sikkim Himalayas:** Deep valleys, High mountain peaks and fast flowing rivers are the unique features of the Darjeeling and Sikkim Himalayas which lie between Himalayas in Nepal to west and the Himalayas in Bhutan to the east. Though the region is a small section, it houses the second highest mountain peak in the world- The Kanchenjunga. Tea was introduced to .this region by the British as the region is the best suitable place for tea plantation with moderate slopes, organic soils, average rainfall and salubrious climate. Orchids, tea plantation, other rich flora and fauna and scenic beauty have made this region one of the famous places to visit. Adding to it the Darjeeling Toy train trail is like icing on the cake for any tourist visiting this region.

d. **Arunachal Himalayas:** Arunachal Himalayas are spread from southwest to northeast. These extend between the Bhutan Himalayas in the west and the Diphu pass to the extreme east. Fast flowing rivers in this region from north to south cut through the high mountain ranges. There are two important mountain peaks i.e., Namcha Barwa which is dissected by the Brahmaputra river and the second one is Kangtu peak. The rivers flowing in this region are perennial rivers with high potential of hydroelectric power generation. Some of such rivers including Brahmaputra are the Subansiri, the Kameng, the Dihang, the Dibang and the Lohit. 'Jhum' cultivation also known as Shifting or Slash and burn cultivation is the predominant in this region practiced by the majority of the tribes living here. Arunachal Himalayas are equally famous for their vibrant tribal culture. Some of the major tribes are Nishi, Apatani, Monpa, Daffla, Abor, Mishmi and the Nagas apart from many more.

e. **Purvanchal or Eastern Himalayas:** These mountain Himalayan ranges as they are aligned in the direction of north to south in the eastern part of the country are referred to as the Purvanchal Himalayas.



The Western Himalayas

(*Source:* NCERT India, Physical Environment class XI)

These are a group of high hills known as Patkai Bum, Naga hills, the Manipur hills in the north and as Mizo in the south. Loktak lake in Manipur. The Barak river in Manipur and Mizoram and the soft unconsolidated deposits of Mizoram (The Molassis Basin) are other major features of the region.

The Himalayas in their present form running in three parallel chains have not only influenced our country geographically but also politically. These ranges for centuries have protected the country from foreign invasion. They have redefined our living habits and style and determine the climate of the country at large. Hence they mean a lot to the Indians than being simply mountains.

The Northern Plains

Northern Plains in the northern parts of the country are home to almost fifty percent of the population of India. It becomes very important to question what could be the reason behind such a concentrated population. The answer is simple though. Northern plains are some of the world's most fertile plains. They support the livelihood of more than six hundred million people of the country. These plains since the formation of young fold mountains in the north millions of years ago are being deposited with the alluvial soils. These plains are formed by the alluvial deposits brought in by the perennial Himalayan rivers such as the Indus, the Ganga, the Yamuna, the Brahmaputra and many more of them. These plains are extensively spread from east to west approximately for about 3,200 kilometers in length and on an average stretch from north to south having a width varying between 150 and 300 kilometers. The depth of the alluvium deposits may range between 1,000 and 2,000 meters. The northern plains can be further divided into three major zones i.e., a) The Bhabar b) The Tarai and c) The Alluvial plains

The Northern Plains (*Source:* NCERT India, Physical Environment class XI)

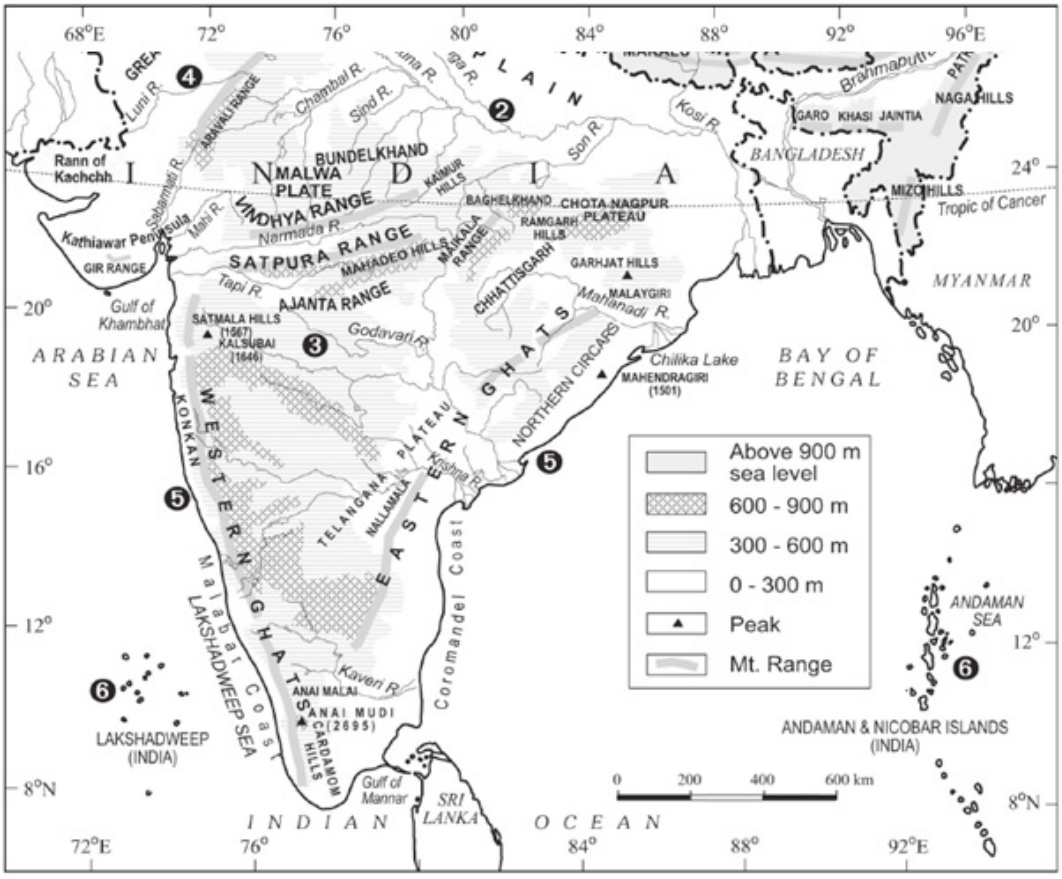
Bhabar is a narrow region in the foothills of Shiwaliks formed out of continuous deposit of rocks and boulders at the foothills. This narrow stretch for about 8-10 km allows the streams to flow beneath it. Sometime it looks as though rivers have disappeared but the flow is on under the deposits of these heavy materials brought down to the foothills from the higher altitudes. Tarai region lies to the south of the Bhabar zone where the river reappears from the Bhabar. This zone has an approximate width of 10-20 km. The unevenly distributed channels emerging out of the Bhabar have created a swampy and marshy zone which has rich flora and fauna. To the south of Tarai zone lies the third zone i.e., alluvial plains. These alluvial plains are of two types. Old and new alluvial deposits. Old alluvial deposits are called as Bhangar and new alluvial deposits are called as Khadar. The Bhangar soils are relatively more fertile than the Kahdar. Alluvial plains exhibit a variety of landforms formed due to the slow flow of the rivers and continuous deposition of alluvium. Meanders, ox-bow lakes, sand bars and riverine islands are some of the landforms. For example, the Brahmaputra river is known for its sand bars and riverine islands and the Ganga is known for its meanders, ox-bow lakes and sand bars as well.

The deltas formed at the mouth the rivers flowing through these plains have formed some of the world's largest deltas. Sundarban Delta is the classic example of this which has been formed out of the mouths of both the rivers the Ganga and the Brahmaputra. It is the extreme end of the northern plains in the east and one of the most fertile parts in the region. The 'doab' (the fertile region between two rivers) between the Indus and the Ganga river system in Punjab and Haryana is also a very fertile part of the plains. The fertile alluvial soil spread across the thousands of kilometers in the northern India continues to this day to attract human habitation primarily because of the reasons elaborately discussed above.

The Peninsular Plateau

The Peninsular plateau is one of the most stable landmasses in India without much tectonic influence except for a couple of rare earthquakes in the past. This is almost like a triangular shape rising above from the northern plains with varying elevations between 150-900 meters. Though this triangular landmass is irregular and there is commonness so far as the average elevation and topography is concerned. The Peninsular plateau is extended upto the northern end of the Aravallis or the Delhi ridge in the

northwest, Gir range in Gujarat in the west, Rajamahal hills in the east and Cardamom hills in the south. An extension of the plateau in the form of Shillong and Karbi-Anglong plateau can be seen in the northeast. This landmass is made up of several plateaus such as the Coimbatore plateau, the Karnataka plateau, the Palamu plateau, the Hazaribag plateau and the Malwa plateau to name some of the major ones of them. This landmass slopes gently from west to east enabling most of the rivers originating in the west and central parts of India flow towards east and join the Bay of Bengal. Block mountains, hummocky hills, rift valleys, bare rocky mountains, spurs, quartzite dykes and tors are some of the commonly found physical features of the Peninsular plateau. Red soils are spread almost across the central plateau; black soils are abundantly spread in the west and Deccan parts, whereas lateritic soils are found along the Ghats. Rift valleys, gorges in between Vindhya and Satpura, the ravines and the badlands of the Chambal, Bhind and Morena are some of the other unique relief features of the plateau. These relief variations within the peninsular enable us to divide it into three broad groups as mentioned below: a) The Deccan Plateau b) The Central Highlands c) The Northeastern Plateau



The Peninsular Plateau

(*Source:* NCERT India, Physical Environment class XI)

The Deccan Plateau: Deccan plateau is a typical elevated landmass extending from the south of the Satpura Mountains, Maikal Range and Mahadeo hills in the north to the south sandwiched between the two of the prominent southern mountains Western and Eastern Ghats. Western and Eastern Ghats are important and integral parts of the plateau in both the ends of west and east of the plateau. Western Ghats are continuous mountains along the west coast starting from the south of Gujarat to the far end of Kerala. These Ghats are known by different names locally as Sahyadri in Maharashtra and Karnataka, Nilgiris in Tamil Nadu and Cardomom and Anaimalai in Kerala. These are higher in altitude compared to the Eastern Ghats. The elevation increases when someone moves from the north to south direction. With an average height between 1,000-1,500 these Ghats are abode to many of the famous peaks. Anaimudi with an elevation of 2,695 meters is the highest peak in the Western Ghats and the whole of peninsular plateau followed by Doddabetta with an elevation of 2,637 meters in the Nilgiri hills in Karnataka. Deccan plateau has a decreasing gradient from west to east and this slope necessitates most of the rivers which originate in the Western Ghats flow towards east cutting through the Eastern Ghats before merging into the waters of the Bay of Bengal. Eastern Ghats unlike Western Ghats are a not continuous. They are disconnected in many places and are drained by the rivers flowing from the Western Ghats. The gaps in the Ghats here and the wider coast have enabled rivers to develop fertile river deltas which are supporting millions for their agriculture. Some of the important mountain ranges, peaks and hill stations in these Ghats are Maehndragiri hills, Palakonda range, Nallamala hills, Horsely hills etc. Nilgiri hills are the outcome of merging of both Western and Eastern Ghats to the south of Karnataka. Coimbattore plateau and Karnataka plateau are the two major differentiated landmasses within the Deccan plateau with which have relatively lesser elevation and they are drained by major rivers such as Krishna, Tungabhadra and Kaveri.

The Central Highlands Plateaus: The central highlands are to the north of the Deccan Plateau to the other side of the Satpura range. Narmada rift valley is the major feature of the these highlands. There are two important rivers Narmada and Tapti which flow westward between the ranges of Satpura and Vindhyas. The elevation of these ranges is between 600-900 meters against the average elevation of the highlands between 700-100 meters in the north and northeastern directions. These highlands extend up to the Aravali hills in the west. They extend up to Jaisalmer in Rajasthan covered beneath the crescent like sand dunes called 'barchans'in the far west. Most of the tributaries

of Yamuna flow from the central highlands of Kaimur ranges and Vindhyas. There are the Rajamahal Hills to the east end of the central highlands. The most important Chotanagpur plateau which is a vast reservoir of minerals in the country is to the south of the northeast and south of Rajamahal hills. Other important landmasses of the central highlands are Malwa plateau lying to the northwest denuded by the Chambal river forming 'badlands' and Mahadeo hills to the north of the Vindhya ranges. With the tropical climate central highlands are home to some of the thickest tropical deciduous forests in the country.

The Northeastern Plateau: The Northeastern Plateau is known to be the extended portion of the peninsular plateau with a rift between separating it from the Chotanagpur plateau and the Rajamahal hills in the east. The geological act must have occurred during the formation of the Himalayas. The lowland that separates this plateau from its mainland is now filled by soils drained by several rivers flowing into the Bay of Bengal. Meghalaya plateau with its three major hills Khasi, Garo and Jainthia lies in the state of Meghalaya. This extends further into the state of Assam to form Karbi Anglong hills. This plateau is highly eroded due to high rainfall as the southwestern monsoons are blocked by the hills here. Cherrapunji and Mawsynram receive world's highest annual rainfall of which Mawsynram tops.

The Peninsular plateau is characterized by its tectonic formation with igneous rocks as major feature. Later this landmass after having separated from the actual plate to the south of the equator over ages has undergone immense geo-morphological changes making it one of the stable landmasses with rich reserves of minerals.

The Great Indian Desert (The Thar)

Between the Indus basin to the west in Pakistan and the Aravalli mountains to the east lies the Great Indian Desert which is also called as The Thar Desert. This is a hot humid and dry arid region due to very less rainfall averaging between 100-150 mm annually and high temperatures. The climate is extreme. The region has become an arid zone to become an absolute desert over thousands of years due to its location where rarely rain bearing clouds travel through or blocked by any landmass if travelled. Hence one can find a large spread of sand across the region forming desert relief all over. Sand dunes, Crescent sand dunes of 'barchans', mushroom rocks, shifting dunes and thorny vegetation such as bushes, cactuses, babul trees and date palms are a common sight. Oases are the source of water

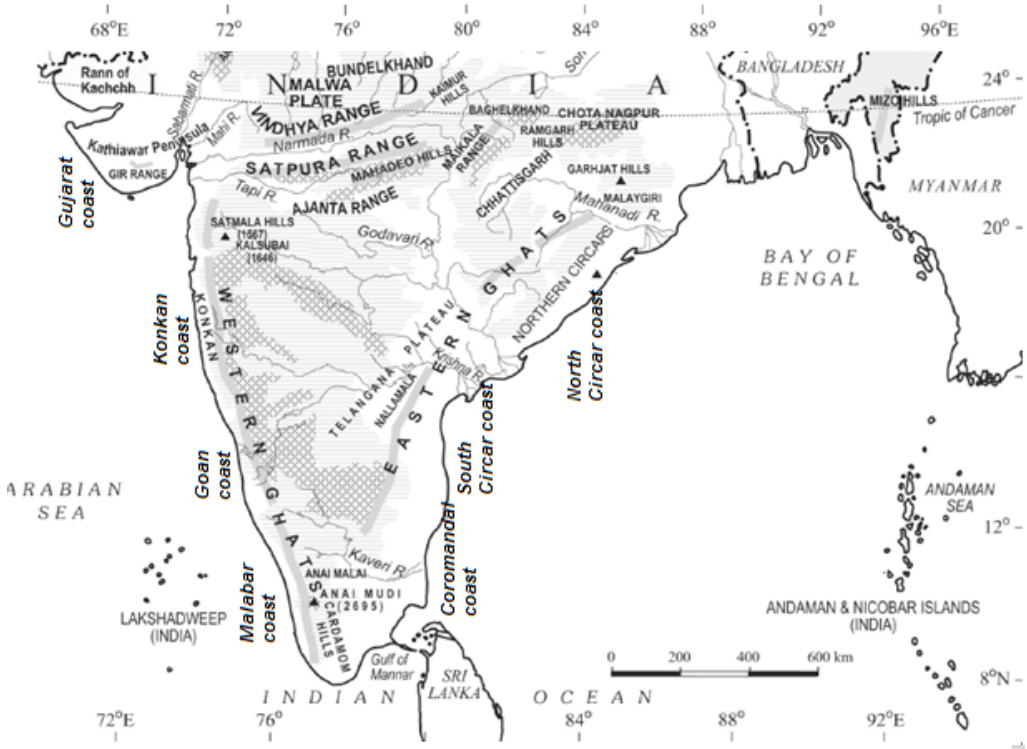
in the interiors which are natural pools around which is found human habitation. This region can be divided into two parts. The northern desert which slopes towards the Sindh in Pakistan and the Southern desert which slopes towards the Rann of Kutch. There are a very few rivers but most of them are dry all through the year except for some time when it accidentally rains. Luni is of some significance which merges into the Rann of Kuchch in the south. With the construction of The Indira Gandhi National Canal western and southwestern parts of the desert have show significant change in terms of aforestation, agriculture and vegetation.

The Coastal Plains

As it is already known to us that India has a coastline running all along the Peninsular Plateau for about 7,517 km, the coastal plains along the coast are a significant physical feature of the country. The coastal plains can be broadly divided into two, a) the western coastal plains and b) the eastern coastal plains.

The western coastal plains are narrow compared to the eastern coastal plains as a result of submergence along the west coast. This has enabled the west coast to develop some of India's best ports such as Porbander port, Kandla port in Gujarat, Nava Sheva port Mumbai in Maharashtra, Mazagaon and Marmagao ports in Goa, Karwar port and Mangalore port in Karnataka and Cochin port in Kerala. From north to south the western coastal plains extend from Gujarat to Kerala. In the north-south direction these coastal plains can be further divided into the following parts such as The Kachch and the Kathiawar coast of Gujarat, Konkan coast in Maharashtra, Goan coast in Goa and Karnataka coast and Malabar coast which extends in the parts of Karnataka and whole of Kerala. Though they are relatively narrow plains, they are much narrower in the middle around Karnataka and Goan coasts and become wider as the plains extend towards south and north. Unlike in the east rivers flowing through these plains do not form huge deltas as the rivers abruptly merge into the Arabian sea due to its narrow width. Some of the few important rivers though are Narmada, Tapti, Ghataprabha and Malaprabha and the Periyar. Backwater (locally referred to as kayals) are the major attractions of the coastal plains of the west in to its south. Additionally, the west coast is ideally suited for some of the best beaches in the world. Ganapathi Phule, Panjim beach, Anjuna, Colva, Om beach, Karwar beach and Kovalam beaches are some of the famous among the beaches in the west coast.The eastern

coastal plains are broader than the west coastal plains and are largely influenced by the rivers merging into the Bay of Bengal. This coastal plain is an example of emerging coast and hence is broader. Several deltas have been formed by the rivers in this belt depositing alluvium over thousands of years. The fertile river plains and the deltas are actually the food bowels of India growing the majority of rice and other crops. The major deltas are Mahanadi delta in Orissa, Godavari and Krishna delta in Andhra Pradesh and Cauveri delta in Tamil Nadu. Since the continental shelf is wider it becomes difficult to develop world-class ports in this coast. Though at certain points good ports have been developed such as Paradeep port, Vizag port, Kakinada port, Chennai port, Karaikal port and Tuticorin port.



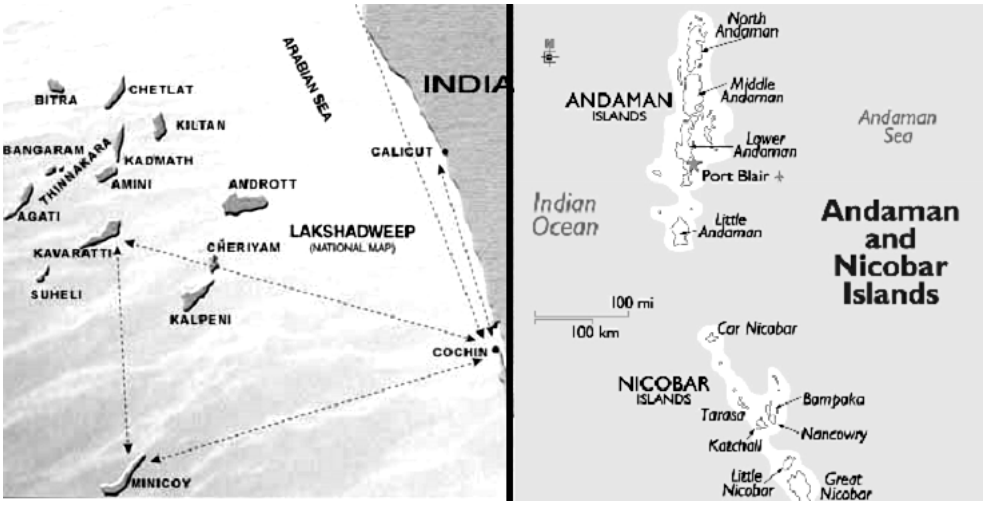
The Coastal Plains of India

Source: www.upsportal.com

The Island Groups

India has two major island groups. The Lakshadweep and Minicoy island group is in the Arabian sea in the west and the Andaman and Nicobar island group is in the Bay of Bengal in the east. Lakshadweep and Minicoy group of islands are towards the south of the Arabian sea little away from the Malabar coast of Kerala at a distance of about 280-480 km scattered between 80N-120N latitudes and 170E-740E longitudes. These are the best example of coral islands and are visited by tourists for viewing underwater marine life and corals. There are a total of 36 islands

approximately and 11 of them are suitable for human habitation so for. Among all the islands Minicoy is the largest with an area of 453 km2. Lakshadweep islands provide beautiful beaches for the tourists to visit.



The Island Groups of India

(*Source:* www.mapsofindia.com)

The second major group of islands is the Andaman and Nicobar Islands in the Bay of Bengal. There are about 572 islands in this group spread approximately between 60N – 140N latitudes and 920E – 940E longitudes. The two major groups are the Andaman in the north and the Nicobar in the south. Barren Island which is part this Andaman island group is the only active volcano of India. These islands also impose some of the best beaches in the world and best for corals to be seen. Radha Nagar beach is one of the world famous beaches of Andaman.

Conclusion

The physiography of India highly diversified in its nature. Every form of physical feature or landform is found in India. Mountains of all nature ice capped, volcanic or fold mountains. There plateaus which are rich in natural resources such as ores. Huge alluvial plains support large population of India enabling for the best of agriculture. There are rivers to support the life as well as agriculture across the country. Coastal plains support the life of people in the coastal regions and also enable inter-continental trade by marine waters and also for fishing. India also has two major island groups which are strategically very important for the country.

Lesson 2.3 - Drainage System of India

Introduction

The flow of water through well defined channels is known as 'drainage' and the network of such channels is called a 'drainage system'. The drainage pattern of an area is the outcome of the geological time period, nature and structure of rocks, topography, slope, amount of water flowing and the periodicity of the flow (NCERT, 2006). Drainage system of India is also defined by the factors mentioned above and there are variations in the volume of water flow, periodicity of the flow and amount of draining and depositing capacity between the rivers of different regions within India. And this difference is more particularly visible between the rivers flowing from the Himalayan mountains and the peninsular highlands. In the course of our learning about the drainage system of India we would also understand certain concepts and characteristics related to the Indian drainage system and apply this knowledge to answer the following questions:

- Why do most of the rivers flow towards east and join the Bay of Bengal?
- Why don't rivers originating from the highlands of the peninsular India flow all through the year like those originating from the Himalayan Mountains?
- Why do some rivers create havoc due to flooding?
- Do interlinking of northern and the peninsular rivers solve the majority of the problems related to scarcity of water, draughts flooding and seasonality of the Indian rivers?

Categorisation of Drainage System in India

The drainage system of India may be categorized on the basis of various parameters such as the size of watershed, discharge of water into the major water bodies, regions of origin etc.

On the basis of the size of watershed, the drainage system of India can be categorized into three major groups:

a) Major river basins with more than 20,000 km2 catchment area. There are fourteen major river basins in the Indian drainage system in this category such as the Brahmaputra, the Ganga, the Indus, the Krishna, the Tapti, the Mahi, the Narmada, the Pennar, the Sabarmati, the Barak, the Mahanadi, the Kaveri, the Godavari and the Suvarnarekha.,

b) Medium river basins with a catchment area between 2,000 – 20,000 km2 includes around 44 river basins such as the Kalindi, the Tungabhadra, the Periyar, the Kosi etc.,

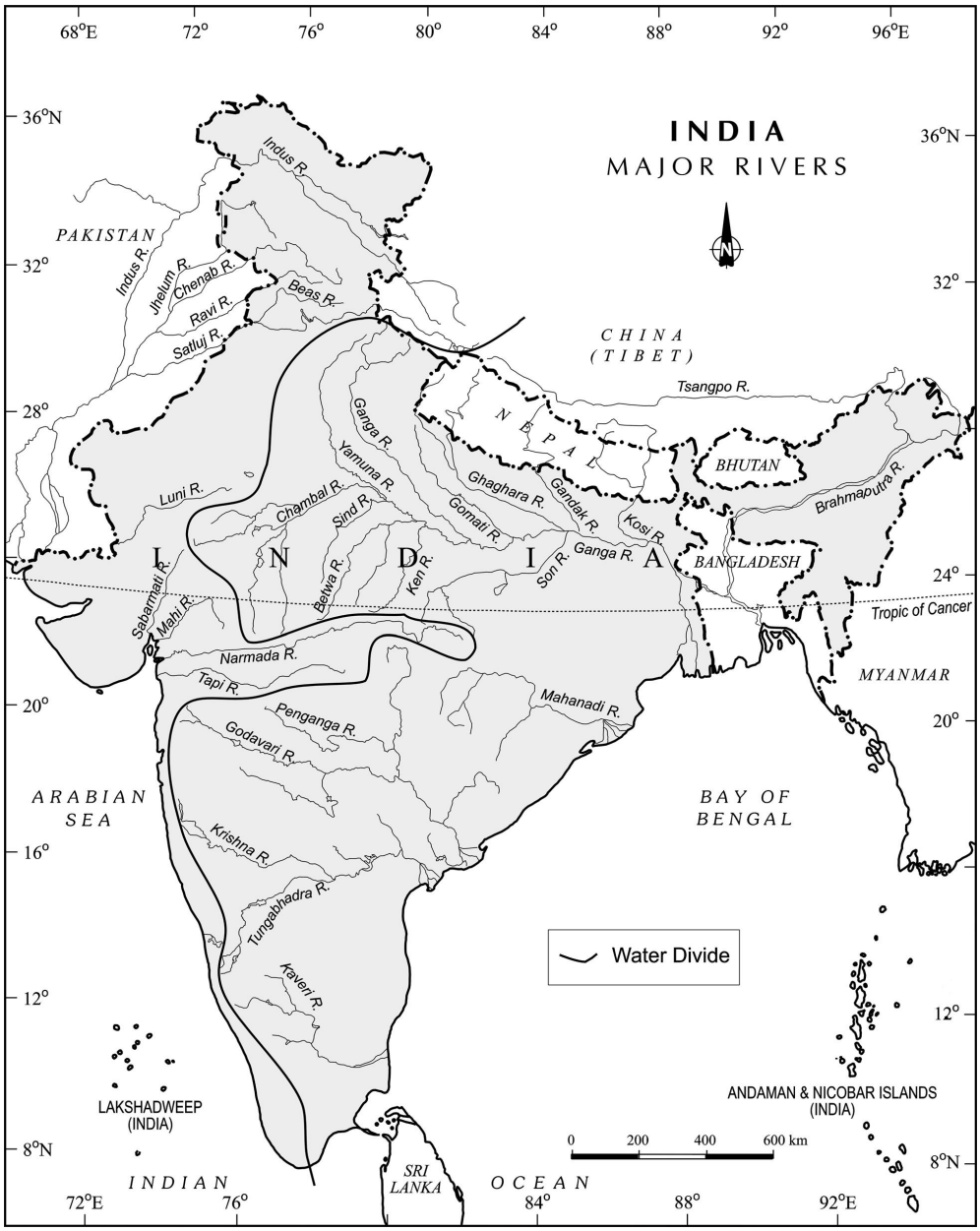
c) Minor river basins with a catchment area of about less than 2,000 km2. Rivers in the catchment area of very less rainfall fall into this category like the Luni river in Rajasthan.

Subsequently on the basis of discharge of water rivers in India may be categorized into the following groups: a) The Arabian Sea drainage system and b) The Bay of Bengal drainage system.

Majority of the Indian rivers discharge their flow into the Bay of Bengal accounting for about 77 percent of the total discharge. Some of the major rivers in this category are the Ganga, the Brahmaputra, the Mahanadi, the Godavari, the Krishna, the Kaveri etc. The remaining discharge is done into the Arabian Sea where rivers flow in the westward direction and join this sea. The major rivers in this group are the Narmada, the Sabarmati, the Mahi, the Tapi, the Periyar etc.

The other categorization in the source of rivers wherein three major sources of rivers are identified. These include Himalayan rivers, Peninsular rivers and other sources. The Himalayan region in fact gives rise to some of the longest rivers such as the Ganga, the Indus, the Sutlej, the Yamuna, the Brahmaputra, the Gandak, the Kosi etc. These rivers are also characterized by their perennial nature meaning they flow all through the year. The second category being the Peninsular rivers which are seasonal in nature include the Mahanadi, the Godavari, the Krishna, the Kaveri, the Narmada, the Tapti, the Periyar etc. and the third category of other sources includes rivers originating from the Aravalli mountains and the northeastern plateaus.

For the convenience of our own and being the most accepted classification in this chapter we will study the drainage system of India on the basis of origin, nature and characteristics.



Rivers of India (*Source:* NCERT India, Physical Environment class XI, 2006)

The Himalayan Drainage System

The Himalayan drainage system includes the river basins of the Ganga, the Indus and the Brahmaputra. These rivers flowing from the Himalayas are perennial in nature because of precipitation and melting of snow in the glaciers. These rivers flow down from great heights to the down hills. The steep gradience increases the speed of the flow enabling these rivers to cut through the mountains. The process of such denudation has

been going on for millions of years. Because of this erosional activity for ages one can find the formation of giant gorges, V-shaped valleys, U-shaped valleys, rapids and waterfalls. As these rivers move further through the plains and merge into the larger water bodies of the Bay of Bengal and the Arabian Sea create variety of relief features such as flat valleys, meanders, ox-bow lakes, flood plains, braided channels and deltas respectively. Himalayan rivers behave differently along the course. They are furious in the higher altitudes and exhibit slowness in the plains meandering and shifting their course sometimes. By the time they end their course, the speed of the river completely slows down to form a number of channels creating vast deltas.

Now, let's learn in detail about the Himalayan river systems in detail.

The Ganga River System: The Ganga (Ganges) rises from the Gangotri glacier near Gaumukh in the Garhwal Himalayas of Uttarkashi district in Uttaranchal at an elevation of 3,900 meters above the sea level. The river is known by the name of Bhagirathi here. This main stream of the river cuts through the steep gorges of the mountains and meets Alaknanda river at Devprayag. Alakananda and Bhagirathi together form a larger flow from Devprayag. It's from this sangam (confluence) that the river is known by Ganga. Alaknanda originates from Satopanth glacier near to Badrinath. The Alaknanda includes the streams of the Dhauli and the Vishnu Ganga meet at Joshimath. The other tributaries of the Alaknanda are Pindar which joins Alaknanda at Karna Prayag and Mandakini which joins at Rudra Prayag. Actual entry of Ganga into the plains starts from the Holy hill town of Haridwar. The Ganga by far is the longest river in India and has a length of 2, 525 km. It flows for about 110 km in Uttaranchal, 1,450 km in Uttar Pradesh, 445 km in Bihar and 520 km in the state of West Bengal before merging into the Bay of Bengal. This river basin covers around 8.6 lakh km2. The Ganga river system is the largest in India along with its tributaries flowing from the Himalayas and also from the northern parts of the peninsula in the south. Its tributaries in the left bank are the Kosi, the Gandak, the Gomti, the Mahananada, the Ramganga and the Gandak and the Son is the only major tributary in its right bank.

The Yamuna is the largest of the tributaries of the Ganga. It rises from Yamunothri glacier at an altitude of 6,316 meters. The Yamuna joins the Ganga at Allahabad in Uttar Pradesh (Prayag). The Yamuna is joined by the Chambal, the Sind, the Betwa and the Ken on the right bank and the

Varuna, the Hindan, the Sengar and the Rind join on its left bank. Yamuna like the Ganga is also of great importance to the people of India for its cultural essence and also for irrigation in this region.

The Chambal rises from the Malwa plateau at Mhow in Madhya Pradesh and flows towards north to join the Yamuna. The movement is along Kota, Bundi, Sawai Madhopur and Dholpur. It is famous for its badland topography.

The Ganadak river originates between the Dhaulagiri and the Mt. Everest in Nepal and travels through the central Nepal before entering into Bihar in the Champaran district. This river comprises two streams of Kaligandak and Trishulganga. The Gandak joins the Ganga at Sonpur near Patna in the state of Biahar.

The Ghagra comprises of its tributaries Tila, Seti and Beri. The river rises from the glacier Mapchachungo in the Himalayas. It is joined by river Sarda before it joins the Ganga.

The Kosi rises to the north of Mount Everest in Tibet. It is joined by its tributaries Son Kosi on its west and Tamur Kosi on its east after crossing the central Nepal to enter into Bihar. The Kosi is known for frequent flooding hence called as ' The Sorrow of Bihar'.

The Ramganaga rises near Gairsain in the Garhwal and crosses the Shiwaliks before entering into Uttar Pradesh near Najibabad. It is a small river on the left bank of the Ganga and joins it at Kannauj.

The Damodar is an important river flowing through the rift valley off the Chotanagpur plateau and joins the Hugli. The Barak is its major tributary. There are several other smaller streams in this belt where a lot power projects are being run by the Damodar Valley Corporation.

The Mahananda is also an important tributary of the Ganga river originating in the Darjiling hills. The river flows to south to join the Ganga in West Bengal.

The Son is an important tributary joining the Ganga on its right bank which rises from the Amarkantak plateau.

The Indus River System: The Indus River system is also an equally important river system of India. This river system has a greater influence on the northwestern parts of India. The Indus River rises in the northern slopes of the Kailash range in Tibet near Lake Manassarovar. It follows a north-westerly course through the plateau of Tibet. It enters Indian Territory in Jammu and Kashmir. The river forms a picturesque gorge in this part. Several tributaries- the Zaskar, the Shyok, the Nubra and the Hunza join it in the Kashmir region. It flows through the regions of Ladakh, Baltistan and Gilgit and runs between the Ladakh Range and the Zaskar Range. It crosses the Himalayas through a 5181 m deep gorge near Attock, lying north of the Nanga Parbat and later takes a bend to the south west direction before entering Pakistan. Indus River Basin is one of the largest river basins in the world spread in an area of 11,65,000 km2. Though it covers around 321,289 km2 only in India. It is famously known as Sindhu in Indian mythologies. The river is famous for its five tributaries in the land of Punjab. These important tributaries are Jhelum, Chenab, Ravi, Sutlej and Beas. Indus also receives good number of other Himalayan tributaries such as the Gilgit, the Shyok, the Hunza, the Zaskar, the Nubra, the Shigar, the Gasting and the Dras. There are also some rivers joining the Indus on its right bank such as the Tochi, the Kurram, the Viboa, the Gomal and the Sangar which originate in the Sulaiman ranges.

The Brahmaputra River System: It is worth mentioning that the Brahmaputra river is the nerve centre of the northeast especially the state of Assam. It is also strategically very important for India as it flows into the Indian territory after traversing for thousands of Kilometers in China. It is known to be one of the largest rivers in the world having its origin in the Chemayungdung glacier of the Kailash range near the Manassarovar lake in Tibet. The river moves in thw eastern direction for a distance of 1,200 kilometers through the region of southern Tibet. It is called as Tsangpo in Tibet. Here on its right bank joins a major tributary the Rang Tsangpo. The Brahmaputra enters into the Indian territory at the town called Sadiya in the northern Arunachal Pradesh. From here the river flows in the southwest direction taking with it its tributaries Diban, Sikang and Lohit on its left bank. The river takes name of Brahmaputra from Arunachal Pradesh. It travels for about 750 kilometers in Assam valley alone before entering into Bangaldesh at Dhubri. In the valley the river on its left bank is joined by the tributaries such as the Burhi Dihing, and the Dhansari and on its right bank the Kameng, the Manas, the Subansiri and the Sankosh. Brahmaputra is well known for its seasonal flooding due to its rich catchment area which comes under the influence of Monsoons.

The Peninsular Drainage System

The peninsular India as we have already learnt is typical landmass with uneven topography and a number of plateaus and highlands within making it one of the most interesting geogrphical features on the earth. So is also the river system of the peninsular India. It should be clear to us that almost all the rivers originating from the indian peninsula are seasonal by nature. The peninsular drainage system is as old as the landmass itself. That means most of river systems of theis landmass are pretty older than the Hima;ayan river systems.

The mature river systems with well graded shallow rift valleys is the evidence of their geological history. Western Ghats along the west coast of Peninsula is the major water divide and most of the rivers originate from these ghats. The Krishna, the Tunga Bhadra, the Bheema, the Sharavathi, the Kabini, the Kaveri, the Periyar, the Pennar, the Malaprabha and the Ghataprabha are some of the major rivers originating from the Western Ghats whereas rivers such as the Betwa, the Chambal, the Sind, the Ken, the Son originate in the northern part of the peninsula and flow in the northern direction to join the Ganga or the Yamuna. Rivers such as the Narmada, the Tapi, the Godavari, the Mahanadi, the Penna and the Damodar originate eather from the central plateaus of the peninsula or from the Chotanagpur plateau and the Rajamahal hills in the east. Except for the Narmada and the Tapi which flow in the western direction to join the Arabian Sea, most of the rivers of the penisnsular plateau flow in the easten or southeastern direction to meet the Bay of Bengal.

The Narmada is a river in central India. It forms the traditional boundary between North India and South India, and is a total of 1,289 km (801 mi) long. Of the major rivers of peninsular India, only the Narmada, the Tapti and the Mahi run from east to west.

It rises on the summit of Amarkantak Hill in Madhya Pradesh state, and for the first 320 kilometres (200 miles) of its course winds among the Mandla Hills, which form the head of the Satpura Range; then at Jabalpur, passing through the Marble Rocks, it enters the Narmada Valley between the Vindhya and Satpura ranges, and pursues a direct westerly course to the Gulf of Cambay. Its total length through the states of Madhya Pradesh, Maharashtra, and Gujarat amounts to 1312 kilometres (815 miles), and it empties into the Arabian Sea in the Bharuch district of Gujarat.

The Tapti is one of the major rivers of peninsular India with the length of around 724 km; it runs from east to west. It rises in the eastern Satpura Range of southern Madhya Pradesh state, and flows westward, draining Madhya Pradesh's historic Nimar region, Maharashtra's historic Khandesh and east Vidarbha regions in the northwest corner of the Deccan Plateau and South Gujarat before emptying into the Gulf of Cambay of the Arabian Sea, in the State of Gujarat. The Western Ghats or Sahyadri range starts south of the Tapti River near the border of Gujarat and Maharashtra.

The Godavari river is often referred to as the Vriddh (Old) Ganga or the Dakshin (South) Ganga. The name may be apt in more ways than one, as the river follows the course of Ganga's tragedy. The river is about 1,450 km (900 miles) long.

It rises at Trimbakeshwar, near Nasik and Mumbai (formerly Bombay) in Maharashtra around 380 km distance from the Arabian Sea, but flows southeast across south-central India through the states of Madhya Pradesh, Karnataka, Orissa and Andhra Pradesh, and empties into the Bay of Bengal. At Rajahmundry, 80 km from the coast, the river splits into two streams thus forming a very fertile delta. Some of its tributaries include Indravati River, Manjira, Bindusara and Sabari.

The Krishna is one of the longest rivers of India (about 1300 km in length). It originates at Mahabaleswar in Maharashtra, passes through Sangli and meets the sea in the Bay of Bengal at Hamasaladeevi in Andhra Pradesh. The Krishna River flows through the states of Maharashtra, Karnataka and Andhra Pradesh.

The traditional source of the river is a spout from the mouth of a statue of a cow in the ancient temple of Mahadev in Mahabaleshwar. Its most important tributary is the Tungabhadra River, which itself is formed by the Tunga and Bhadra rivers that originate in the Western Ghats. Other tributaries include the Koyna, Bhima, Mallaprabha, Ghataprabha, Yerla, Warna, Dindi, Musi and Dudhganga rivers.

The Cauveri (Kaveri) is considered sacred by the Hindus. This river is also called Dakshin Ganga. The headwaters are in the Western Ghats range of Karnataka state, and flows from Karnataka through Tamil Nadu. It empties into the Bay of Bengal.

Its waters have supported irrigated agriculture for centuries, and the Cauveri has been the lifeblood of the ancient kingdoms and modern cities of South India. The source of the river is Talakaveri located in the Western Ghats about 5,000 feet (1,500 m) above sea level. It flows generally south and east for around 765 km, emptying into the Bay of Bengal through two principal mouths. Main tributaries including Shimsha, Hemavati, Arkavathy, Kapila, Honnuhole, Lakshmana Tirtha, Kabini, Lokapavani, Bhavani, Noyyal and Famous Amaravati.

The Mahanadi river is the third largest in the peninsula of India and the largest river of Orissa state. The basin (80°30'–86°50' E and 19°20'–23°35' N) extends over an area approximately 141,600 km2, has a total length of 851 km and an annual runoff of 50X109 m3 with a peak discharge of 44740 m3 s-1. The river begins in the Baster hills of Madhya Pradesh flows over different geological formations of Eastern Ghats and adjacent areas and joins the Bay of Bengal after divided into different branches in the deltaic area. The main branches of River Mahanadi meet Bay of Bengal at Paradip and Nuagarh (Devi estuary). The tidal estuarine part of the river covers a length of 40 kms and has a basin area of 9 km2. Based on physical characteristics, the estuary has been characterized as a partially mixed coastal plain estuary.

Conclusion

Rivers are the source of life for any human civilization. India is fortunate to have good number of rivers to support huge population of more than hundred and twenty five crore. The perennial rivers have been supporting large human habitation in the north and the eastern parts of the country where as the non perennial or the seasonal rivers are backbone of the agriculture in the peninsular region. If the proposed inter-connectivity of rivers becomes a reality, it has been said that most problems arising out of weak monsoon seasons and the flooding can be minimised to a greater extent. Though there are many dams built to check the waste flow of water and to store to support agriculture and drinking needs of the people, there is still a lot to be done. Huge potential of the Himalayan Rivers in producing hydro-electricity is also yet to be utilized which may in future address the acute shortage of energy supply.

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Lesson 2.4 - The Climate of India

Introduction

Indian climate is synonimous to the monsoons. Monsoon climate refers to the determination of the climate of the region relating to the seasonal reversal in the direction of the winds blowing from the the southwest.

The whole of the south Asia and southeast Asia is infact influenced by these winds in one or the other way though the scale of the effect is more on the Indian subcontinent more particularly India. There is certain uniformity at a larger perspective in the monsoon climate nevertheless regional differences can be witnessed.

The regional differences or variations in terms of precipitation, degree of wetness and dryness, occurance of seasons and pattern of winds and temperature. There are reasonable variations in the climate within India due to these factors.

For instance, southern part of India has literally no winters when the mercury falls below 10 degrees on an average across north India. While most parts of the western Rajasthan have temperatures 50 degrees during summer, it is quite the riverse in most parts of Arunachal Pradesh where temperature never goes over 20 degrees.

While in the mid winters the mercury may drop down to minus 30 degree C, the scene may not be the same in the south where temperature may not fall below 20 to 25 degree C in Hyderabad, Chennai or Cochin. In the union territory of Lakshadweep islands the daynight temperature may not show much difference and may have seven to eight degree variation but during the same time this variation may be very high in the Thar desert in western parts of Rajasthan. The daynight temperature here may be upto 50 degree leading to extreme climate meaning, days are very hot and the nights are very cool.

These variations are also very much visible in terms of rainfall. The Meghalaya plateau receives heavy rainfall during monsoon season where as during the same time it hardly rains in Rajasthan. While the Himachal, Uttaranchal and the Jammu Kashmir valleys experience snowfall, the rest of the country only experiences rainfall. Barmer in Rajasthan may not receive the rainfall over ten years as much Mawsynram in Meghalaya receives on a single day. While it hardly rains in the Coromandal coast during summer monsoon when the rest of the country experiences rainfall. It only rains during in the winter by virtue of the returning monsoon winds.

Though these regional differences exist the uniformity of the monsoon climate of India is unique in itself adding to the vibrant and rythmic character of the monsoon.

Factors Determining India Climate

Before we dwell upon the climate of India in detail it will be of great use to know and understand the various factors which determine. The factors related to location and relief are latitudes, the Himalayan mountains, distance from the sea, altitude, relief, distribution of land and water. And the factors related to air pressure and winds are pressure belts and movement of winds, upper air circulation and Jet streams, western disturbances and tropical depressions.

a. **The Himalayan Mountains:** Stretching along the northern borders of India and extending to the north east the Himalayas literally block the central Asian cold wave keeping the India warm. These mountains also lessen the influence of the western disturbances and facilitate rainfall during winter in the extreme northwestern parts of India which otherwise would have been cold deserts like the Ladakh.

b. **Distance from the Sea:** Water bodies of the Arabian Sea in the west, the Bay of Bengal in the east and the Indian Ocean in the south encircle the peninsula of India. Because of these water bodies this region is neither hot in summer nor very cold in winter. This is visible as one move from south to north. There is extreme climatic difference in the north and this extremity becomes equable in the southern parts of the country mainly because of its proximity to sea.

c. **Location:** India is located in Northern hemisphere closer to equator at 8°4¢ and 23½° Tropic of Cancer passes through the central part of India. Hence, south of this latitude we find tropical climate and towards the north we find sub-tropical climate. Distance from the equator being one of the factors for climatic difference, even to the both ends of the Tropic of Cancer there is variation. For instance, Tamil Nadu would be hotter than Punjab when we consider the average annual temperature mainly because of the distance from the effect of solar heat. Regions to the south of the Tropic of Cancer receive more solar heat than those lying north of it reducing the overall effect of the heat.

d. **Altitude:** There is a change in the weather conditions as one move to the higher location such as hill station. Altitude refers to this factor of the height above the average sea level. The atmosphere becomes less dense and we feel breathlessness as we go higher from the earth surface and thus the temperature also decreases with the altitude. For instance in the mid summer season when the temperature in Coimbatore city is 45 degree C during the same time on the same day a little away in Kodaikanal the temperature may not fall below 16-20 degree C. This is a classic example of how altitude plays a major role in determining the climate of a place as Kodaikanal is in the higher altitude above 1,500 meter from the mean sea level and Coimbatore is in the lesser altitude.

e. **Relief:** The relief features of India like that of the Himalayan Mountain also affect the climate of any region to a great extent. The mountains and the highlands affect the movement of winds, rainfall and air pressure as it is seen in case of the Western Ghats and the hills in the northeast. The windward sides of these mountains block the incoming rain bearing winds and experience good amount of rainfall. At the same time, the region lying to the east of Western Ghats which are in the leeward side remains dry with very little precipitation.

f. **Direction of surface winds:** Movement of winds equally plays a major role. This system which consists of monsoon winds, land and sea breeze, and local winds determine the climate of India. In winter the winds blow from land to sea so they are cold and dry. On the other hand, in summer wind blow from sea to land bringing the

moisture along with them from the sea and bring in a lot of rainfall across the country. The monsoon winds which after causing rainfall and travelling all the way to the northwest take a u-turn and return to south causing rainfall along the Coromandal coast during winter.

g. **Upper Air Circulation:** Other than surface winds, the upper air circulation also plays its part in affective climate in certain parts of the country. These air currents are Jet streams or western disturbances. Jet streams are a narrow belt of fast blowing winds located generally at 12,000 meters above the sea level and bring western cyclonic disturbances along with them. These cyclonic winds originate near the Mediterranean Sea and move eastwards. On their way, they collect moisture from Persian Gulf and shed it in the northwestern part of India during winter season. They later move into the central Asia.

The Monsoon Mechanism

Monsoon controls and characterises the climate in India. It plays the central role in determining the nature of climate and its variations across the country. Monsoon find its etimology in an Arabic word called 'Mausim' also called as 'Mausam' in Urdu which means season. Monsoon refers to the seasonal movement and reversal of the wind direction during a year. It is found that during summer season, the northern plains and low lying areas especially the states of Punjab, Haryana, Rajasthan, Delhi and wsetern and central parts of Uttar Pradesh are very hot with temperature reaching upto 45-50 degree C. Maximum temperature in some of the places may go beyond 45 – 50 degree. Let's have an understanding of the differences in temperature and rain fall thorugh Table given below which indicates the variance in climate at different places across the country.

Temperature and Rainfall of some of the important places in India

Stations		**Months**											
		J	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**
Leh	Temp.	- 8	- 7	- 1	9	10	14	17	17	12	6	0	- 6
	Rainfall	10	8	8	5	5	5	13	13	8	5	0	5

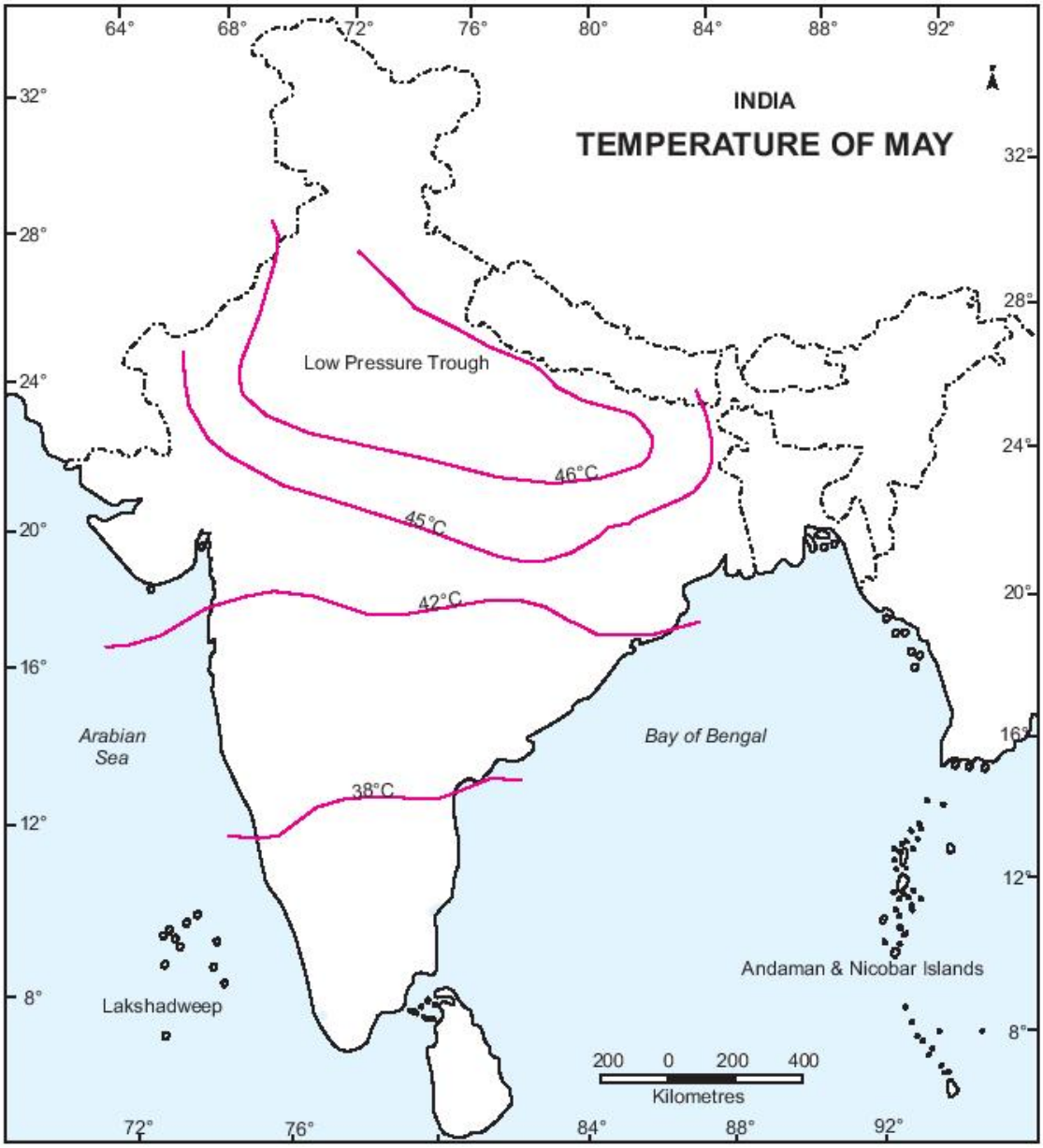
Shillong	Temp.	10	11	16	19	19	21	21	21	20	17	13	10
	Rainfall	14	29	56	146	295	476	359	343	302	188	36	10
Delhi	Temp	14	17	23	29	34	35	31	30	29	21	20	15
	Rainfall	21	24	13	10	10	68	186	170	125	14	2	9
Jaisalmer	Temp	16	20	25	30	33	34	32	31	30	28	22	17
	Rainfall	0.2	0.1	0.3	0.1	0.5	0.7	0.9	86	14	01	0.5	0.2
Mumbai	Temp	24	24	24	28	30	29	27	27	27	28	27	25
	Rainfall	4	2	2	2	18	465	613	329	286	65	18	2
Chennai	Temp	25	26	28	31	33	33	31	31	30	28	26	25
	Rainfall	4	13	13	18	38	45	87	113	119	306	350	135
Thiruvana	Temp	27	27	28	29	29	27	26	26	27	27	27	27
Nthapuram	Rainfall	23	21	39	106	208	356	223	146	138	273	206	75

Note: Temperature in 0Celcius and Rainfall in cm

Source: NIOS Social Science- India Module 2

It may be noticed that the average maximum temperature si beyond 33 degree C in the month of May in Jodhpur and Delhi. The hot spell due to high temperatures in this belt and a similar hot belt to the west of Balasore in Odisha are formed. This creates low pressure area in the lower altitudes as the hot air being lighter rises. There forms long low pressure zone during summer called as trough lieng between Jaisalmer in west Rajasthan and Balasore in Odisha state in the east. Contrary to this temperature in the Indian ocean during the same time is low due to slowness in the heating of water. Such a scenario creates a relatively high pressure belt in the sea.

Now there is a visible difference between the northern plains of India and eastern coastal region of Odisha with the large water body of the Indian Ocean to the south of the Indian peninsula. This difference in temperature having created low pressure belt in the north and high pressure belt in the Indian Ocean gives way to the actual mechanism of the monsoons. The principle of physics plays its role in the movement of winds from the high pressure belt to the low pressure belt. This process starts somewhere between the last week of April and the first week of May.

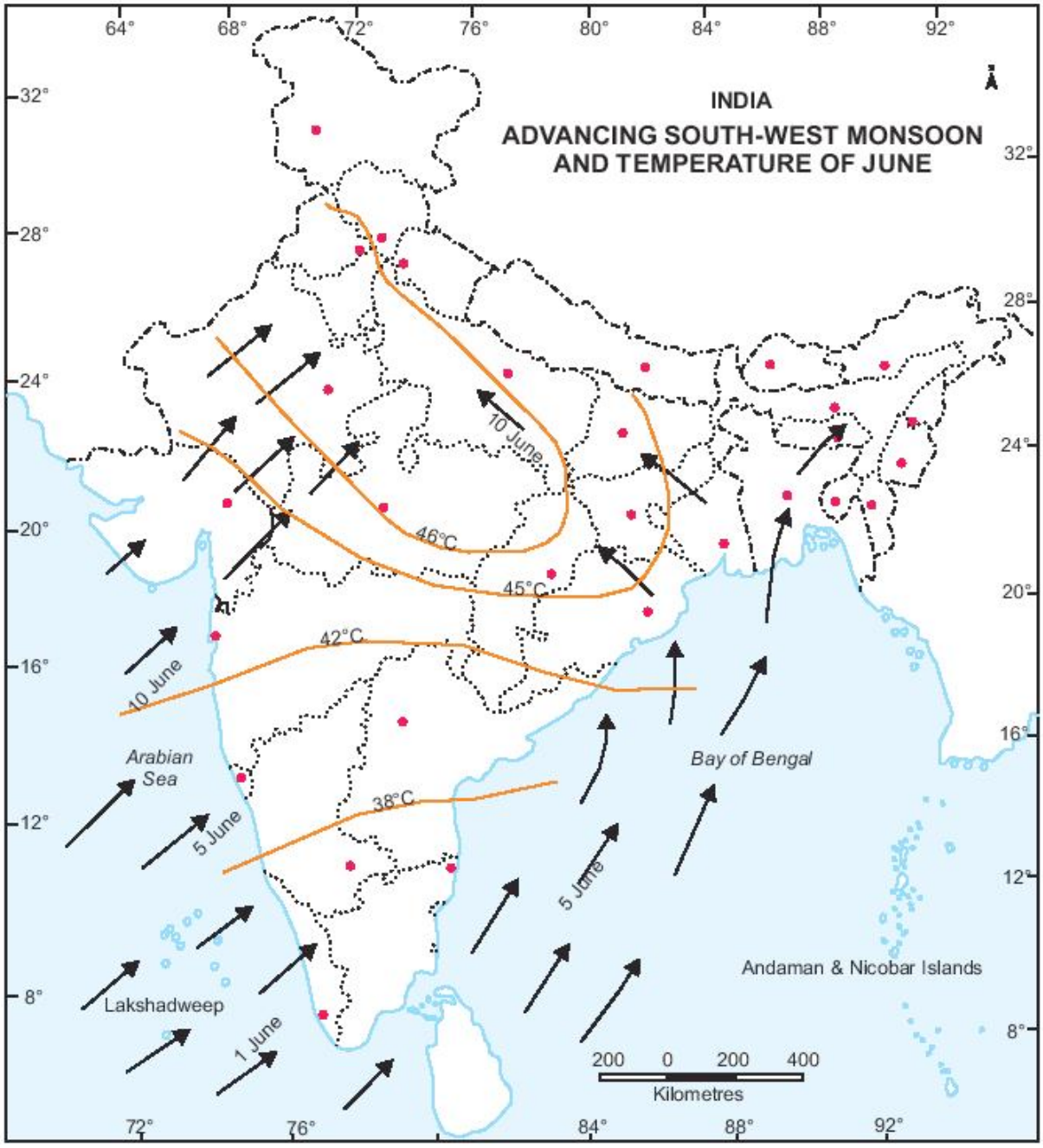


Temperature in the month of May

Source: www.wetherforecastmap.com

The movement of these moist winds pick up speed by the mid of June and move in the direction of South-West to North-East. During winter season this becomes exactly opposite where the direction of winds is North-East to South-West as the pressure belts also replace.

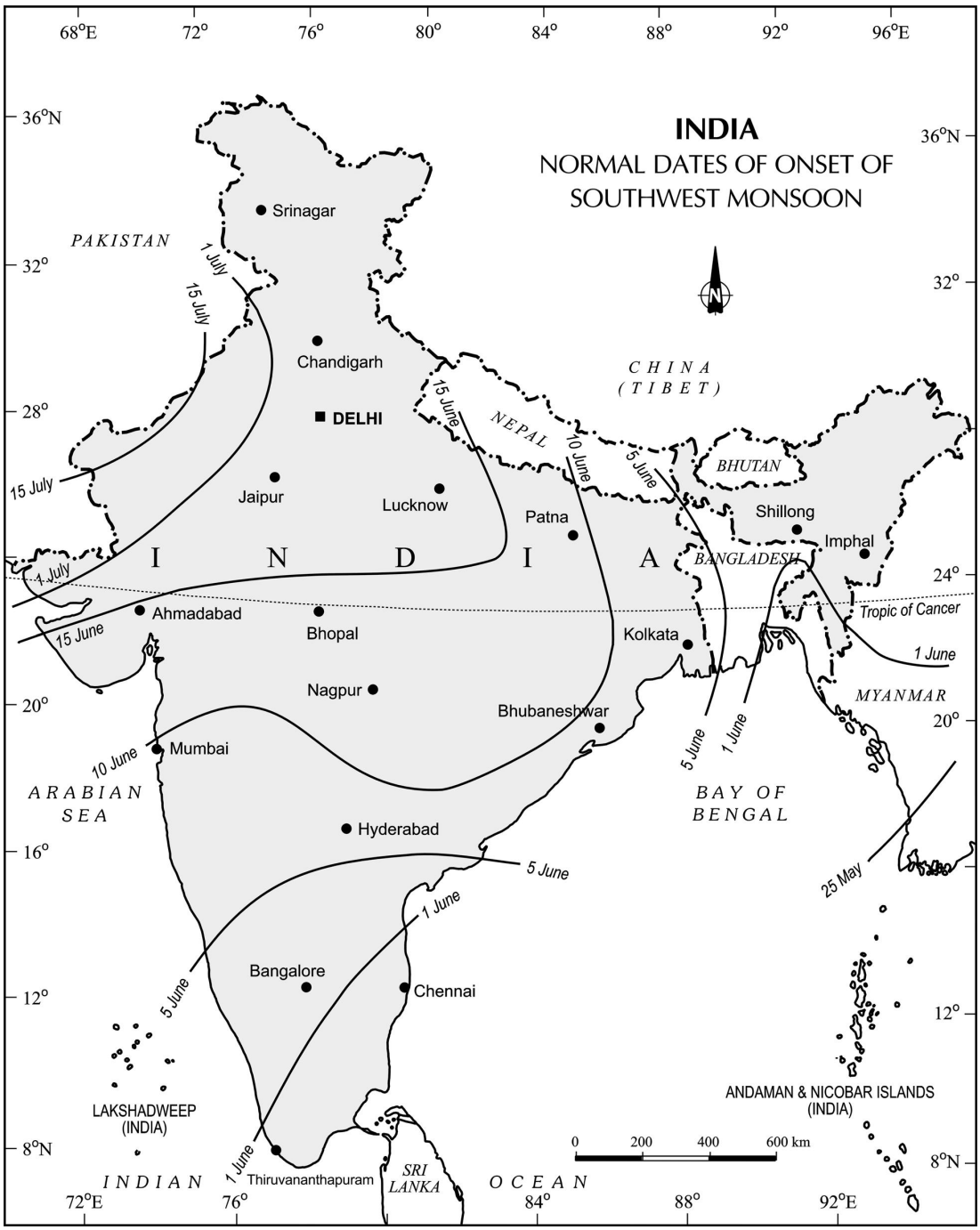
This whole process of movement of winds from the Indian Ocean and then the reversal of the same winds from North and North-East to the IndianOcean in the South is called as Monsoons. The moisture laden



Temperature in the month of May

Source: www.wetherforecastmap.com

winds which blow from warmer water bodies down south move into the Indian sub-continent cause most of the monsoon rainfall. Between June and September close to 80 to 90 percent of the rainfall is witnessed and the rest is witnessed between November and December during the returning monsoons especially along the Coromandal coast.



Onset of South-west Monsoon

(*Source:* NCERT, 2006)

Characteristics of Monsoon

a) Monsoons are unequal in their distribution of rainfall. The amount of rainfall differs from region to region. For example, monsoons bring heavy rainfall in the regions of western ghats, along most of the west coast, in the northeastern areas of Mehgalaya and Assam and also in the states of West Bengal and Odisha where as rainfall

is interior areas of Madhya Pradesh, Haryana, Rajasthan recive less or no rainfall.

b) Monsoons are not steady winds. Different atmospheric conditions affect the nature of these winds. This may sometime delay or advance the movement of monsoons.

c) They come heavy at times causing a phenomenon known as 'monsoon burst' especially in in the westernghats of Kerala and in the hills of northeast.

d) 'Monsoon breaks' is another characteristic of the monsoon as the rainfall during this season often interspersed by breaks or dry spells. Sometimes after heavy rainfall for a few days its observed that there are short and long dry spells or breaks without any rainfall in many parts of the country.

e) Monsoons are uncertain many a time. Even with the advanced technological predictions sometimes monsoons become uncertain of their lenghth.

f) These winds are seasonal in nature. This causes a lot of disturbance for the agricultural spells since possibility of multiple crops is difficult with the alternative means of irrigation.

The Sequence of Seasons

The geographical location, the Monsoons and many other factors influence the seasonal differences in India. The culmination of these factors gives way for four major uniformed spells of seasons with a few short regional differences though. While whole of the country experiences rainfall during advancing south-west monsoon season certain parts like the Coromandal coast and northwester parts hardly receive any rain. Likewise when it's very cool in the winter across the northern plains and central India, south India is a bit warmer. To know more about these variations let's now learn in detail about the four seasons listed below:

(a) Cold weather season (December – February)

(b) Hot weather season (March – May)

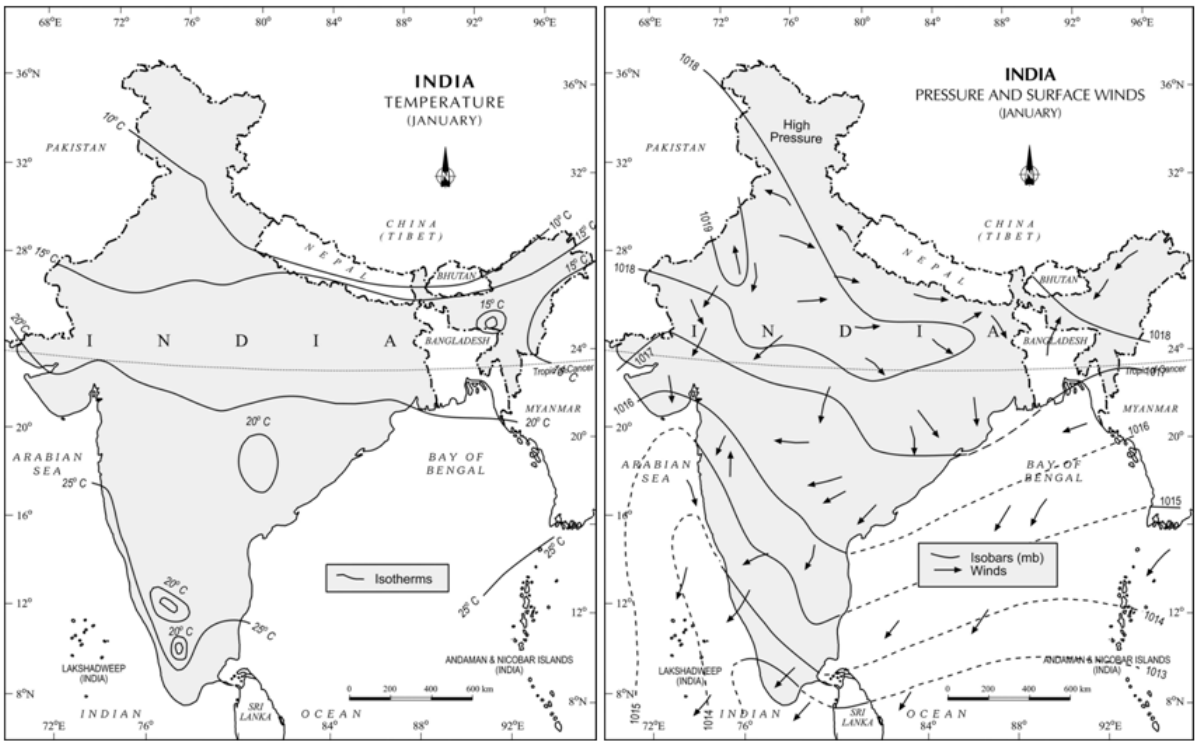
(c) Advancing South – West monsoon season (June – September)

(d) Post or retreating monsoon season (October – November).

Let's now know more about each of them in the following section.

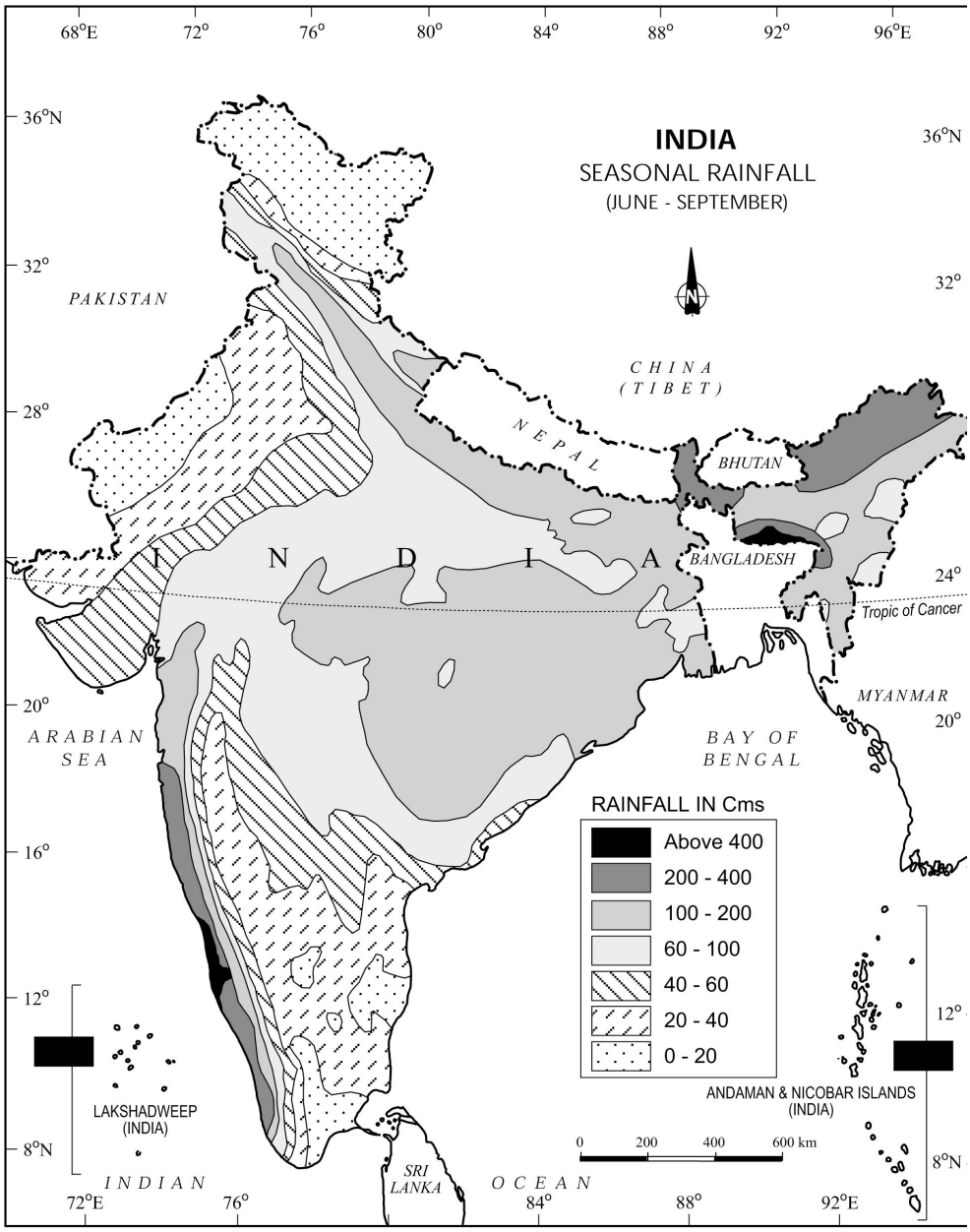
Cold Weather Season: The period of cold weather season is spread from December to February. There is a fall in the temperature from the south to the north. December and January months are the coldest and the average temperature in north is between 12°C and 15°C and in south it may vary between 23^0 and 25°C. Frost is common in the north and north-west India. Western disturbances cause light rainfall in this region. Higher slopes of the Himalayas experience snowfall. During the winter season, North-East trade winds prevail over India. They blow from land to sea. Hence, for most part of the country, it is a dry season. There is a different scenario along the Tamil Nadu coast (Coromandal) which receives winter rainfall due to these winds. A part of north-east trade winds blow over Bay of Bengal. They gather moisture which causes rainfall in the coastal Tamil Nadu while the rest of the country remains dry. In the northern part of the country the weather is marked by clear sky, low temperatures and low humidity. The winter rainfall is very important for the cultivation of 'Rabi' crops especially in the northwestern and the southeastern parts of the country.

Hot Weather Season: Temperature starts rising from the last week of February. It is hot weather season from March to May. One can experience



Temperature Pressure Belts and Winds in January

(*Source:* NCERT, 2006)



Seasonal Rainfall in India

Source: NCERT Geograohy Textbook XI, 2006

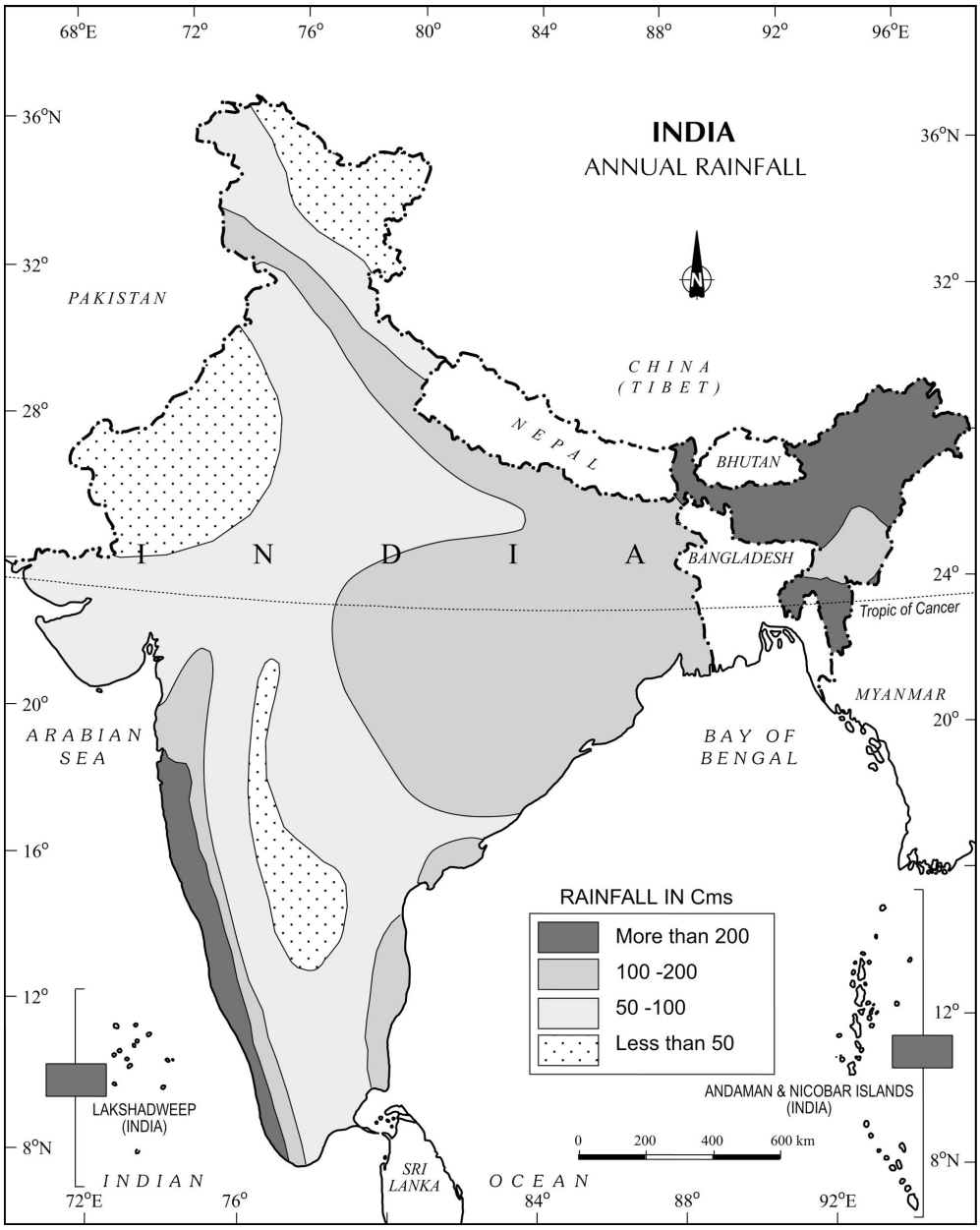
high temperature in the plains, western part of India and in the central part of peninsular India. In Northern plains, thus, an elongated low pressure which is called monsoonal trough created here, which extends from Jaisalmer in western Rajasthan to Jharkhand and parts of Odisha to the East. During the same period, over Indian Ocean south of the equator high pressure belt starts to develop during season. This results in blowing of afternoon dust storms in the northwestern parts of India which is a common phenomenon. During summer, very hot and dry winds blow over North Indian plains. These hot and dry winds are locally referred to as 'Loo'. Exposure to these hot winds may cause heat or sun stroke. This is also the season for localized thunderstorms,

associated with violent winds, torrential downpours, often accompanied by hail. In West Bengal, these storms are known as the 'Kaal Baisakhi' (calamity for the month of Baisakh). Pre-monsoon showers are common towards the close of the summer season especially in Karnataka and Kerala. Such rainfall is called as 'mango showers' which helps in the early ripening of mangoes.

Advancing South West Monsoon Season: As the scorching heat of summer season slowly fades, it gives way for actual monsoon rains to relieve people from the hot weather across the country. Farmers wait for the rains so that they can prepare their fields for the next cropping season *Kharif*. The period for about four months between June - September is of advancing south-west monsoon season. By the end of May the monsoon trough further intensifies over north India due to high temperature in the region. The General direction of the wind during this season is from south-west to north-east parts of the country. These early winds are strong and blow at a great velocity of 30 km per hour. These are loaded with a lot of moisture and first hit at Andaman and Nicobar Islands in the last week of May and by the first week of June Kerala coast. There is a significant change in the weather conditions of the India subcontinent with the entry of South-West monsoons.

There are two branches of south-west monsoon which originate from: a) Arabian Sea and (b) Bay of Bengal.

The South-West monsoon winds blowing from the Arabian Sea branch are intervened and obstructed by the Western Ghats along the west coast prompting for heavy rainfall to the western side of Western Ghats. These winds moving in the northwest and northeast reach Mumbai by 10th June. When this branch crosses the Western Ghats and enters into the Deccan Plateau and parts of Madhya Pradesh, it gives less rainfall as it is a rain shadow region. Further, this branch reaches in Northern Plain by 20th June. The second branch of the monsoon winds that start from Bay of Bengal hit the Andaman and Nicobar islands first and further north they strike the coastal areas of West Bengal and later majority of the North-Eastern states with heavy rainfall and they cover the whole of India by the 15th of July. However, it should be noted that quantity of rainfall decreases as they move towards West over the Northern plains. For instance, rainfall at in Gauwahti is 150 cm, Kolkata 120 cm, Allahabad 91 cm and Delhi 56cm and Chandigarh 40 cm during this season. As the monsoon comes after the hot and dry summer season, the rainfall brings down the temperature.



Map showing Annual Rainfall in India

(*Source:* NCERT, Geography XI, 2006)

We can see this decline is from 5°C to 8°C between mid June and mid July. This is the time when many parts of India face floods also. This is mainly because of heavy rainfall and our inability to manage our water resources more systematically. Contrary to this, there are several places which still experience dry and draught climate without much rain like northwester parts of Rajasthan and Ran of Kuchch.

Retreating or Post Monsoon Season: The period of Retreating Monsoon season (also referred to as Post Monsoon) prevails between the months of October – November. The temperatures during September-October

start decreasing in north India resulting in weakening of the Monsoon trough over northwestern parts of India. A pressure belt is replaced by the monsoon trough. Due to change in pressure belts the South-West monsoon winds weaken and start withdrawing gradually from North Indian Plains by November end. In October the weather remains humid and warm due to continuing high temperature and moist land in month of October. Northern plains experience hot and humid weather during this transition. Such a spell is commonly called 'October Heat'. However, towards the end of October, temperature starts falling gradually making nights pleasant and cool. During the same time, a low pressure belt is formed in the Bay of Bengal towards which the weak monsoon wind of northern plains start blowing resulting in cyclonic storms. It is known to us how these retreating wind turn into storms and create havoc in coastal areas of Odisha, Andhra Pradesh and Tamil Nadu. Sometimes, there is huge loss of standing crops, property and life of people living in these areas. Retreating monsoons at the same time energize the winter cropping in these regions wherever it rains. Staying for over two months and disturbing the east coast these winds move away towards the south of equator as the low pressure belt slowly shifts down.

This sequence of seasons is unique to India which makes it one of the most diversified climatic regions in the world yet retaining the originality of the Monsoon climate at large. These seasons have had a lot of impact on the socio-cultural nature of people differently in different parts of the country. Their housing patterns, cropping patterns, food habits and overall lifestyle are influenced by the climatic conditions of the places. There are different festivals celebrated to commemorate the onset of monsoon season like Teej, Bihu, Pongal and Sankranthi for harvest season during winter Holi and Baisakhi. The list goes on but the festive saga doesn't end in India. Every festival comes with seasonal change. Crop patterns change as mentioned earlier such as *Kharif* starts with advancing of monsoons and harvesting is done during post monsoon. Whereas *Rabi* cropping season is during winter. Coinciding with these differences the food habits of people are also diverse. Hence, it wouldn't be exasperating to say that the seasons above bring in a lot of vibrancy into the lives of people of India.

Distribution of Rainfall

Monsoon winds though bring in a lot of rainfall, it may be seen that the distribution of rainfall has great regional variations and spatial differences. Some areas receive high rainfall, some moderate, some low

and some inadequate rainfall. The average rainfall registered with some variations in India is about 125 cm (Refer to fig). Let's try to find out the regional differences in rainfall from the following classification:

a. **Areas of High Rainfall:** The west coastal plains, the Western Ghats, the hills in Meghalaya and the sub-Himalayan areas in the northeast receive highest rainfall in India. The average annual rainfall in these areas exceeds 200 cm. It may be noted that some areas in the Gharo, Khasi and Jainthia in Meghalaya receive rainfall over 1,000 cm. whereas the adjoining regions of the Brahmaputra valley and hills around receive less than 200 cm. The world's highest annual rainfall is also registered in this area at Mawsynram in Meghalaya which received 2,600 cm in 1985 (a Guinness Record) and 1270 cm in2012.

b. **Areas of Medium Rainfall:** Medium rainfall about 100-200 cm is received in the northeastern peninsula covering Bihar, Jharkhand, Orissa, northern Ganga plain along the sub-Himalayas, in the eastern Madhya Pradesh, the Cachar valley and Manipur, southern parts of Gujarat and Coromandal coast of Tamil Nadu.

c. **Areas of Low Rainfall:** Low rainfall is received in the areas of Jammu and Kashmir, eastern parts of Rajasthan, north and northwestern parts of Gujarat, Deccan plateau, Western Uttar Pradesh, Delhi, Haryana, parts of Himachal and Punjab. In these areas, low rainfall of about 50-100 cm is witnessed.

d. **Areas of very less or inadequate Rainfall:** Western Rajasthan, Ladakha, rain shadow region of Western Ghats in the parts of Peninsula such as northern Karnataka, Marathawad of Maharashtra, and Central parts of Andhra Pradesh. Some parts of Shiwalik ranges and northern parts of the Himalayas experience snow fall. Less rainfall may be less than 50 cm annually. Due to very scanty or no rainfall, we find formation of hot desert in western Rajasthan and a cold desert in the parts of Ladakha to the east of Jammu and Kashmir state.

Climatic Regions of India

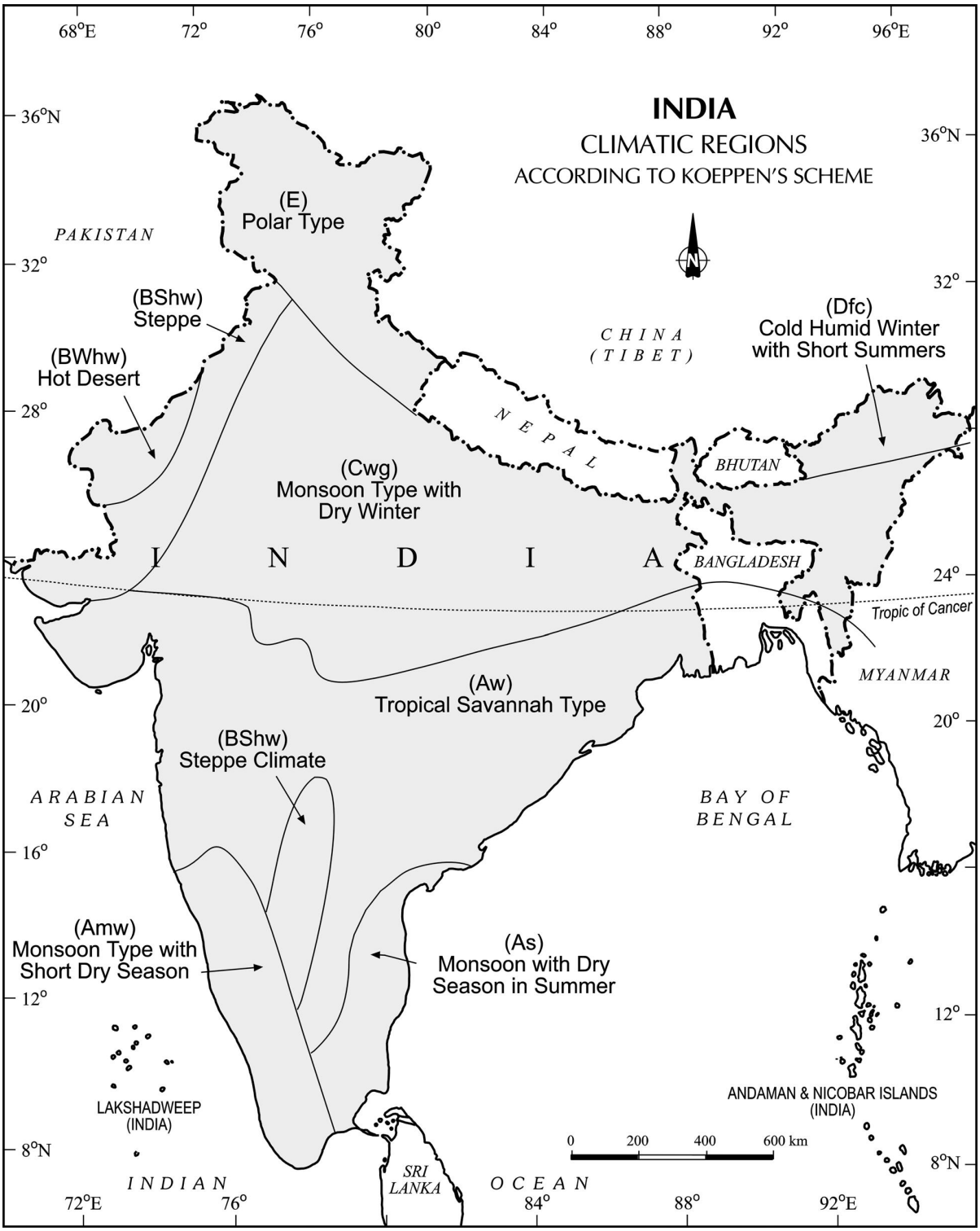
Monsoon type of climate prevails across the country. Contrary to this uniformity there are many regional variations when a closer review of the elements of weather is done. The regional variations through the elements of weather such as temperature, precipitation, humidity, pressure

etc represent the sub types of monsoon climate in India. Climatic regions of the country can be identified and classified on the basis of a homogeneous climatic conditions resulting out of a combination of factors. Apart from many other factors of climate temperature and rainfall are considered to be the most important elements in classifying any scheme of climatic regions. There are many of such schemes of classification of climate. Monthly values of temperature and precipitation were taken into consideration by *Koeppen* in classifying the scheme of climatic types of India. He has identified five major climatic types. Below is the list of major types of climatic types of India based on *Koeppen's* scheme:

Climatic Types by Koeppen

Climate Type	Features
1. Tropical climates	Mean monthly temperature throughout the year is over 18^0C
2. Dry climates	Precipitation is very low and temperature is high leading to dryness. *Less dryness: Semi arid climate (S)* *High dryness: Arid climate (W)*
3. Warm temperate climates 4. Cool temperate climates	Mean temperature of the coldest month is between 18^0C and -3^0C Mean temperature of the warmest month is over 10^0C and mean temperature of the coldest month is -3^0C
5. Ice climates	Mean temperature of the warmest month is under 10^0C

Symbols have been used by Koeppen to represent climatic types. Each of these climatic types is further sub-divided into sub-types considering the seasonal variations in the distribution patterns of precipitation (rainfall) and temperature. As mentioned above table he has used S for semi arid type if climate and W for arid type of climate. Major type are assigned Capital letters and the sub-types are assigned small letters. The small letters used to denote sub-types are: f (sufficient precipitation), m (rainforest despite a dry monsoon season), w (dry season in winter), h (dry and hot type), c (less than four months withmean mean temperature over 10^0C), and g (Gangetic plain). As per these major types and sub-types India has been divided into eight climatic regions. These climatic regions can be better understood through the following Table Figure.


INDIA
CLIMATIC REGIONS
ACCORDING TO KOEPPEN'S SCHEME
68°E
72°
76°
80°
84°
88°
92°
96°E
36°N
32°
28°
24°
20°
16°
12°
8°N
(E)
Polar Type
(BShw)
Steppe
(BWhw)
Hot Desert
(Dfc)
Cold Humid Winter
with Short Summers
(Cwg)
Monsoon Type with
Dry Winter
(Aw)
Tropical Savannah Type
(BShw)
Steppe Climate
(Amw)
Monsoon Type with
Short Dry Season
(As)
Monsoon with Dry
Season in Summer
PAKISTAN
CHINA
(TIBET)
NEPAL
BHUTAN
BANGLADESH
MYANMAR
I N D I A
Tropic of Cancer
ARABIAN
SEA
BAY OF
BENGAL
LAKSHADWEEP
(INDIA)
ANDAMAN & NICOBAR ISLANDS
(INDIA)
SRI
LANKA
INDIAN
OCEAN
0
200
400
600 km

Climatic Regions of India according to Koeppen's Scheme

Coding	Type of Climate	Areas of prevelance
1. **Amw**	Monsoon with short dry season	West coast of India south of Goa Coromandal coast of Tamil Nadu
2. **As**	Monsoon with dry summer Tropical savannah	Most of the Peninsular plateaus, south of the Tropic of Cancer
3. **Aw**	Semi-arid steppe climate	North-western Gujarat, some parts of
4. **BShw**	Hot desert	western Rajasthan and Punjab
	Monsoon with dry winter	Extreme western Rajasthan
5. **BWhw**	Cold humid winter with	Ganga plain, eastern Rajasthan, northern
6. **Cwg**	short summer	Madhya Pradesh, most of the North-east
	Polar	India
7. **Dfc**		Arunachal Pradesh
8. **E**		Jammu and Kashmir, Himachal Pradesh and Uttarakhand

Climatic Regions of India according to Koeppen's Scheme

Source: Koeppen's Classification, NCERT, 2006

Conclusion

Monsoon determines the complete climatic scenario of India. It controls and changes the climatic conditions in the sub-continent. There were times when rivers had no dams built on agriculture was enormously dependent on the monsoon season and any weakness of it created droughts in parts of the country. In certain parts of the country this is still the same condition. The climate in the northern and the peninsular region is different due to its vertical extension across the latitudes and south India in that sense hardly Faces the winter season.

Rains occur in majority of the regions of the country during the monsoon season except for some of them which do not or receive very little rain. The Coromandal coast and the extreme north western parts of India receive rainfall during winter season. The Coromandal coasts receive due to the effect of the retreating Monsoons and the north-west receives due to the western disturbances. Thus climate of the country is unique in itself being close to the tropics and determined by the many other physical factors.

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Lesson 2.5 - Natural Vegetation

Introduction

Natural vegetation refers to a plant community that has been left undisturbed over over a long time, so as to allow its individual species to adjust themselves to climate and soil conditions as fully as possible (NCERT, 2006). A journey in an Indian Railways train from Jammu in north to Kanyakumari in at the far south via Jaisalmer in western Rajasthan and Konkan coast along Western Ghats will reveal wonders about the kind of vegetation found across the country. We can find an immense regional difference as the train moves from one area to the other. Polar, Alpine vegetation with trees such as spruce, mapple and other coniferous trees to thorney shrubs, deciduous trees, grasslands in between and thick wet tropical forests along the western ghats.

Types of vegetation keep changing from region to region with the change in the relief, soils and climate. This regional variation can be witnessed across the country. India exhibits a great diversity and variety in its natural vegetation. Andaman and Nicobar islands are home to tropical rain forests, the deltaic regions and costal plains have tropial forests and mangroves, Western Ghats have also tropical rain forests, the Himalayas have temperate and alpine vegetation semi-arid, arid and desert regions have shrubs, bushes, thorney plants and parts of plateaus and plain have grasslands respctively.

Classification of Vegetation

Classification of India's natural vegetation was first take up by H.G. Champion and S.K. Seth in 1968. They grouped the forest types into 16 major types and 221 sub-types (Table). There have been efforts by several organisations to regroup or reclassify again. Keeping some of the common features binding the community of vegetation along with the climatic regions, the vegetation in India can be classified into the follwowing five major categories (*Source:* NCERT, 2006) (also see map, Figure):

a) Tropical Evergreen and Semi-Evergreen forests
b) Tropical Deciduous
c) Tropical Thorney type
d) Montae forests
e) Littoral and Swamp vegetation

Classification of Natural Vegetation of India by Champion and Seth (1968)

Sl. No	Vegetation Type	General composition	* Area in Sq. Km	%
1	Tropical wet evergreen forests	Dense Tall forests, entirely evergreen or nearly so	51,249	8.0
2	Tropical semi evergreen forests	Domants includes deciduous species but evergreens predominants	26,424	4.1
3	Tropical Moist deciduous forest	Dominants mainly deciduous but sub-dominants and lower story largely evergreen top canopy even and dense but 25m high	236,794	37.0
4	Tropical dry deciduous forest	Entirely deciduous or nearly so top canopy uneven rarely over 25 m high	186,620	28.6
5	Tropical throny/ scrub forests	Deciduous with low throny trees and xerophytes predominats top canopy more or less broken, less than 10 m high	16,491	2.6
6	Tropical dry evergreen forest	Hard leaved evergreen trees predominates with some deciduous emergent often dense but usually under 20 m high	1,404	0.2
7	Littoral and swampy forest	Mainly evergreens of varying density and height but always associated predominantly with wetness	4,046	0.6
8	Subtropical broad-leaved hill forests	Broad-leaved largely evergreen high forests	2,781	0.4
9	Subtropical pine forests	Pine associated predominates	42,377	6.6
10	Subtropical dry evergreen forests	Low xerophytic forest and scrubs	12,538	2.5
11	Montane wet temperate forests	Evergreen without coniferous species	23,365	3.6
12	Himalayan wet/ moist temperate forests	Evergreen forests mainly scleriphyllous oak and coniferous species	22,012	3.4
13	Himalayan dry temperate forests	Coniferous forests with sparse xerophytic undergrowth	312	-
14	Sub-alpine forests	Stunted deciduous or evergreen forests, usually close formation with or without confers		
15	Moist alpine	Low but often dense scrub of evergreen species	18,628	2.9
16	Dry alpine	Xerophytic scrub in open formation mostly of deciduous in nature		

Source: www.icfre.org

a) **Tropical Evergreen and Semi-Evergreen forests**

These forests are spread in the areas with an annual rainfall of 200 cm and mean annual temperature of above $22^{0C.}$ Hence going by these climatic conditions these forests are found Wester slopes of Western Ghats in the Peninsula, in the Gharo, Khasi, Jainthia and other hills of northeastern parts of India and in the island groups of Andaman and Nicobar in the Bay of Bengal.

Evergreen rain forests are thick growth of vegetation with tall trees of huge trunks, on the ground shrubs and creepers rising along these trees is a common sight. There are variety of trees in these forests reaching to great heights upto 60-80 metres.

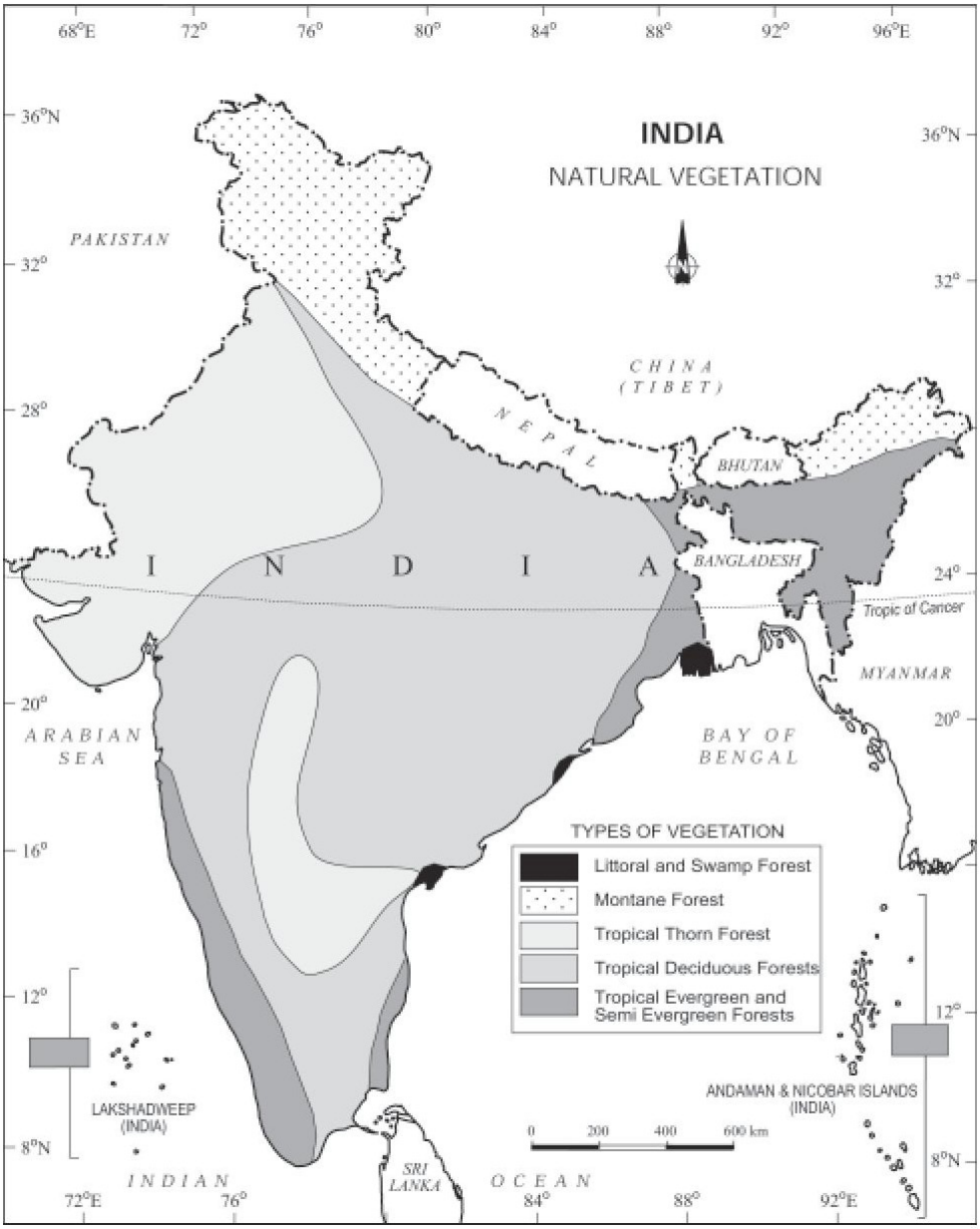
These forests remain evergreen through out the year and shedding of trees, flowering and fruition has no particular period though. Important species of trees found in these forests are ebony, mahagony, oak, aini, rosewood, climbers, ephiphytes, shrubs, lians, orchids and ferns.

Along the regions of the Evergreen forests spread outwards are found the semi-evergreen forests as the rainfall in these areas is comparatively less. Since these are an extension of the evergreen forests in different climatic conditions, they are infact a mixture of both evergreen and moist deciduous vegetation. Climbers and lians are made of a good part of these forests. Some of the important species found are kail, cedar, hollock and are rich with carpet of shrubs, ferns and grasses.

b) **Tropical Deciduous**

The Tropical deciduous forests are spread in the rgions which receive rainfall between 70 – 200 cm annually. They are also referred as the Monsoon forests. These are the most widespread and found forests in the country. These forests can be further divided into two sub-types on the basis of availability of water in these regions. They are moist deciduous and dry deciduous forests.

The Moist Deciduous forests: These forests are found along the foothills of the Himalayas in the northeastern states such as Sikkim, Arunachal Pradesh Assam and other, eastern slopes of the Western Ghats



Classification of Natural Vegetation in india

Source: NCERT, 2006

and the Eastern Ghats of Odisha. The major species found in these forests are kusum, teak, sal, mahua, hurra shishsam, semal, sandalwood, amla and others.

The Dry Deciduous forests: These forests are found in many parts of the country. They are widespread in the regions where rainfall varies between 70 – 100 cm annually. Along the adjoining areas of the moist deciduous a mixed zone is visible which are relatively wet. The outer margins of these forests have a transition of thorney shrubs and arid vegetation. The regions with higher rainfall in the Peninsular parts and in

some parts of Uttar Pradesh such forests are found. With the drier parts adjoining these area one can find dry vegetation like grasslands as the trees shed their leaves completely. Major trees in these forests are bel, khair, tendu, amaltas, axledwood, palas etc.

c) **Tropical Thorney type**

The Tropical thorn forests include the semi-aris areas of southeaster parts of of the deccan plateau, Rajasthan, soutwest Haryana, south west Punjab, Northwest Gujarat, northwestern parts of Madhya Pradesh and extereme east of Uttar Pradesh. These areas receive an annual rainfall of below 50 cm. Climate is hot and dry. The vegetation here is leafless for most of the year with scrbus and thorney type of plants. Some of the important species commonly found in these regions are neem, ber, palas, babool, wild date palm, khair, khejri etc. The under growth vegetation is Tussockey grass which grows upto 2m is typical to such vegetation. Desert types of vegetation is similar to this where in the extreme western parts of Rajashtan in the Thar desert most of the vegetation is cactii in nature.

d) **Montane forests**

Altitude plays a major role defining type of vegetation in an area. Generally with the increase in the altitude temperature decreases. This fall in temperature determines the varience in the vegetation as one moves from foothills to the top of a mountain. Mountain or montane forests are classified into two types in India, the southern mountain forests and the northern mountain forests.

The Southern Mountain forests: There are three major distinct Peninsular highlands of these forests. They are the Vindhya Mounatains, the Western Ghats and the Nilgiri Mountains. These regions are relatively closer to the tropics having an average height of around 1,500 m above the sea level. These physical factors influence the vegetation in these mountains. The vegetation is mostly temperate in the higher regions and sutropical in the lower regions of the Western Ghats more particularly in the states of Karnataka, Kerala and Tamil Nadu. The temperate forests are referred as 'Sholas' in the hills of Anaimalai, Palani and the Nilgiris. The subtropical type of vegetation has thick forests as there is ample rainfall especially in the Western Ghats. These forests are also found in

the Satpura, Maikal Ranges and some parts of the Eastern Ghats as well. Towards the top of the mountains as well there isn't much difference in the vegetation except in some part with grasses unlike the Himalayas as the altitude is much less comparatively. Some of the impportant trees found in these forests are mangolia, wattle, teak, sandalwood, cinchona and laurel etc.

The Northern Mountain forests: These forests refer to the vegetation in the Himalayan mountains which display the kind of successive vegetation from the tropical to the tundra. The latitudinal succession can be seen here with the altitudinal changes. In the foothills of the Himalayas deciduous type of vegetation is found followed by the wet temperate type of forests. These are found in the areas with an altitude between 1,000 and 2,000 metres. Evergreen broad leaf trees such as chestnut and oak are present in the higher hill ranges of Uttaranchal, northeastern areas and West Bengal. This zone also boasts of the finest Chir Pine trees between 1,500 and 1,750 m altitude. In the wstern Himalayas especially Himachal and Jammu and Kashmir economically important 'Deodhar' trees grow. In the same, Kashmir valley and Jammu region Chinar and walnut trees are abundantly found which are used exclusively for the globally famous handicrafts and furniture of the region. As one moves further high between 2200-3100 m blue pine and spruce trees are found with temperate grasslands at some places in the same zone. There is a transition from temperate to Alpine forests above 3,000 -4,000 m. the higher altitudes exhibit pastures and empty lands. Some of the important trees found in this zone are junipers, silver firs, rhododendrons, birch and some other alpine trees. The pastures in the higher altitudes are mainly used by Gujjars, Bhotiyas, Bakarwals and other local tribes for grazing. High precipitation in the southern parts of the Himalayas have supported for the growth of thick vegetation, whereas extreme higher altitude display tundra type with abundance of mosses and lichens.

e) **Littoral and Swamp vegetation**

Swamps and wetlands are abundant in India and some of them are regarded high for their global biotic uniqueness. Sundarbans are one of such wetlands with abandant mangroves and sundari trees supporting rare species of fauna. Similarly, International Convention on Wetlands known as Ramsar Convention has listed two major sites of wetlands for their

rarity of species. These sites are Kaelodeo National Park (Bharatpur) in Rajasthan and Chilka Lake in Odisha.

Broadly wetlands in India have been classified into eight categories as listed below:

i) The reservoirs of the Deccan Plateau in the south, including the lagoons and other wetlands of west coast

ii) The vast saline expanses of Rajashtan, Gulf of Kachch and the Ran of Kachch

iii) Freshwater lakes and resrvoirs from Gujarat eastwards through Kaelodeo in Rajasthan and Madhya Pradesh

iv) The lagoons and deltaic wetlands of east coast (Chilka, Sunderbans and Gulf of Mannar)

v) The freshwater marshlands of the Gangetic plains

vi) The marshes and swamps in the hills of northeast and the Himalayan foothills including the floodplains of the Brahmaputra

vii) The rivers and the lakes of montane region of Kashmir and Ladhak

viii) The mangrove forests and the other wetlands of the Andaman and Nicobar Islands.

Forest Cover and its Conservation In India

The ecologists across the globe thrust on the conservation of forests. It is advisable to have atleast 33% of actual forest cover for ecological balance of any region else it gets disturbed leading to several othe repurcusions apart from endangering human life. As per the state records maintained by the State Rvenue Departments across the country total forest cover in India is 23.02 per cent of the total land area (2010). There is a skyfall difference between the forest cover records of revenue deoartements and the actual forest. As per Revenue Departments, a forest area is the area notified and recorded as the forest land irrespective of the existence of trees. While actual forest cover is the area occupied by trees generally based on the aerial images taken from the satellites. The actual forest though is less than 20 per cent. There are regional differences in both the actual forests and forest cover. The regions of Rajashtan, Gujarat,

Punjab, Haryana and Delhi have sparse forset cover.

The southern states of Tamil Nadu and West Bengal have 10-20 percent of forest cover. The Peninsular states other than Tamil Nadu have a forest cover ranging between 20-30m percent. Most of the noerhteastern states have a forest cover of more than 30 per cent. The variation in the forest cover is visibly more when we compare Rajasthan, Jammu and Kashmir with that of Andaman and Nicobar Islands with over 84.5 percent.

Conservation of forests is vital to the very existence and sustainance of life on earth more particulary humankind. There are innumerable advantages in having forests which maintain the ecological balance and support life. In its efforts to protect and conserve forests the Government of India proposed to adopt a uniform Forest Conservation Policy in 1952 and modified the same later in 1988. It has emphasised on the sustainable approaches in protecting, expanding and conserving the forests in India without foregoing the needs of the local communities. The forest conservation policy gave way for initiating social forestry, farm forestry, conservation of wildlife.

Social Forestry refers to the protection and management of the existing forests and encouraging afforestation on the barren and badlands in a way to help social rural and environmental development. There are three catogeries of social forestry as listed by the the National Commission on Agriculture(1976) such as Farm forestry, Rural forestry and Urban forestry.

Farm forstry is done with the support of the forest department which supplies seedlings of trees free of cost to the small and medium farmers who grow trees for commercial and non-commercial purposes on their farm lands. Rural forestry relates to community and agro-forestry. Here, the community forestry stands for growing of trees on the public or community lands which benefit the community and agro-forestry stands for an inclusive approach of agriculture as well as raising trees on the same lands.

Wildlife and its Conservation

Indian wildlife is as diverse as its culture. It is estimated that around 4-5 of all known species of plants and animals on the earth are found in India alone. This is a great national heritage and there is dire need for its conservation. A significant fall in the actual forests and encroachment by humans into the forest lands plus changing climate apart from the commercial interest are some of the reasons behind depleting wildlife in the country. There is a serious threat to a lot of species in the country.

Towards protecting and conserving the wildlife, an Act came in 1972 for a comprehensive Wildlife Act. The Act gives immunity to the wildlife by giving legal support to the conservation area and also protects the endangered species against hunting, poching, harming, smuggling, domesticating etc. the Act eas later ammended in 1991 additing to it stringent punishments.

Sl. No.	*Name of the Biosphere Reserve*	*Total Geographical Area (km²)*	*Date of designation*	*Location (States)*
1.	* Nilgiri	5,520	01.08.1986	Part of Wynad, Nagarhole, Bandipur and Mudumalai, Nilambur, Silent Valley and Siruvani Hills (Tamil Nadu, Kerala and Karnataka)
2.	* Nanda Devi	2,236.74	18.01.1988	Part of Chamoli, Pithoragarh and Almora districts (Uttar Pradesh)**
3.	* Nokrek	820	01.09.1988	Part of Garo Hills (Meghalaya)
4.	Manas	2,837	14.03.1989	Part of Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup and Darrang districts (Assam)
5.	* Sunderbans	9,630	29.03.1989	Part of delta of Ganges and Brahmaputra river system (West Bengal)
6.	* Gulf of Mannar	10,500	18.02.1989	Indian part of Gulf of Mannar between India and Sri Lanka (Tamil Nadu)
7.	Great Nicobar	885	06.01.1989	Southernmost islands of the Andaman and Nicobar
8.	* Similipal	4,374	21.06.1994	Part of Mayurbhanj district (Orissa)
9.	Dibru-Saikhowa	765	28.07.1997	Part of Dibrugarh and Tinsukia districts (Assam)
10.	Dihang Dibang	5,111.5	02.09.1998	Part of Siang and Debang valley in Arunachal Pradesh
11.	* Pachmarhi	4,981.72	03.03.1999	Part of Betul, Hoshangabad and Chhindwara districts in Madhya Pradesh
12.	Kanchenjunga	2,619.92	07.02.2000	Parts of North and West districts in Sikkim
13.	Agasthyamalai	3,500.36	12.11.2001	Part of Thirunelveli and Kanyakumari districts in Tamil Nadu and Thiruvanthapuram, Kollam and Pathanmthitta districts in Kerala.
14.	Achanakmar-Amarkantak	3,835.51	30.03.2005	Part of Anuppur and Dindori districts of Madhya Pradesh and Bilaspur district of Chhattisgarh
15.	Kachchh	12,454	29.01.2009	Part of Kachchh, Rajkot, Surendranagar and Patan districts in Gujarat
16.	Cold Desert	7,770	28.08.2009	Pin Valley National Park and surroundings; Chandratal & Sarchu; and Kibber Wildlife sanctuary in Himachal Pradesh.
17.	Seshachalam	4,755.997	20.09.2010	Seshachalam hill ranges in Eastern Ghats encompassing part of Chittoor and Kadapa districts in Andhra Pradesh
18.	Panna	2,998.98	25.08.2011	Part of Pann and Chhattarpur districts in Madhya Pradesh

* Sites which have been included in the World Network of BRs of UNESCO.
Source : Annual report 2011-12, Ministry of Environment and Forests, Government of India.

Biosphere Reserves of India

Today, there are 92 National Parks, 492 Wildlife sanctuaries and 14 Biosphere Reserves (See Table and Appendix IV). There have been special projects taken up to protect wildlife such as Project Tiger (1973), Project Elephant (1992), Project Hangul (to protect Kasmir stag in) etc.

Biosphere Reserves were initiated by the Government of India which are internationally recognised under the Man and Biosphere Programme of UNESCO. These are very unique ecosystems representing the terrestrial and coastal areas. There are fourteen Biosphere reserves in India out of which four Biosphere Reserves have been recognised by the UNESCO on the World Network of Biosphere Reserves. They are Nilgiris, Nanda Devi, Sunderbans and Gulf of Munnar.

Conclusion

Vegetation cover in India though has depleted due to the colonial rule, there has been serious efforts by the government since post independence to increase the forest cover. The forest resources for any country are very essential not only for its balancing of the biodiversity but also for the reasons of economy. The establishment of National Parks, Reserved forests, Protected forests, Wildlife sanctuaries and Biodiversity zones has supported for the conservation of the flora and the fauna of the country which one of the highly diversified and rich in the world. Social forestry, urban forestry programmes of the government have also helped bringing in awareness among the people to protect and save natural forests and also to encourage them to grow trees. Rain forests and sub tropical forests in the Western Ghats and the north-eastern parts of India house some of the rarest species in the world and support the life of great number of tribes living within the forests. Thus it is very essential for the country to protect and conserve the vegetation for the benefit of the generations to come.

Ii.Iii Let Us Sum Up The Unit

India is the one country in the world having everything you ask for. The cultural diversity is one part but its physical geography too has the diversity that perhaps no country in the world matches. High mountains, low mountains, hills, plateaus, plains, deserts, rivers, volcanoes, thich rainforests, thorney shrubs, tropical deciduous, rainy season of Monsson to dry summer season and wet winter season….the list goes on and the diversity doen't end. The vastness of the country assumes the role of a sub-continent and a vast ocean below borrows its name. Having such a

great variety to it, India with greatest of the human civilisations in the past and the essence of it lingering on to this day attracts millions every year. In this unit, you have learnt in deatails about all that geographically supports India for being a world-class tourist destination. We have learnt in this regard, the physical features, drainage system, climatic regions and seasons and natural vegetation and its conservation.

DO YOU KNOW ABOUT ?

The Missing River !

There have been several studies and intense research done to unearth the 'Missing River Saraswati'. This river finds its name in the Vedic scriptures. In Rig veda there is a clear mention of Saraswathi which had it course in the northern parts of India. Today there is no sign of its appearance on the surface but geologists have found in the recent diggings in Haryana an underground river still believed to be existing and flowing through the hot and dry deserts of Rajasthan. There is also another version of the existence of the river which says, river Saraswathi is often mentioned along with two other most holy rivers of India Ganga and Yamuna. The 'Triveni sangam' at Allahabad has also been mention in many of the Hindu scriptures about the confluence of these three rivers. It is said that Saraswathi does exist underground and merges with the other two rivers at the Sangam. Of all the theories the excavations being carried out by the Government of Haryana seem to be making news as they are able to identify the course of the river though partially. It might take some more time from now and with the advancement in the satellite technology it would be substantiated to prove about the existence of the holy river Saraswathi.

CASELET 2. Pilgrimage along the Ganga

The Ganges is considered to be the greatest holy river which has historical, religious and commercial significance for the country. The river supports life of millions in the vast northern plains besides nurturing tourism.

Tourism in India benefits immensely from the ever growing interest in Ganga among tourists. Being aware of the immense historical, mythological, and religious significance of this mighty river, these tourists visit the major pilgrimage sites along the course of the river.

River Ganga originates from Gangotri glacier as Bhagirathi, in Uttarakhand and flows for about 2510 km with basin width of 200-400 kms. The major pilgrim centres are Goumukh, Gangotri, Haridwar, Rishikesh, Allahabad, and Varanasi. Goumukh is believed to be the place where the river had descended from the heavens, according to mythology. The place is revered by Hindu pilgrims and is also known as an important trekking route. Gangotri is the glacier from where the Bhagirathi, the main stream forming the Ganges originates. The adventure tours also interesting part of the Ganges.

Today the Ganga has become the victim of industrial growth and mismanagement of the river water. Volume is declining, pollution levels have reached danger line, mining is at its peak threatening the very sanctity of the river. Thousands of crores have been spent to regevenate but all in vain. In the long run this might also effect the tourism equation of the river and its pilgrimage destinations.

(Reference Source: http://www.touristplacesinindia.com/ganga-ganges/)

Discussion Points:

a. The Ganga is home for the Hindu Pilgrimage destinations and thus attracts tourists from across the globe. Discuss the statement in its strength.

b. List out the pilgrim centres along the course of the river Ganga and their importance.

c. The existence of Ganga is being threatened today. Analyse the causes of concern.

d. Draw a blue print for saving the Ganga from its dooming and bringing it to its past glory in order to promote tourism.

e. Compare the Ganga with any other holy river and examine the difference in their product portfolio.

II.IV Check Your Progress

a. **Short Answer Type Questions**

1. Define the concepts physiography and vegetation.
2. Differentiate weather and climate with examples.
3. List out the major physical features of India.
4 Name the divisions within the northern mountains.
5. Why are the northern plains so fertile?
6. What do you understand by Bhangar and Khadar?
7. `Name some of the important west flowing rivers.
8. Name the river deltas on the east coast.
9. What the Andaman and Nicobar Islands famous for?
10. Classify the climatic types in India.
11. What are Monsoons?
12. Why do most rivers flow towards east coast and join the Bay of Bengal?

b. **Long Answer Type Questions**

1. India is a sub-continent. Substantiate to accept the statement
2. Write an essay on the physiographic divisions of India.
3. List out the major rivers in India with brief notes on the major rivers.
4. Differentiate between the Himalayan rivers and the Peninsular rivers.
5. Elaborate on the statement 'India is called as the Monsoon country'.
6. Write in detail about the climatic regions of India. Bring out the salient features from the classification done by Thornthwait.
7. Compare and contrast the climate of Peninsula with the northern plains.
8. Bring out the salient features of rain forests in India
9. Discuss on the need to conserve natural vegetation and wildlife in India.

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UNIT - III Map Reading, Time Calulation and Remote Sensing

Unit Structure

Lesson - 3.1 Map Reading:
Lesson - 3.2 Time Zones: (East of GMT, West of GMT)
Lesson - 3.3 Altitude: (Altitude in Aviation, Altitude Regions)
Lesson - 3.4 GIS & Remote Sensing
Lesson - 3.5 Calculation of Time: (Elapsed Time & Flying Time)

Learning Objectives

- Apply the knowledge of latitudes and longitudes for locating places
- Explain how international date line works
- Reason out the relevance of altitude
- Appreciate the importance of GIS and remote sensing
- Calculate elapsed and flying time
- Identify times zones from region to region
- Read maps using scale

Introdution to Map Reading and Other Skills

Travel is turns out to be easy, time saving and comfortable if you are aware of the map reading techniques, time calculation. A lot of precise planning by service providers is done using the techniques of time calculation and itinerary preparation. While Knowledge of latitudes and longitudes helps one to locate a place precisely on a given map, scale reading means would will make your job easy to understand the size, distance and possibly area etc. To follow directions though is fundamental to travelling; knowing altitude of a place too helps in differentiating a place with others with regard to relief and weather. GIS and remote sensing system supports proper destination and visitor management. Elapsed and flying time is critical to air travel especially when one travels across different time zones where as awareness about International Date Line sorts out the confusion of switching dates. All these concepts will be discussed in this unit to appreciate their importance in global tourism today.

Lesson 3.1 - Map Reading

Introduction

Map reading is a technical skill to read a map to understand its representation of locational information such as a place, an area or a geographical unit etc. It may be as simple a task as to identify the location of a particular country or city on the world map. To consider this as an example, when we asked where India is located, this question can be answered in two ways i.e., in terms of relative location and absolute location. Relative location depends on point of reference, e.g. near, far etc. On the other hand absolute location is in degrees of longitude and latitude. Relative location may not be useful everywhere. In aviation as location plays an important role, only actual location makes sense. The location of a place can be identified where longitude and latitude meet. Map reading is not all about locating places but also to know physical features, political boundaries, and demography of regions, cultural diversity, altitude variations, tourist places and much more. Ability to relate various symbols printed on maps, knowledge of scale representation, directions together enable the technical skill of map reading. These map reading not only help service providers, destination management personnel and planners but also tourists at large. In the following section we will learn about some of these map reading techniques such as longitudes and latitude, directions, scale representation. Though remote sensing and altitudes also add to map reading, they are discussed separately in the subsequent sections.

Latitudes and Longitudes

Imagine how one would precisely give you the location of a place. As discussed earlier in most case it will be relative location meaning, near to school, in the state of Madhya Pradesh or to the northeast of the country etc. this may not serve the purpose many a time. Latitudes and longitudes have solved this problem of exact locations besides coming handy in resolving many other issues. North Pole and South Pole on earth's axis form the basis for something called *geographical grid* (the pattern of

latitudes and longitudes drawn on a map or globe). A network of horizontal and vertical lines is drawn which intersect each other. These two sets of line are called as parallels of latitudes and meridians of longitudes. The lines which run north to south connecting both the poles are referred to as meridians of longitudes which touch the pole in the two ends and are farthest at the equator with each other. On the other hand are the lines which are drawn around the earth on globe or from east to west on a flat surface are called as the parallels of latitudes. As the name itself denotes, they are parallel to each other. The central line drawn between North and South Poles is called as the equator. As we move from the equator to the poles the parallels become smaller.

The latitudes and longitudes are generally called as the geographical coordinates. Location or position of various surface features such as location, direction of different points or distance between places is possible using the network of these lines.

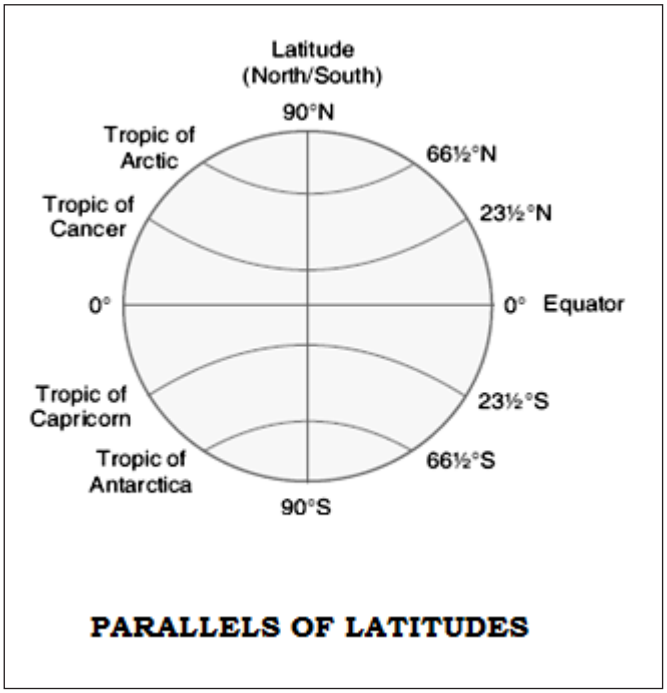
Let's now learn in details about these imaginary lines of the parallels of latitudes and the meridians of longitudes.

a) Latitudes

As learnt earlier latitudes are parallels. These are the imaginary line drawn on a surface, map or a globe which run from east to west parallel to each other. Hence the lines same latitudes are called parallels. When we refer to the latitude/latitudes of a place/region, we are actually referring to its position on earth if it to the north of equator or south. For instance, India is between the latitudes of 60 45'N and 370 6'N. This means the region of India is to the north of the equator ('N' means Northern Hemisphere) and the degrees show us exactly extension of it in the northern hemisphere. Any place to the south of the equator falls in the Southern Hemisphere which can be derived from letter (S) with the values. For example Australia is between 290 S and 4509'S latitudes. It means Australia is extended between 290 S and 4509'S latitudes in the Southern Hemisphere.

The Equator is designated as 0°. The North Latitude lines measure from the Equator (0°) to the North Pole (90°N). The South Latitude lines measure from the Equator (0°) to the South Pole (90°S). There are other special latitude lines to note. The Tropic of Cancer is at 23.5°N latitude,

and at 23.5°S latitude is the Tropic of Capricorn. These lines represent the farthest north and farthest south where the sun can shine directly overhead at noon. Latitudes of 66.5° N and 66.5° S mark the Arctic and Antarctic Circles, respectively. Because of the tilt of the Earth, there are winter days when the Sun does not rise and summer days when the sun does not set at these locations.



The Parallels of Latitude

Source: ***www.upscportal.com***

There will be 89 parallels in the northern and southern hemispheres each when parallels of latitude are drawn at an interval of one degree from the equator. Including the 00 latitude the equator the total number of parallels will be 179. As said earlier depending upon the location of a place or a feature to the north or the south of the equator the letter N or S added to the value of degrees.

It may be noted that latitude of a place or feature may be determined with the help of the altitude of the pole star of that of the sun. Taking earth as a perfect sphere distance between two latitudes anywhere on the earth would be a constant value of 111 km. The length of a meridian on the equator is also the same. Though 111 km is taken as the constant length of latitude there is slight difference as we move from the equator to the poles. At the equator it is 110.6 km while at the poles it is 111.7 km. this length would also help us in calculating distance between different places.

b) Longitude

While the parallels of latitudes are circle running east to west around the earht, meridians of longitudes are semi-circles which converge at the norht and the poles. Though an opposite meridian makes a complete circle, each meridian is taken as a separate value. A meridian of longitude is the angular distance on the earth's surface, measured east or west from prime meridian at Greenwich. It's only for the convenience of numbering the meridians, the meridian passing through the the Greenwich observatory near to London has been adopted by the geographers through an international agreement as the Prime Meridia. Meridians of Longitude begin at prime meridian as shown in the figure.

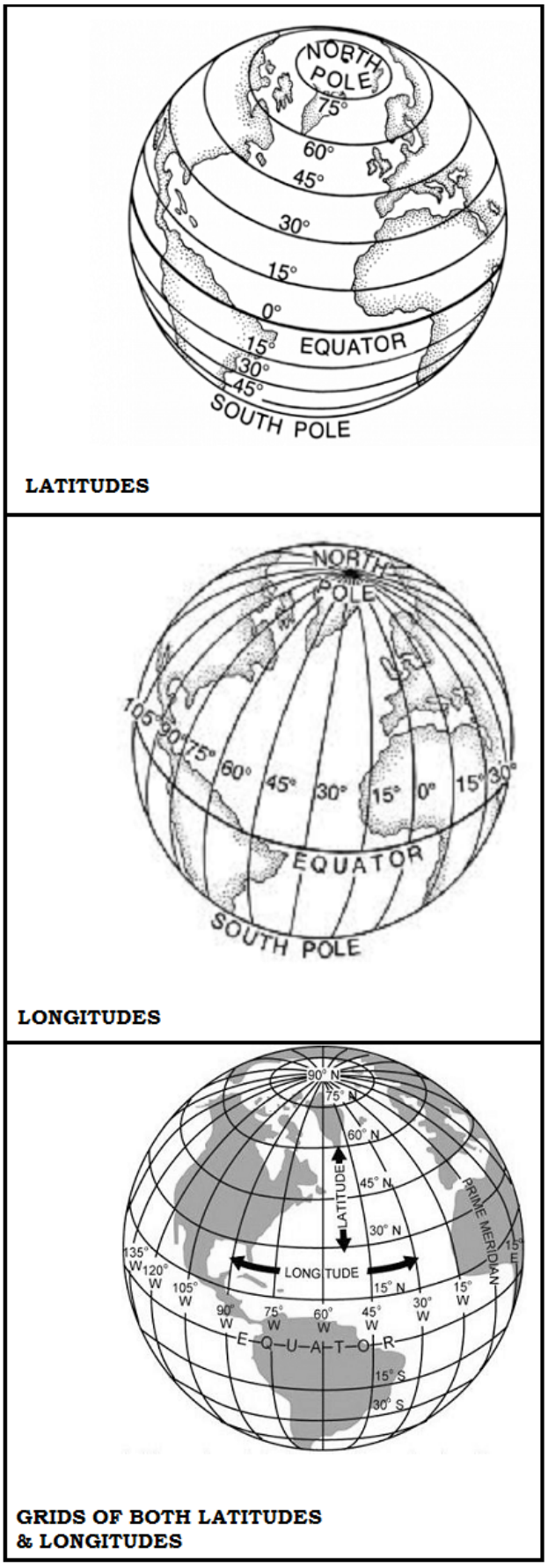
The prime meridian is located at 0° it is neither east nor west. Meridians of longitude are numbered east from Prime Meridian to the 180° line and west from the Prime Meridian to the 180° line. The Prime Meridian (0°) and the 180° line split the earth into the Western Hemisphere and Eastern Hemisphere.

Exact location of a place or a feature on earth can be easily located on earth (by using maps and globe) by combining latitude and longitude. The intersection of these two can help us locate a place. For example New Delhi locates at the intersection of the latitude 30^0 N and the longitude 70^0 E. Likewise a larger region can also be identified with the help of the parallels of latitudinal extension and meridians of longitudinal extension. For example try to locate India and its extension on a political map of either Asia or world. The grid extension of India can be seen as given in the figure. below.

Location of India with the help of Longitude & Latitude

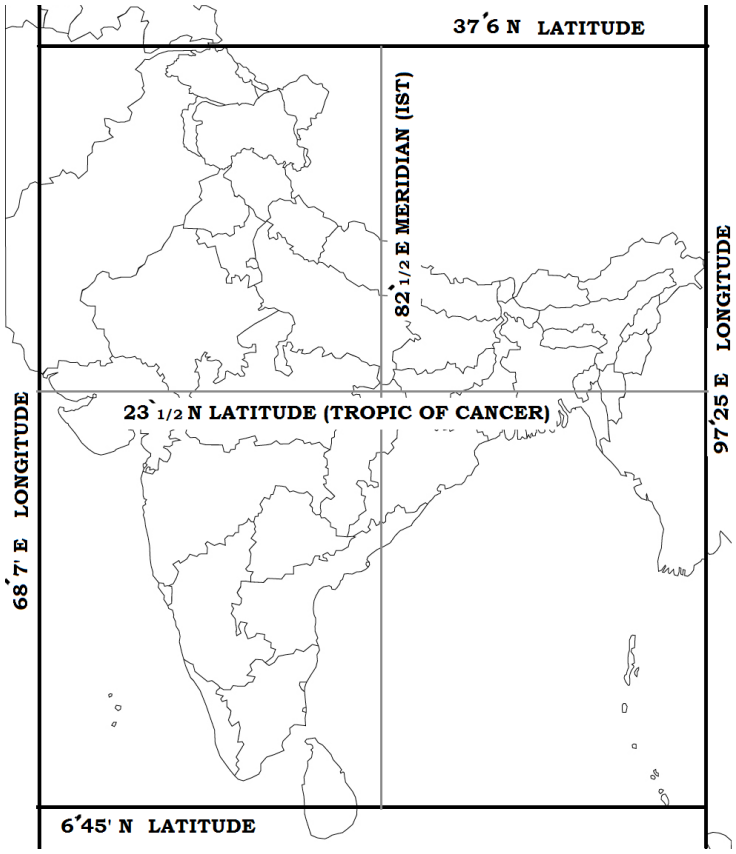
From the above map it is clear that the geographical extension of India extends between 6°45′ N and 37°6′ N latitudes between 68°7′ E and 97°25′ E longitudes. This is how with help of parallels of latitude and the meridians of longitudes location and extension of any country, continent or region can be identified.

Apart from locational usage this grid system of parallels and meridians is also very useful for geographical, geological, meteorological, agricultural and political purposes. Navigation system has become easy, calculation of time accurate and aviation comfortable.



The Grid System of Lat. & Long

Source: Author's edition



Locating India with Latitudes and Longitudes

(Source: Author's edition)

Comparison between Latitudes and Longitudes

Parallels of Latitude	Meridians of Longitude
1. Latitude is the angular distance of a point north or south of the equator as measured in degrees.	➢ Longitude is the angular distance along the equator measured in degrees. It is measured east or west of Greenwich, from 0° to 180°.
2. All latitudes are parallel to the equator.	➢ All meridians of longitude converge at the poles.
3. On a globe, parallels of latitudes appear as circles.	➢ All meridians of longitude appear as circles running through the poles.
4. The distance between two latitudes is approximately 111 km.	➢ The distance between two longitudes is maximum at the equator (111.3 km) and minimum at the poles (0 km). Midway, at 450 of latitude, it is 79 km.
5. The 00 latitude is referred to as the equator and the 90° as the poles.	➢ There are 360° of longitude, 180° each in the east and west of the Prime Meridian.

6. The latitudes from the equator to the poles are used to demarcate temperature zones, i.e. 0° to 23 ½° north and south as the torrid zone, 23 ½° to 66 ½° as the temperate zone and 66 ½° to 90° as the frigid	➢ The longitudes are used to determine the local time with reference to the time at Prime Meridian

Source: Practical Work in Geography-part 1, NCERT, 2010

Scale Representation

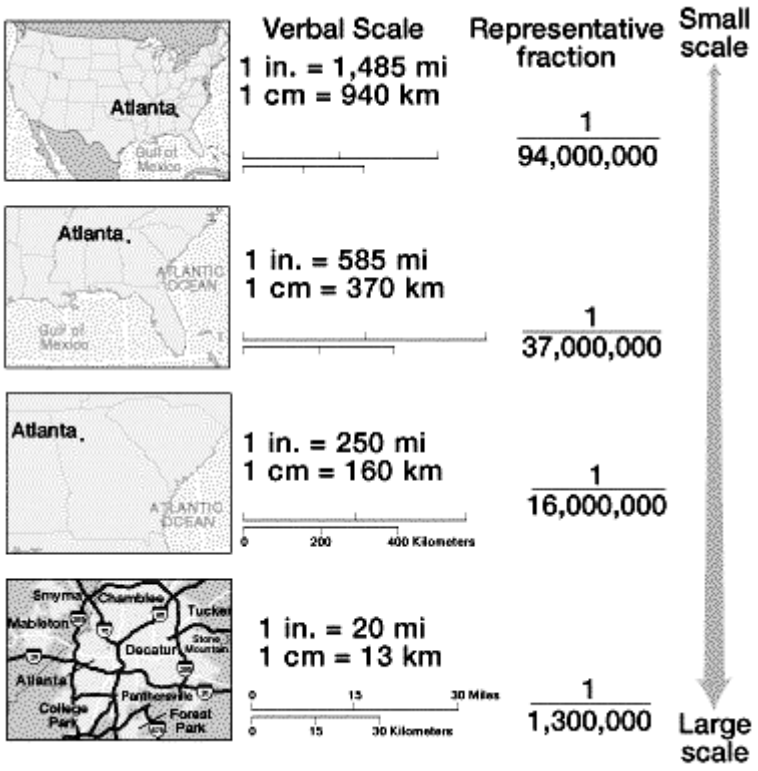
Scale representation is a method by which ground distance is denoted on the map. The is a representation of actual distance on the map using different means of scale representation. It is kind of a relationship between the actual distance between any two points on the surface of the earth and that which is shown on a map or globe.

This relationship can also be expressed in terms of ratio of distance between two points on the ground with the corresponding distance of the same two points on a map. This representation may be shown in centimeters or inches corresponding to kilometers of miles. This makes the map more useful to us as we can apply the map to the real world by visualising what the map represents. It can also be used to calculate the actual distance on the ground.

There are at least three ways to represent scale, varying in simplicity and usefulness. These three major scaling methods are:

a) Statement of Scale
b) Representative Fraction (R.F.)
c) Graphical Scale

There are two different systems of measurement of scale used to measure the distances in different parts of the world. These are Metric system and English system. Metric system uses miles, furlongs, yards, feet and inches where as English system uses Kilometers, metres and centimeters. Scale of the map may be expressed any one of the methods of scale or a combination of both though multiple scale representation is most popular. Figure. Types of Scale Representation



Types of Scale Representation

Now let's learn in about the different methods scale.

a) **Statement of Scale:** A written statement may be used to express or indicate the scale of a map. Such statements tend to be meaningless when people who are unaware of a particular system of measurement. For example: A statement of scale can be expressed on a map like 1 cm represents 100km denotes that on the given map a distance of 1 cm represents 100 km of the corresponding distance on the ground. The statement of scale may also be indicated on a map as 1 inch represents 100 miles. This means a distance of 1 inch on the given map represents 100 miles of corresponding distance on the ground. This type of representation has basically two limitations. One, when one a one of measurement systems is not understood by people where it is not in practice leads to confusion. Second, when the map is enlarged the statement fails to give the correct scale.

b) **Representative Fraction (R.F.):** The second important method of scale is R.F. or representative fraction which expresses the relationship between the distance on map and corresponding distance on the ground in units of length. It is widely used and most commonly found methods of scale because of its use of units to express the

scale. Representative fraction is shown in fraction so as to indicate how much the actual distance or space on the ground is reduced to accommodate on a map. Let's consider an example: R.F of 1:1, 00,000 shows that one unit of length on the map represents 1, 00,000 of the equal units on the ground. To simplify, it means one mm, one cm or one inch on the map represents equals units of 1,00,000 mm, 1,00,000 cm, 1,00,000 inch respectively. This quality of simplification and easy conversion makes it universally acceptable.

1. **Graphical Scale:** The graphical scale or bar scale is a visual representation of the distances shown on a map. A line or block is divided into equal sections which are numbered to show what distance that length is representing. Unlike the statement of the scale method, graphical scale stands accurate and valid even when it enlarged or reduced.

Graphical Scale

(*Source:* Author's Edition)

Mesuring of a Scale

While measuring distances on a map, some of use a ruler, this is obviously only useful for measuring straight lines. Some while measuring curved lines such as along a road it is possible to use a piece of string to mark the distance and then measure along the string with a ruler. Use of a 'map measurer' with a small wheel linked by gears to a dial from which distances can be read is also another common approach. But using methods gives us accurate distances.

While using a word statement, taking measurements can be quite simple as the units described can be directly converted. For example, if a map states its scale as 'one inch to one mile', two inches would show two miles, three inches three miles and so on.

However, if you wished to work in centimetres, it would be necessary to calculate the RF from the statement, so you would need to know that one mile equals 63,360 inches, therefore making the RF 1:63360 (see table for measurement systems and conversion).

Systems of Measurement

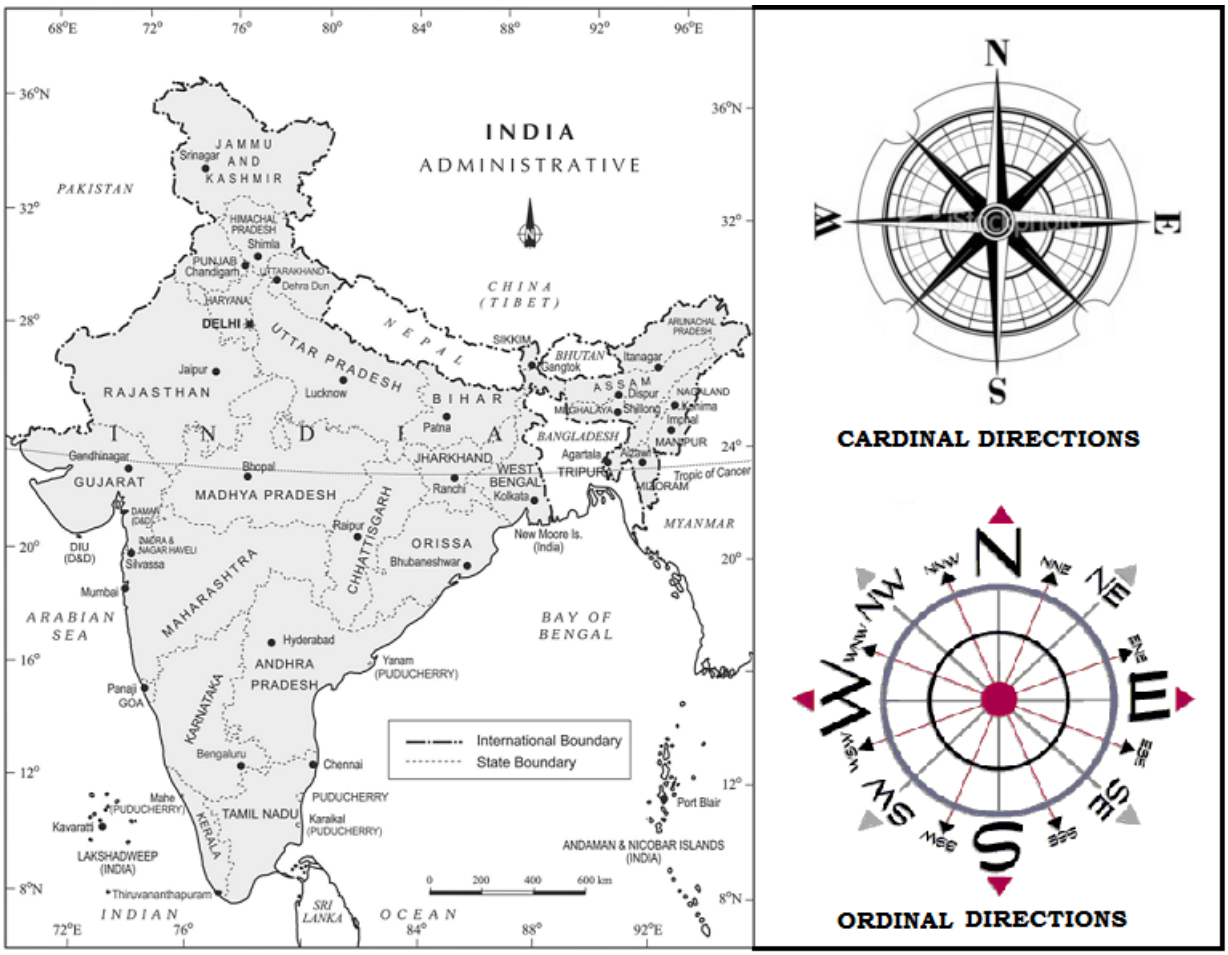
Metric System of Measurement	
1 km	=1000 Metres
1 Metre	=100 Centimetres
1 Centimetre	=10 Millimetres
English System of Measurement	
1 Mile	=8 Furlongs
1 Furlong	=220 Yards
1 Yard	=3 feet
1 Foot	=12 Inches

Source: Practical Work in Geography- 1, NCERT, 2010

To use an RF, the initial calculation is quite simple. Take the measurement from the map and multiply it by the fraction's denominator. For example, you measure a distance on a map of scale 1:100 000 as being 4cm. 4 cm multiplied by 100 000 equals 400 000 cm (or 4 km since there are 100 000 cm in a km). However, these calculations are not always so simple when using unusual scale figures or units that are not multiples of ten, such as inches. The easiest way to measure from a map is probably to use a Graphical scale or a bar scale. Once the distance has been measured on the map, the same distance can be measured along the graphical scale to know the corresponding ground distance.

Directions

Dircetions play vital role in map reading, map drawing and even in our daily life. It was quite difficult in the olden days to fund out exact direction though they had developed some scientific methods to understand direction. Some used stars (it had the disadvantage of not useful in the day light) and some used direction of sun and other means. Compass rose was only developed in the recent human histroy and a magnetic compass came into existance only during the era of oceanic explorations from the fourtheenth century. Ships navigating in the oceanic waters highly depended on the compass for moving their ships in a proper direction. Modern technology today has made the job pretty easy with the invention of GPS(Global Positioning Sysytem). On ecan navigate anywhere on the earht without losing oneself. However all the modern navogation system still stick on to the directions for interpretation of the movement.



Directions (cardinal and ordinal)

Source: Map sourced from www.mapsofindia.com and Edited by the Author

The directions are grouped into two major categories and they are Cardinal Directions and Ordinal Directions (also referred as intermediate or intercardinal directions). There are four directions each for cardinal and ordinal. These four cardinal directions or cardinal points are the directions of north, south, east and west, These four cardinal directionas are commonly identified with their initial letters in capital form such as N (North), E (East), S(South), W (West). East and west are at right angles to north and south, with east being in the clockwise direction of rotation and west being directly opposite.

Cardinals being the major directions ordinal directions bifercate them further. Ordinal points (Intercardinal) between the four cardinal directions form the points of the compass. Thus the ordinal directions to be noted are northeast (NE), southeast (SE), southwest (SW), and northwest (NW) respectively. Anyone facing north on the earth will have south behind him, east on their right hand side, and west on their left hand side.

With the help of political map of India given above (Figure) and the compass rose beside let's locate some of the places falling on a particular direction. Some of the states fallin in the cardnal directions are, Jammu and Kashmir and Himachal Pradesh are in the north (N). West Bengal and Orissa are in the east (E). Tamil Nadu and Kerala are in the south (S). where as Maharashtra and Gujarat are in the west (W). Now lets locate some state which fall in the ordinal directions. Assam and Arunachal Pradesh are in the northeast (NE), Andaman and Nicobar Islands are in the southeast (SE), Lakshadweep Islands are in the southwest (SW) and Rajasthan and Punja are in the northwest (NW). Now find out in which direction do the following places are located: Jammu, Kohima, Bhubaneshwar, Port Blair, Kanyakumari, Kavarathi, Porbandur, and Jaisalmer.

The directions very much useful for geographical as well as daily requirements. Cartographers (who make maps) use these directions to draw their maps accurately. Travelers need directions to reach to a particular attraction. Directions are clearly noted mostly with the help of a compass rose printed on all maps. Though the modern digital equipments help navigation on surface, in the waters and in the sky, nevertheless the core elements of these equipments are directions which include cardinal and ordinal points. Sometime further division of the ordinal points is also done for even more precise location of places such as NNE (north-north-east), ENE (east-north-east), ESE (east-south-east), SSE (south-south-east), SSW (south-south-west), WSW (west-south-west), WNW (west-north-west) and NNW (north-north-west).

Conclusion

Map reading techniques are essential for travelling which enable easier and accurate way of movement. Some of the important concepts to be understood in map reading are to know the use of latitudes and latitudes. This will help locating any place. It is also important to understand the representation of scale on a given map and how these represented scales are measured using different methods. Apart from these inputs visitors will have better understanding of a place if they are familiar with the directions and reading directions using a tourist map. These basic concepts enable travelers for a comfortable travel.

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Lesson 3.2 - Time Zones

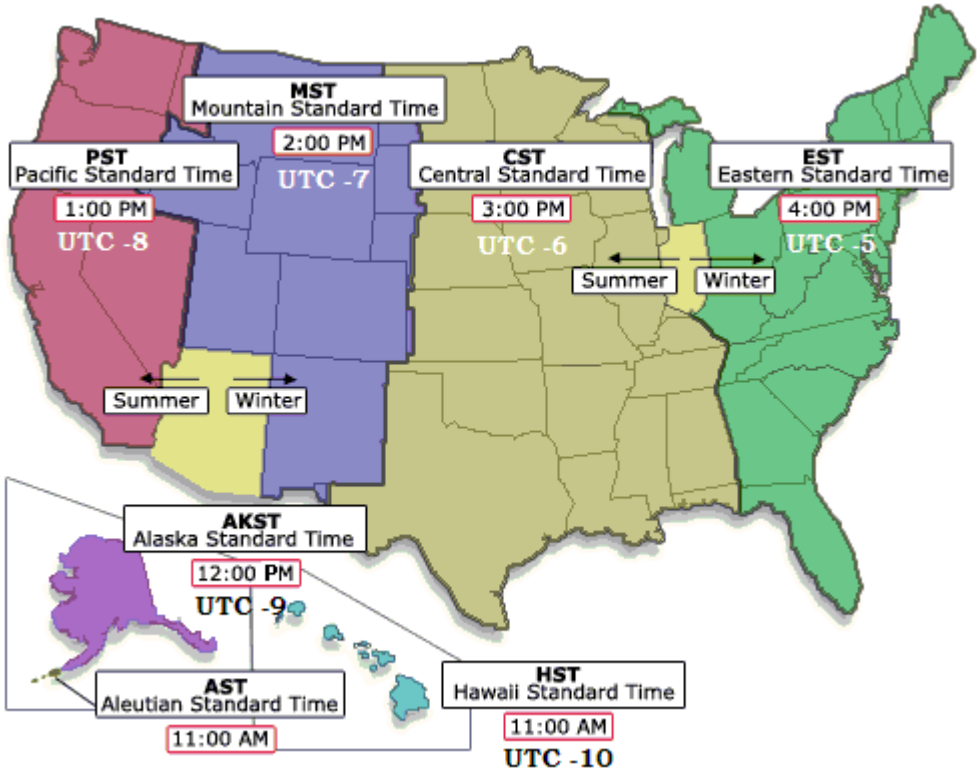
Introduction

The meridians of longitude are not only used for measuring distance to the east or west of the prime meridian, but they are also used to determine the time zones. All of us know one basic concept that sun is stable and earth rotrates and it takes for the earth 24 hours to make one complete rotation on its own axis. Since the circumference of the earth is 360 degrees, the earth turns towards the sun 150 degrees per hous (360 degrees divided by 24 hours). The earth is divided into 24 time zones; each time zone is equivalent to approximately 15 degrees of longitude, or is 15 degrees wide**.** When the sun is directly over a meridia, the time is 12:00 noon at point located along the meridian. Places located east of that meridian are experiencing afternoon hours, and those located west are experiencing morning hous, with each time zone equivalent to one hour. The time at the prime meridian, also know as Greenwich Mean Time (GMT), serves as a basis of all world time zones. A time zone that it is 15 degrees wide with the prime meridian running through the center of it has been established. The purpose of this is to measure the time at any place on earth and compare it to GMT.

Now let's try to understand how this east to west mechanism from the GMT works in establishing the time zones and difference of the time with a time zone with that of the GMT accordingly.

EAST OF GMT: Places on the earth that are located to the east of the GMT are a certain number of time zones ahead of GMT, or a certain number of hours later in time than the GMT. As one move further east of GMT, times become later at different points on the earth. A place that is located in the first time zone to the east of GMT is at +1 or one hour ahead of GMT. A place that is located in the fourth time zone east of GMT is at +4 or four hours ahead of GMT. This progression (+1,+2,+3….) continues upto the 180 degrees meridian, which is located half-way around the world from GMT.

WEST OF GMT: Places on earth located west of GMT are a certain number of time zones behind GMT. This also means that places on earth located west of GMT are a certain number of hours earlier in time than at GMT. As one go further west of GMT, times becomes earlier at different points on the earth. For example, a place that is located five time zones to the west of GMT is at -5 or five hours behind GMT. A place that is located ten time zones to the west of GMT is -10 or 10 hours behind GMT. This progression (-1,-2,-3…..) continues up to the 180 degrees meridian.



Time zone of the USA

Source: www.worldtimezones.com

There are many countries having multiple time zones mainly because of their vast east west extension of area. Countries with such characteristics have more than one time zone. Countries such as the United States of America has 6 time zones (though there are 11 time zones in total including the farther islands), Russia 9, Canada 6, Australia 8, United Kingdom 8, Brazil 3, Kazakhstan 2, France 12, Denmark 5, New Zealand 5, Mexico 3, Indonesia 3, Kiribati 3, Congo 2, Chile 2, Ecuador 2, Federated States of Micronesia 2, Kingdom of the Netherlands 2, Magnolia 2. Portugal 2 and Spain 2.

Countries like France, the United States of America, Netherlands, and Australia have more than one times zones though their mainland areas are not stretched much more than for 3-6 time zones. This happens because of their off-sea islands present away from the mainland. For example, the USA has 6 time zones only linked to the mainland.

Apart from these there are seven other time zone related to the USA as many of the islands owned by the USA are far away from the mainland. Same is the case with France which has only one time zone for its mainland in the Europe whereas the total numbers of time zones of France are 12, because of many of its small islands and other regions located at some far off parts of the globe.

Time Calculation and the Longitudes

It's well known universal truth that sun rises in the east and sets in the west. The truth actually is, not the sun but earth happens to rotate from west to east on its own axis making it look as though sun moves around to cause day and night. The rotation of earth takes 24 hours to complete on circle or 360^{o} of longitudes.

The sun takes 12 hours time to travel the eastern and western hemispheres each as the 180^{o} of longitudes fall both east and west of the Prime Meridian. This enables us to calculate the time taken by the sun to traverse for any number of longitudes.

Thus, it can be said that sun takes one hour time to traverse 15^{o} and four minutes to traverse between one longitudes to the other. As we move from east to west the time increases and at the same time as we move from west to east the time decreases.

The rate at which sun takes to traverse from one degree to the other can be used to calculate the local time of a place with respect to that of the time at the Prime Meridian of 0^{o}.

In the following section, we shall try to calculate time of a certain place with respect to the time at the 0^{o} longitude i.e.

Example 1

Determine the local time of Mirzapur (India) located at 82.5° east longitude when the time at Greenwich (0°) is 12.00 noon.

Statement

The time increases at the rate of 4 minutes per one degree of longitude to the east of the Prime Meridian.

Solution

The difference between Greenwich and Jaipur = 82.5° of longitudes
Total time difference = 82.5x4 = 330 degrees
= 330/60 hours
= 5.5 hours

Hence, the local time of Mirzapur is 5 hours and 30 minutes more than that of Greenwich i.e. 5.30 pm.

Example 2

Determine the local time of Port of Spain (Trinidad) located at 60° west longitude when the time at Greenwich (0°) is 12.00 noon.

Statement

The time decreases at the rate of 4 minutes per one degree of longitude to the west of the Prime Meridian.

Solution

The difference between Greenwich and Port of Spain = 60° of longitudes
Total time difference = 60x4 = 240 degrees
= 240/60 hours
= 4.00 hours

Hence, the local time of Port of Spain (Trinidad and Tobago) is 4 hours less than that of Greenwich i.e. 4.00 am.

Example 2

Determine the local time of Bogota (Capital of Colombia) located at 75° west longitude when the time at Greenwich (0°) is 12.00 noon.

Statement

The time decreases at the rate of 4 minutes per one degree of longitude to the west of the Prime Meridian.

Solution

The difference between Greenwich and Bogota = 75° of longitudes
Total time difference = 75x4 = 300 degrees
= 3000/60 hours
= 5.00 hours

Hence, the local time of Port of Spain (Trinidad and Tobago) is 4 hours less than that of Greenwich i.e. 4.00 am.

Now find out the local time of the following cities and also find out the time zone of the place in order to ascertain the exact time of the place because sometimes the local time calculated may not be the same as that of the time zone the region follows.

Santiago (Chile)

New Delhi (India)

Kaulalampur (Malaysia)

Colombo (Sri Lanka)

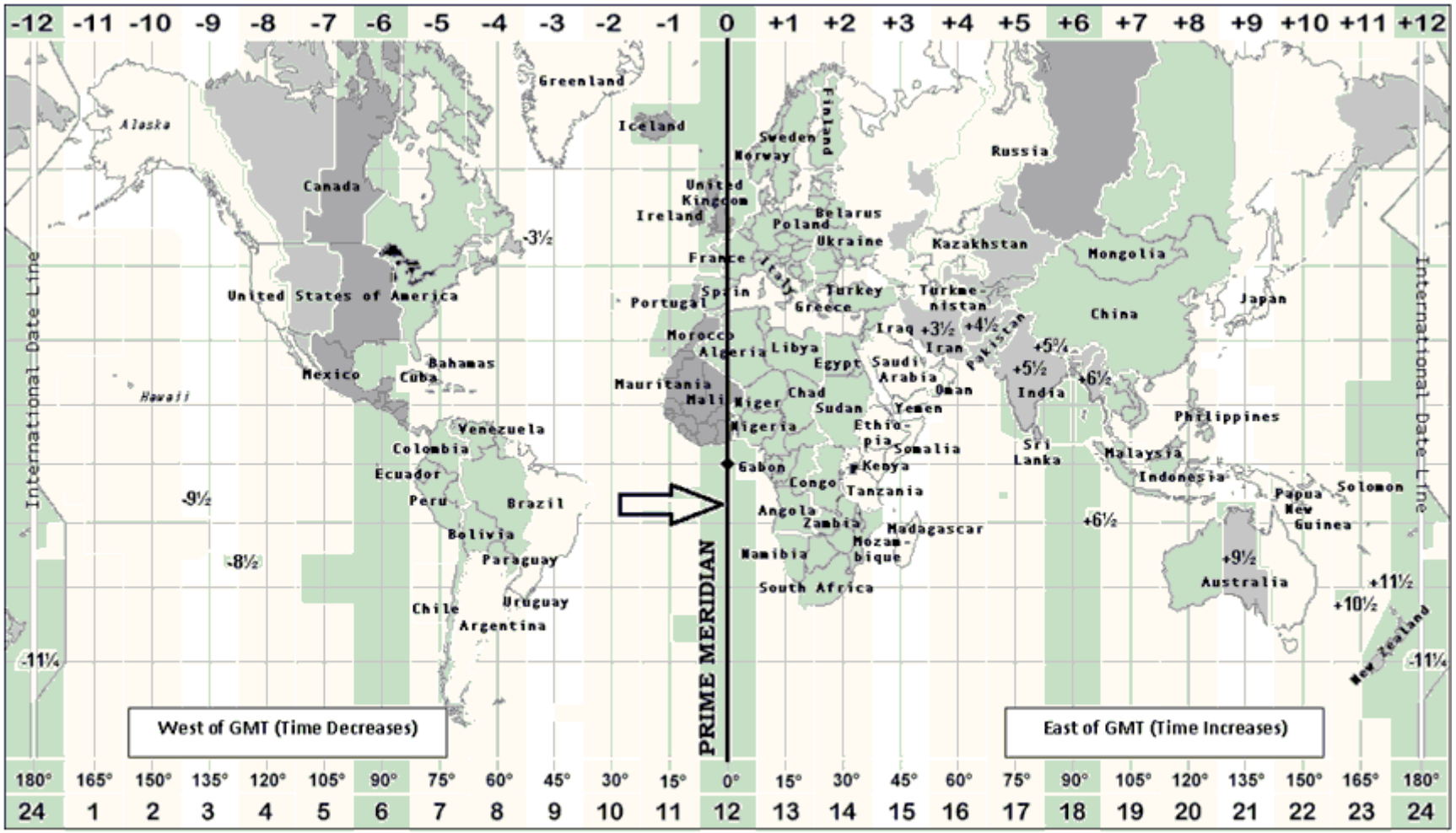
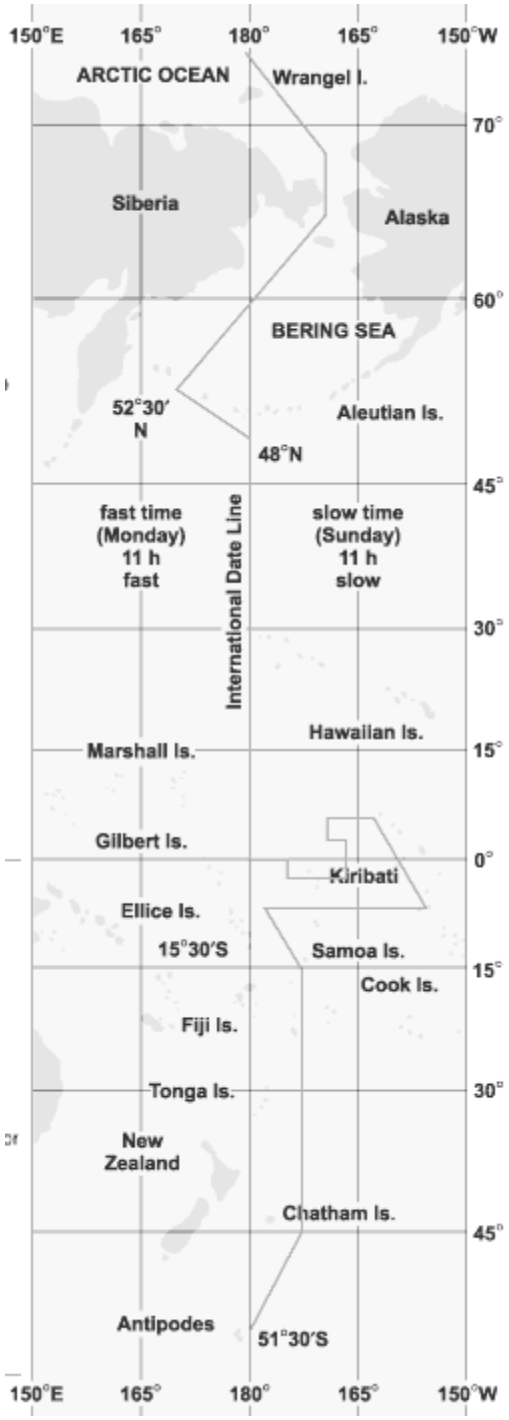


Figure. 3.7. Time Zones of the World
Source: www.worldtimezone.com



International Date Line

While the world is divided into 24 time zones, East of Greenwich 180 degrees and west of Greenwich 180 degrees is of course the same thing. Thus, the International Date Line (IDL) is an imaginary line of longitude on the Earth's surface located at about 180 degrees east (or west) of the Greenwich Meridian. The International Date Line (IDL) is an imaginary line on the surface of the Earth that runs from the north to the South Pole and demarcates one calendar day from the next. It passes through the middle of the Pacific Ocean, roughly following the 180° longitude but it deviates to pass around some territories and island groups.

Further this imaginary line separates two consecutive calendar days. It is not a perfectly straight line and has been moved slightly over the years to accommodate needs (or requests) of varied countries in the Pacific Ocean. When the air traveler crosses IDL, the date changes to either the day before or the day ahead. The area west of the IDL (i.e. Pacific region and Asia) is always one day ahead of the area east of the Date Line (i.e. Hawaii and the continental United States). It means when a client crosses the line westward, the day changes to the next day. Monday immediately becomes Tuesday and when a client crosses the line travelling eastward day changes to the previous day-Wednesday becomes Tuesday. Let us take an example. A traveler is on westbound flight from Las Vegas

to Hong Kong across the Pacific Ocean. The plane departs on Tuesday morning. The moment air place will cross the IDL, it automatically become the same clock on the next calendar day, or Wednesday. For the opposite direction, the traveler is on the eastbound flight from Melbourne to Chicago and let it departs on Thursday. The moment plane crosses the IDL, it automatically becomes the same clock time on one calendar day earlier or Wednesday.

Conclusion

It would be havoc if there were no time zones. Nobody would understand where the day started and where it ended. Time zones have rectified all these problems and today the world ahs twenty four time zones which have been chosen as per their zoning and convenience by different countries.

It is also an important skill in mapping techniques of geography to understand how time calculation is done using longitudes and identify the correct time of a particular place in a time zone. Another important element of map and also confirming dates is international date line which eliminates any doubt regarding change of date as one move across the line. These techniques help not only the tourists but also businesses and geographers in different parts of the world.

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Lesson 3.3 - Altitide

Introduction

Altitude plays an important role in geography. Here altitude is commonly used for knowing the vertical location of a place or winds from sea level. The usage of altitude is also vital to the aviation industry. In the same manner meteorological and other sciences use atmospheric altitude to determine the layers of atmosphere. As a general definition, altitude is distance measurement, usually in the vertically or up direction. The term altitude is commonly used to mean the height above sea level of a location. In geography the term elevation is often preferred for this usage. Vertical distance measurement in the down direction is commonly referred to as depth.

Altitude in Aviation: In aviation, the term altitude may have several meanings, and mainly referred as height above the sea level or height above the ground level. There may be several types of aviation altitude

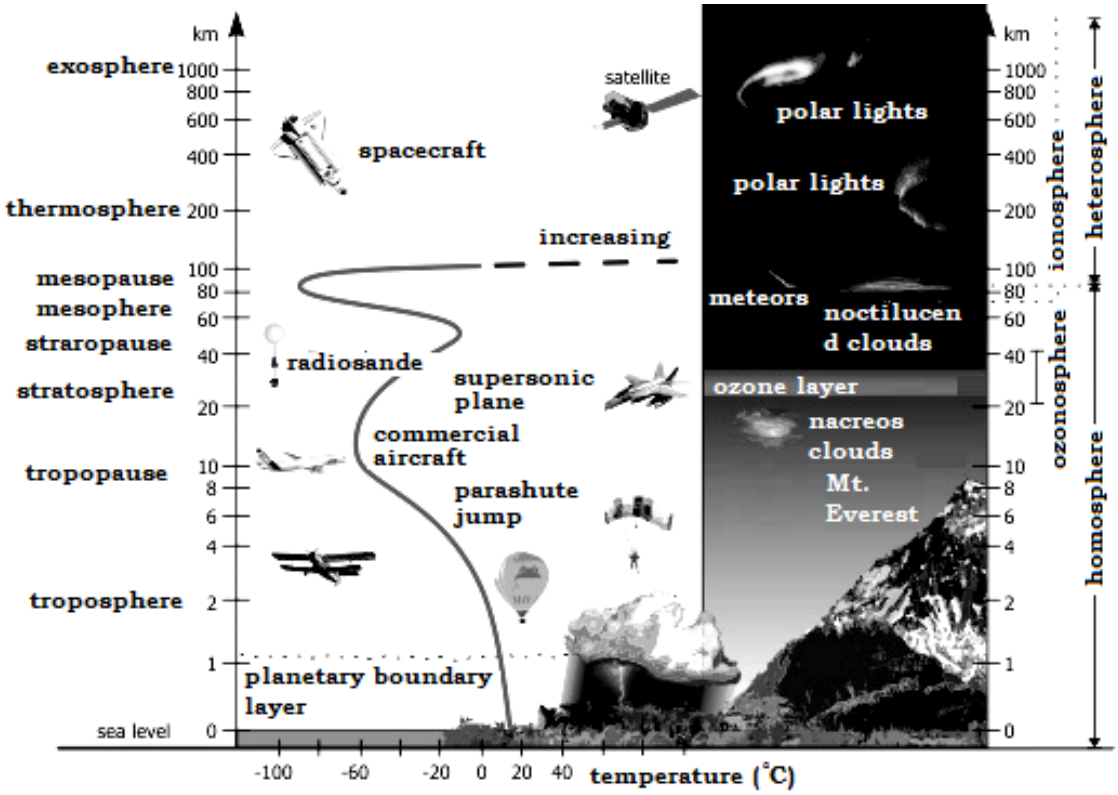
a. **Absolute Altitude:** The height of the aircraft above the terrain over which it is flying is known as absolute altitude. Also referred to feet/meters above ground level (AGL)
b. **True Altitude:** The actual elevation above mean sea level (MSL)
c. **Pressure Altitude:** The air pressure in terms of altitude in the International standard Atmosphere
d. **Density Altitude:** The density of the air in terms of altitude in the International standard Atmosphere
e. **Indicated Altitude:** The reading in the Altimeter
f. **Height:** Altitude in terms of the distance above a certain point

Altitude in Physical Geography: In physical geography altitude holds an important role. Altitude is used to know at what height a landmass

or any other physical feature is located from the sea level. In other words 'true altitude' is applied to calculate the height of a place from the mean sea level (MSL). This also helps us to understand the effect of other physical phenomena as the altitude increases. It is observed that places above an altitude of 3000-4000 metres generally experience the cold climate and alpine vegetation and as we move further up the altitude polar climate may be visible. True altitude is used to identify the height of a landmass from MSL such as Mt. Everest is located at an altitude of 8868 metres from MSL.

Altitude **Regions**

The earth's atmosphere can be divided into various altitude regions



Altitude of Atmospheric layers

Source: www.meteorological.com

a. Troposphere — surface to 8,000 metres (5.0 mi) at the poles – 18,000 metres (11 mi) at the equator, ending at the Tropopause.
b. Stratosphere — Troposphere to 50 kilometers (31 mi)
c. Mesosphere — Stratosphere to 85 kilometers (53 mi)
d. Thermosphere — Mesosphere to 675 kilometers (419 mi)
e. Exosphere — Thermosphere to 10,000 kilometers (6,200 mi)

Conclusion

Altitude of different connotation is vital to geography. The atmospheric zones or levels as one move vertically from atmosphere are vital in understanding the mechanism of the earth's atmosphere and the outer space. This knowledge has helped the science of astrophysics and astronomy. As one moves vertically on earth's physical features there are a variety of geographical changes witnessed. Altitude in aviation also plays an important role.

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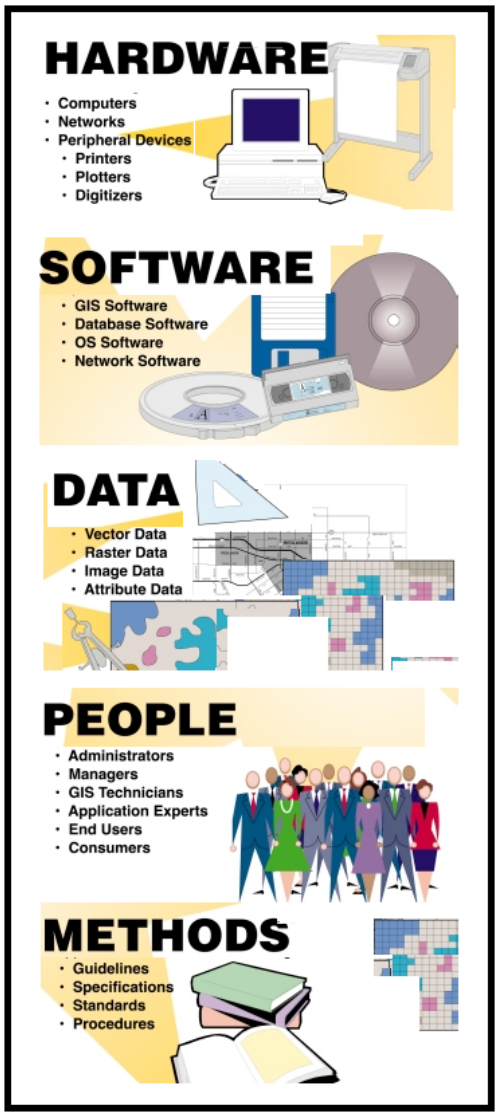
Lesson 3.4 - GIS & Remote Sensing

Introduction

Study of Geography is incomplete without the application of geographic information system which is used for digital mapping. On the other hand remote sensing is used in mapping earth and different features of earth which helps in better management of the mapped area. Application of both geographic information system and remote sensing has immensely enhanced destination management and scientific management of tourist destinations regions and attractions.



Components of GIS

Source: Author's Edition GIS & Remote Sensing

Geographic Information System (GIS)

A geographic information system (GIS) is a computer-based tool for mapping and analyzing features and events on earth. GIS links locational (spatial) and database (tabular) information and enables a person to visualize relationships and trends. This process gives an entirely new perspective to data analysis that cannot be seen in a tabular or list format. GIS technology integrates common database operations, such as query and statistical analysis, with maps. GIS manages location-based information and provides tools for display and analysis of various statistics, including population characteristics, economic development opportunities, and vegetation types. The system

allows you to link databases and maps to create dynamic displays. These abilities distinguish GIS from other information systems, and make it valuable to a wide range of public and private enterprises for explaining events, predicting outcomes, and planning strategies. Geographical information system includes maps, and imagery. The collection of imagery is commonly achieved through remote sensing. The components of GIS are hardware, software, data, people and methods (for details see figure).

Remote Sensing

Remote sensing has been defined as, the total processes used to acquire and measure the information of property of objects and phenomena by a recording device (sensor) that is not in physical contact with the objects and phenomena in study (NCERT, 2010). The definition clarifies about what constitutes the remote sensing; it basically involves an object surface, the recording device and the information carrying energy waves. In other words, remote sensing can be defined as the art and science of making measurements of the earth using sensors on airplanes or satellites. These sensors collect data in the form of images and provide specialized capabilities for manipulating, analyzing, and visualizing those images. Further, it is the acquisition of information about an object or phenomenon without making physical contact with the object. The modern usage of remote sensing generally refers to the use of aerial sensor technologies to detect and classify objects on Earth (both on the surface, and in the atmosphere and oceans) by means of propagated signals (e.g. electromagnetic radiation emitted from aircraft or satellites).

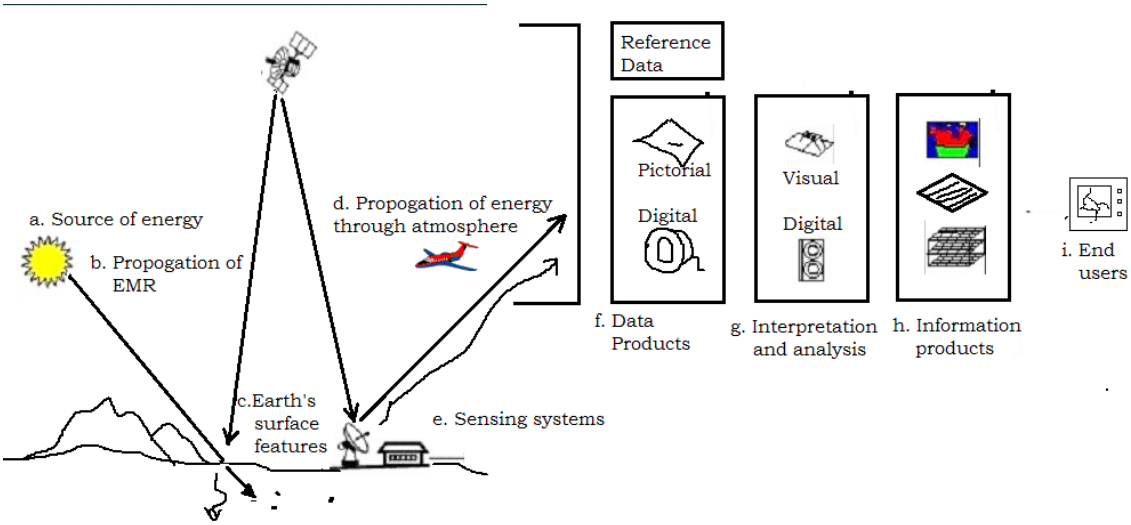
Stages in Remote Sensing: There are different processes involved in the remote sensing. Each stage is equally important in the collection of information about the feature of objects and phenomena of the surface of the earth. These stages are (list taken from NCERT, 2010 Geography Practical Workbook) (refer figure):

a) Source of Energy (either by sun or self emission)
b) Transmission of energy from the source to the surface of the earth
c) Interaction of energy with the earth's surface
d) Propagation of reflected/emitted energy through atmosphere
e) Detection of the reflected/emitted energy the sensors
f) Conversion of energy received into photographic/digital form of data

g) Extraction of the information contents from the data products

h) Conversion of the information into maps/tabular forms/ photographs/designs etc and

i) Disbursing it to the end users



Stages in Remote Sensing

(*Source:* NCERT,2010 & Author's Edition)

Sensors: Sensors are devices which gather electromagnetic radiations. After gathering these electromagnetic radiations sensors convert them into a signal and then present them in suitable form for collecting information about the objects and object features under our investigation. On the basis of the form of the data output sensors are classified into two. They are a) photographic (analogue) and b) non-photographic (digital) sensors.

A photographic (analogue) sensor records the images of the objects at an instance of exposure. Whereas a non-photographic sensor obtains the image of an object in bit-by-bit form. The remote sensing systems use non-photographic type of sensors. Multispectral scanners (MMS) are a good example of this type of sensors. They are used in satellites designed to obtain images of the objects while sweeping across the field. Further, there are two types of multispectral scanners viz. whiskbroom scanners and pushbroom scanners. Whiskbroom scanners have a rotating mirror and a single detector. The mirror is attached in such a way that when it completes a rotation, the detector sweeps the field of view between 90 to 120 degrees so as to obtain images in large number of narrow spectral bands. These bands put together and give us the total data for analysis and interpretation. On the other hand, pushbroom scanners consist of a

number of detectors unlike the whiskbroom scanner which are equivalent to the number obtained by dividing the swath of the sensor by the size of spatial resolution.

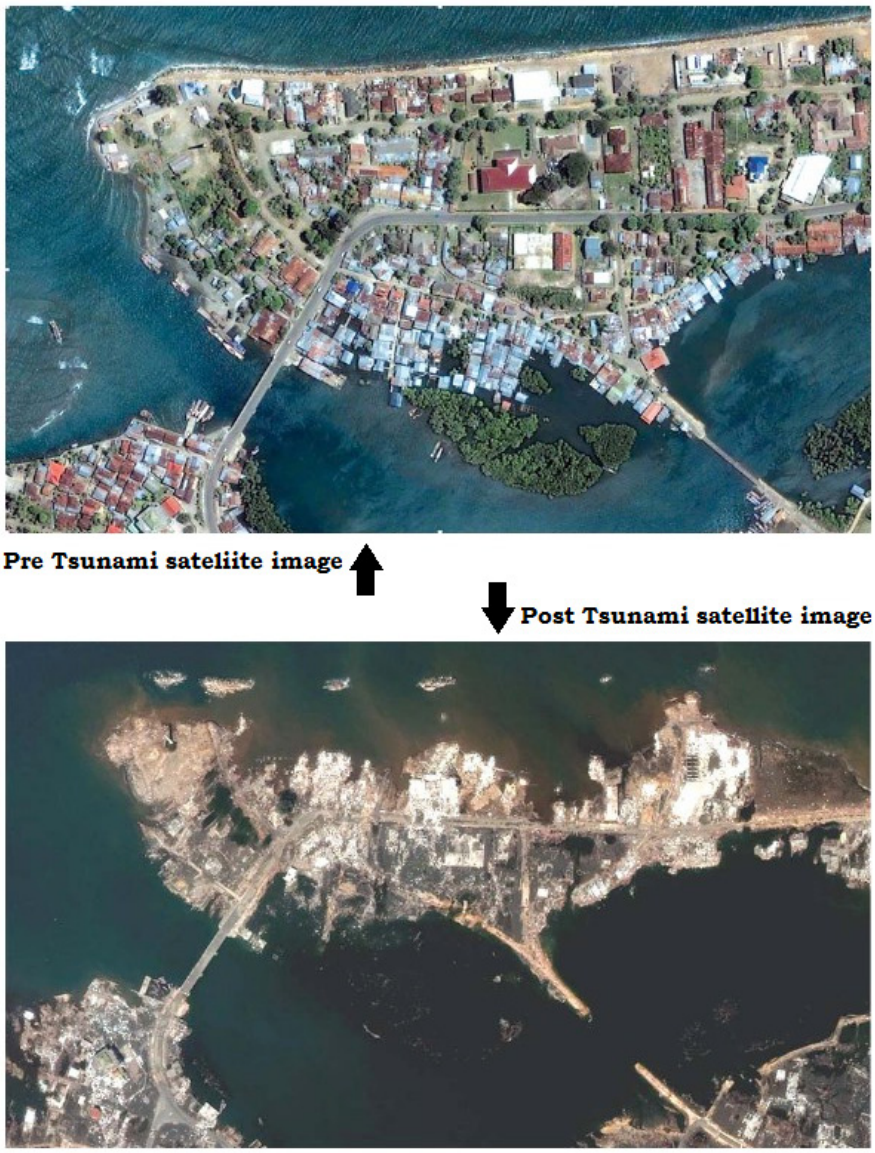
Applications of Remote Sensing: Remote sensing can be used for applications in several different areas with different purposes which may include:

- Destination Planning Management
- Geology and Mineral exploration
- Hazard assessment
- Oceanography
- Agriculture and forestry
- Land degradation
- Environmental monitoring

Sensors used in remote sensing have a special purpose individually. With optical sensors, the design focuses on the spectral bands to be collected. With radar imaging, the incidence angle and microwave band used plays an important role in defining which applications the sensor is best suited for. Each application itself has specific demands, for spectral resolution (it refers to the width or range of each spectral band being recorded), spatial resolution (refers to the discernible detail in the image) and temporal resolution (refers to the time interval between images).

To consider an application of the remote sensing in the forest inventory. Forest inventory is a broad application area covering the gathering of information on the species distribution, age, height, site quality and density.

To identify the species in the forest, we could use imaging systems or aerial photos. For the age and height of the trees, radar could be used in combination with the species information assessed at a first stage. Density is achieved mainly by an optical interpretation of aerial photos and/or high-resolution panchromatic images. As for site quality, is one of the more difficult things to assess. It is based on topological position, soil type and drainage and moisture regime. The topological position can be estimated using laser or radar. However, making use of this data the soil type and drainage and moisture regime could be more profitably collected.



Satellite images of Nagapattinam before and after the tsunami in 2004

Source: www.portal.gsi.gov.in

Conclusion

The application of GIS and remote sensing has scientifically advanced the techniques of mapping and studying the different features of earth and even to the extent of smallest of the objects using remote sensing techniques through satellites. Mapping through these methods we have managed to assimilate many things together of a feature and understand the limitations. Better management of destinations is today possible only because of the availability of these scientific applications with us.

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Lesson 3.5 - Calculation of Time (Flying Time/Elapsed Time)

Introduction

Aviation industry uses time calculation methods for better management of flights in different regions. To avoid any confusion in the time at a particular place and actual time taken by a flight to reach from a destination time calculation methods have been derived. These are also called as flying time and elapsed time methods. The scheduling of flights from different places is simplified using these methods of time calculation and improvised the aviation.

Methods of Calculation

Flying time or elapsed time denotes the total time taken by a flight to reach from its origin point to the destination point. To calculate flying time is a bit complex. Let us start understanding the concept of Flying time/Elapsed time with an example as given below:

Suppose a Jet Airways flight 9W020 departs DELHI (DEL) at 2200 hrs and arrives in SINGAPORE (SIN) at 0630 in the morning next day. What will be the flying time in this case? In this case if the flying time is calculated by deducting the departure time (2200) from the arrival time (0630), it will be like,

Arrival Time (0630) - Departure Time (2200) = Flying Time (08 Hrs 30 Minutes).

Though the generic method is correct, the flying time calculated from the above method is incorrect, as flight departure and arrival time are always given in standard time of that particular country, which means in the above example when flight departed from DEL at 2200 it was the standard time of India and when flight arrived in SIN it was the standard time of Singapore. Now both timings are in different time frame, and by deducting departure time from arrival time, we cannot calculate the exact flying time, if we want to calculate the exact flying time then either we

need to convert the Delhi time to Singapore time or we need to convert the Singapore time to Delhi time then both the timings will be in the same time frame and we can calculate the flying time accordingly. But to calculate flying time/elapsed time, we don't follow this practice. We do convert the standard time of both the countries i.e the departure city standard time and arrival city standard time into Greenwich Mean Time (GMT). It means when the flight departed from Delhi what was the time at Greenwich or at Prime Meridian and similarly when the flight arrived in Singapore what was the time at Prime Meridian (Greenwich). Let us understand this in a step by step procedure to calculate the flying time/ elapsed time with the help of some examples.

Steps in Calculation of Flying Time

Example 1

Calculate the flying time if 9W020 departs DEL at 2200 hrs (+5:30 hrs from GMT) and arrives SIN at 06:30 hrs (+8:00 hrs from GMT).

Step 1: standard time into 24 hrs if not converted (in this example the timings are already in 24 hrs so no need to convert them again)

Step 2: Conversion of Standard time into GMT Time

Step 2a Conversion of Departure Standard time to Greenwich Mean Time (GMT)

(In this case India is +5:30 hrs from GMT, if it is to be deducted 5:30 hrs from standard time we will get the Greenwich Mean Time, means when the flight departed from Delhi what was the time at Prime Meridian)

Departure Standard Time 22:00
Less(-)05:30

In the above case, we can write 22 00 as 21 Hrs 60 Minutes (We do this to make our calculation simple)

Departure Standard Time 21:60
Less(-)05:30

Time at prime meridian when flight departed from Delhi was 16:30

Step 2b Conversion of Arrival Standard time to Greenwich Mean Time(GMT) (In this case Singapore is +8:00 hrs from GMT, if we deduct 8:00 hrs from standard time we will get the Greenwich Mean Time, means when the flight arrived at Singapore what was the time at Prime Meridian

Arrival Standard Time 06:30
Less (-)08:00

(In the above case, it will be difficult to deduct 08:00 hrs from 06:30 so to make our calculations simple we will add 24 hrs in 06:30 hrs)

Arrival Standard Time 30:30
Less (-)08:00

Time at prime meridian when flight arrives in Singapore was 22:30

Step 3 Flying Time: Arrival Time - Departure Time
Flying Time: 22:30 - 16:30
Flying Time: 6:00 HRS

So the flying time which for first instance was coming 8:30 hrs actually is 6:00 Hrs.

Let's have some more examples.

Example 2

If AI 101 departs from Delhi (DEL + 05:30 GMT) at 01:45 hrs and arrives at the New York airport (NYC -05:00 GMT) at 07:25 hrs. Calculate the flying time.

Step 1: Convert standard time into 24 hrs if not converted (In this example, the timings are already in 24 hrs so no need to convert them again

Step 2: Conversion of Standard time into GMT Time

Step 2a Conversion of Departure Standard time to Greenwich Mean Time (GMT)

(In this case India is +5:30 hrs from GMT, if we deduct 5:30 hrs from standard time we will get the Greenwich Mean Time, means when the flight departed from Delhi what was the time at Prime Meridian)

Departure Standard Time 01:45
Less(-)05:30

In the above case, it will be difficult to deduct 05:30 to 01:45 hrs so we will add 24 hrs in 01:45

(We do this to make our calculation simple)

Departure Standard Time 25:45
Less(-)05:30

Time at prime meridian when flight departed from Delhi was 20:15

Step 2b Conversion of Arrival Standard time to Greenwich Mean Time(GMT) (In this case New York(NYC) is -5:00 hrs from GMT, if we add 05:00 hrs to standard time we will get the Greenwich Mean Time, means when the flight arrived at NYC what was the time at Prime Meridian

Arrival Standard Time 07:30
Add (+) 05:00

Time at prime meridian when flight arrives in NYC 12:30

Step 3 Flying Time: Arrival Time - Departure Time

Flying Time: 12:30 - 20:15

(As it will be difficult to deduct 20:15 hrs from 12:30 so we will add 24:00 in 12:30)

Arrival Time after adding 24:00 hrs	36:30
Departure Time	20:15
Flying Time	**16:15**

Conclusion

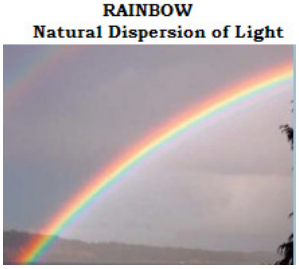
The steps shown here clarify how flying time is calualted. It helps minimise the confusion of knowing the elapsed time and at the same eliminates redundancy and clashing of schedules of flights. This will also facilitate the airlines to design their own scheduling with the coordination of domestic and international flights.

III.III Let Us Sum Up The Unit

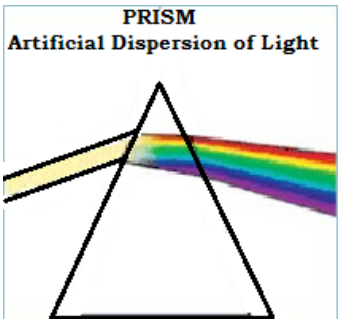
This unit has enabled us to identify the location of any place or country with the help of longitude and latitude. Further we have studied how the meridians of longitude create 24 time zones. We have learnt that any place to the east of GMT time increases and as move away from GMT to the west of it the time of any place decreases. Further we have also studied the concept of International Date Line which helps us to know how a passenger can gain or lose a day while crossing the IDL. This unit also throws light upon the concept of Geographical Information System and remote sensing which are used in aviation, geography, meteorology and other vital areas. We have also learnt the concept of flying time/elapsed time and methods of calculating the same. This unit thus equips learners with the concepts of map reading and other areas so as to enable them in solving the problems related to map reading, directing tourists to a place and also to be able to interact effectively.

DO YOU KNOW ABOUT ?

The Principle of Dispersion of Light is Utilized in obtaining Multispectral Images



The overall mechanism of obtaining images in a number of bands derives strength from the principle of the dispersion of light.



You must have seen the rainbow during summer monsoons. Rainbow is basically formed through a natural process of dispersion of light rays through the water molecules present in the atmosphere. The same phenomena can be experimented by putting a beam of light at one side of the prism.

At the other side of the prism we may notice the dispersion of energy into seven colours that form the white light. These seven colours artificially generated using a prism form to give us the view of a beautiful rainbow. The same principle is used by the scientists in remote sensing technology to generate the multispectral images which are very vital in the planning and management of geographic areas.

CASELET 3. GPS Tours

A GPS tour using Global Positioning System or GPS is an audio/audi-visual tour or a multimedia tour that provides pre-recorded spoken commentary, normally through a handheld device, for mobile applications such as walking tours, boats, buses, trolleys and trains. GPS tours can either be GPS guided or self-directed tours that provide visitors with location relevant content about points of interest along a route or within a destination or region. GPS tours are predominately for outdoor applications, but some audio guides offer the flexibility to manually continue tours indoors. Using satellite technology (GPS), audio and/or multimedia content is triggered based on a user's location, providing location relevant information to visitors depending on who they are, where they are, and what they are viewing. GPS tours today using mobile applications available are done in multiple languages simultaneously. GPS tours can be created by using a combination of software and hardware and can be downloaded from the Internet for mobile phones, often in MP3 format and are available from organizations specializing in GPS tour development.

This apart the mapping reading and self tourism using GPS has become so common these days which can be attached in the travelling vehicles or may be viewed on mobile phones thus bring the entire touring experience on to one's palm and facilitating tourist information.

(*Reference Source:* http://ojs.statsbiblioteket.dk/index.php/mediekultur/article/)

Discussion Points

a. Discuss the role of technology in supporting travel needs with specific reference to GPS systems.

b. Examine the advantages of GPS map reading and tracking system.

c. Analyse the simplification of travelling experience of a tourist using mobile electronic guiding mechanism here in the above case.

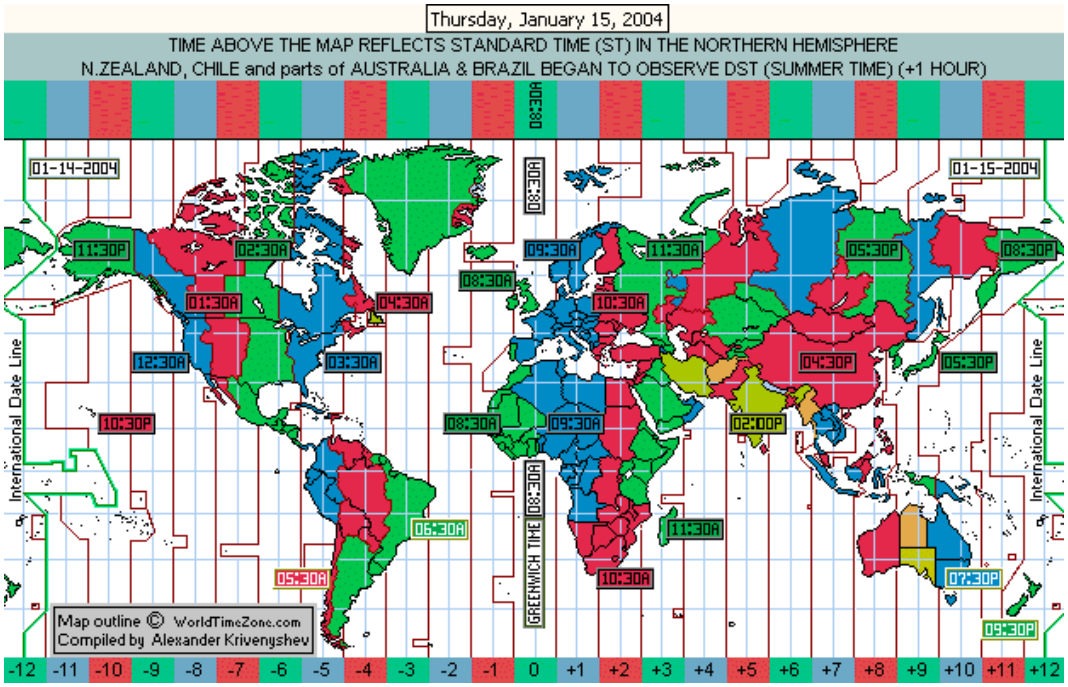
d. Criticize on how such technical intervention might dilute the authentic experience of an attraction by a tourist.

e. Suggest other methods of enhancing travel experience with the help of multimedia.

III.IV Check Your Progress

a. Short Answer Type Questions

1. What is Longitude?
2. What is Latitude?
3. What do you mean by Time Zone?
4. What is Remote Sensing?
5. What is GIS?
6. Elaborate Scale?
7. Elaborate Directions?
8. Explain Altitude?
9. Differentiate latitudes and longitudes
10. Given below is the world map with all the time zones. Greenwich Time is 08.30 am in the map and you need to fill in all the time zones to the east and west of the GMT.



b. Long Answer Type Questions

1. State the importance of Longitude & Latitude
2. Elaborate on the various steps to calculate the flying time/elapsed time.
3. Calculate the flying time, if a flight of AI leaves New York at 20:00 hr (-5:00 GMT) on Thursday and arrives Delhi at 00:30(+5:30 GMT) hrs on Saturday
4. If AI 101 depart from DEL at 01:45(+5:30) and arrives JFK 07:25 (-5:00), calculate FT.
5. What are GMT and GMT Variation?
6. Explain Altitude and its types
7. Explain Scale Representation and how do we show scales?
8. Elaborate on the different methods used in map reading by taking the physical map of India for the activity.
9. List out the steps involved in calculating the local time considering places of importance in the eastern as well as western hemispheres.
10. What role do directions play in the day to day life of tourists and how does the compass rose help in accurate direction

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UNIT – 4 Tourism Transport Systems in the World

Unit Structure

Learning Objectives

After going through this unit you will be able to

- Develop an understanding about transport systems
- Explain about Air Transport – IATA Areas, Major Airports & Routes
- Elaborate on Major Railway Systems & Networks
- Describe about Water Transport
- Explain about Road Transportation

Introcution to Tourism Transport Systems of the World

Travel industry is one of the largest industries in the world contributing to a good chunk of the global GDP and generating an array of employment opportunities. This phenomenon today has become a very complex activity encompassing a wide range of relationships. As the global economy surges, resulting in improvements in standard of living and disposable income coupled with more leisure time, the overall numbers of tourists are expected to grow further. The factors responsible behind such phenomenon are availability of cheaper and convenient form of transport, limited restrictions on travel, mass information for destinations and newer marketing techniques. According to WTO, international tourist arrivals worldwide will reach 1.5 billion by 2020. These tourists in their turn spend trillions of dollars in the host countries visited during their travel, resulting in great increase in economic affairs. Tourism does not stand isolation as it is an amalgam of various components like Transportation, Accommodation

and Attraction as primary components while rest like Guides, Attitude of local people, post offices, banks etc are called as secondary components. But the importance of each one cannot be neglected. The present unit takes into account the tourism transport systems of the world as well as India. The current unit also attempts to understand the relevance and utility of the transport systems with that of the travel industry in a global and regional perspective.

Lesson 4.1 - Air Transport

Introduction

It is truly said, the world has become a global village. Thanks to the phenomenal and speedy development of air transport system across the globe. The world has shrunk due to the faster means of transport and the distances between destinations across the globe have been reduced to minimal time. Air transport plays a vital role in modern tourism. The post world war era saw a tremendous growth in air transportation especially for commercial purpose. Great Britain introduced Jet flights, Pan American introduced Boeing 707. Due to the introduction of jet engines air traffic has been increased. In India, it was the year 1932 when TATA introduced its air services by the name of TATA Airlines. Further TATA Airlines was renamed as Air India. Due to Air Corporation Act in 1952 Air India became the national carrier of India. Later Air India split into two parts, Air India and Indian Airlines. With the launching of Open Sky Policy in 1992, sky of India was opened for more international flights and as a result the growth of India tourism increased apparently. The coming of Low Cost Carriers (LCC) or Low Cost Airlines has in fact revolutionized the whole concept of air travel. It has resulted in the considerable reduction in air fares and greatly increased the air traffic. New segments of consumers are added to the total markets of air transport and given fillip to the growth of air transport.

IATA Areas, Sub Areas and Global Indicators

The Chicago Convention in the year 1944 is a milestone in the air transport. With the cease of the second world war new initiatives were mooted. 54 states met in Chicago to lay the first foundation of the new system that would soon be needed by civil aviation. The international convention at Chicago was organized from November 1 to December 7, 1944.This conference laid the foundation of two permanent bodies called IATA, International Air Transport Association and ICAO, International Civil Aviation Organization. Finally, IATA, a non governmental body was

officially set up in Havana in April 1945. IATA plays a vital role in the area of air traffic which commercial activities of the airlines is made possible.

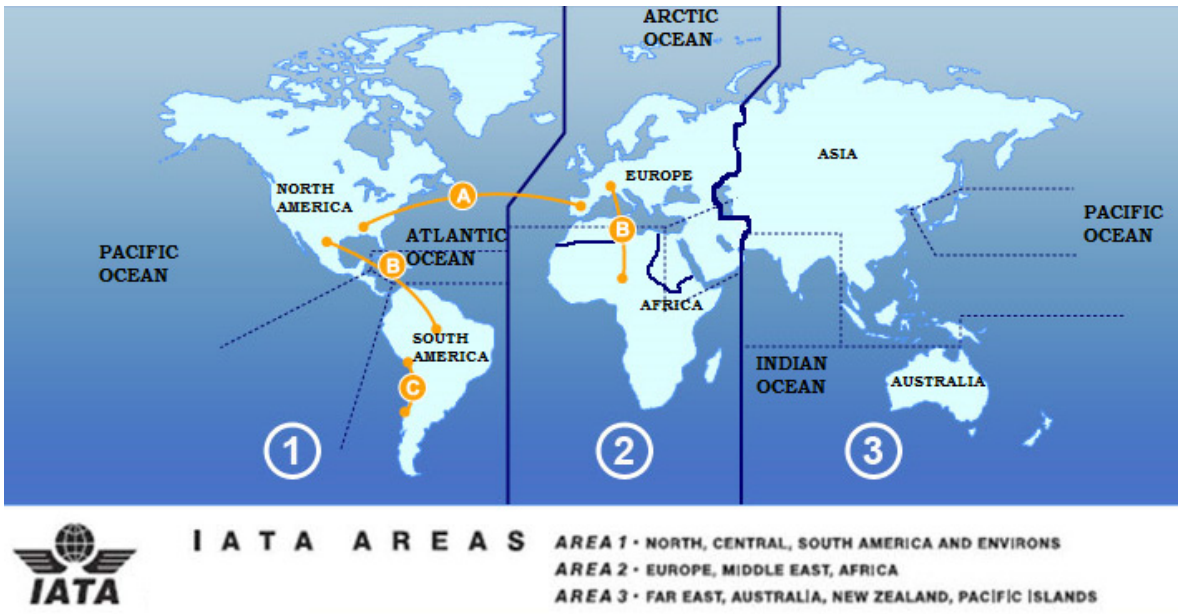
The core concerns of the IATA are interlining arrangements, the standardization of forms, procedures, handling agreements and exchange of traffic between airlines. With the IATA agreements, the airlines have adopted standard codes of relations with their passenger and cargo agents and consolidators which assure the agents of fair, uniform and non-discriminatory treatment. The traffic advisory committee and various expert working groups guide through such arrangements coordinating with the Assistant Director General (Traffic) and his staff. The assistance of the standing committees is often sought in such matters.

The unique nature of air transport gives rise to the Traffic Conference process. Airlines fly between most of their major cities wherever air transport is possible. To minimize the complexity of air traffic, check on the discrimination in air fare calculation and for administrative purpose, IATA has divided the world into three traffic conferences (TC) which are also called as IATA Areas. These traffic conferences are

Traffic Conference Area - TC1

Traffic Conference Area – TC2

Traffic Conference Area – TC3



IATA Traffic Conference Areas

Source: www.iata.org

Traffic Conference Area I and Sub Areas

The areas falling under this area are North and South American continents and adjacent Islands, Central America, Greenland, Bermuda, the West Indies and Islands of Caribbean Sea and Hawaii Islands. Following is the detail list:

a. **North America includes:** Canada, USA, Mexico, St. Pierre and Miquelon

b. **Central America:** Belize, Salvador, Honduras, Costa Rica, Guatemala, Nicaragua

c. **Caribbean Islands include:** Anguilla, Antigua and Barbuda, Aruba, Barbados, British Virgin, Cayman Islands, Cuba, Dominica, Dominican Republic, Grenada, Northern St. Martin, Haiti, Jamaica, Martinique, Montserrat, Netherland Antilles, Nevis, St. Kitts, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos Islands.

d. **Mid Atlantic sub areas includes:** Bahamas, Bermuda, all of the Caribbean Island, Central American, French Guyana, Guyana, South America except Argentina, Brazil, Chile, Paraguay and Uruguay.

e. **South America includes:** Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Guyana, Panama, Paraguay, Peru, Suriname, Uruguay, and Venezuela

Traffic Conference Area II and Sub Areas

The areas falling under this category are Europe, Africa, Indian Ocean Island and Middle East. Following is the detail list:

a. **Europe:** Albania, Algeria, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Gibraltar, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Monaco, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation- West of Ural, San Marino, Slovakia, Slovenia,

Spain including Balearic and Canary Islands, Sweden, Switzerland, Tunisia, Turkey, Ukraine, United Kingdom, Yugoslavia

b. **Sub Areas of Europe:** EC Members, Continental Europe, Common Wealth of Independent States, Iberian Peninsula, Scandinavia, Benelux, Baltic States, United Kingdom (England, Scotland Wales, Northern Ireland, Channel Islands and The Isle Man)

c. **Africa:** Malawi, Zambia, Zimbabwe, Burundi, Kenya, Tanzania, Djibouti, Rwanda, Uganda, Ethiopia, Somalia, Botswana, Mozambique, Namibia, Lesotho, South Africa, Swaziland, Angola, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Cote d'lvoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Principe, Sao Tome, Senegal, Sierra Leone, Togo, Zaire

d. **Indian Ocean Islands:** Comoros, Mauritius, Madagascar, Mayotte, Reunion, Seychelles, Libya: Libyan Arab Jamahiriya

e. **Middle East (Including Gulf):** Bahrain, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Qatar, Saudi Arabia, Sudan, Sultanate of Oman, Syrian Arab Republic, United Arab Emirates, Abu Dhabi, Ajman, Dubai, Fujairah, Sharjah, Umm Al Qaiwain, Yemen

Traffic Conference Area III and Sub Areas

The areas falling under this area are South-East Asia, South-Asia, South-West Pacific. Following is the detail list:

a. **South East Asia:** Brunei Darussalam, Cambodia, China, Guam, Hong Kong, Indonesia, Kazakhstan, Kyrgyzstan, Lao People's Democratic Republic, Macau, Malaysia, Marshal Islands, Micronesia, Mongolia, Myanmar, Northern Marianas, Palau, Philippines, Russian Federation- East of Urals, Singapore, Taiwan, Tajikistan, Thailand, Turkmenistan, Uzbekistan, Viet Nam, Micronesia (Koror, Kwajalein, Majuro, Ponape, Rota, Saipan, Tinian, Truck, Yap)

b. **South Asia:** Afghanistan, Bangladesh, Bhutan, India including Andaman Islands, Nepal, Pakistan, Srilanka, Maldives, Japan, North Korea and South Korea

c. **South West Pacific:** American Samoa, Australia, Cook Island, Fiji, French Polynesia, Kiribati, Nauru, New Caledonia including Loyalty Islands, New Zealand, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, Wallis and Futuna.

Sub Area Global Indicators

The global indicators are nothing but it is a two letter code used in airlines industry for travel direction either through globe or type of routing. As we know air fare is purely based on mileage system so these global indicators help passengers identify their routes with in maximum permissible mileage. The important global indicators are as follows:

EH (Eastern Hemisphere): This particular code is used for routing between Eastern Hemisphere, All areas of TC-2, 3.

WH (Western Hemisphere): Under this area North and South American continents and adjacent Islands including Hawaiian Islands and one half of Antarctica are covered.

AP (Atlantic Pacific): Routing between Area 3 and Area 2 via both Atlantic and Pacific Ocean is included.

PA (Pacific): All the routings between Area 1 and Area 3 via Pacific.

AT (Atlantic): Routing between Area 1 and Area 2 or 3 via Atlantic Ocean

PO (Polar Route): Designated routes via Anchorage

TS: Trans Siberian Routings between TC2 and TC3 except China, Afghanistan, Bangladesh, Bhutan, India including Andaman Islands, Nepal, Pakistan, Srilanka and Maldives.

FE (Far East): The routes between Russian Federation- West of the Urals and Area 3 excluding travel via TS routing.

RU (Russian Route): Between Russia (in Europe) and Area 3 with nonstop service between Russia (in Europe) and Japan/Korea; not via another country(ies) in Europe

Major Airports & Routes

Airport is the place from where aircrafts operate that usually has paved runways and maintenance facilities and often serves as terminal (as defined in the Webster's). Airports are developed in strategic locations so as to facilitate the public, industry and security. Usually located in the outskirts of cities for want of large areas. There are mainly two types of airports namely international and domestic airports. An international airport is an airport that handles flights from other countries and typically has immigration and customs facilities. These airports also have longer runways and wider platforms to accommodate larger airplanes. Sometimes, international airports are also used for domestic flights, whereas a domestic airport is meant for internal movement of flights within the country. There could be other type of airport namely a cargo airport but most airports have a separate cargo terminal to handle cargo rather than a separate airport. Every airport, whether it is domestic or international, is designated with certain codes. Two codes are not identical. These codes are used in reservation system. Through these codes one can understand that for what place he or she has been issued a ticket. Similarly, the flights are also identified with their codes. It is not possible to write 10 or 12 digit name of a country or name of an airlines merely three digit or two digit code will do the needful.

WORLD AIRPORT AWARDS 2012			**Country**	**Airport Code**
2012		2011		
1	Incheon International Airport	3	South Korea	ICN
2	Singapore Changi Airport	2	Singapore	SIN
3	Hong Kong International Airport	1	Hong Kong	HKG
4	Amsterdam Schiphol Airport	6	Netherlands	AMS
5	Beijing Capital International Airport	5	China	PEK
6	Munich Airport	4	Germany	AGB
7	Zurich Airport	7	Switzerland	ZRH
8	Kuala Lumpur International Airport	9	Malaysia	KUL
9	Vancouver International Airport	12	Canada	YVR
10	Central Japan International Airport	11	Japan	NGO

Top Ten Airports of the World

(*Source:* www.worldairportawards.com) Research conducted by SKYTRAX

Figure. 4.2 Major Airports of the World
Source: www.iata.org

The map given above (Figure) gives you the glimpse of all the names of Major Airports of the world and through this map you can easily trace their location.

Refer Appendix – VI for the names and codes of the important airports

The published fare in IATA handbook comprises with some numeric or alpha numeric codes under the heading RTE or REF. These entries refer as routing on the route map of airlines. This route maps work as specific itinerary permitted for journey under published fare and or the carriers that may be used on these itineraries.

Specified Routings within TC-1

Between	**And**	**Via**
Montreal	Bermuda	Halifax/Toronto
Ottawa	Bermuda	Halifax/Toronto
A point in New Bruswick/Nova Scotia/ Prince Edward Island/ New FoundLand/ Quebec	Antihua/Aruba/Bahama/Barabados/ Bermuda/Cuab/DomicanRepublic/ French Antilles/Haiti/Jamaica/St. Lucia/Trinidad and Tobago/Venezuela	Montral-Toronto Halifax-Montreal-Toronto
A point in Argentina	A point in Canada	Toronto-Rio-de Janiero/Buenos Toronto- Sao de Janiero/Santiago
A point in Canada	A point in Chile	Toronto- Rio de Janiero/Santiago Toronto- Sao Paulo / Santiago

Source: www.iata.org

Specified Routings within TC-2

Between	**And**	**Via**
Europe-Middle East		
Istanbul	Dharan/Medina/Riyadh	Jeddah
Istanbul	Dharan	Riyadh
Madrid	Aden/Tehran	Kuwait
Rome	Aden/Sanaa	Kuwait
Middle East		
Cairo	Dhahran	Riyadh-Jeddah
Riyadh	Aden	Jeddah

Riyadh	Amman/Beirut/Damascus	Dharan
Africa		
Accra	Nairobi	Addis Ababa/Khartoum//Ndjamena
Addis Ababa	Djibouti	Assab/Diredawa
Lagos	Nairobi	Addis Ababa/Khartoum/Lagos
Monrovia	Nairobi	Addis Aaba/Khartoum/Ndjamena

Source: www.iata.org

Specified Routings within TC-3

Between	**And**	**Via**
Bangkok	Melbourne	Manila
Brisbane/Sydney	TC 3 (Except with in South West Pacific)	Melbourne
Calcutta	Hong Kong/Teipe	Bangkok
Dalian	Tokyo	Fukuoka
Delhi	Tokyo	Bangkok
Faisalabad/Lahore/Multan	Tokyo	Bangkok Manila
Hong Kong	Jakarta	Manila
Hong Kong	Singapore	Manila
Hong Kong	Kuala Lampur	Kota Kinabalu/Manila
Karachi	Hong Kong	Manila
Karachi	Tokyo	Bangkok
Karachi	Seoul	Bangkok/Manila-Tokyo
Kathmandu	Hong Kong	Bangkok
Lahore	Colombo	Karachi
Taipei	Kota Kinabalu, Malaysia	Hong Kong
Taipei	Denpasar Bali, Indonesia	Manila/Jakarta

Source: www.iata.org

Conclusion

Air transportation has not only increased the speed but also reduced the distanced between the destinations across the globe. Today world can be travelled at one's wish and with ease and comfort. The capacity of planes has also increased enormously making it convenient for large number of people to travel by air. This mode of transport has also benefited quick access to destinations at times of disasters so as to save the lives of people and livestock. It is mainly because of the improvements in the air travel that foreign tourist visits have tremendously increased over the recent years.

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Lesson 4.2 - Major Railway Systems and Networks

Introduction

Tourism industry has seen tremendous growth in the domestic sector. Credit must be given to the railway networks across the globe for the mass tourism. Railways are in true sense are the pioneers in enhancing tourism visits. They considered to be the most economic, convenient and frequent form of travel throughout the world. It was in England (United Kingdom) Thomas Cook introduced organized group tours and the one who made use of the railway services first time to the world in the year 1841. The train started its journey from Leicester to Loughborough covering a distance of only twelve mile. Since then the whole world has adopted the railway networks for comfortable and cheaper means of transport.

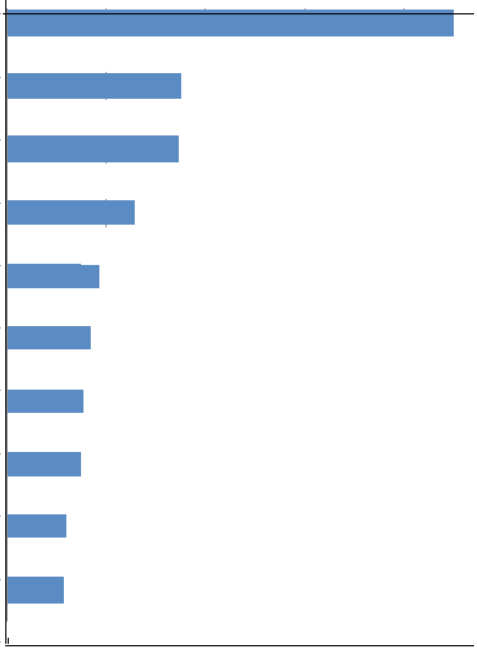
Top Ten Railway Networks of the World

The major railway systems and networks of different parts of the world are given below:

Some of the world's largest railway networks are found in the United States of America and Canada in the North America, Brazil and Argentina in the South America, Russian Federation, Germany and France in Europe, China and India in Asia and Australia.

Almost one tenth of the world's railway network is found only in the two countries i.e. the United States of America and the Russian Federation measuring roughly about 3,15,000 km. List of top ten railway networks of the world are given in table. It is interesting to note that China and India together account approximately for about 1,50,000. These are also known to be the busiest railway networks in the world in terms of passenger travel than any other country in the world.

Rank	Country	Railway Length (KM)
1.	United States	224,792
2.	Russia	87,157
3.	China	86,000
4.	India	63,974
5.	Canada	46,552
6.	Germany	41,981
7.	Australia	38,445
8.	Argentina	36,966
9.	France	29,640
10.	Brazil	28,538



Top Ten Railway Networks of the World by Length

Source: www.mapsoftheworld.com

North America & South America

a) United States (Ranked 1st)

The USA has the world's largest railway network. The railway system connects a location on the U.S. Pacific coast with one or more of the railroads of the nation's eastern trunk line rail systems operating between the Missouri or Mississippi Rivers and the U.S. Atlantic coast. The world's First Railroad was built between 1863 and 1869 to join the eastern and western halves of the USA. Known as the "Pacific Railroad" when it opened, this served as a vital link for trade, commerce and travel and opened up vast regions of the North American heartland for settlement. This railroad provided much faster and cheaper transportation for people and goods to two-thirds of the continent.

Year-wise details of the achieved landmarks of United States railway network are given below:

- In 1882, the Atchison, Topeka and Santa Fe Railway connected Atchison, Kansas with the Southern Pacific Railroad at Deming, New Mexico, thus completing a second link to Los Angeles.

Major Railway Corridors of The North America

- In 1885, the Atlantic and Pacific Railroad and the California Southern Railroad gave the Santa Fe its own link to Los Angeles and linked the Gulf of Mexico with the Pacific Ocean.
- The Northern Pacific Railway, also completed in 1883, linked Chicago with Seattle.
- The Great Northern Railway was built, without federal aid, by James J. Hill in 1893; it stretched from St. Paul to Seattle.
- In 1909, the Chicago, Milwaukee & St. Paul (or Milwaukee Road) completed a privately built Pacific extension to Seattle.
- John D. Spreckels completed his privately funded San Diego and Arizona Railway in 1919, thereby creating a direct link (via connection with the Southern Pacific lines) between San Diego, California and the Eastern United States.

- In 1993, Amtrak's Sunset Limited daily railroad train was extended eastward to the Atlantic Ocean, making it the first transcontinental passenger train route in the United States to be operated by a single company.

Amtrak

AMTRAK stands for America and Track' has its headquarter in Washington, D.C. Amtrak is a public corporation doing business for The National Railroad Passenger Corporation began operations on May 1, 1971, to provide intercity passenger train service in the United States. Amtrak operates more than 300 trains each day on 21,200 miles (34,000 km) of track at speeds up to 150 mph (240 km/h) connecting more than 500 destinations in 46 states and three Canadian provinces. In fiscal year 2012, Amtrak served a record 31.2 million passengers and had $2.02 billion in revenue while employing more than 20,000 people.

b) Canada (Ranked 5th)

Canada stands fifth as one the largest railway networks of the world. Canada's first railroad was completed on November 7, 1885 which is an important milestone in Canadian history. The period between 1881 and 1885, the Canadian Pacific Railway (CPR) completed a line that spanned from the port of Montreal to the Pacific coast, fulfilling a condition of British Columbia's 1871 entry into the Canadian Confederation. The City of Vancouver, incorporated in 1886, was designated the western terminus of the line. The Canadian Pacific Railway became the first transcontinental railway company in North America in 1889 after its International Railway of Maine opened, connecting the Atlantic coast with it.

Later two other lines were built, the Canadian Northern Railway (CNoR) opened another line to the Pacific in 1912, and the combined Grand Trunk Pacific Railway (GTPR)/National Transcontinental Railway (NTR) system opened in 1917 following the completion of the Quebec Bridge, although its line to the Pacific opened in 1914. The CNoR, GTPR, and NTR were nationalized to form the Canadian National Railway, which currently is now Canada's largest transcontinental railway.

c) Panama

The Panama Railroad opened in 1855 and it was first railroad to directly connect two oceans. This 48-mile (77 km) line was designated instead as an 'inter-oceanic' railroad crossing Central America at its narrowest point, the Isthmus of Panama, when that area was still part of the northern province of Colombia from which it would split off to become the independent nation of Panama in 1903. Thus, it became yet another milestone for the Americas by connecting two oceans of the Pacific and the Atlantic.

The need arose out of connecting the east and the west coast of America and reduces the time taken to travel which was mainly triggered by the California Gold Rush. Over the years it played a key role in the construction and the subsequent operation of the Panama Canal, due to its proximity with the water way. The Panama Canal Railroad Company, private company manages and administers it today. This railroad has enhanced the cargo movement via the Panama Canal.

d) Guatemala

This was the second inter-oceanic railroad of the Central America after the Panama Railroad which began its operations in 1908. This railroad connected Puerto San Jose and Puerto Barrios in Guatemala. Later in 1989, the passenger services of the Guatemala railroad were ceased to Puerto San Jose.

e) Costa Rica

Subsequently in the year 1910, a third Central American inter-oceanic railroad began its operations. The line was of 1,067 mm (3 ft 6 in) gauge which connected the provinces of Limon and Puntarenas in Costa Rica.

f) Argentina

The railway network of Argentina is the 8th largest railway networks of the world. It spreads across the country with an exhaustive length of railway line for about 36,466 km. The first railway started to operate in

the year 1857 in Argentina between El Parque and La Floresta, both places today being within the city of Buenos Aires. It was built to a gauge of 5ft 6 in (1676 mm). This gauge was used extensively on the central plains of Argentina; although metre gauge was used in the mountainous north. Though the passenger rail outside the major cities is not much developed and freight lines are well connected and extensively used.

Argentina has a metre gauge international link with Bolivia and a standard gauge link with Uruguay. The country has metre gauge links with Chile and Brazil as well. An earlier standard gauge international link with Paraguay was reopened in 2002, which was later replaced in 2012 by a new link. Major operators are Ferrobaires, Sofse, TBA, Ferrocentral and Trenes del Litoral.

g) Brazil

Brazil has a railway network of 28,538 km spreading across the length and breadth of the country. Rail transportation in Brazil started in the later 19th century. Till the end of the first half of the 20th century, there were many companies operating railways.

Later in the year 1957, the railway transportation was completely nationalized. Between 1999 and 2007, the national rail operating agency RFFSA was broken up into different services and many public and private operators again started their operations. One of the interesting parts of the Brazil railway networks is that it had over hundred tram systems almost that of the whole of Latin America. First tram started to operate from Rio de Janeiro in 1859 and to this day trams still operate in the city leaving behind 130 years of saga.

Apart from this in South America work is in progress to revive the connection between Valparaiso and Santiago in Chile and Mendoza, Argentina, through the Transandino project. Mendoza has an active connection to Buenos Aires. The old Transandino began in 1910 and ceased passenger service in 1978 and freight 4 years later. Technically a complete transcontinental link exists from Arica, Chile, to La Paz, Bolivia, to Buenos Aires, but this trans-Andean crossing is for freight only.

Europe

a) Russian Federation (Ranked Second)

Russian Federation with its 87,157 km of railway lines is the second largest railway network of the world next only to the USA. It is well known around the world for its classic journeys of the Trans-Siberian Railway between Moscow and the Far East of Russia, which is the longest railway in the world at more than 9,000 Km. Extending its lines has made possible to connect with the rail networks of countries such as Finland, Germany in the west, Poland in the west-south and China and Mongolia in the South and South-East. The railway network in Russia is run by Russian Railways (Rossiyskiye Zheleznye Dorogi - RZD).

The Tans-Siberian Railroad

In 1837, the first public railway in Russia was opened between Saint Petersburg and Tsarskoye Selo. Half of the railway lines in Russia are today electrified. They have well connected international rail links with

Finland, Estonia, Latvia, Lithuania, Poland (from Kaliningrad), Belarus, and Ukraine, the Abkhazia region of Georgia, Azerbaijan, Kazakhstan, Mongolia, China and North Korea. Some of the major rail operators apart from the state owned RZD are Aeroexpress, DB Schenker, Globaltrans, ICF Group, Far Eastern Transport Group etc.

b) Germany (Ranked Sixth)

Germany has one the most modernized railway network in the world and stands 6th in terms of railway length with a network of 41,981 km. Travelling by trains in Germany is a great fun and joy of life. Almost every city in the country is connected by railway line. The German National Railway is called *Deutsche Bahn* or *DB* for short. Germany also has the fastest trains. The saga of railways in Germany started in 1835 and nationalized in 1920. The DB was formed in after reunification of East and West Germany in 1994.

The Intercity Express (ICE), the German high speed train, which reaches a speed up to 300 km per hour, takes only four hours to travel from Berlin to Frankfurt. If you want to travel as fast as possible from A to B, take the ICE with its signature silver snout takes only 3.30 hours from Berlin to Frankfurt. Regional Express trains which connect smaller towns.

c) France (Ranked Ninth)

The railway network in France is the ninth largest railway network in the world. The rail transport in the country is mostly operated by SNCF (Société Nationale des Chemins de fer Français; or National Society of French Railways) the French national railway company. France has the second largest European railway network with a total of 29,901 kilometers of railway next only to Germany (if not considered the Russian Federation).

As travel by air and road is predominantly used in France the railways account only for about 10%. Since 1981, the SNCF has operated the TGV service, a high speed rail network which has been consistently expanded in subsequent years. Of the total rail network around 15,141 km is electrified and about 1876 km stretch has high speed lines.

d) Eurostar

Eurostar is one of the world's busiest rail connectives. All the trains take the Channel Tunnel between the United Kingdom and France, owned and operated by Eurotunnel. It is a high-speed railway service connecting London with Paris and Brussels. The Eurostar rail service is operated by eighteen-coach Class 373/1 trains which run at up to 300 km per hour on a network of high-speed lines. The LGV Nord line in France opened before Eurostar services began in 1994, and newer lines enabling faster journeys were added later—HSL 1 in Belgium and High Speed 1 in southern England. The French and Belgian parts of the network are shared with Paris–Brussels Thalys services and also with TGV trains. In the United Kingdom, the two-stage Channel Tunnel Rail Link project was completed in 2007 and renamed High Speed 1. Until 2010 the Eurostar was operated jointly by the national railway companies of France and Belgium, SNCF, NMBS and Eurostar (UK) Ltd (EUKL), a subsidiary of London and Continental Railways (LCR). Eurostar has turned out to be the dominant operator in cross-channel intercity passenger travel on the routes that it operates, carrying more passengers than all airlines combined. In 2010, Eurostar was incorporated as a single corporate entity called Eurostar International Limited (EIL).

Eurasia

There are two major and important railway lines which operate in the Eurasian regions. The first Eurasian railroad was the Trans-Siberian railway (with connecting lines in Europe), completed in 1905 which connects Moscow with Vladivostok on the Pacific coast.

And the second prominent line is the one which connects Istanbul in Turkey with China via Iran, Turkmenistan, Uzbekistan and Kazakhstan. The Trans-Siberian line is one of the longest lines in the world. There are two connections from this line to China. It is the world's longest rail line at 9,289 km (5,772 mi) long. This line connects the European railroad system with China, Mongolia and Korea. Since the former Soviet countries and Mongolia use a broader gauge, a break of gauge is necessary either at the eastern frontiers of Poland, Slovakia, Hungary and Romania or the Chinese border. In spite of this, there are through services of passenger trains between Moscow and Beijing or through coaches from Berlin to

Novosibirsk. There are return services to Moscow from every major town along the Trans-Siberian railway. A second rail route imposes a break of gauge at the Iranian border with Turkmenistan and at the Chinese border. En route there is a train ferry in eastern Turkey across Lake Van. The European and Asian parts of Istanbul are linked by a train ferry, and an undersea tunnel is under construction.

Asia

a) China (Ranked Third)

The railway network of People's Republic of China is the third largest railway systems in the world only after the USA and the Russian Federation. It has a network of around 86,000 km railway lines spread across the country. China is fast expanding its railway network and modernizing with high-speed trains. Its 1956 km long Qinghai – Xiang or the Standard Tibetan Railway is known to be the marvel of rail routes around the world.

The first railway line in China was opened in 1876 with a narrow gauge line between Shanghai and Woosung, but was closed and lifted within two years. Later in 1881, the first line to form part of the modern network was built of the 11km standard gauge Kaiping Tramway. This line got expanded to become part of the China Railway Company in the later years. Broad gauge systems of international connections exist with of Mongolia, Russia and Kazakhstan, and a standard gauge system of North Korea and cross-border interchange links are also made possible with Vietnam.

b) Indian Railways (Ranked Fourth)

Indian railway network is ranked as the fourth largest network in the world with a railway line length of around 65,000 km. Indian Railways is state-owned enterprise, owned and operated by the government of India through the Ministry of Railways. The operations are done between 7,500 stations across the country. As of December 2012, it transported over 25 million passengers and about 3 million tons of freight daily.

In 1853, the first railway on Indian sub-continent ran over a stretch of 21 miles from Bombay to Thane. The formal inauguration ceremony was performed on 16th April 1853, when 14 railway carriages carrying about 400 guests left Bori Bunder. The first passenger train steamed out of Howrah station for Hooghly, a distance of 24 miles, on 15th August, 1854. Thus, the first section of the East Indian Railway was opened to public traffic, inaugurating the beginning of railway transport on the Eastern side of the subcontinent.

Likewise in south the first line was opened on Ist July, 1856 by the Madras Railway Company. It ran between Vyasarpadi Jeeva Nilayam (Veyasarpandy) and Walajah Road (Arcot), a distance of 63 miles. And in the North a length of 119 miles of line was laid from Allahabad to Kanpur on 3rd March 1859.

The first section from Hathras Road to Mathura Cantonment was opened to traffic on 19th October, 1875. By 1880, the Indian Railway system had a route mileage of about 9000 miles. Indian Railways is known for its exotic journeys for tourists especially luxury trains such as Palace on Wheels, Deccan Odyssey world heritage designated smaller heritage trains such as Kalka-Shimla train, The Darjeeling train and the Ooty train.

c) Other Important Railways

There are major railway projects which are towards the completion in Asia. The Trans-Asian Railway is a project to link Singapore to Istanbul and is to a large degree complete with missing pieces primarily between Iran and Pakistan and in Myanmar. This line has issues of different gauges and political hurdles. The Trans-Kazakhstan Trunk Railways project by Kazakhstan will connect China and Europe on a 1,435 mm gauge. Initially, the line will go to western Kazakhstan, south through Turkmenistan to Iran, then to Turkey and Europe. A shorter link from Kazakhstan is considered going through Russia and either Belarus or Ukraine. The Baghdad Railway connects Istanbul with Baghdad and finally Basra, a sea port at the Persian Gulf.

Major Railway Lines of The Indian Railways

Source: www.indianrail.gov.in

Australia

The extensive railway network of Australia is the seventh largest railway networks of the world with a railway length of 38,445 km. The first railway in Australia for a distance of 22.5 km was started in 1855 between Sydney and Parramatta. 3ft 6in (1067mm) gauge was quite commonly

used across the country but the state of Victoria opted for a gauge of 5ft 3in (1600mm). The world famous Transcontinental Railway first opened in 1917 connecting Brisbane with Perth. The Ghan and Adelaide line is a noteworthy modern railway system. This enabled the once tough to reach destinations like Alice Springs in the heart of the country to get connected. Passenger trains first reached Darwin from the south in 2004. Most modern line are laid to standard gauge, and a few of the older lines have been re-gauged. The proposed Iron Boomerang would connect iron in the Pilbara with coal in Queensland, so achieving loaded operations in both directions.

Africa

a) East – West Lines

Some of the major lines in Africa connecting east-west ends are the Benguela line, the Namibia – South Africa line and Trans-African line (proposed). The Benguela railway was completed in 1929. It starts in Lobito, Angola and connects through Katanga to the Zambia railways system. From Zambia several ports are accessible on the Indian Ocean. Dar as Salaam in Tanzania through the Tazara and through Zimbabwe, Beira and Maputo in Mozambique. Another west-east corridor leads from the Atlantic harbors in Namibia, either Walvis Bay or Luderitz to the South African rail system that, in turn, links to ports on the Indian Ocean. A 1015- km gap in the east-west line between Kinshasa and Lebo filled by riverboats could be plugged with a new railway. There are two proposals for a line from the Red Sea to the Gulf of Guinea, including Trans African Rail and a link between Dakar to Port Sudan.

b) North – South Lines

A North-South transcontinental railroad had been proposed by Cecil Rhodes: the Cape-Cairo railway. This system was seen as the backbone for the African possessions of the British Empire, and was not completed. An extension of Namibian Railways is near to completion to connect with the Angolan Railways. Libya has proposed a Trans-Saharan Railway connecting possibly to Nigeria which would connect with the proposed Africa Rail network.

Conclusion

Railways redefined the connectivity and transportation system of the world. Initially though were built for transporting goods from inner land to the ports, in the modern world the railway systems have become major public transport means. Railways connect far distances of different part of the continents and transport in great volumes. By far passenger travel has seen largely travelling by railways especially in countries like China, India and the European nations. Tourism got tremendously boosted by advancement in the railway transportation with modernized air conditioned coaches and luxury trains made available. Especially in Europe and Asia railway network has prominence for passenger travel though in other parts of the worls such as the Americas and Australia railways are famous but they are mostly used for goods transportation.

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Lesson 4.3 - Water Transport

Introduction

It is evident from the evolution of human race on either the river banks or coastal plains, the importance of water bodies. Civilizations have always flourished near water, due partly to the fact that water enables more efficient travel compared to going over land. Waterways are critically important to the transportation of people and goods throughout the world. Water transport is one of the most traditional ways transport for visitors to travel to and from a destination. It primarily uses water bodies like ocean, sea, river lakes etc.

The very first mode of transport used by primitive men was boat which was badly needed to cross the river. Since then a number of modifications took place and as a result in modern tourism if we mean water transport it means cruises and ferries. A tourist can have the feeling of a five-star hotel on waves of ocean. All the facilities like swimming pool, cinema halls, shops, casino, yoga and meditation etc. of a land five-star is available over the water. In middle era when there was no concept of tourism for leisure and pleasure, it was trade and commerce which opened the sea route to different countries. These days, it is not only a means to travel but a tourist experiences itself. Cruise tourism is the best example for leisure activities.

Water transport in all forms, oceanic or maritime routes, inland waterways through river and streams, lakes and canals in the current scenario has immense potential despite well developed transport systems. Load capacity and speedy disbursal of the cargo ships has increased hundred times more than that used to be in the beginning of the last century. Tourism as discussed above is the direct beneficiary of development of modern water transport systems. This is evident from the increasing interest of millions of tourists in the cruise tourism.

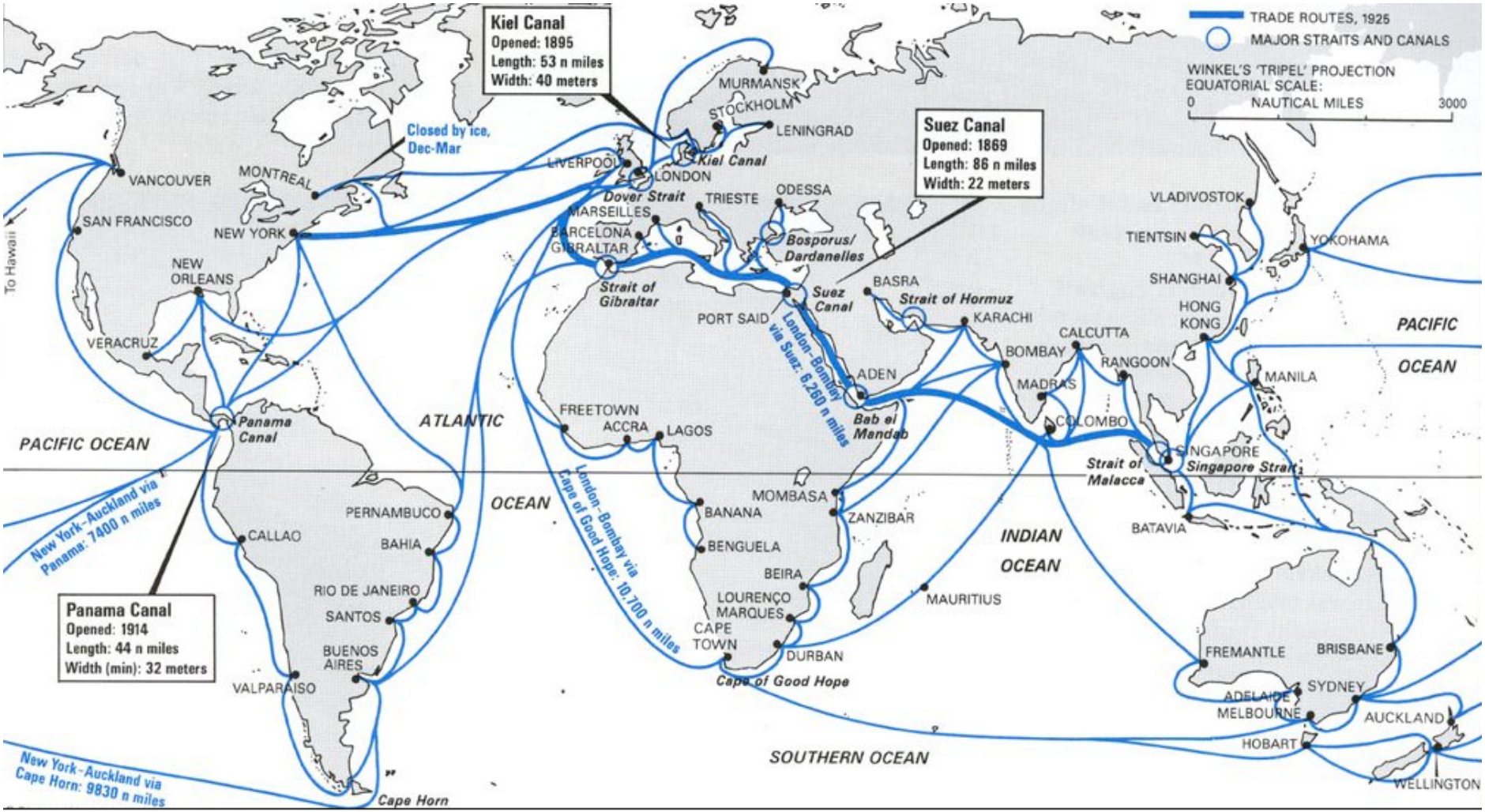


Figure. 4.6 Major Oceanic Trade Routes of the World
Source: www.asiapacificuniverse.com

Major modes of water transport are ships. A ship is a watercraft carrying people (passengers) or goods (cargo). Sea transport has been the largest carrier of freight throughout recorded history. Although the importance of sea travel for passengers has decreased due to aviation, it is effective for short trips and pleasure cruises. Transport by water is cheaper than transport by air and best means of transport for large quantities of movement. Water transport can be for any distance over oceans and lakes, through canals or along rivers by boat, sailboat, barge or ships. Shipping may be for commerce, recreation or the military. It comes with a limitation of quick delivery.

International Water Transport

There has been a consistent shift from land-based trade to sea-based trade since the last three millennia. It can be substantiated from mushrooming of port cities across the world. The strategic advantages of port cities as trading centers are many: they are both less dependent on vital connections and less vulnerable to blockages. Trading relationships have developed between countries globally through oceanic ports.

Contrary to the medieval oceanic trade routes current developments have paved way for development of new and shorter trade routes. Modern maritime trade routes - sometimes in the form of artificial canals like the Suez Canal - had visible impact on the economic and political standing of nations. The opening of the Suez Canal altered British interactions with the colonies of the British Empire as the dynamics of transportation, trade and communication had now changed drastically. Other waterways, like the Panama Canal played an important role in the histories of many nations. Inland water transportation remained significantly important even as the advent of railroads and automobiles resulted in a steady decline of canals. Despite railways being the prime transportation means for inland movement of goods, wherever it is possible bulk commodities such as grains, ores and coal are transported through inland water transport. For example, inland water transport for Russia is crucial. It is evident as noted in the *Encyclopedia Britannica* (2002): Russia has been a significant beneficiary. Not only have inland waterways opened vast areas of its interior to development, but Moscow-linked to the White, Baltic, Black, Caspian, and Azov seas by canals and rivers-has become a major inland port.

Global Trade Routes through the Historical Timeline

Given below are the details of different maritime routes opened for trade and commerce in early days and now in present time they are fulfilling the tourism requirements as well apart from global trading:

The Indo-Greek and Indo-Roman Trade Routes: Greco-Roman maritime trade contact with India was initiated by the Ptolemaic dynasty using the Red Sea ports. As stated by the Roman historian Strabo, a vast increase in trade following the Roman annexation of Egypt, indicating that monsoon was known and manipulated for trade in his time. The trade took to its height during the rule of Augustus up to 120 ships were setting sail every year from Myos Hormos to India, trading in a diverse variety of goods. Arsinoe, Berenice Troglodytica and Myos Hormos were the principal Roman ports involved in this maritime trading network, while the Indian ports included Barbaricum, Barygaza, Muziris and Arikamedu.

The archaeological evidences have proved that the Indians were present in Alexandria and the Christian and Jewish settlers from Rome continued to live in India long after the fall of the Roman Empire, which resulted in Rome's loss of the Red Sea ports, previously used since the time of the Ptolemaic dynasty to secure trade with India by the Greco-Roman world.

The Baltic Route: The Germans played a relatively modest role late 11th century A.D in the north European trade. Later the German traders became prominent in the Baltic and the North Sea regions. Following the death of Eric VI of Denmark, German forces attacked and sacked Denmark, bringing with them artisans and merchants under the new administration which controlled the Hansa regions. During the late 14th century A.D, the economic conflict with the Flanders and hostilities with Denmark led to the formation of an organized association of hanseatic towns, which replaced the earlier union of German merchants.

The Scandinavian Route: The trade route between the Greeks and the Varangians was a trade route that connected Scandinavia, Kiev and Russia and the Byzantine Empire. The route allowed traders along the route to establish a direct prosperous trade with Byzantium, and prompted some of them to settle in the territories of present-day Belarus, Russia and Ukraine.

Mediterranean Trade Route: In the beginning of 11 century A.D. with the economic growth of Europe together with the lack of safety on the mainland trading routes, the establishment of major commercial routes along the coast of the Mediterranean was a great historical development. The growing independence of some coastal cities gave them a leading role in this commerce. Between 8th and the 15th century many maritime republics such as Venice, Genoa, Amalfi, Pisa and Republic of Ragusa developed their own empires in the Mediterranean shores. They held the monopoly of European trade with the Middle East.

The silk and spice trade made these Mediterranean city-states phenomenally rich. Spices were among the most expensive and demanded products of the middle Ages. They were all imported from Asia and Africa. Muslim traders—mainly descendants of Arab sailors from Yemen and Oman—dominated maritime routes throughout the Indian Ocean. Venetian merchants distributed then the goods through Europe until the rise of the Ottoman Empire that eventually led to the fall of Constantinople in 1453, barring Europeans from important combined-land-sea routes. Today, the Mediterranean region is very much popular among international tourists for its luxury cruise operations.

Spice Route: With the increase in the trade between India and the Greco-Roman world spices became the main import from India to the Western world, bypassing silk and other commodities. Between the 7th century and the 8th century A.D., The Indian commercial connection with South East Asia proved vital to the merchants of Arabia and Persia.

Alexandria, Damietta, Aden and Siraf as entry ports to India and China became entry points for the Abbasids. Merchants arriving from India in the port city of Aden paid tribute in form of musk, camphor, ambergris and sandalwood to Ibn Ziyad, the sultan of Yemen. After reaching either the Indian or the Sri Lankan ports, spices were sometimes shipped to East Africa, where they were used for many purposes, including burial rites. On the orders of Manuel I of Portugal, four vessels under the command of navigator Vasco da Gama rounded the Cape of Good Hope, continuing to the eastern coast of Africa to Malindi to sail across the Indian Ocean to Calicut. This move opened doors for the Europeans to trade with the east and the Portuguese were the first ones to travel.

Modern Routes: The modern routes developed across the globe controversial free trade agreements, which altered the political and logistical approach prevalent during the middle Ages. Newer means of transport led to the establishment of new routes, and countries opened up borders to allow trade in mutually agreed goods as per the prevailing free trade agreement. Some old trading routes were reopened and developed with new age political interference and technological advancements.

Along with the development of trade route developed a good number of routes exclusively as tourism corridors. There are a number of cruises operating into the tropical and sub-tropical waters of the Hawaii, Caribbean and Mediterranean. There is a very good connectivity of Denmark and Sweden which takes nearly 40 to 50 minutes. Cruises are also operated in Hawaii islands and also between Hong Kong and Macau. The Mississippi river has been a popular tourist river since primitive time. In present time, this river is sheltering luxury cruise liners which are offering luxury package tours. New cruise liners are operating in the Mediterranean sea, Indian Ocean, South-east Asia and South Pacific. Singapore and Malaysia trip is incomplete without cruise ride. The special packages are being offered along with transportation and accommodation.

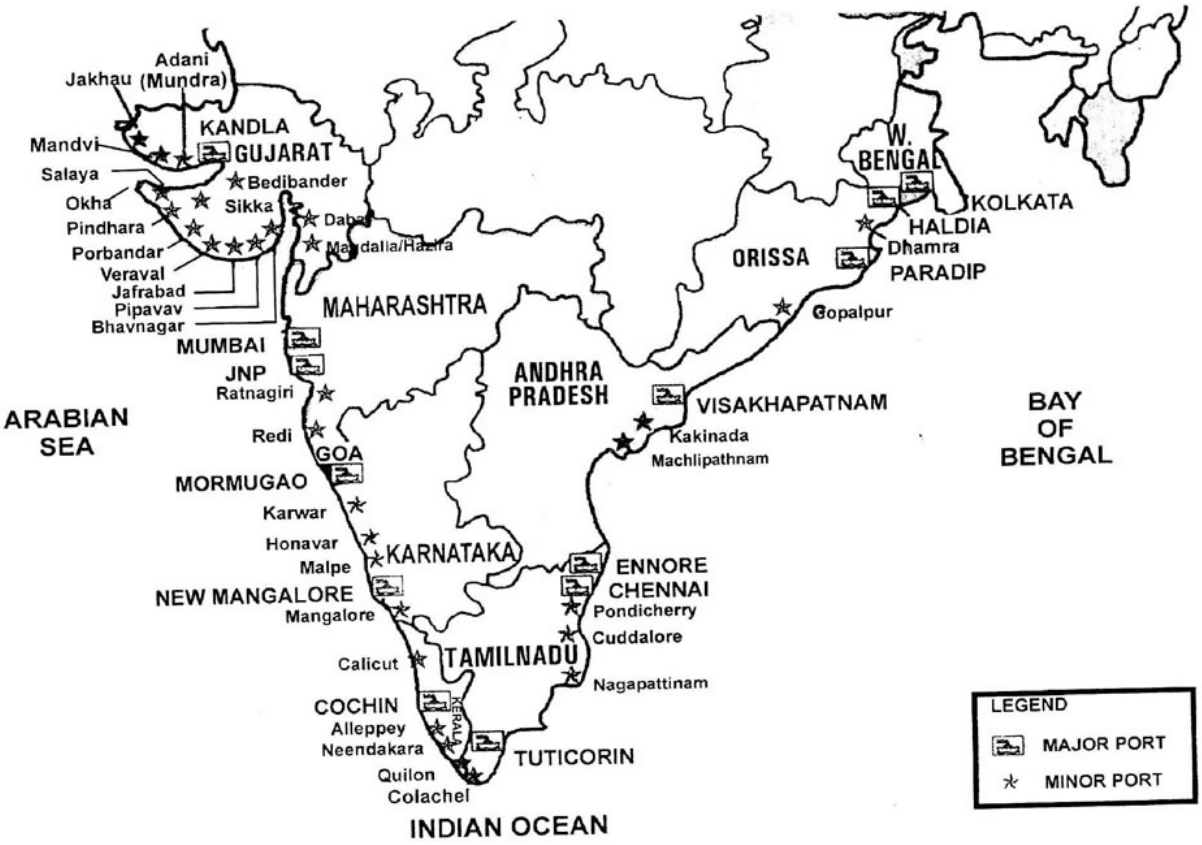
Water Transportation in India

Oceanic Water Transport: With a long coast line of more than 7,500 km, India is one of the major linkages of the global oceanic water transportation especially in the Indian Ocean. It not only connects the west with the east also benefits out of this trade. Thus, the trading between the European, African, Middle-East and the Gulf countries with the South-East Asia, East Asia and the Far East Asia is incomplete without India in between along this trade route as one of the major players. Initially, the Europeans identified the suitable places and developed them as ports for their own convenience though there were a good number of ports which had been in use by the local rulers prior to the advent of the Europeans. During the European rule in India especially the British, French and the Portuguese several ports were developed such as Calicut. Pondicherry, Madras, Surat, Bombay, Calcutta, Daman etc. The commercial ports on the west coast of India have linkages with the countries in the west such as countries of the gulf for imports of oil and natural gas.

India and its Trade Routes in the Indian Ocean

Source: www.reddit.com

After the independence of India the development of sea ports was on the priority. Many ports for different purposes were developed by the Government of India in order to capitalize on the natural advantage of its strategic location in the Indian Ocean. Ports such as Mumbai, Chennai, Cochi and Haldia were developed for commercial trading purpose in the initial days. Later ports like Porbunder, Kandla, Nava sheva, Managalore, Calicut, Paradeep were developed. In the third phase of its ports development in the recent years, India has developed ports such as Tuticorin, Karaikal, Karwar, Okha and Krishnapatnam. For naval use and ship building the Government of India has developed ports such as Marmagao and Vishakapatnam. (Refer Figure for ports of India). There are many other projects under the process of building new major ports. Some of these are Kakinada, Machalipatnam and Gangavaram in Andhra Pradesh, Gopalpur and Dhamra in Orissa, Honavre and Malpe in Karnataka, Mandvi, Pindhara, Jafrabad and Bhavnagar in Gujarat, Ratnagiri and Redi in Maharashtra, Colachel and Quilon in Kerala and Nagapattinam in Tamil Nadu.



Major and Minor Ports of India

Source: www.upsportal.com

Inland Water Transportation: Inland water transport exists in a wide range of forms, satisfying an equally wide range of needs. At one end of the size range are small, unmechanised and generally family owned canoes and small boats, used for local movement, visiting and going to market. At the other end are powerful push-tow barge systems used on major rivers such as the Ganges, the Yamuna and the Godavari.

There are five major National Waterways in the country

NW-1: Allahabad–Haldia

NW-2: Sadiya–Dhubri

NW-3: Kollam–Kottapuram

NW-4: Kakinada–Pondicherry

NW-5: Talcher–Dhamra

Following is the list of National Waterways of India:

National Waterways of India

National waterway-1	Allahabad–Haldia stretch of the Ganges–Bhagirathi–Hooghly river of total length 1620 km was declared as National Waterway-1 (NW-1) in the year 1986
National Waterway-2	Sadiya–Dhubri stretch of the Brahmaputra river of total length 891 km was declared as National Waterway-2 (NW-2) in the year 1988
National Waterway-3	Kollam–Kottapuram stretch of West Coast Canal and Champakara and Udyogmandal canals of total length 205 km was declared as National Waterway-3 (NW-3) in the year 1993
National Waterway- 4	Kakinada–Pondicherry stretch of canals and Kaluvelly tank, Bhadrachalam–Rajahmundry stretch of River Godavari and Wazirabad–Vijayawada stretch of River Krishna of total length 1095 km was declared as National Waterway-4 (NW-4) in the year 2008
National Waterway-5	Talcher–Dhamra stretch of rivers, Geonkhali–Charbatia stretch of East Coast Canal, Charbatia–Dhamra stretch of Matai river and Mahanadi delta rivers of total length 620 km was declared as National Waterway-5 (NW-5) in the year 2008

Source: Statistics of Inland Water Transport published by TRW, M/o Shipping

Navigable Inland Waterways - India has about 14,500 km of navigable waterways, which consists of the Ganges–Bhagirathi–Hooghly rivers, the Brahmaputra, the Barak river, the rivers in Goa, the backwaters in Kerala, inland waters in Mumbai and the deltaic regions of the Godavari - Krishna rivers. About 44 million tones of cargo is moved annually through these waterways using mechanized vessels and country boats.

Major Inland Waterways of India

Source: Statistics of Inland Water Transport published by TRW, M/o Shipping

Navigable Stretches of Water Bodies in India

Sl.No.	State/UT	Total Length of Rivers/Lakes/Canals	Navigable Length in km
1	Andhra Pradesh	2501	791
2	Assam	3700	2584
3	Bihar	3763	1391
4	Goa	260	202
5	Gujarat	801.5	129

6	Jammu & Kashmir	…	…
7	Karnataka	2465	425
8	Kerala	3092	845.2
9	Maharashtra	611	453
10	Orissa	1840	1650
11	Nagaland	937	375
12	Mizoram	559	293
13	Tamil Nadu	170.1	…
14	Uttar Pradesh	…	…
15	West Bengal	4741	4593
16	Andaman & Nicobar Islands	…	…
Data Not Available, *Source:* Inland Water Transport published by TRW, M/o Shipping			

Mumbai, Goa, Cochin, Chennai, Vishakhapatnam and Kolkata are emerging destinations for cruise liners in India. Super Star Cruises operate from Mumbai to Goa, Lakshadweep, Kochi and Chennai. Kolkata, Vishakhapatnam and Chennai are directly connected to Andaman and Nicobar Islands.

The passenger ships operating from Chennai to those destinations are MV Bharat, MV Tipu Sultan, MV Amindivi and MV Minicoy. The Shipping Corporation of India also operates passenger ships from Kolkata, Chennai and Vishkhapatnam which takes 66 hours to reach Andaman and Nicobar Islands. The Tourism Department of Andaman and Nicobar Islands also operates deluxe cruise liners like MV Nicobar, MV Nancowry and MV Akbar.

There is a proposal to develop the inland waterways for tourist activities by the Ministry of Tourism along with the Ministry of Shipping and Maritime. In this regards, the rivers of North India like Ganga, Yamuna, Son, Brahmaputra and few more has been identified. The trial in Ganaga River has already been done from Howrah to Chunar (Mirzapur). A proposal is also pending regarding operation of small cruise between Allahabad and Varanasi.

River Mandovi in Goa is observing the operation of Boat Cruises. In the evening nearly ten cruises are operational offering cultural shows

and casinos on board. The Brahmaputra River in Assam is also being facilitated with boat ride. The package is applicable for Kaziranga National Park. Sunderban Delta has the same facility where tourists are being carried by small boats. Apart from the above, all the religious destinations of India which are lying on the bank of any river have the opportunity to provide boat ride to their pilgrims. Varanasi, Allahabad, Patna, Bodh Gaya, Mathura, Bhadrachalam, Kaladi, Haridwar and Rishikesh are some of the eminent places where tourists enjoy boating.

Conclusion

Water transportation is one of the oldest modes of transport practiced since the establishment of human civilizations in different part of the world. Water transport got prominence during the colonial rule of the European countries.

After the discovery of new routes to different parts of the world the western countries especially from Europe travel across oceans and conquered the world. Today enormous global trade happens through water transport. Ships with large load carrying capacity are built which can also travel faster than earlier. International trade has thus increased. Simultaneously leisure tourism on cruise lines has also picked up as an outcome of advancement water transportation.

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Lesson 4.4 - Road Transportaion

Introduction

With the growth of the early human settlements into larger establishments of civilizations, the concept of roads started taking shape. In the early human history, man walked and then he tamed some animal and used its support for travelling. Later he invented the wheel and since then the same wheel is used almost in every form of transportation to this day. The excavations of any civilizations would stand testimony to the systematic development of roads.

For instance, the Indus valley civilization had a well-developed city with a network of roads cutting across at right angles. Romans have the credit of providing the base of modern roads. They gave the modern engineers of the world about the blueprint of a road with deep roadbeds of crushed stone as an underlying layer. They kept dry, as the water would flow out from the crushed stone, instead of becoming mud in clay soils. They also provided relays of horses and make their land route brigand free. Mayan civilization was extensively spreading its route to Central America and neighboring places. They constructed the networks of good roads. Thus traversed the knowledge of roads building to the modern world. Even other civilizations such as the Babylonians, Chinese, early Greeks developed roads for chariots pulled especially by horses.

The story of India as mentioned above of systematic road building started with the Indus Valley Civilization in almost every settlement of them. In the later ages, trade and commerce was flourishing rapidly for which land route was badly needed. When Mauryans ruled over the sub-continent, silk route was connected to India. It was a major trade route for carrying silk from China to India and Middle East. It is the most important link in the movement of people from east to west to exchange silk, tea, rice, spices and many more. Grant Trunk road constructed by Sher Shah Suri is an important landmark in the history of road transportation in India. Since then India observed a number of projects for construction of State

Highways, National Highways and Prime Minister's Road Construction Planning to connect all the village roads with the state highway and nearest towns.

Major Transcontinental Highways

The Transcontinental Highway or TCH as marked on the highway signage is a major international highway in North America, stretching from Central America in the south all the way up into Oregon in the northwest and Nouvelle France and the NAL-SLC in the northeast. Ciudad de Mexico is the central hub where all the branches of the TCH meet.

The Trans-Continental Highway Congress met in Buenos Aires in 1925 to discuss the planning and construction of a highway system that would connect the two continents of the western hemisphere. Construction began only in the 1950s, connecting the various highway systems of the participating countries, and the North American portion was completed in 1977 with a grand exposition in Ciudad de Mexico, attended by the heads of the Americas. Due to political mismanagement and the existence of a nature reserve in Colombia the South American portion of the highway remains incomplete.

There are three principal routes which make up the North American portion of the Highway, The Blue Route, The Red Route and The Yellow Route. The Blue Route comes down the west coast of North America, passing through Oregon, Alta-California, Montrei and Mexico, terminating in Ciudad de Mexico. The Red Route comes down the east coast of North America, passing through the NAL, Nouvelle Francie, Louisianne and Mexico and then terminating in Ciudad de Mexico. From there, the Yellow Route passes down the west coast of Central American Community and ends in Panama. The South American portions would continue with the Yellow Route all the way down the west coast to Tierra del Fuego.

Another route called The Green Route has been proposed which would head down the east coast of South America through Venezola, English Guyana, Cambrian Guyana and Brazil. Another proposed route would begin in New Iceland and come down through Louisianne to meet the Red Route at Nouvelle Orleans. Another proposal calls for a route to

connect Maeve Sefarad with Alaaska and to extend the Blue Route into Alaaska. Oregonian politics has thus far thwarted construction, though Alyaska has planned and graded its portions of the route.

The Lincoln Highway: It is one of the first transcontinental highways across the USA for automobiles. The highway turned 100 years old in 2013. The Lincoln Highway spans coast-to-coast from Times Square in New York City to Lincoln Park in San Francisco, originally through 13 states: New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Iowa, Nebraska, Colorado, Wyoming, Utah, Nevada, and California. In 1915, the Colorado Loop was removed, and in 1928, realignment relocated the highway through the northern tip of West Virginia. This accounts for a total of 14 states over 700 cities, towns and villages through which the highway passes. The total length of the Lincoln Highway as recorded in 1913 was 3,389 miles (5,454 km). Over the years, the road was improved and numerous realignments were made, and by 1924 the highway had been shortened to 3,142 miles (5,057 km). Counting the original route and all of the subsequent realignments, there is a grand total of 5,869 miles (9,445 km). Conceived in 1912 and formally dedicated October 31, 1913, the Lincoln Highway is America's first national memorial to President Abraham Lincoln, predating the 1922 dedication of the Lincoln Memorial in Washington, D.C. by nine years. As the first automobile road across America, the Lincoln Highway brought great prosperity to the hundreds of cities, towns and villages along the way across the regions it has spread.

The great success of the Lincoln Highway and the resulting economic boost to the governments, businesses and citizens along its route inspired the creation of many other famous long-distance roads such as the Yellowstone Trail, National Old Trails Road, Dixie Highway, Jefferson Highway, Bankhead Highway, Jackson Highway, Meridian Highway and Victory Highway. Most of the 1928 Lincoln Highway route became US Route 30, with portions becoming US Route 1 in the East and US Route 40 and US Route 50 in the West. Since 1928, many sections of the USA.

The Inter-Oceanic Highway: Also known as Trans-Oceanic highway is an international, transcontinental highway in Peru and Brazil in South America to connect the two countries. It is a huge network of roughly 2,600 kilometers of roads and 22 bridges. Now completed, it has created a connected highway from the Peruvian ports of San Juan de Marcona to

Brazilian ports and cities throughout the City of Rio Branco ZPE (Special Export Zone). The project came into being via a 2004. In Peru, the project is known by the MTC (Ministerio de Transportes y Comunicaciones) as the Corredor Vial Interoceánico Sur Perú-Brasil and by ProInversion (Private Investment Promotion Agency - Peru) as the IIRSA (Iniciativa para la Integración de la Infraestructura Regional Suramericana) SUR axis. The project is part of a national road investment plan which involves the construction of three longitudinal highways, and 20 transversal highways. Parts of these transversal highways make up part of IIRSA SUR.

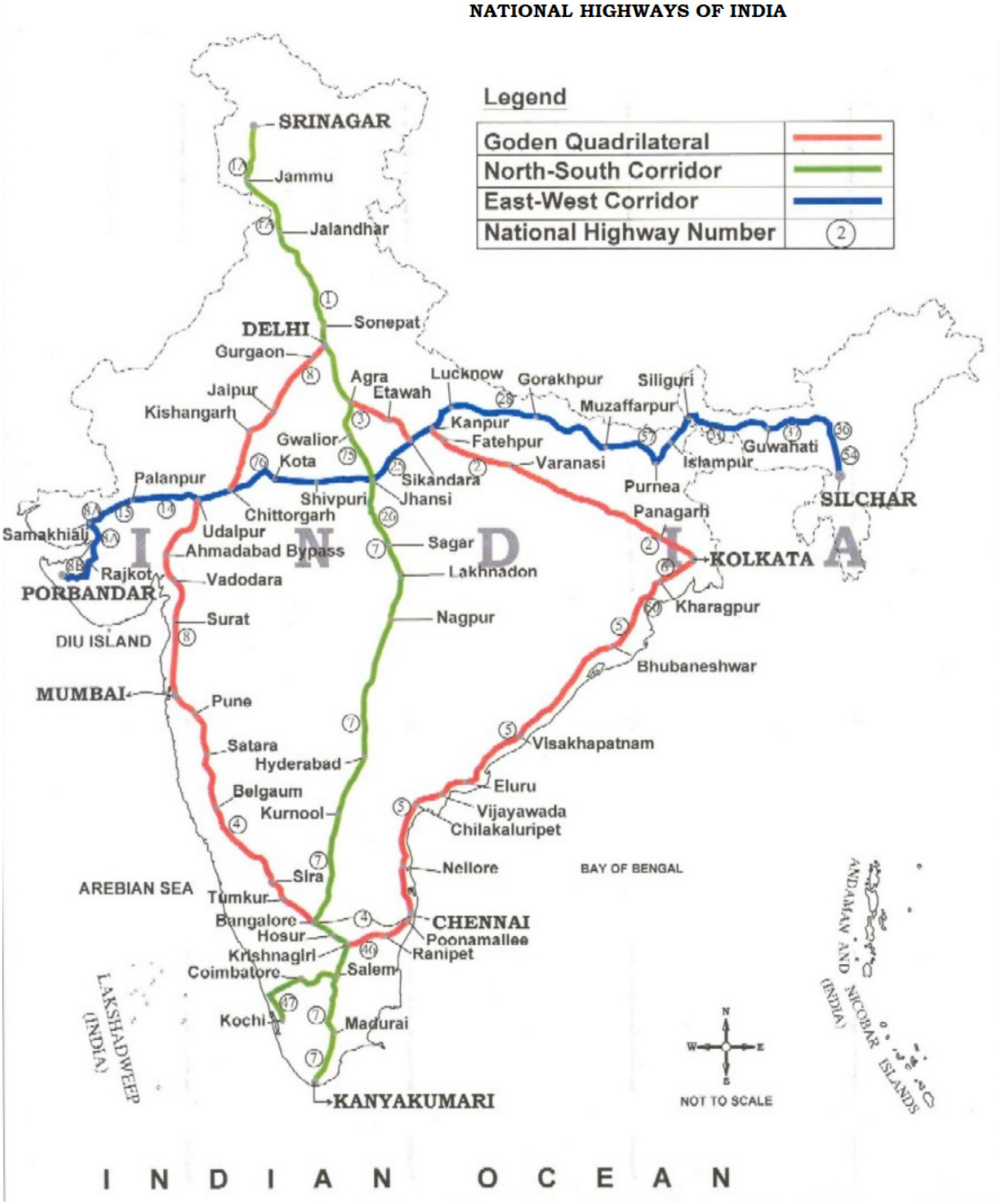
The Roosevelt Highway: The first extends from Provincetown, Massachusetts, to Brewster, New York, was designated in 1925 as Route 6. Soon thereafter Route 6 was extended to Erie, Pa, the Pennsylvania segment routed along the "Roosevelt Highway", a name that would soon apply to the entire transcontinental Route 6. In 1931, Route 6 was further extended to Greeley and Colorado along a path that combined quite a number of separate numbered and unnumbered segments, including U.S. 32 across part of Illinois and all of Iowa, and U. S. 38 across part of Nebraska. Finally, in 1937, the route was extended westward to Bishop, California and south to Long Beach.

The Jefferson Davis Memorial Highway: It was conceived in 1913 by the United Daughters of the Confederacy (U.D.C.). During these years, it was common for private organizations to identify a route, give it a name, and promoted its use and improved. The U.D.C. designated two auxiliary routes to the Lincoln Highway. One from Jefferson Davis' birthplace at Fairview, Kentucky, south to Beauvoir, Mississippi, where he lived in later years; and the second one a route through Irwinville, Georgia.

National Highways in India

The Indian Highways is a class of roads maintained by the National Highways Authority of India (NHAI). These are the main long-distance roadways in India and one of the highly used means of surface transport in India. They play a significant role in the Indian economy by connecting the principal cities and important business towns across the country.

Majority of these are two lanes and they constitute a total of about 65,000 km. Out of which 5,840 km has been converted into "Swarna



National Highways of India

Source: www.nhai.nic.in

Chathuspatha" or Golden Quadrilateral, a project commenced by the NDA Government led by the visionary Prime Minister Mr.Atal Bihari Vajpayee. About 4,885 km long highways are median-separated express highways. These are highways of world class with four lane roads equipped for all weather conditions, high speed drive and heavy loads. Closer to big cities, these highways are even converted into 8 lanes. Highways in India are

around 2% of the total road network in India, but they account for almost 40% of the total road traffic. The National Highways Bill, 1995, provided for private investment in the building and maintenance of these arteries of India. Thus, most of the highways are now built through public-private investments.

The longest National Highway is the NH 7 which runs is from Varanasi in Uttar Pradesh to Kanyakumari in Tamil Nadu passing through Chhattisgarh, Madhya Pradesh, Maharashtra, Andhra Pradesh and Karnataka covering a distance of 4,572 km as of Sep 2011. The shortest National Highway is the NH 47A 5.9 km which connects Kundanoor Junction of Maradu in Kochi city to the Kochi port at Willingdon Island. India has the distinction of having the world's highest drivable highway connecting Manali to Leh in Ladakh of Jammu & Kashmir state running through the Himalayan Mountains.

Conclusion

Road transportation probably started with the establishment human settlements or even prior to that. As the ancient kingdoms flourished well established roads were laid by the then kings for transportation. Greeks, Indians and the Chinese were pioneers in road building. Silk Route is the best example of how road transportation flourished in the medieval ages and it continued until the recent times. Today there exist many transcontinental highways used by countries for transportation of not only goods and material but also public. Advanced road building techniques have made the long lasting all seasons roads for comfortable and speedy journey by roads. Domestic tourism in our country has immensely increased mainly due to laying of world class roads.

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Lesson 4.5 - Transport Systems in India: an Overview

Introduction

Transport systems in the post independence India have played vital role in its economy. Though the pace of progress in this field was slow in the beginning since the economic liberalization of the 1990s, infrastructure development within the country has raced ahead at a rapid pace. The modern India has a very good transport network system in place. All forms of transport such as road, railways, air, water and canal are being developed in a planned way. Still there is greater need for advanced means of transport to be incorporated into the system for a wider scope and global reach. The public transport systems remain the primary mode of transport for most of the population. India's public transport systems are among the most heavily used in the world. For example, India's rail network is the 4th longest and the most heavily used system in the world and as of 2011. It has provided services to 7651 million passengers and transported over 921 million tones of freight annually. On the other hand, motor vehicle is low by international standards, with only 103 million cars on the Indian roads and around only 10% of Indian households owns a motorcycle. But the growth of the automobile industry is faster than it was two decades ago with an annual production of over 4.6 million vehicles. This is both for the domestic and international consumption as many of the Indian companies export their products.

At the same time, growth of transport infrastructure is not uniform across the country. The interior and less economically active parts of the country are still riddled with problems due to outdated infrastructure and lack of investment. The demand for transport infrastructure and services has been rising by around 10% a year with the current infrastructure being unable to meet these growing demands. To counter this imbalance the government has allocated approximately ₹ 50,000 crore during the Eleventh Five-Year Plan. This allocation is expected to be increased in the Twelfth Five-Year plan. Much care has been given in developing rural-urban connectivity and modernization of the existing airports in India. There is also immense thrust given on equipping all the metropolitan

cities and other major cities with metro railway service as a better means of public transport.

Traditional Means

Since ancient times well into the pre independence years walking and palanquin were two major forms of travel. The poor would walk and the rich would travel by palanquins. Apart from these there were also other traditional means of transport used by people very much in practice to this day especially in the rural India such as bullock carts, horse carriages. Let's now know about some of the traditional means of transport briefly.

Palanquin: Palanquins, also known as *palkis*, were one of the luxurious methods used by the rich and noblemen for travelling. This was primarily used in the past to carry a deity or idol of a God. Later on, it was used by European noblemen and ladies from the upper classes of society prior to the coming of the railways in India.

Bullock cart and horse carriage: Bullock carts have been major means of transport, especially in rural India. The British widely used the existing horse for transport. Today, they are used in smaller towns and are referred as Tonga or *buggies*. Victorias of Mumbai are still used for tourists' ride for experience. Horse carriages are now rarely found in the urban India as most municipal corporations have banned the movement of horse carriages, bullock carts and other slow moving vehicles on the principal roads of the cities.

Hand-pulled rickshaw: This type of transport though banned can still be seen in Kolkata wherein a person pulls the rickshaw by hand. The Government of West Bengal proposed a ban on these rickshaws in 2005 describing them as inhuman.

Cycle rickshaw: In the late 2000s, cycle rickshaws were banned in several cities for causing traffic congestion. They have been a feature of Delhi streets since Indian independence providing the cheapest means to go around the capital. Delhi High court and environmentalists have supported the retention of cycle rickshaws as a non-polluting and inexpensive mode of transport against a proposal by the Delhi Police of their banning in the city.

Bicycle: Bicycles are a common mode of travel in much of India. More people can now afford to own a cycle than ever before. In 2005,

more than 40% of Indian households owned a bicycle. In the recent years, environmentalists have encouraged to adopt this means of commuting.

Urban Public Transport

Most urban Indian depends on the motorized public transport. The other means of commuting are cycle rickshaws, auto-rickshaws and cabs. This is predominantly by road, since commuter rail services are available only in the seven metropolitan cities of Mumbai, Delhi, Chennai, Kolkata, Bangalore, Hyderabad and Pune, while dedicated city bus services are known to operate in at least 25 cities with a population of over one million. The share of buses is negligible in most Indian cities as compared to personalized vehicles, and two-wheelers and cars which account for more than 80 per cent of the vehicle population in most large cities of the country. Below is a list of urban means of transport.

Trams: The British introduced trams to India in many cities including Mumbai and Kolkata. They are still in use in Kolkata and provide an emission-free means of transport. The nationalized Calcutta Tramways Company is in the process of upgrading the existing tramway network at a cost of ₹24 crore. Presently, the limited tram system in India is extremely slow and technologically lagging.

Bus services: Most Indian cities have bus services for travelling within and many of the state governments run their own bus transport corporations. The oldest Indian state transport undertaking is North Bengal State Transport Corporation founded 1945 with three buses and three trucks. It is still vibrant and running, providing service to commuters of North Bengal region. Buses take up over 90% of public transport in Indian cities, and serve as a cheap and convenient mode of transport for all classes of society. Services are mostly run by state government owned transport corporations. Comfortable journey in buses is evident in some of the Indian cities. Bengaluru was the first city in India to introduce Volvo intra-city buses in India in 2006. The city is also the first Indian city to have an air-conditioned bus stop, located near Cubbon Park. The APSRTC has introduced Buses with two coaches. These Buses are allowed to operate only in the Greater Hyderabad. It is acknowledged as the single corporation having the largest fleet in the world. This has been certified by the Guinness World Records for being the largest bus operator in the

world. The city of Chennai houses Asia's largest bus terminus, the Chennai Mofussil Bus Terminus.

Bus Rapid Transit System (BRTS): The advanced initiatives like Bus Rapid Transit (BRT) systems and air conditioned buses have been taken by the various state governments to improve the bus public transport systems in cities. The idea of a BRT concept in India - based on the successful system in Curitiba, Brazil. Today, Bus Rapid Transit systems already exists in Bengaluru, Pune, Delhi, Ahmadabad, Mumbai and Jaipur with new ones coming up in Kolkata Hyderabad Lucknow and Bangalore. High Capacity buses can be found in cities like Mumbai, Bengaluru, Nagpur and Chennai. *TAXI:* Taxis are the rental cars in Indian cities. Taxis can either be hailed or hired from taxi-stands. In cities such as Ahmadabad, Bengaluru, Hyderabad and Chennai, taxis need to be hired over phone and, in cities like Kolkata and Mumbai they can be hired on the street. All taxis are required to have a fare-meter installed as per regulations. In the recent years, radio taxis have become increasingly popular in the Indian cities for want of convenience and safety.

Auto Ricksha: An auto rickshaw is a three-wheeler vehicle for hire most commonly found in almost all the Indian cities and towns. The color of the auto rickshaw is also determined by the fuel that it is powered by, for example Ahmadabad and Delhi have green autos indicating the use of Compressed Natural Gas, whereas the autos of Mumbai and Bangalore have black autos indicating the use of diesel. From public transport terminals usually one can avail the facility of pre-paid auto services.

Sub Urban Railway: The suburban railway services in India are currently limited to Mumbai, Kolkata, Pune, Chennai, Delhi and Hyderabad. The Mumbai Suburban Railway is the first rail system in India which began services in Mumbai in 1867 transports 6.3 million passengers daily and has the highest passenger density in the world. The first rapid transit system in India, the Kolkata Suburban Railway, was established in Kolkata in 1854.

Rapid Transit or Metro Rail: The first modern metro in India was the Kolkata Metro started its operations in 1984. The Delhi Metro in which began in 2002 is second conventional metro. The Namma Metro in Bengaluru is India's third operational rapid transit and began operations in 2011. Currently, rapid transit systems are operating in these cities and

more are under construction or in planning in several major cities like Ahmadabad, Hyderabad and Cochin.

An Overview of All Transport Systems in India

(Inputs here are in addition to that discussed in section 19.6)

Railways: Railway services were first introduced in India in 1853. Indian Railways a state run unit under the Ministry of Railways. It provides an important mode of transport in India, moving over 18 million passengers and more than 2 million tonnes of freight daily across the country. It is one of the largest and busiest rail networks in the world. The proposal to construct to build the highest railway track in the world from Manali to Leh overtaking current record of Beijing-Lhasa Railway line once completed will be a milestone in itself. In 1951, the 42 existing systems were nationalized as one unit, becoming one of the largest networks in the world. Today, Indian Railways is divided into sixteen zones, which are further sub-divided into sixty seven divisions. Covering more than 7,500 stations over a total route length of more than 65,000 km and track length of about 115,000 km the rail network has spread through the length and breadth of the country. Around 22,224 km or 34% of the routes has been so far electrified till 2012. Indian Railways is the world's largest commercial or utility employer, with more than 1.4 million employees. It owns over 200,000 (freight) wagons, 50,000 coaches and 8,000 locomotives. It also owns locomotive and coach production facilities. It operates both long distance and suburban rail systems. The Project Unigauge of the Indian Railways intended to convert all the gauges into broad gauges. Around 90% of conversion has been done till the end of 2012.

There are a number of services offered on high priority by the Indian Railways. The Rajdhani superfast trains provide connectivity between the national capital, Delhi and capitals of almost all the states except for a few in the northeast. On the other hand, the fastest train on the Indian rail network, Shatabdi Express provides connectivity to places of tourism, pilgrimage and business importance. Other specialized services operated by the Railways are the Duronto Express which is technically a non-stop train between origin and the destination. Garib Rath express trains offer cheap air-conditioned rail travel. Apart from these, the Indian Railways also operates some of the world's most luxury trains cover various tourist circuits. For example, the Palace on Wheels serves the Rajasthan circuit and the Golden Chariot serves the Karnataka and Goa circuits.

There are two UNESCO World Heritage Sites on Indian Railways namely, The Chatrapati Shivaji Terminus in Mumbai (earlier known as Victoria Terminus)and the Mountain railways of India. Following is the list of the mountain railways of India connecting to tourist attractions:

- **The Kalka-Shimla Railway**, *a 762 mm (2 ft 6 in) narrow gauge railway in the Shivalik mountains in Himachal Pradesh.*
- **The Nilgiri Mountain Railway**, *a 1,000 mm (3 ft 3 $^{3}/_{8}$ in) metre gauge railway to Ooty in the Nilgiri Hills in Tamil Nadu*
- **The Darjeeling Himalayan Railway**, *a 610 mm (2 ft) narrow gauge railway in West Bengal.*
- **The Maharaja Railways (Gwalior Light Railway),** *a 610 mm (2 ft) narrow gauge line from Gwalior to Shivpuri of 198 km. in length is world's longest narrow gauge railway line in the UNESCO world heritage tentative list.*
- **The Neral-Matheran Railway**, *a 20 km long 610 mm (2 ft) narrow gauge railway connecting Matheran just north of Bombay is also a historic line.*

Highly acclaimed projects of the Indian Railways are the Konkan Railway and the Kashmir Railway. The Konkan Railway **(Refer APPENDIX - X)** connects the remote and inaccessible areas of the country through the rugged Western Ghats. The 738-km long Konkan Railway with 2000 bridges and 91 tunnels is one such highly difficult project through fragile mountainous terrain of the Konkan region to connect two important port cities of Mangalore and Mumbai by a short route and was constructed in 1991-1998. The Kashmir Railway connecting to the Kashmir valley is so far completed up to Pahalgam. It has reduced the risk of roadways cut off and connects the valley with mainland all through the year. Indian Railways earns four times more than the passenger trains through it freight (goods) trains. The freight wagons carry almost 4000 tonnes per rake which is almost twice the load a normal goods train. The industrial hubs are well connected by the railway lines with their interior markets to boost the economy.

All the ports in the country are also well connected by railways with the production and supply units across the country. Indian Railways also provides metro services as fast track commuting transport systems. Traffic congestion in the metros is being eased with the development of Metro Rail. Delhi. Kolkata and Bengalure have already started their operations.

Roadways: India has a total of 70,934 km of National Highways, of which 200 km are classified as expressways (2010). This network takes huge chunk of the total load though in itself comprises only 2% of the total roads. Under National Highways Development Project (NHDP), work is under progress to equip some of the important national highways with four lanes; also there is a plan to convert some stretches of these roads to six lanes as part of the Golden Quadrilateral and North-South, East-West corridors. As per the National Highways Authority of India, about 65% of freight and 80% passenger traffic is carried by the roads. The National Highways carry about 40% of total road traffic. Highways have facilitated development along the routes and many towns have sprung up along major highways. Most of the National Highways are metalled and very few are concrete roads. Some of the most notable highways are the Mumbai-Pune Expressway, Delhi-Chandigarh expressway, Agra-Noida Yamuna Expressway and Vadodara-Anand Supreway. To improve rural connectivity, Pradhan Mantri Gram Sadak Yojana (Prime Minister's Rural Road Program), a project funded by the Central Government with the help of World Bank, was launched in 2000 to build all-weather roads to connect all rural settlements. India has an estimated length of 3,320,410 km (2009) roadways making the Indian road network the third largest in the world. At 0.66 km of highway per square kilometer of land, the density of India's highway network is higher than that of the United States (0.65) and far higher than that of China's (0.16).

Aviati3on: With the steady economic growth has grown the Indian aviation industry. Especially after open sky policy in the beginning of 1990s with the liberalization policy of the government air travel has increased and become affordable. Air India is India's flag carrier and plays a major role in connecting India with the rest of the world. There are several other foreign airlines which connect India with the major cities in the world. Presently Air India, Jet Airway, IndiGo and Spice Jet offer international services.

IndiGo, Jet Airways and Air India are the most popular airline brands in domestic air travel in order of their market share. They together connect more than 80 cities across India and also operate overseas routes after the liberalization of Indian aviation. Many Low-Cost Carriers (LCCs) have started their operations in the domestic market, but fuel costs and heavy taxation policies of the government have literally the stagnated

market. With Government of India's 49% FDI investment in the Indian aviation industry there rises a hope for the industry in the future. India's vast unutilized air transport network has attracted several investments in the Indian air industry in the past few years. More than half a dozen low-cost carriers entered the Indian market in 2004-05. Major new entrants included Air Deccan, Spice Jet, GoAir, Paramount Airways and IndiGo Airlines.

Conclusion

Transportation system of any country plays a vital role in its economic growth. India has enormously progressed in building its own world class transport systems. India has one of world's thickest and busiest railway networks majority of it has been electrified. But the railway network needs to be upgraded and modernized so as to meet the global standards. The goods railway contributes double the revenues of passenger rail in India. During the NDA rule world class four-lane road building to connect all the metros and the major cities of the country started with the name of Golden Quadrilateral which has today revolutionized the very roadway transportation in India. Likewise many ports have been modernized and new sea ports are under construction to facilitate the marine trade. Similarly airports are also being upgraded to world standards to boost the economy.

IV.III Let Us Sum Up The Unit

In this unit we have learned about different transport systems of the world and a section on the transport systems in India. Different sections in this unit have given an insight into Air Transport, Rail Transport, Water Transport and Road Transport. The unit also throws a light on the interrelationship of tourism with the transport systems noting several examples from across the globe. Transport systems are the backbone of any economy in the world without which it's impossible imagine the growth of a region. It's evident from the above discussions how transport network reduces the regional imbalance in terms of growth and development. We have in detail discussed various benefits of transport systems towards enriching the tourism industry in different parts of the world.

DO YOU KNOW ABOUT ?

Konkan Railway: A Wonder!

Nobody had imagined ever would there be a railway line through the rugged and tough topography of the Western Ghat until the CMD E.Sreedharan thought it was possible! Konkan Railway Project, constructed on BOT, Built Operate-Transfer Concept, is the biggest project undertaken by Indian Railways as far. Konkan Railway traverses through 3 states viz. Maharashtra, Goa and Karnataka with a route length of 762 kms with 93 tunnels and 150 bridges. This railway line has reduced rail distance between northern/western/central India and destinations on western coast. To cater the freight traffic requirements, goods terminals have been commissioned at Chiplun, Ratnagiri, Kudal, Verna, Karwar and Udupi stations of Konkan railway. It began 1990 and completed in record time of only eight years in 1998.

Konkan Railway traverses along the picturesque west coast having varieties of flora and fauna. The natural beauty of region complemented with elegant man made structures makes the journey over Konkan Railway into memorable experience for the passengers. The shortened time span, easy accessibility of historical, religious spots and to beaches along the picturesque coastline of Maharashtra, Goa and Karnataka states contributes to a booming tourist trade.

Source: www.konkanrailway.co (Refer **APPENDIX V** for further details)

CASELET 4. Golden Quadrilateral

The Golden Quadrilateral, which connects four major cities in India, is the fifth-longest highway in the world. It has been found that by improving connectivity, the highway has helped with the efficient distribution of industries across locations. It has facilitated the shift of land and building intensive industries from the core to peripheries of cities, and has made medium-sized cities more attractive locations for manufacturing activity.

The highway has also enabled increase in the tourist visits to attractions in the regions along it across the country. Road transport is the principal mode of movement of goods and people in India, accounting for 65% of freight movement and 80% of passenger traffic. While national highways constitute about 1.7% of the road network, they carry more than 40% of the total traffic volume. The massive project began in 2001, was two-thirds complete by 2005, and was more or less finished by 2007.

The Golden Quadrilateral has given way to creation of scenic highways and expressways in India. One of the busiest of these is the Mumba – Pune expressway which is not only drawing immense commerce but has connected good number of tourist attractions with the highway. Likewise the Vadodara – Ahmedabad express way and the Yamuna superway have also become vital their own way in supporting the development of tourism in India. The GQ has reduced distance between destinations, increased the speed and load capacity, helped in promoting highway tourism and multiplied the entertainment and event management attractions.

(*Reference Source:* http://www.nhai.org/completed.asp, http://www.ideasforindia.in/article.aspx?article)

Discussion Points

a. Highways have redefined transportation in India. Discuss.

b. Golden Quadrilateral has restructured the network of tourist destinations in India by connecting them with the highway. Examine the substance in the statement.

c. Suggest measures to further improve the GQ so as to develop tourist activities.

d. Some portions of the Golden Quadrilateral have positioned themselves as expressways or superways and opened new avenues in tourism industry. Comment.

e. Find similar highways in other parts of the world supporting tourism development.

IV.IV Check Your Progress

a. Short Answer Type Questions

1. List out the IATA Traffic Conference Areas.
2. What is a Global Indicator in Air Transport?
3. List the top ten international airports.
4. What is the key achievement of Indian Railways?
5. What is inland Water Transport?
6. What is Transcontinental Road Transport?
7. Elaborate on National Highways in India?
8. Write a small note on the Golden Quadrilateral.
9. Name major cargo ports of India.

b. Long Answer Type Questions

1. Bring out the salient features of International Air Transport and discuss the role of IATA and other national organizations in this regard.

2. Discuss the importance of the International Water Transport in detail.

3. What is the role of water transport in Tourism Promotion in India? Support your answer with examples of major tourist destinations related specifically with water transport.

4. Trans-continental railroads and roadways will not only enhance international businesses but also global tourism. Comment.

5. Write an essay on the various Inland Water Transport systems in India and bring out the advantages of this mode of transportation.

6. Compare the contribution of various transport systems of Europe with that of North America and list out the salient points

7. Aviation industry in India is riddled with many problems yet there is a great scope for growth. Appreciate.

Unit V - Planning and Development of Tourism in Different Climatic Regions: Case

Unit Structure

Learning Objectives

After going through this lesson you should be able to

- Develop knowledge about tourism planning in the given cases
- Appreciate demand for tourism in the given case
- Compare supply components of tourism of the above countries
- Understand the USPs of various destinations of the above cases
- Analyse the tourists arrival and tourism receipts

Introduction

Tourism development has become popular globally and it has regional differences. Europe has been the prime destination for the global tourists with six of the countries in the region finding place among the top ten destinations in terms of Foreign Tourists Arrivals (FTAs) in 2012. The FTAs reached 1.035 billion in 2012 an increase of 17.035 million over 983 million in 2011 and 940 million in 2010. International tourism arrivals

as well as the receipts were temporarily hit due to global recession and weakening of international markets from the second half of 2008 through the end of 2009. Only a 5% increase in the first half of 2008 was registered and later the growth in international tourist arrivals became negative in the second half of 2008. This negative trend intensified during 2009 resulting in a worldwide decline of 4.2% in 2009 to 880 million FTAs and a 5.7% decline in international tourism receipts or the Foreign Exchange Earnings (FTAS). All this as mentioned above changed since 2010 and there has been an increasing trend since then giving hope especially for many such countries which depend heavily on tourism. France with 83.0 million, USA with 67.0 million, China with 57.7 million, Spain with 57.7 million, Italy with 46.4 million, Turkey with 35.7 million, Germany with 30.4 million, UK with 29.3 million, Russia with 25.7 million and Malaysia with 25.0 million ranked respectively from one to ten among the global tourism in terms of FTAs. At the same time FEEs grew from 1,042 billion U.S. dollars in 2011 to 1,075 billion U.S. dollars in 2012. China became the biggest source market globally which has spent 102 billion U.S. dollars in 2012. The UNWTO data show that Asia and the Pacific recorded the strongest growth with a 7% increase in arrivals, followed by Africa (+6%) and the Americas (+5%).

This unit focuses on the destination case studies from different parts of the world in different geographical capacities, varied cultures and economy. Tourism in these destinations has seen growth in the recent years with the promising international economy. Some of the destinations chosen for case analysis here are China, Malaysia, Hong Kong, Sri Lanka, Maldives from Asia, Brazil from South America, Hawaii from North America (South Central Pacific), Papua New Guinea from South Pacific, Madagascar from Africa and Switzerland, France and Italy from Europe. The country profile, geography, tourism industry, tourism statistics and top tourist attractions of the destinations have been discussed in detail in the following sections.

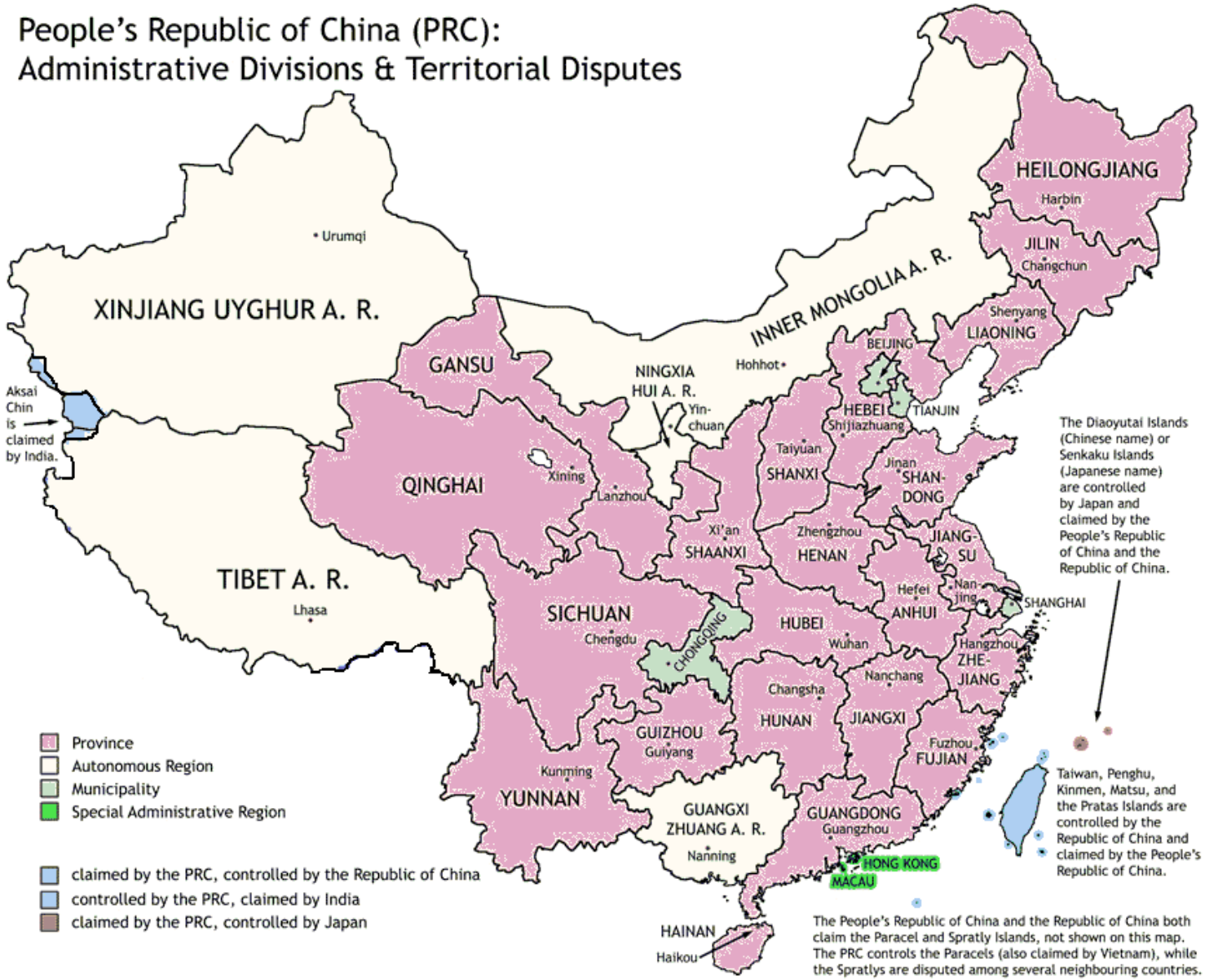
Lesson 5.1 - China

Introduction

An estimate of UNWTO reveals that China will lead in all tourism businesses of the world by 2020 given the same growth rate at which it is surging ahead in the present conditions. Its evolution over the ages has put it in the spotlight. China has been in the forefront of civilizations on the earth for ages now. It is fast growing and developing in every sphere of the competition in the world be it science and technology or games and sports. But in the first half of the 20th century, China was beset by major famines, civil unrest, military defeats, and foreign occupation. After World War II, the Communists under Mao Zedong established a dictatorship that, while ensuring China's sovereignty, imposed strict controls over everyday life and cost the lives of tens of millions of people. After Mao his successor Deng Xiaoping from 1978 gradually introduced market-oriented reforms and decentralized economic decision making. Output enormously increased in the next 20 years and today the results are before us, China now has the world's second largest GDP.

Country Profile of People's Republic of China	
Official Name	Zhonghua Renmin Gongheguo
local short form	Zhong Guo
Int'l short form	China
Int'l long form	People's Republic of China
Abbreviation	P.R.C. (People's Republic of China)
Border countries	Afghanistan, Bhutan, India, Kazakhstan, North Korea, Kyrgyzstan, Laos, Mongolia, Myanmar (Burma), Nepal, Pakistan, Russia, Tajikistan, Vietnam
	cn
ISO Country Code	UTC +8h
Local Time	(China extends across five times zones, but the country uses a single time zone.)
Country Calling Code	+86
Capital City:	Beijing
Other major Cities:	(Municipality population 19,6 million)
	Shanghai (municipality population 23 million),

	Tianjin (municipality population 13 million), Hong Kong ((urban population 6.8 million), Wuhan (urban population 4.4 million), Guangzhou (Canton, urban population 4.1 million), Shenyang (urban population 4 million), Chongqing (municipality population 28.8 million),
Government:	*Type:* Communist party-led state *Constitution:* 4 December 1982. *Independence:* Unification under the Qin Dynasty 221 BC; Qing (Ch'ing or Manchu) Dynasty replaced by a republic on 12 February 1912; People's Republic established 1 October 1949.
Geography:	*Location:* Eastern Asia, bordering the East China Sea, Korea Bay, Yellow Sea, and South China Sea, between North Korea and Vietnam *Total area:* 9.6 million km² (about 3.7 million sq. mi.), third largest country in the world, slightly smaller than the US and almost as large as the combined nations of Europe. *Terrain:* Plains, deltas, and hills in east; mountains, high plateaus, deserts in west.
Climate:	From tropical in south to subarctic in north.
People:	*Nationality:* Chinese (singular and plural). *Population:* 1,347,350,000 (2012). *GNI per capita PPP:* $ 6193 (year) *Ethnic groups:* Han Chinese 91.6%; beside the Han population China recognizes fifty-five minority nationalities which comprise 8.4 percent of China's total population among them are: Zhuang, Manchu, Hui, Miao, Uygur, Yi, Mongolian, Tibetan, Buyi, Korean and other nationalities. *Religions:* Officially atheist; Taoism, Buddhism, Islam, Christianity.
Language:	PuTongHua (Mandarin), Wu (spoken in Shanghai), Yue (Cantonese) plus other dialects like Min, Hakka (Kejia), Gan and Xiang. Chinese is spoken by more people than any other language in the world.
Literacy:	81%
Natural resources:	Coal, iron ore, crude oil, mercury, tin, tungsten, antimony, manganese, molybdenum, vanadium, magnetite, aluminum, lead, zinc, uranium, world's largest hydropower potential.
Agriculture products:	Rice, wheat, potatoes, sorghum, peanuts, tea, millet, barley, cotton, oilseed, pork, fish.
Industries:	Iron and steel, coal, machine building, armaments, textiles and apparel, petroleum, cement, chemical fertilizers, footwear, toys, food processing, automobiles, consumer electronics, telecommunications.
Currency:	Yuan Renminbi (CNY)



Administrative Divisions of PRC

Geographical Regions of China

The People's Republic of China may be divided into six geographical regions as East China, Central China, South China, West China, North-East China and North China. China has occupied some of the regions which it claims to be part of it such as Tibet, Akasai Chin which is part of India and Taiwan with which there has been a lot of political turmoil in the last few decades but today it is being under its direct control. Apart from this China also have territorial disputes with Japan. The Diaoyutal Islands in the North-West coast of China are under the control of Japan which China has been claiming. China also claims Arunachal Pradesh, the north-eastern state of India but under the control of India.

Geographical Regions of China

Region	Area	Provinces included & Notes
East China	832,028 km²	The seven entities above and the claimed Taiwan Province. Taiwan is administered by the ROC
Central China	564,700 km²	Henan, Hubei, Hunan
South China	449,654 km²	Guangdong, Hainan, Guangxi, Hong Kong, Macau
Western China	3,978,700 km²	Chongqing, Gansu, Guizhou, Ningxia, Qinghai, Shaanxi, Sichuan, Tibet, Xinjiang, Yunnan
Northeast China	1,266,869 km²	Heilongjian, Inner Mangolia (with Chifeng, Hulunbuir, Hinggan, Tongliao) , Jilin and Liaoning
North China	1,082,492 km²	Beijing, Hebei, Inner Mangolia (without Chifeng, Hulunbuir, Hinggan, Tongliao), Shanxi, Tianjin

Source: www.worldatlas.com and www.wikipedia.org

Tourism in China

The People's Republic of China is one of the fastest-growing tourism markets in the world. Tourism has greatly expanded over the last few decades since 1980s. China has become one of the worlds' most-watched and hottest inbound and outbound tourist markets. China is the third most visited country in the world. The FTAs (Foreign Tourist Arrivals) during 2010 were 55.98 million and at the same time FEEs (Foreign Exchange Earnings) was 45.8 billion U.S.dollars. The number of domestic tourist visits during the same time was 1.61 billion, generating an income of 777.1 billion Yuan.

As per the estimates of UNWTO, China will become the largest tourist country and will attract the highest foreign tourists. In terms

of total outbound travel spending, China is expected to be the fastest-growing in the world from 2006 to 2015. China's fast growing economy is also generating a sharp increase in business travel. It is also interesting to note that China is the highest tourist spender with a spending of over 100 billion U.S. dollars during 2012 a great jump from around 77 billion U.S. dollars spending in the previous year.

Tourism Statistics and Other Highlights

Inbound Tourism: China Tourism sustained a steady and rapid development in 2011. Both of the domestic tourism market and outbound tourism market retained a speedy growth, while the inbound tourism market achieved a very good increase from 2010.

Ranking of China among the Top Countries

Rank	Country	UNWTO Region	International tourist arrivals (2012)	International tourist arrivals (2011)	Change (2011 to 2012)	Change (2010 to 2011)
1	France	Europe	83.0 million	81.6 million	+1.8%	+5.0%
2	United States	North America	67.0 million	62.7 million	+6.8%	+4.9%
3	**China**	**Asia**	**57.7 million**	**57.6 million**	**+0.3%**	**+3.4%**
4	Spain	Europe	57.7 million	56.2 million	+2.7%	+6.6%
5	Italy	Europe	46.4 million	46.1 million	+0.5%	+5.7%
6	Turkey	Europe	35.7 million	34.7 million	+3.0%	+10.5%
7	Germany	Europe	30.4 million	28.4 million	+7.3%	+5.5%
8	United Kingdom	Europe	29.3 million	29.3 million	-0.1%	+3.6%
9	Russia	Europe	25.7 million	22.7 million	+13.4%	+11.9%
10	Malaysia	Asia	25.0 million	24.7 million	+1.3%	+0.6%

Source: UNWTO World Tourism Barometer www.unwto.org

Tourist Markets of China for the Inbound Tourism: The FTAs grew by 3.8 percent in 2011 from 2010. The market share of Asian tourists took up 61.7% of the total foreign visitors, increasing 2.8% on the previous year. Among the Asian countries, South Korea was the largest tourist source country to China. Tourists from other continents varied from each other. The number of tourists from America increased 6.9% from the previous year. The number of tourists from Africa increased slightly over the previous year, with a growth rate of 5.4%. The number of tourists from Europe and Oceania has a 4.2% and 8.9% year-on-year number growth respectively.

Foreign Tourist Arrivals

Index	2011 (million)	2010 (million)	Growth (%)
Total Tourist Arrivals	135.4235	133.7622	1.2
Foreign Tourists	27.1120	26.1269	3.8
From Hong Kong	79.3577	79.3219	0.1
From Macau	23.6908	23.1729	2.2
From Taiwan Province	5.2630	5.1406	2.4
International Tourism Receipts	48.464 billion USD	45.814 billion USD	5.8

Source: www.travelchinaguide.com

Top 10 tourism source countries

Order	Country	Number of Tourist Arrivals (Unit in 10,000 persons)	Percentage of Increase (%)
01	South Korea	418.54	2.67
02	Japan	365.82	-1.96
03	Russia	253.63	7
04	the United States	211.61	5.3
05	Malaysia	124.51	-0.01
06	Singapore	106.3	5.91
07	Vietnam	100.65	9.4
08	Mongolia	99.42	25.15
09	Philippines	89.43	7.97
10	Canada	74.8	9.15

Source: www.travelchinaguide.com

Outbound Tourism: Chinese people are eager to go sightseeing overseas which creates an immense market for some nearby countries. The growing economy is reflected in the growth of the outbound tourism.The popular outbound destinations include USA, Russia, France, Australia, Japan, Korea, Malaysia, Singapore, Thailand and Maldives, etc. In 2011, the number of outbound tourists totals 51 million, up over 20% comparing with 2010.

Domestic Tourism: China has a large domestic tourism market with a population of more than1.3 billion. In the recent decade, domestic tourism had a continuous increase of around 10% each year, which now contributes over 4% to the growth of the country's GDP and greatly enhances the employment, consumption and the economic development of China. The most popular destinations for Chinese tourists include Beijing, Shanghai, Xian, Guilin, Hangzhou, Sanya, Lhasa, Chengdu, Lijiang, Hong Kong, Macau etc.

Top 10 Foreign Destinations of Chinese People

	Foreign Countries	Reception of Chinese Mainland Tourists (Unit in 10,000 persons)	Growth (%)
1	South Korea	236.78	20.3%
2	Malaysia	173.78	68.1%
3	Japan	162.79	-17.3%
4	Thailand	152.26	50.1%
5	The United States	136.04	26.3%
6	Combodia	121.55	231.0%
7	Vietnam	114.15	-5.7%
8	Singapore	100.42	21.6%
9	Russia	80.96	13.9%
10	Australia	65.23	19.6%

Source: www.travelchinaguide.com

Top Attractions in China

1. **The Great Wall of China:** The Great Wall of China built, rebuilt, and maintained between the 5th century BC and the 16th century to protect the northern borders of the Chinese Empire from the attacks of nomadic tribes from the north. The majority of the existing wall were built during the Ming Dynasty (1368-1644 AD). It attracts majority of the tourists coming to China.

2. **Potala Palace:** Situated 130 meters above the Lhasa valley, the Potala Palace rises a further 170 meters and is the greatest monumental structure in all of Tibet. The construction of the present palace began in 1645 during the reign of the 5th Dalai Lama and by 1648 the Potrang Karpo, or White Palace, was completed. The Potrang Marpo, or Red Palace, was added between 1690 and 1694. The Potala Palace remained the residence of the Dalai Lama until the 14th Dalai Lama fled to India, after the Chinese invasion in 1959.

3. **The Forbidden City:** Located in the center of Beijing,the Forbidden City is the world's largest palace covering 72 hectares. Built from 1406 to 1420, the palace complex consists of 980 surviving buildings with 8,707 rooms surrounded by a six meter (20 ft) deep moat and a ten meter (33 ft) high wall. Twenty-four emperors reigned over the country for almost 5 centuries from the Forbidden City until the abdication of Puyi, the last Emperor of China. Today the Forbidden City is a museum and one of the most popular tourist attractions in China.

4. **The Victoria Harbour:** Victoria Harbour is a major tourist attraction in Hong Kong and one of the deepest container ports in the world. The bay offers stunning views of the skyscrapers of Hong Kong island on one side, and the Tsim Sha Tsui shoreline on the other. Victoria Harbour is also one of the busiest harbors in the world with hundreds of ferries, junks and speed boats darting up and down the shore. One of the best ways to see the harbor is a trip on the Star Ferry.

5. **Terracotta Army at Xian:** The Terracotta Army is a collection of terracotta sculptures depicting the armies of Qin Shi Huang (221 BC-206 BC), the first Emperor of China. It is the most popular tourist attraction in Xián and one of the most popular in all of China. It is estimated that in the three pits containing the Terracotta Army there were over 8,000 soldiers, 130 chariots with 520 horses and 150 cavalry horses, the majority of which are still buried in the pits.

6. **Li River Cruise:** A Li River cruise from Guilin to Yangshuo is the highlight of any trip to northeastern Guangxi Province. The landscape is decorated with amazing hills, steep cliffs, incredible caves and farming villages, and is lined with bamboo groves. With its breathtaking scenery and taste of a life far removed from the concrete metropolis, the scenery along the Li River is one of the top tourist attractions in China

7. **Mount Huang:** One of China's major tourist destinations, Mount Huang is a mountain range in eastern China also known as Huangshan ("Yellow Mountain"). The area is well known for its scenery, pine trees, peculiarly-shaped granite peaks and views of the clouds from above. In ancient times almost 60,000 stone steps were carved into the side of the mountain range. Today there are also cable cars that tourists can use to ride directly from the base to one of the summits.

8. **The Giant Budha Statue:** The Giant Buddha of Leshan is a gigantic Buddha statue carved out of a cliff face in Sichuan, western China. Begun in the year 713 during the Tang Dynasty, the statue was not completed until the year 803, and was the effort of thousands of sculptors and workers. The Leshan Giant Buddha stands about 71

meters (233 feet) high and has three meter (11 feet) long fingers on each of its enormous resting hands.

9. **The Magao Caves:** The Mogao Caves form a system of 492 temples 25 km (15.5 miles) southeast of the center of Dunhuang, an oasis strategically located at a crossroads on the Silk Road. The caves contain some of the finest examples of Buddhist art spanning a period of about a 1,000 years. Construction of the Buddhist cave shrines began in 366 AD as places to store scriptures and art. Along with the Longmen Grottoes and Yungang Grottoes, the Mogao Caves are one of the three most famous ancient rock-cut temples in China

10. **The Pudong Skyline:** Pudong is a district in Shanghai on the eastern side of the Huangpu River that has emerged as China's financial and commercial hub. A skyline of gleaming skyscrapers rises out of what was mere farmland only 20 years ago. Skyscrapers include the symbolic Oriental Pearl Tower, the Shanghai World Financial Center, the Jin Mao Building and the Shanghai Tower that should be finished in 2014.

Conclusion

China is one of the leading tourist destinations in the world with a phenomenal growth rate. Being the third largest foreign tourist visited country China is also earning huge foreign exchange through tourists coming from different parts of the world. Huge investments in developing infrastructure and enhancing the transport systems have given fillip to the tourism growth in China.

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Lesson 5.2 - Brazil

Introduction

The name of Brazil comes with the extravaganza of culture and pomp of ethnic diversity. Of all the South American countries Brazil is the one of the most sought after destinations second only to Argentina. Following three centuries under the rule of Portugal, Brazil became an independent nation in 1822. By far the largest and most populous country in South America, Brazil has overcome more than half a century of military intervention in the governance of the country to pursue industrial and agricultural growth and development of the interior. Exploiting vast natural resources and a large labor pool, Brazil became Latin America's leading economic power by the 1970s. Highly unequal income distribution remains a pressing problem. But the country has found answer to its economic hurdles in tourism.

Country Profile of Brazil

Official Name	Republica Federativa do Brasil
Short form	Brasil
International long form	Federative Republic of Brazil
International short form	Brazil
Border countries	Argentina, Bolivia, Colombia, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela
ISO Country Code	br
Actual Time	Brasilia, Rio de Janeiro Thu-July-25 04:54
Local Time	Brazil lies within 4 different time zones. Southern Brazil uses daylight saving time from October until February: +1 hour
Country Calling Code	+55

Capital City	Brasilia (pop. 2.1 million) GDF - Governo do Distrito Federal The Federal District Government. (in Portuguese)
Other Cities	Sao Paulo (17.9 million), Rio de Janeiro (10.7 million), Belo Horizonte (2.6 million), Salvador (2.6 million), Fortaleza (2.1 million), Recife (2.9 million), Porto Alegre (3 million), Curitiba (1.6 million).
Government	*Type:* Federative Republic. *Independence:* 7 September 1822 (from Portugal).
Geography	*Location:* Eastern South America, bordering the Atlantic Ocean. *Area:* 8.5 million km² (3 290 000 sq. mi.); slightly smaller than the USA *Terrain:* Dense forests in northern regions including Amazon Basin; semiarid along northeast coast; mountains, hills, and rolling plains in the southwest, including Mato Grosso; and coastal lowland.
Climate	Mostly tropical or semitropical with temperate zone in the south.
People	*Nationality:* Brazilian. *Population:* (2011) 192 million. GNI per capita PPP: $ 8,745 (year) Ethnic groups: Brazil's population is derived from three main ethnic sources. To the original inhabitants (Indians) were added successive waves of Europeans (mainly Portuguese) and Africans (mostly from the sub-Saharan west coast, belonging to the Bantu and to the Sudanic (Yoruba) ethnic groups).
Religion	Roman Catholic (80%).
Language	Brazilian Portuguese.
Literacy	81% of adult population.
Natural resources	Iron ore, manganese, bauxite, nickel, uranium, gemstones, oil, wood, and aluminum. Brazil has 12% of the world's fresh water. Coffee, soybeans, wheat, rice, corn, sugarcane, cocoa, citrus; beef.

Agriculture products	Textiles, shoes, chemicals, cement, lumber, iron ore, tin, steel, aircraft, motor vehicles and parts, other machinery and equipment.
Industries	Exports partners: USA 23%, Argentina 6.1%, China 6%, Netherlands 5.8%, Germany 4.2% (2003) Imports partners: USA 20%, Argentina 9.8%, Germany 8.7%, Japan 5.2%, China 4.4% (2003)

Geographic Regions of Brazil

Political Map of Brazil

Tourism in Brazil

Brazil is not only for football but also a lot of things that attract a lot of foreign tourists. Tourism plays a vital role in building the economy of Brazil and supports the economy of several regions of the country. The country had 5.1 million visitors in 2010, ranking in terms of the international tourist arrivals as the second main destination in South America, and third in Latin America after Mexico and Argentina. Revenues from international tourists reached US$5.9 billion in 2010, showing a recovery from the 2008-2009 economic crises. Historical records of 5.4 million visitors and US$6.775 billion in receipts were reached in 2011. The country is expected to cross 7 million mark by the 2013.

Tourism Statistics and Other Highlights

There is plenty to offer for both domestic and foreign tourists in Brazil with an ample gamut of options, natural areas being its most popular tourism product, a combination of ecotourism with leisure and recreation, mainly sun and beach, and adventure travel, as well as historic and cultural tourism. Some of the most popular destinations of its diversity are the Amazon Rainforest, beaches and dunes in the North-East Region, the Pantanal in the Central-West Region, beaches at Rio de Janeiro and Santa Catarina, cultural and historic tourism in Minas Gerais and São Paulo city with its urban life. The main competitive advantages Brazil are its natural resources, which ranked 1st on this criteria out of the 139 countries considered on the Travel and Tourism Competitiveness Index of 2011. It was ranked 23rd for its cultural resources, due to its many World Heritage sites.

International Tourism: Revenues from international tourism continued to rise, from 3.9 billion U.S. dollars in 2005 to 4.9 billion U.S. dollars in 2007. WTO reveals the gradual growth of international travel since 2000 and steady growth between 2004 and 2005. After a fall in the arrivals and revenues especially in 2008 due to global economic crisis the industry recovered by 2010 and arrivals grew to 5.16 million international visitors in, and receipts from these visitors reached 5.9 billion U.S. dollars. In 2011 the historical record was reached with 5.4 million visitors and US$6.775 billion in receipts. Despite continuing record breaking of international tourism revenues, the number of Brazilian tourists travelling

overseas has been growing steadily since 2003, resulting in a net negative foreign exchange balance, as more money is spent abroad by Brazilian than receipts from international tourist visiting Brazil. In 2005, tourism contributed with 3.2% of the country's revenues from exports of goods and services, and represented 7% of direct and indirect employment in the Brazilian economy. In 2006 direct employment in the sector reached 1.87 million people. Domestic tourism is a fundamental market segment for the industry, as 51 million traveled throughout the country in 2005.

Historical international tourism arrivals 1995-2011

Year	FTAsB (x1000)	Annual Growth (%)	FEEs (millions USD)	Annual Growth (%)
1995	1,991	-	972	-
2000	5,313	-	1,810	-
2003	4,133	-	2,479	-
2004	4,794	16.0	3,222	30.0
2005	5,358	11.8	3,861	19.8
2006	5,019	-6.3	4,316	1.1
2007	5,025	0.1	4,953	14.8
2008	5,050	0.5	5,780	16.7
2009	4,802	-4.9	5,305	-8.2
2010	5,161	7.5	5,919	11.6
2011	5,400	4.6	6,775	14.5

Historical international tourism arrivals 1995-2011

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2010	5,161	7.5	5,919	11.6
2011	5,400	4.6	6,775	14.5

Main destinations visited by international tourists in 2005
(Top 10 ranking by travel purpose)

Leisure			Business events & conventions			Other purposes		
Ranking (2005)	**Destination**	**%**	**Ranking (2005)**	**Destination**	**%**	**Ranking (2005)**	**Destination**	**%**
1st	Rio de Janeiro	31.5	1st	São Paulo	49.4	1st	São Paulo	32.5
2nd	Foz do Iguaçu	17.0	2nd	Rio de Janeiro	22.3	2nd	Rio de Janeiro	25.0
3rd	São Paulo	13.6	3rd	Porto Alegre	8.2	3rd	Belo Horizonte	6.4
4th	Florianópolis	12.1	4th	Curitiba	5.4	4th	Salvador	6.3
5th	Salvador	11.5	5th	Belo Horizonte	4.1	5th	Foz do Iguaçu	5.1
6th	Balneário Camboriú	6.7	6th	Campinas	4.1	6th	Curitiba	4.6
7th	Fortaleza	6.4	7th	Brasília	3.4	7th	Florianópolis	4.0
8th	Natal	5.8	8th	Foz do Iguaçu	3.0	8th	Porto Alegre	3.6
9th	Búzios	5.4	9th	Salvador	2.7	9th	Fortaleza	3.4
10th	Manaus	4.0	10th	Florianópolis	1.8	10th	Brasília	3.1

Source: www.braziltourism.com

Tourism Markets: The tourist markets of Brazil also have expanded over the years. Most international visitors in 2011 came from Argentina (30.8%), from the United States (11.5%) and from Uruguay (5.0%), while as a region most visitors came from neighboring South American countries. Top international arrivals by country of origin between 2006 and 2011 are given below:

Top 15 visitor arrivals to Brazil by country of origin (2006–2011)

Ranking 2008	Country of origin	Foreign tourists 2011	% total	Foreign tourists 2007	% total	Foreign tourists 2006	% total
1st	Argentina	1,593,000	30.86	920,210	18.31	933,061	18.63
2nd	United States	594,000	11.5	699,169	13.91	721,633	14.41
3rd	Uruguay	261,000	5.05	226,111	4.50	255,349	5.10
4th	Germany	241,000	4.66	257,719	5.13	277,182	5.53
5th	Italy	229,000	4.43	268,685	5.35	287,898	5.75
6th	Chile	217,000	4.20	260,430	5.18	167,357	3.34
7th	France	207,000	4.01	254,307	5.06	275,913	5.51
8th	Paraguay	192,000	3.72	206,323	4.11	198,958	3.97
9th	Spain	190,000	3.68	216,373	4.31	211,741	4.23
10th	Portugal	183,000	3.54	280,438	5.58	299,211	5.97

11th	United Kingdom	149,000	2.88	176,948	3.52	169,627	3.39
12th	Colombia	91,000	1.76	45,838	0.91	50,103	1.00
13th	Peru	86,000	1.66	96,336	1.92	64,002	1.28
14th	Bolivia	85,000	1.64	61,990	1.23	55,169	1.10
15th	Netherlands	72,000	1.39	83,554	1.66	86,122	1.72
International visitor arrivals by region of origin (2008 and 2006)							
1st	South America	2,070,391	41.0	1,906,451	37.9	1,818,352	36.2
2nd	Europe	1,776,333	35.2	1,906,078	37.9	1,951,528	38.9
3rd	North America	765,380	15.2	821,921	16.4	855,098	17.0

Source: www.braziltourism.com

Domestic Tourism: A lot of people travel within the country as domestic tourists. It has become a key market segment for the tourism industry in Brazil. In 2005, 51 million Brazilian nationals made ten times more trips than foreign tourists and spent five times more money than their international counterparts. The main destination states in 2005 were São Paulo (27.7%), Minas Gerais (10.8%), Rio de Janeiro (8.4%), Bahia (7.4%) and Santa Catarina (7.2%). The top three states by trip origin were São Paulo (35.7%), Minas Gerais (13.6%) and Rio de Janeiro (8.2%). The domestic tourism grew to more than 80 million by 2010.

Conclusion

Brazil is home to some of the best tourist destinations in the world. The Amazon basin is a paradise for the ecotourists coming from across the globe. There are also cities which keep the tourists guessing. The Brazilian highlands are also full of splendor. The Carnival of Brazil brings the world to Rio making it the cultural city of the season. Of the developing world, Brazil show cases the best of it to attract the world.

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Lesson 5.3 - The Hawaii Islands

Introduction

Hawaii Island group is a known tourist destination off the east coast of the Americas in the Central Pacific Ocean. The island group is part of the Unite States of America. These islands came into limelight after the incident of the Pearl Harbour attack during the Second World War. It is an archipelago of over nineteen distinct volcanic islands located over a geological 'hot spot' in the Central Pacific. Off late there has been a steady demand for the tourist activities on these islands especially for the adventure sports and to witness the natural splendor. There are eight major islands, six of which are open to tourism.

Destination Profile of The Hawaii Islands	
Official Name:	Hawaii Islands
Short form:	Hawaii
ISO Country Code:	US-Id
Time:	Local Time = UTC -10
Country Calling Code:	+1808
Capital:	Honolulu – It most-populous city
Other Cities:	Kahuku and Kailua, - on Oahu Lihue - on Kauai Lahaina, Kahului and Wailuku - on Maui Hilo and Kailua-Kona - on the Big Island
Government:	*Type:* Federal Republic (part of USA)
Geography:	*Location:* Central Pacific Ocean *Area:* 16,636.5 km^2 (6,423.4 sq. mi.) *Terrain:* Islands with vast coastal plains hills and mountains and volcanoes

Climate:	Tropical; rainy seasons—light with average rainfall, experience orographic precipitation
People:	*Nationality:* American
	Population: 186,738 (2011)
Religions:	18.38% are Catholic; 5.14% are LDS; 3.70% are another Christian faith, 5.04% are an eastern faith
Languages:	English (Official)
Literacy:	99%
Natural resources:	Fishing waters, volcanic minerals, tropical forests
Agricultural products:	Coconuts and tropical crops (fruits, ornamentals, vegetables)
Industries:	Tourism and fishing
Currency:	US Dollar (USD)

Source: www.worldatlas.com and www.wikipedia.org

Geographical Regions and Tourism

	The Island	Tourism Spots
1	**Hawaii**	It is mostly referred as the Big Island as it is the largest of all the islands. It is home to Mauna Kea, Mauna Loa (the largest and one of the most active volcanoes on Earth), Hawaii Volcanoes National Park, coffee and macadamia nut plantations, working ranches, and even green sand beaches. The Saddle road is a must drive and Kailua-Kona busiest of the other attractions.
2	**Oahu**	It is nicknamed as 'the Gathering Place, is the most populous and developed island. Honolulu, the capital and the largest city is in the southern state. The island has 80% of the entire states residents. Waikiki Beach in Honolulu is arguably the best known tourist destination in Hawaii. Pineapple Fields and The USS Arizona National Memorial at Pearl Harbor are also very popular visitor destinations

3	**Maui**	It is the second largest island in the chain and is home to 10,023 foot (3,055 m) tall volcanic mountain crater of Haleakala. It is known as 'the Valley Isle' for the narrow plain between Haleakala and the West Maui mountains.
4	**Kauai**	It is also called as 'the Garden Isle and home to several natural wonders, such as the Wailua River, Waimea Canyon, and the Na Pali Coast. Mount Waialeale is known as one of the rainiest spots in the world. It boasts the most beaches out of the major islands, with the longest being Polihale measuring 17 miles in length.
5	**Molokai**	It is nicknamed as the 'Friendly Isle'. It is the fifth largest island and houses Kalaupapa, the quarantine place for the lepers until 1969. It is now known for pristine, breathtaking tropical landscapes.
6	**Lanai**	It is also known as the Pineapple Island, formerly home to the world's largest pineapple plantation. It is now known for high-end resorts. Just 3,135 people live on its 141 square miles.
7	**Niihau**	It is a privately owned island with an entirely Native Hawaiian population. Until very recently, the island was off limits to all but family members and invited guests of the owners. Tourism to the island is limited to helicopter, ATV, and hunting excursions.
8	**Kahoolawe**	This island was once a former U.S. Navy bombing range remains uninhabited. Efforts are being made to rehabilitate the island

Geopolitical map of the Hawaii Islands

Tourism in Hawaii Islands

The State Department of Business, Economic Development and Tourism (DBEDT) established the Hawai'i Tourism Authority (HTA) way back in 1998 in order to institutionalize and augment tourism management and promotion. HTA took to the business of steering Hawaii tourism through several projects and programmes initially. Later in 2004 it came out with an action plan called the Hawaii Tourism Strategic Plan (TSP) for a period of one decade between 2005 and 2015. The efforts of the strategic plan resulted in tourism infrastructure development and increase of tourist arrivals steadily.

The revenues from tourism were phenomenal. The state received an amount of 11.9 billion U.S. dollars in 2011 which increased to 13.9 U.S. dollars by 2012 contributing around 18% of the total state gross

product. Tourist arrivals were more than eight million in 2012 which was about 7.8 million in 2011. In 2012, the HTA awarded funding to seven (7) community-based projects through its Kūkulu Ola: Living Hawaiian Culture Program; supported five (5) Hawaiian Signature Events; provided funding to the Native Hawaiian Hospitality Association (NaHAA), the lead agency in the Hawaiian culture initiative. The HTA undertook several programmes such as Visitor Assistance Programme (VAP), Country Product Enrichment Programme, Leadership Exploration and Inspiration (LEI) and it organized many festivals such as Hawaii Food and Wine Festival, Aloha Festival and Mele Mei. HTA continued to work with PGA TOURS and ESPN to bring sports events to promote Hawaii tourism.

Tourism Statistics and Other Highlights

Tourism Markets of the Hawaii Islands is given below.

	VISITOR ARRIVALS			VISITOR SPENDING		
Total**	2011 Total	2012 Target	% Change*	2011 Total	2012 Target	% Change*
	7,299,047	7,890,278	8.1%	$12,070.3	$13,924.5	15.4%
U.S. West	2011 Total	2012 Target	% Change*	2011 Total	2012 Target	% Change*
	2,994,731	3,116,204	4.1%	$4,142.8	$4,498.0	8.6%
U.S. East	2011 Total	2012 Target	% Change*	2011 Total	2012 Target	% Change*
	1,642,279	1,723,978	5.0%	$3,108.2	$3,300.1	6.2%
Canada	2011 Total	2012 Target	% Change*	2011 Total	2012 Target	% Change*
	477,564	501,291	5.0%	$906.0	$1,1016.4	12.2%
Japan	2011 Total	2012 Target	% Change*	2011 Total	2012 Target	% Change*
	1,241,805	1,360,645	9.6%	$2,164.0	$2,488.5	15.0%
Other Asia	2011 Total	2012 Target	% Change*	2011 Total	2012 Target	% Change*
	211,028	282,019	33.6%	$373.8	$605.1	61.9%
Oceania	2011 Total	2012 Target	% Change*	2011 Total	2012 Target	% Change*
	209,976	264,866	26.1%	$499.3	$600.7	20.3%
Europe	2011 Total	2012 Target	% Change*	2011 Total	2012 Target	% Change*
	119,825	129,720	8.3%	$244.0	$274.2	12.3%

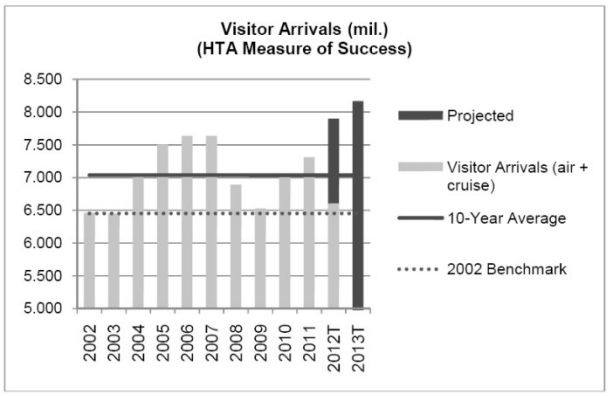
Tourism Markets of the Hawaii

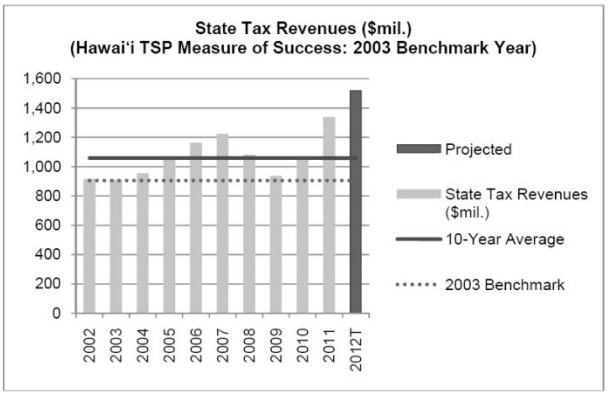
Source: www.hawaiitourismauthority.org

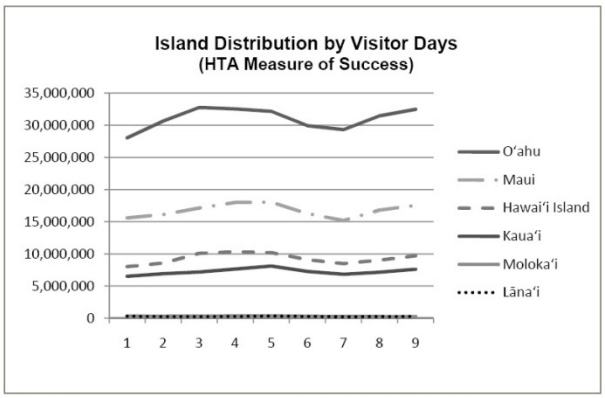
Destinations on Foreign Tourists List: Some of the most visited and sought after destinations of the Hawaii especially by the foreign tourists are Ala Kahakai National Historic Trail, Hawaii Volcanoes National Park and Pu'uhonua o Honaunau National Historical Park on the Big Island, Haleakala National Park on Maui, on the Big Island, USS Arizona National Memorial and Waikiki on O'ahu, Waimea Canyon and NaPali Coast on Kaua'I and Kalaupapa National Historical Park on Moloka'i.

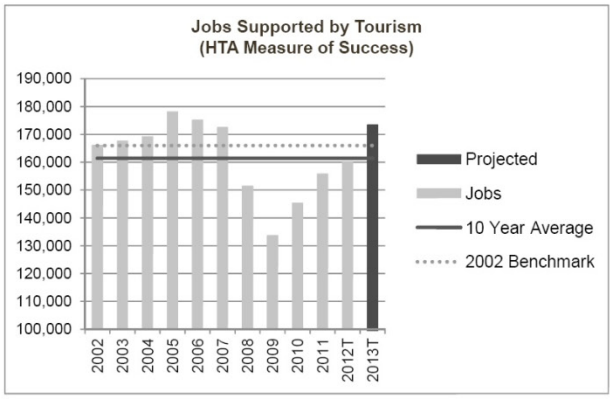
Hawaii Tourism Statistics

Following is the list of graphical representation of the data that reflects the success story of the Hawai'I Tourism Authority (HTA):









Source: www.hawaiitourismauthority.org

Conclusion

Hawaii islands are some of the best volcanic islands best suited for the adventure, leisure and water based tourism activities. They stand as the jewels in the Pacific Ocean to the west of the American continent enabling it to be the best of the island destination in the region like that of the Caribbean in the east. This island is also visited for its historical perspective and attracts relatively good number of foreign tourists.

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Lesson 5.4 - Madagascar

Introduction

Madagascar the fourth largest island on earth has many names to it, the Red Island, the Rainbow Island, the Eighth Continent. The island nation is situated in the south western area of the Indian Ocean east of the coast of Africa about 400 km off the coast of Mozambique. The island is recognized as one of the world's top ten hotspots for biodiversity and same for tourists seeking adventure into a land of eco-world.

There are various ethnic groups inhabit on this island such as of Malayo-Indonesian, mixed African and Malayo-Indonesian, and Arab ancestry. Five centuries before the Europeans discovered the island Malayo-Indonesian seafarers arrived in roughly the first century A.D and then the Arabs followed in the 6th century to establish trading posts. Since the 16th century French and British influenced the cultural diversity. In October 1958 the Malagasy Republic was proclaimed as an autonomous state within the French Community and gained full independence in June 1960. Tourism is one are this country is steadily increasing and becoming one of the major destinations off from the mainland of Africa.

Country Profile of Madagascar	
Official Name:	Repoblikan'i Madagasikara
Short form:	Madagascar
Int'l long form:	Republique de Madagascar
Former:	Republic of Madagascar/Malagasy Republic
Borders:	Comoros, Mauritius, Mozambique, Réunion,
ISO Country Code:	South Africa
Time:	mg
Country Calling Code:	Local Time = East African Time (UTC +3h)
Capital City:	+261
Other Cities:	Antananarivo (Tananarive)
	Antsirabé (about 500 000), Mahajanga
	(about 400 000), Toamasina (about 450 000)

Government:	Type: Republic Independence: 26 June 1960 (from France) Constitution: 19 August 1992 by national referendum
Geography:	Location: Southern Africa, island in the Indian Ocean, east of Mozambique. Area: 587,040 km² (226,658 sq mil.) about the size of Texas or France. Terrain: Mountainous central plateau, coastal plain.
Climate:	Tropical along coast, temperate inland, arid in south, periodic cyclones.
People:	Nationality: Malagasy Population: 20.7 million (2011) Ethnic Groups: 18 separate tribal groups of Malayo-Indonesian, mixed African and Malayo-Indonesian, and Arab ancestry, French, Indian, Creole, Comoran.
Religions:	Indigenous beliefs 52%, Christian 41%, Muslim 7%.
Languages:	Malagasy (of Malayo-Polynesian origin), French, (both official), English
Literacy:	70%
Natural resources:	Graphite, chromites, coal, bauxite, salt, quartz, tar sands, semiprecious stones, mica, fish, hydropower.
Agriculture products:	Coffee, vanilla, sugarcane, cloves, cocoa, rice, cassava (tapioca), beans, bananas, peanuts; livestock products.
Industries:	Meat processing, soap, breweries, tanneries, sugar, textiles, glassware, cement, automobile assembly plant, paper, petroleum, tourism. Exports partners: France 37.4%, USA 29.2%, Germany 5.5%, Mauritius 5.2% (2003) Imports partners: China 14.2%, France 13.2%, South Africa 6.4%, Iran 6.2% (2003)
Currency:	Ariary and Malagasy Franc (FMG)

Source: www.worldatlas.com and www.wikipedia.com

Geographic Regions and Attractions

Madagascar can be divided into five general geographical regions: the east coast, the Tsaratanana Massif, the central highlands, the west coast, and the southwest. The highest elevations parallel the east coast.

Map of Madagascar

a) *East coast:* The east coast has a narrow band of lowlands about one kilometer wide, formed from the sedimentation of alluvial soils. The coastal region extends roughly from north of Baie d'Antongil to the far north of the island. The Canal des Pangalanes, an 800-kilometre long lagoon is a feature of the coast. The beach slopes steeply into deep water.

b) *Tsaranoro Massif:* The Tsaratanana Massif region at the north end of the island contains, at 2,880 metres, the highest point on the island. Further north is the Montagne d'Ambre (Ambohitra), which is of volcanic origin. The coastline is deeply indented.

c) *Central highlands:* The central highlands range from 800 to 1,800 m in altitude contain a rounded and eroded hills, extinct volcanoes, alluvial plains and marshes etc. which have been converted into irrigated rice fields. They extend from the Tsaratanana Massif in the north to the Ivakoany Massif in the south. Antananarivo, the national capital, is located in the northern portion. A prominent feature of the central highlands is a rift valley running north to south. Lake Lac Altora is a main feature of this valley.

d) *West coast:* The west coast, composed of sedimentary formations, is more indented than the east coast, thus offering a number of harbors sheltered from cyclones, such as the harbor at Mahajanga. The broad alluvial plains found on the coast between Mahajanga (Majunga) and Toliara (Tuléar), which are believed to have great agricultural potential, are thinly inhabited. To the west of the island lie the giant oil fields of Tsimiroro (heavy oil) and Bemolanga.

e) *Southwest:* The southwest is bordered on the east by the Ivakoany Massif and on the north by the Isala Roiniforme Massif. It includes 1 regions along the south coast, the Mahafaly Plateau and the desert region occupied by the Antandroy people.

Tourism In Madagascar

Madagascar is a paradise for any eco-tourist in the world. The kind of diversity in its flora and fauna the island houses is probably rarest of its kind on the earth. It has been observed over the years that there is consistent increase in the foreign tourist visits to this island. A majority of them are interested in its rich bio-diversity than anything else.

Following is the list of the provinces of Madagascar and important tourist destinations in each of these provinces:

Provinces and Attractions of Madagascar

Sl.No.	The Provinces	Important Attractions
1	Antananarivo Province	Antananarivo, Antsirabe
2	Antsiranana	Andoany, Masoala National Park, Nossi Komba, Nossi Be
3	Fianarantsoa	Ambositra, Andringitra National Park
4	Mahajanga	Tsingy de Bemaraha Reserve
5	Toamasina Province	Toamasina, Vatomandry, Ile aux Nattes
6	Toliara Province	Anakao, Isalo National Park

Source: www.madagscartourism.com

The beautiful landscapes and the cultural resources of the country support tourism industry especially to develop eco-tourism, adventure sports and leisure by establishing resorts. The tourism industry has been very small despite of its rich resources and much smaller than that of the neighbouring island nations of Mauritius and Seychelles which are geographically very tiny. Only the recent programmes have given it a fillip. The government of Madagascar is promoting tourism as an economic development strategy. Tourism is currently the second largest foreign exchange earner in the country, and the government hopes to increase this share. There is huge potential for the tourist industry to grow. Required infrastructure is gaining importance. Presently, Madagascar has approximately 550 hotels, about 110 of which have been classified as meeting international standards. There is still a greater need to develop accommodation facilities, bring down travel costs.

Statistics and Other Highlights

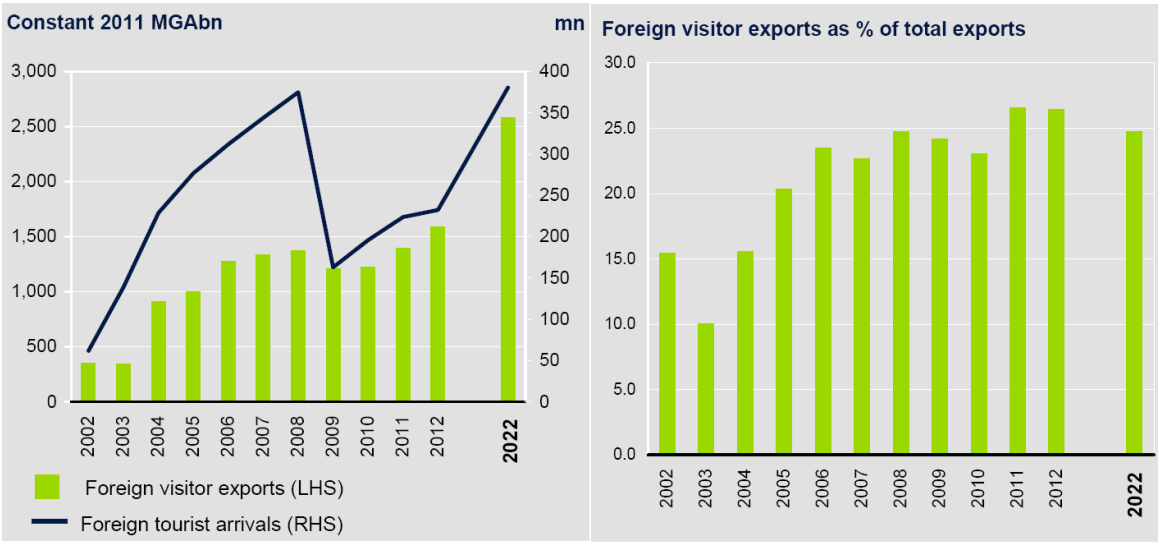
The tourism industry is growing at a slow pace. Since 1990, the number of tourists in the country has grown at an average rate of 11% each year. Though foreign tourists visited Madagascar in 2006 was less than two lakhs, it has marginally increased to approximately close to three lakhs in 2012. 60% of its tourists are French because of the historical and cultural links. The visitors often travel as part of a tour and stay in the country for a long period of time. Volume of tourists is low because of the higher costs as one of the reasons.

With 50 million U.S. dollars FEEs annually tourism was the second largest exporter in 1990. Tourism's contributed an estimated 6.3% of GDP and 206,000 jobs accounting for 5.1% total employment of the country. Though tourism industry was badly damaged in late 2001 because of

economic recession, the number of tourists is steady increasing since 2002 which is a good sign for the tourism industry of Madagascar.

In 2011, Madagascar generated MGA 1,397.5 billion in visitor exports. In 2012 it has approximately contributed 13.8% with 232,000 international tourist arrivals. It is estimated by WTTC (World Tourism and Travel Council) that close to four lakh foreign tourists may visit Madagascar by 2022 with an increase of 5.0% tourism exports.

Visitor Exports and Foreign Tourist Arrivals



Source: www.wttc.org

Economic Impact of Tourism in Madagascar

Particulars	2011 MGAbn[1]	2011 % of Total	2012 Growth[2]	2012 MGAbn[1]	2012 % of Total	2012 Growth[2]
Direct contribution to GDP	1,095.8	5.4	13.9	1,924.8	6.1	4.4
Total contribution to GDP	3,005.2	14.9	11.6	5,086.2	16.1	4.3
Direct contribution to employment4	198	4.3	13.6	297	4.8	2.8
Total contribution to employment4	577	12.5	11.2	835	13.5	2.7
Visitor exports	1,397.5	26.6	13.8	2,582.2	24.7	5.0
Domestic spending	376.4	1.9	0.4	527.5	1.7	3.4
Leisure spending	1,652.6	8.2	14.8	2,948.5	9.3	4.5
Business spending	135.6	0.7	1.0	184.0	0.6	3.0
Capital investment	590.4	15.5	6.7	884.7	14.9	3.5
[1]2011 constant prices & exchange rates; 22012 real growth adjusted for inflation (%); 32012-2022 annualised real growth adjusted for inflation (%); 4'000 jobs						

Source: www.wttc.org

Main Attractions of Madagascar

Madagascar is an eco-tourist's dream come true, here are some of the highlights you should not miss:

- **The Ile Sainte Marie:** It lies off the east coast of Madagascar. It is one of the top tourist attractions in Madagascar. The still, clear waters of the island's bays make ideal spots for snorkeling. Migrating humpback whales visit the island waters during summer and early fall are an added attraction.

- **The Isalo National Park:** It is notable for is varied terrain. Located in the central southern region of Madagascar, the park includes areas of grassland, steep canyons and sandstone formations, all dotted by occasional pools lined by palm trees.

- **The Tsingy de Bemaraha Reserve:** This one lies in the southern region of the island and the largest natural reserve. The park which is on the west coast features a broad expanse of mangrove forest. The park is home to seven lemur species, including the Deckens sifaka known for its creamy white fur and black face.

- **The Avenue of the Baobabs:** It is a group of trees lining the dirt road between Morondava and Belon'i Tsiribihina in western Madagascar. Its striking landscape draws tourists from around the world, making it one of the most visited locations in the region. The Baobab trees, up to 800 years old, did not originally tower in isolation over the landscape but stood in a dense tropical forest. Over the years, the forests were cleared for agriculture, leaving only the famous baobab trees as isolated spectacles.

- **The Royal Hill of Abohimanga:** Considered as one of the country's most sacred spots by the Malagasy people for 500 years, the Royal Hill of Ambohimanga is a historical village that was once home to Madagascar royalty.

- **Masaoala National Park:** Situated in the northeast Madagascar, the Masoala National Park covers nearly 250 miles of rainforest and includes three marine parks as well. The park features ten species of lemur, including the Aye-aye, the world's largest nocturnal primate. The park is also home to a diverse array of birds and reptiles.

- **Parc National de L'Isalo** - A beautiful national park with wonderful sandstone formations and canyons, with crystal clear waterfalls - excellent for hiking with a guide.
- **Nosy Be - Madagascar's Riviera**, Nosy Be is a large tropical island with warm water to swim and snorkel in, and plenty of restaurants and hotels to choose from. For a less developed but equally beautiful island, check out Sainte Marie Island.
- **Parc National de Ranomafana** - a high altitude rain forest, Ranomafana is home to the bamboo lemur, many birds and reptiles. Logging has removed some of its charm, but the pristine areas are still breathtaking.
- **Ifaty** - For those on a budget, Ifaty is a great place to relax for a week and wind down on lovely beaches and enjoy a beer and boat ride on the lagoon.
- **Parc National d'Andasibe-Mantadia** - two parks in one, and home to the largest living lemur - the indri, as well as 13 other species of lemur. The Parc National d'Andasibe-Mantadia is easily accessible from "Tana" and very popular with visitors.
- **Antananarivo** - the capital is a buzzing place, filled with great restaurants, churches, steep cobbled streets and many historical sights, well worth a few days at the start or end of your trip.
- **Berenty National Park** - One of Madagascar's most popular parks, great for seeing tame lemurs and experience a true rainforest. It's well set up with accommodations.

Conclusion

Madagascar has huge potential to become a great destination if the government continues to invest in the sustainable ways of its tourism development. Though it has lately woken up, it still has the capacity to attract tourists from foreign countries. The rain forests of the country and the other eco tourism destination are completely unique in themselves unmatched to any other place in the world. Better management is also necessary to develop the destination into a world destination.

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Lesson 5.5 - Switzerland

Introduction

Switzerland is one of the most beautiful destinations of Europe. Located in Central Europe, Switzerland shares borders with Germany, to the north, Austria and the Principality of Liechtenstein, to the east, Italy, to the south and France, to the west.

The country has everything needed for leisure tourist to getaway into the world of scenic beauty of meadows and lakes surrounded by the snowcapped mountains of the Alps. Romance with nature gets redefined in Switzerland twice before it is talked about. This landlocked hotspot has best of the tourism infrastructure to support the tourism industry and hence is one of the leading international destinations of the world.

Switzerland is poor in natural resources and contains a diversity of languages and cultures. Yet its people have achieved a degree of political stability and economic prosperity that is envied by the rest of the world. Swiss industrial products, based on a high input of skill in relation to the value of the component raw materials, have an international reputation for quality.

Similarly, the country's scenic attractions – arguably the most spectacular in Europe – have been intelligently exploited by a hospitality industry that is renowned for its professionalism. Historically, the country developed as a loose federation of cantons – small mountain states – fighting to preserve their independence from foreign domination, and in many respects the cantons still play a more important role in Swiss politics than the federal government in Berne.

At the local level the communes also determine tourism planning and development to a large extent, in line with the Swiss tradition of direct citizen participation in politics.

Country Profile of Switzerland

Official Name	Schweizerische Eidgenossenschaft (German)
Short form	Confederation Suisse (French)
Int'l long form	Confederazione Svizzera (Italian)
Int'l short form	Suisse, Schweiz, Svizzera/Swiss Confederation/Switzerland
Border countries	Austria, France, Germany, Italy, Liechtenstein
ISO Country Code	ch
Time	Time Zone: Central European Time
	Local Time = UTC +1h
	Daylight Saving Time (DST) March - October (UTC +2)
Country Calling Code	+41
Capital City	Bern (Berne)
Major Cities	Berne (pop. 123,000)
Government	The Municipality of Berne.
	Basel, Genève (Genf, Genève, Geneva), Luzern, Lausanne, Lugano, Zürich.
	Type: Federal republic.
	Independence: The first Swiss Confederation was founded in August 1291 as a defensive alliance among three cantons. The Swiss Confederation established independence from the Holy Roman Empire in 1499.
	Constitution: 1848; extensively amended in 1874; fully revised in 2000
	Federal Charter of 1291/ Document of the Federal Charter.
	National Day (Bundesfeier/fête nationale/festa nazionale):
	1st of August
	Location: Central Europe, south of Germany, east of France and north of Italy.
	Area: 41,285 km² (15,941 sq. mi.)
Geography	*Terrain:* 60% mountains, the remainder hills and plateau. Switzerland straddles the central ranges of the Alps.
Climate	From Central European in the north to Mediterranean in the south, varying with altitude and season.
	Nationality: Noun and adjective—Swiss.
	8 million (2011)
	GNI per capita PPP: $ 33,168
People	Ethnic groups: Mixed European—German 65%, French 18%, Italian 10%, Romansch 1%, other.

Religions	Roman Catholic 42%, Protestant 33%, Muslim 4.3%, others 5.4%, no religion 11%.
Languages	German 63.7%, French 20.4%, Italian 6.5%, Romansch 0.5%, are official languages, other 9.4%.
Literacy	100%.
Natural resources	Waterpower, timber, salt.
Agricultural Products	Dairy, livestock, grains, fruit and vegetables, potatoes, wine.
Industries	Machinery, chemicals, watch-making, textiles Exports partners: Germany 20.8%, USA 11.3%, France 8.7%, Italy 8.3%, UK 4.9%, Japan 4% (2003)
	Imports partners: Germany 32.3%, France 10.8%, Italy 10.7%, USA 5.5%, Netherlands 5%, Austria 4.2%, UK 4.1% (2003)
Currency	Swiss Franc (CHF)

Geographical Regions

Geopolitical Map of Switzerland

Switzerland is divided into three main geographic regions as the Swiss Alps, the Central Plateau and the Jura. They are geographical varied regions with the exceptions of two small regions which are not part of the three; north of the Rhine in the Basel area, is situated beyond the Jura and on the south is the Mendrisio area in the Po Valley.

a) The Swiss Alps occupy the southern part of Switzerland. They were formed by the thrust of the African plate, which also caused the formation of the Jura in the north-east and the plateau between the two massifs. In terms of area the Alps constitute about 60% of the country, the plateau 30% and the Jura 10%. The rugged terrain of the Jura and the Alps are very sparsely populated, except for some valleys such as the Valais.

b) The Central Plateau extends from Lake Geneva on the French border across central Switzerland to Lake Constance on the German and Austrian borders. The plateau has an average altitude of 580 metres even though the Swiss Plateau forms a basin, it is by no means a flat territory and it is covered with rolling hills, lakes and rivers. Most of Switzerland's large lakes are located in the plateau. Lake Geneva Lake Neuchâtel The plateau is crossed by three great river valleys (Rhone, Rhine and Aar) and Thur. Most of the population lives on the plateau where the country's major cities such as Geneva, Zurich and Bern are located.

c) The Jura is a limestone range running from Lake Geneva to the Rhine river. This area makes up about 12% of Switzerland's land area. Located about 700 metres above sea level, this region is characterized by a limestone highland with deep river valleys.

Tourism in Switzerland

Tourism in Switzerland has a long history, from early times; it was a transit zone for, merchants and pilgrims, invading armies and later for the traveler of the Grand Tour. The demand for guides and accommodation gave way for tourism development.

Industrial revolution in the nineteenth century doubles the tourist arrivals and gave a momentum to the industry. Resorts came into existence around the lakes supported by surge in transportation facilities. Alps provided ground for adventure sports and getaway activities. The neutrality of the country made it popular around the world and Geneva became centre for many global bodies with the increase in international trade.

Domestic tourism in Switzerland is very strong with a large percentage of them taking holidays. It has one of the highest around world with 75%. Most of the domestic tours happen between January and March especially for winter sports activities in the valley. Swiss holidays abroad are mostly done during the summer months of July to September. The most famous destinations for outbound tourists of Switzerland are France and Italy.

The inbound tourism has stagnated since 1990s due to increased costs and lack of innovation. This scenario during the recent years looks positive with a steady increase in the foreign tourists. Germans account for the majority of visitors. Around 40 per cent of the total stay happens during the winter season between November and April as a result of the Swiss participating in winter sports. The Swiss National Tourism Organization was renamed 'Switzerland Tourism' in 1995.

Tourism Statistics

Switzerland has seen steady increase in domestic tourism. About 14.81 million overnight stays in 2006 were recorded which rose to 16.20 million overnight stays of domestic tourists in 2010. Though there hasn't been any drastic increase in the arrival of foreign tourists, it has been almost stagnant with a small increase from 2006 to 2010. FTAs of 7.86 were recorded in 2006 which increased to 8.62 in 2010.

The major international markets for Swiss inbound during this period were Germany with a share of 16.5%, United Kingdom with 6.3%, United States with 4.8%, France with 3.6% and Italy with a share of 3.0%. The total receipts due to inbound travel in 2006 were 13544 million CHF which increased to 15606 million CHF in 2010. In contrast international travel expenditure of the Switzerland has not shown any significant change as it was 11556 million CHF in 2006 which was 11625 million CHF in 2010.

Top Tourist Attractions

Switzerland offers a range of attractions for the tourists. The Alpine has best of them attracting over half of all visitor arrivals. The is famous for the majestic snow-capped peaks, glaciated valleys and winter sports. Each of the Swiss cantons has its own range of attractions, but several major tourist areas stand out. As listed below:

Domestic overnight tourism

	Units	2006	2007	2008	2009	2010
Number of overnight stays[1]	Thousands	14 811	15 633	15 997	15 564	16 203
Number of nights spent[2]	Thousands	34 848	36 365	37 334	35 589	36 208

1. Arrivals in hotels and similar establishments. 2. Nights spent in hotels and similar establishments.

International arrivals and receipts

	Units	2006	2007	2008	2009	2010
Total international arrivals[1]	Thousands	7 863	8 448	8 608	8 294	8 628
Top 5 markets[1]						
Germany	Thousands	2 107	2 249	2 344	2 294	2 238
United Kingdom	Thousands	785	835	826	691	732
France	Thousands	585	634	671	686	701
United States	Thousands	725	727	652	610	680
Italy	Thousands	499	542	553	547	521
International passenger transport receipts	Million CHF	2 558	3 046	3 364	2 736	2 983
International travel receipts[2]	Million CHF	13 544	14 621	15 598	15 377	15 606[3]

1. Arrivals in hotels and similar establishments. 2. Including non-tourism elements. 3. Provisional data.

International departures and expenditure

	Units	2006	2007	2008	2009	2010[2]
International passenger transport expenditure	Million CHF	2 440	2 620	2 630	2 090	2 243
International travel expenditure[1]	Million CHF	11 556	12 120	11 782	11 847	11 625

1. Including non-tourism elements. 2. Provisional data.

Source: Federal Statistical Office.

The Bernese Oberland: It exhibits the most spectacular Alpine scenery located to the south of the lake resort of Interlaken. A very good network of funicular railways and cableways helps comfortable access to the snowfields and glaciers, the most famous ascending the slopes of the Jungfrau and Eiger. There is a classic example of a glaciated valley with spectacular waterfalls at Lauterbrunnen.

The Valais: The upper Rhone valley upto the Simplon Pass and a number of small historic towns is part of the Valais. A classy ski area in the valley is Crans-Montana and one of the best and well-known resort is Zermatt with its views of the Matterhorn.

Lake Lucerne and the Forest Cantons: Lake Lucerne is known to be the most beautiful body of inland water in Europe. The cantons around it, especially Schwyz, are historically important as the cradle of Swiss independence. Lucerne is a picturesque city, famous for its medieval Chapel Bridge and the countryside around.

The Grisons: The best of Swiss traditions can be found here with pastoral economy subsidized by the government. In the villages of the Engadine Valley the Romansch language is still spoken. The Swiss National

Park where endangered alpine species such as the *chamois* are protected is another notable attractions of the canton. There are number of spas and ski resorts as well.

Lake Geneva: The festival resort of Montreux, schools and the shopping and nightlife of Geneva attract wealthy international visitors. It is a French speaking city with a mixture of traditional Swiss lifestyle and modernity.

The Ticino: The lakes Lugano and Maggiore and warm climate make it one of best to visit especially for the Italians as as it is an Italian speaking city. The landscape has Mediterranean features such as palm trees, lemon orchards and colourful towns and villages. Locarno, Lugano and Ascona are and major conference venues and important holiday resorts.

The Mittelland: The plateau to the west and north houses most of the population. Basle–Winterthur–Zurich triangle is the major industrial belt. Berne is the most happening tourist place. It is a World Heritage Site with its medieval shopping arcades and Clock Tower. Basle on the Rhine has a historic university and is a major cultural centre, while Zurich contains the Swiss National Museum

The Jura: Though the region receives small number of tourist arrivals the small towns of the region, such as Les Chaux de Fonds, are famous for the traditional Swiss crafts such as watch making.

Conclusion

Switzerland has been the conventional destination for most of the Asian and also the European tourists. It mostly draws its foreign tourists from its neighbouring countries who seek to spend with their families holidays. Known for its beautiful lakes and hill stations Switzerland needs no introduction in for its organized tourism industry since ages. There is immense competition from the other neighbouring countries yet it draws tourists to its capacity.

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Lesson 5.6 - French Republic

Introduction

France is in the centre of the growth of tourism industry across the globe. Since prehistoric times, it has been a crossroad of trade, travel, and invasions. Three basic European ethnic stocks -Celtic, Latin, and Teutonic (Frankish)—have blended over the centuries, to make up population of France in its present form.

No doubt, France is one of the most modern and developed countries in the world and key player in the European Union. It presidential form of democracy since 1958 has given the political stability and the recent reconciliation with Germany has boosted its economic integrity since the advent of Euro in 1999 in Europe. Presently, France is at the forefront of European states seeking to exploit the momentum of monetary union to advance the creation of a more unified and capable European defense and security apparatus. With the growth of the industry has grown the tourism sector in France supported by rich heritage credited from its historical evolution.

Country Profile of French Republic

Official Name	Republique Francaise
short form	France
int'l long form	French Republic
int'l short form	France
Border countries	Andorra, Belgium, Germany, Italy, Luxembourg, Monaco, Spain, Switzerland
ISO Country Code	fr
Time	Central European Time (CET)
Time Zone	UTC +1h
Actual Time	DST: March - October (UTC +2h)
Country Calling Code	+33
Capital City	Paris

Other Cities	The Romans called it Lutetia. Type: Republic.
Government	*Constitution:* The Constitution of 4 October 1958.
Geography	*Location:* Central western Europe, bordering the Bay of Biscay and English Channel, between Belgium and Spain, southeast of the UK; bordering the Mediterranean Sea, between Italy and Spain. *Area:* 551,500 km² (220,668 sq. mi.); largest west European country. *Terrain:* Mostly flat plains or gently rolling hills in north and west; mountainous, especially Pyrenees in south, Alps in east.
Climate	Generally cool winters and mild summers, but mild winters and hot summers along the Mediterranean; occasional strong, cold, dry, north-to-northwesterly wind known as mistral.
People	*Nationality:* French.
Population	65.3 million (2012)
Ethnic groups	Celtic and Latin with Teutonic, Slavic, North African, Sub-Saharan African, Indochinese, and Basque minorities.
Religion	Roman Catholic 90%.
Language	French.
Literacy	99%.
Natural resources	Coal, iron ore, bauxite, zinc, uranium, antimony, arsenic, potash, feldspar, fluorospar, gypsum, timber, fish.
Agriculture products	Wheat, cereals, sugar beets, potatoes, wine grapes; beef, dairy products; fish.
Industries	Machinery, chemicals, automobiles, metallurgy, aircraft, electronics; textiles, food processing; tourism Exports partners: Germany 14.9%, Spain 9.6%, UK 9.4%, Italy 9.3%, Belgium 7.2%, USA 6.8% (2003) Imports partners: Germany 19.1%, Belgium 9.4%, Italy 9%, Spain 7.4%, Netherlands 7%, UK 7%, USA 5.4% (2003)
Currency	Euro (EUR)

Geopolitical Map of France

Geographic Regions of France

France is the second largest country of Europe. It is about 80% the size of Texas in United States. In the Alps near the Italian and Swiss borders is Western Europe's highest point with Mont Blanc at 4,810 m height being the highest mountain peak. The forest-covered Vosges Mountains are in the northeast, and the Pyrénées are along the Spanish border. Except for extreme northern France, the country may be described as four river basins and a plateau. Three of the streams flow west—the Seine into the English Channel, the Loire into the Atlantic, and the Garonne into the Bay of Biscay. The Rhône flows south into the Mediterranean. The Rhine forms the France's eastern border for about 165 kilometre. In the Mediterranean, the island of Corsica (8,721 sq km) is located at a distance of about 185 kilometre east-southeast of Nice.

The Republic of France includes the mainland in Europe as well as number of islands around the globe under its occupation. To avoid confusion, the French use the term Metropolitan France to specify the European parts of France (that is, continental France plus the island of Corsica). The République Française is used to describe all of France (the European part plus the overseas areas). Further Metropolitan France is divided into twenty-two regions, based on historical divisions and characteristics. They are also the main administrative units of the French government (somewhat like states in the USA, although with less independence). The regions (shown in the following map) are: Alsace, Aquitaine, Auvergne, Bourgogne, Bretagne, Centre, Champagne-Ardenne, Corse, Franche-Comté, Ile-de-France, Languedoc-Roussillon, Limousin, Lorraine, Midi-Pyrénées, Nord-pas-de-Calais, Normandie (Basse), Normandie (Haute), Pays de la Loire, Picardie, Poitou-Charentes, Provence-Alps-Côte D'Azur, Rhône-Alpes.

Tourism in France

France has been the top destination of the world in terms of foreign tourist arrivals for many years now receiving over seventy million tourists. At the same time it has also been one of the top countries in terms of foreign exchange receipts from tourism industry in the country accounting almost seven percent of the total GDP. This European country was one of the earliest to understand the importance of tourism benefits and established its tourism board way back in 1910. Tourism industry has generated over two million jobs for the countrymen. Still the industry is growing contributing to overall development of the state. France has the base of rich natural resources. It is the largest of the European nations with a a long coastal line.Europe's finest rivers – the Loire, Rhône, Seine and Garonne – and mountain areas such as the MassifCentral, the Alps, Jura and Pyrenees are great contributors towards its tourism resources.

Mediterranean conditions are found in Provence, Languedoc–Roussillon and Corsica. A long dry summer with abundant sunshine combined with mild winters favour the world-famous resorts such as Nice and Saint-Tropez to attract tourists. The Atlantic and Channel coasts have less sunshine and a climate favour the leisure and recreational activities. Eastern France has a continental climate with cold winters, while in the mountains of enough snow for adventure sports. Cultural heritage is second only to none. The Gothic style of architecture and the ideal of

chivalry of middle, for long it has been the world of *haute couture* and fashion, later in the nineteenth and early twentieth century French artists ruled the world with innovations in the field of art. French language has also influenced millions across the globe to connect.

France has everything to offer with large pool of tourism products. Normandy offers setting for special interest holidays with wine tasting tours of Burgundy and culinary short breaks for foodies. Beach and beach based sports tourism all along the Mediterranean especiall the the Club Mediterranée holiday village, spa tourism famous since nineteenth century with mineral springs, sea water treatments etc.Pilgrimage trips especially for the Catholic at some shrines such as Mont St Michel in Normandy, Le Puy in the Auvergne, Rocamadour in Aquitaine and Vezelay in Burgundy, Lourdes and Lisieux. The mountain resorts of the Alps, Pyrenees and the Massif Central offer winter sports.

Since its introduction in 1936, Annual paid holiday entitlement has grown to five weeks since its introduction in 1936. Later from the beginning of the new millennium the working week was reduced to 35 hours – the lowest in Europe, further increasing the leisure time available. This has resulted in increasing domestic tourism with short breaks. In 2012 around 200.4 million domestic tourists were registered in France with per head expenditures of 305 U.S. dollars.

French mainly travel to Spain and Italy though they are found travelling across the world. around 20 million trips are taken abroad in 2008. The French are less spendors compared to other Europeans when they are on international tours. Hence country's receipts are much higher than the expenditures which is a very good sign for the tourism industry. At the same time with 79 million foreign tourist arrivals in 2012 the country is the top destination and it has been on the top for several years now. Apart from other attractions the Channel Tunnel and Disneyland Paris draw large foreign tourists. The majority of visitors come from Western Europe and some from the Eastern Europe. Germany, Belgium, the Netherlands and the UK account for most of the visits to France.

Tourism Statistics

France holds a dominant position in international tourism. It ranked first in the world in terms of international tourist arrivals with 77.1 million in 2010 to 83.0 million in 2012 and third in terms of international tourism receipts EUR 35.6 billion to EUR 40.46 billion in 2012. The main

origin countries for tourists to France in 2010 were the UK (accounting for 15.7% of all arrivals based on provisional estimates for the year), Germany (14.8%), Belgium (12.9%), Italy (9.3%), and the Netherlands (9.1%). These five markets together accounted for nearly two-thirds (61.7%) of all international arrivals.

Statistical Review of Tourism in French Republic between 2006-2010

Domestic overnight tourism[1]

	Units	2006	2007	2008	2009	2010
Number of overnight stays	Millions	210.5	211.9	200.7	202.1	194.1
Number of nights spent	Millions	1 112.6	1 105.0	1 056.9	1 034.3	1 001.8

International arrivals and receipts[1]

	Units	2006	2007	2008	2009	2010[2]
Total international arrivals	Thousands	77 916	80 853	79 218	76 764	77 148
Top 5 markets						
United Kingdom	Thousands	13 613	14 269	13 560	12 193	12 071
Germany	Thousands	13 054	13 041	11 645	10 692	11 381
Belgium	Thousands	8 598	8 497	8 636	10 165	9 989
Italy	Thousands	7 584	8 141	8 233	7 250	7 170
Netherlands	Thousands	7 238	6 824	6 244	7 224	6 995
International travel receipts	Million EUR	36 911	39 601	38 465	35 510	35 120
International transport receipts	Million EUR	6 322	6 925	7 175	6 510	7 580

International departures and expenditure[1]

	Units	2006	2007	2008	2009	2010[2]
Number of tourist trips[3]	Millions	28.4	28.1	25.5	25.1	25.0
International travel expenditure	Million EUR	25 965	27 898	27 926	27 510	29 064
International transport expenditure	Million EUR	5 287	5 667	5 946	5 304	5 777

1. Geographical coverage: Metropolitan France, excludes France overseas.
2. Provisional.
3. Residents aged 15 years and more.

Sources: Directorate-General for Competitiveness, Industry and Science (DGCIS), Central Bank, Survey SDT.

The tourism sector plays a major role in the economy, and recorded output worth EUR 84.7 billion in 2009 (2.5% of aggregate output and 11.7% of market services). This puts tourism ahead of automobile production, agriculture and recreational, cultural and sporting activities in France. In terms of value added, tourism is worth EUR 41.6 billion, or 2.4% of aggregate value added. According to Tourism Satellite Accounts, the calculated figures suggest that tourism consumption in France accounted for 7.1% of GDP in 2010. Tourism and tourism-related activities were estimated to employ 857 720 people at the end of 2010, nearly two-thirds (66%) of whom were in catering and one-fifth (21%) in the hotel trade. Overall, dependent employment in these segments rose by 16 500 jobs in 2010. Tourism had a current account surplus of EUR 6.1 billion in

2010, compared with EUR 8 billion in 2009, still one of the largest surplus items in the current account. The industry has created around 5% of the employment in 2010.

Top Attractions of France

Following is the list of top tourist attractions of France and the most visited by the foreign tourists:

Eiffel Tower: This modern wonder of the world is the symbol of Paris city and one of the top tourist attractions in France and never missed by any foreign tourist coming to France. The tower was built as the entrance arch for the International Exhibition of Paris of 1889 by Gustave Eiffel. More than 200 million people have visited the Eiffel Tower making it the most visited paid tourist attraction in the world since its construction.

St. Tropez: It is located on the French Riviera well known for its famous and extremely wealthy summer guests. The destination has been dubbed the playground of the jetset, fashion models, and millionaires. Outside peak summer there are fewer celebrities to spot but you'll also instantly appreciate what attracted the artists, writers and film makers to this picturesque village since many years.

Chamonix: It is a famous ski resort in the French Alps at the foot of Mont Blanc. This resort destination hosted the first Winter Olympic Games in 1924. In winter world-class skiers and boarders push themselves to extremes on Europe's most challenging and adventurous slopes while in the summer months Chamonix is a hotspot for alpine mountaineers and mountain bikers.

Palace of Versailles: The palace which was built in 1624 by Louis XIII remained the official residence of the Kings of France until October 1789 when the royal family was forced to return to Paris during the French Revolution. It is the symbol of French revolution.

Mont Sain-Michel: This destination is a small tidal island located just off the coast of Normandy. It is a spectacular and well-preserved Norman Benedictine Abbey of St Michel stands at the peak of the rocky island, surrounded by the winding streets and convoluted architecture of the medieval town.

Gorge du Verdon: The Verdon River here flows through a steep and narrow gorge stretching for about 25 kilometres. The walls of the

gorge rise for 700 metre from the river below. The river, which is named after its startling green emerald color, is one of the Gorge du Verdon's most beautiful features. Water sport opportunities here include sailing, water skiing, rafting and kayaking.

Chateau de Chambord: This second most visited of the palaces (chateau) in France after Versailles. This one is a masterpiece of the French Renaissance. The construction started in 1519 by King François-I to as facilitate him for hunting in the nearby forests. Though the king stayed here for a very less period of 40 days, it has become a famous attraction today.

Palais de Papes: This palace is one of the largest and most important Gothic buildings in the world. The Palais des Papes (Pope's Palace) was built when Pope Clement V abandoned Rome in 1309 and settled in Avignon. The 3 meter (10 feet) thick walls, portcullises and watchtowers give it a castle like look making it even more elegant.

Dune of Pyla: It is in the Arcachon Bay area. The Dune of Pyla is the tallest sand dune in Europe. At the summit of the dune the view is spectacular with a large pine forest on one side and the Atlantic coast and the inlet of the bay on another side.

Chartres Cathedral: The cathedral is known to be one of the finest examples of the French High Gothic style. It is perfectly preserved to this day. The majority of the original stained glass windows survive intact, while the architecture has seen only minor changes since the early 13th century. It is located in the city of Charles.

Conclusion

France is the nerve centre of the global tourism. The cultural richness and a gamut of diversified attractions in this country has made it the top destination in the world and it has been at the top for many years. Historically people from across the globe travelled to France. The city of Paris infact attracts majority of its foreign tourists apart from many other top class attractions spread across the country. One has to learn from the country to manage its destinations which is testimony to its success for ages.

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Lesson 5.7 - Italy

Introduction

The romantic country of Europe is one of the most visited destinations of the continent. Roman culture is showcased at every corner of the country with the modern fashion world making it the global centre. Credit must go to King Victor Emmanuel in making Italy a nation-state lately in 1861 when the city-states of the peninsula, along with Sardinia and Sicily, were united. The fascist dictator Benito Mussolini ended the long spell of parliamentary governance in the country. After the defeat in the Second World War democracy was restored in 1946 which boosted the economic restructuring.

Italy has not looked back since then and has been the key member of NATO and the European Economic Community (EEC). It has played a leading role of in the European economic and political unification. In 1999 it joined the European Monetary Union. With the development in industry, fashion Italy has also become one of the best tourist countries for the international tourists, more importantly for the countries within the European Union.

Country Profile of Italy

Official Name	Repubblica Italiana
short form	Italia
int'l long form	Italian Republic
int'l short form	Italy
Border countries	Austria, France, Holy See (Vatican City), San Marino, Slovenia, Switzerland
ISO Country Code:	it
Local Time	UTC +1h
Country Calling Code	Daylight Saving Time (DST) March - October (UTC +2) +39

Capital City	Rome (pop. 2.8 million)
Other Cities	Italian Cities
Government	*Type:* Republic since 2 June 1946 *Constitution:* 1 January 1948
Geography	*Location:* Southern Europe, a peninsula extending into the central Mediterranean Sea *Area:* 301 318 km² (116 303 sq. mi.) *Terrain:* Mostly rugged and mountainous
Climate	Generally mild mediterranean; cold winters in the north
People	*Nationality:* Italian(s) *Population:* 59 million (2011 census)
Ethnic groups	Primarily Italian, but there are small groups of German-, French-, Slovene-, and Albanian-Italians.
Religion	Roman Catholic (majority)
Language	Italian
Literacy	98%
Natural resources	Mercury, potash, marble, sulfur, natural gas and crude oil reserves, fish, coal, arable land
Agriculture products	Fruits, vegetables, grapes, potatoes, sugar beets, soybeans, grain, olives; beef, dairy products; fish
Industries	Tourism, machinery, iron and steel, chemicals, food processing, textiles, motor vehicles, clothing, footwear, ceramics.
	Exports partners: Germany 13.8%, France 12.3%, USA 8.5%, Spain 7%, UK 6.9% (2003)
Currency	Imports partners: Germany 17.9%, France 11.2%, Netherlands 5.8%, Spain 4.8%, UK 4.7%, Belgium 4.3%, USA 4% (2003) Euro (EUR) has replaced the formerly used Italian Lira

Geographical Regions

The high mountain barrier of the Alps separates Italy from the Northern Europe. It has a long coastline facing both the western Mediterranean and the Adriatic. There is another chain of mountains called the Apennines running down the Italian Peninsular in the north-south direction which forms barrier between the east-west regions. An extensive area of fertile lowland of the North Italian Plain lies between the Alps and the mountains of Apennine. The northern plains are prosperous which include most of the regions of Piedmont, Lombardy, Veneto and Emilia-

Romagna. This area contains some of Europe's largest and most prosperous industrial centres. Central and southern Italy is hilly or mountainous, and geologically unstable as they are prone to seismic threat especially in the Apennines. Sicily and the Naples are known for their volcanic activity.

Geopolitical Map of Italy

Source: www.mapsoftheworld.com

Two of the most famous active volcanoes of the world Mt. Vesuvius near the Napples and Mt. Etna in Sicily are in Itlay. Most of the rivers of this country flow either into the Adriatic Sea or into the Tyrrhenian. The rivers which drain into the Adriatic are the Po, the Piave, the Adige, the Brenta, the Tagliamento and the Reno. And the rivers which flow into the Tyrrhenian are the Arno, the Tiber and the Volturno. Apart from these though the waters from some border municipalities drain into the Black Sea, through the basin of the Drava, a tributary of the Danube, and the waters from the Lago di Lei in Lombardy drain into the North Sea through the basin of the Rhine which also contribute to the water needs of the country

Tourism in Italy

Italy today ranks fifth top most destination in the world in terms of international tourist arrivals. But tourism in Italy has been there since Roman period. The wealthy used to holiday in villas and resorts such as Baia on the Bay of Naples. The international tourism started during the Middle Ages when Rome was the destination for hordes of pilgrims from all over Europe. Cultural tourism was at high scale during the renaissance period who invariably visited Italian cities such as Florence and Venice. Milton, Göethe and Shelley visited Italy during this age and even Shakespeare was highly influenced by the culture of Italy. For the wealthy young men it became social symbol and custom to go on the 'Grand Tour', which involved a stay of at least a few months in Italy apart from other countries. Thomas Cook popularized the destinations Italy with his package tour concept who motivated thousands of British. The panaroma of tourism products in Italy include a great variety of attractions and activities. Both the short city breaks and long haul destinations are appealing. Music festivals of Pesaro (Rossini) and Torre del Lago near Lucca (Puccini), the opera art form, summer lakes and mountain holidays and skiing in the Alps, spa tourism at Ischia, Montecatini Terme and Abano, pilgrimages to the shrines of Rome, Assisi, Loreto and Padua, countryside getaways, globally known trade fairs and exhibitions of Milan, Genoa, Bologna and Turin, sports tourism, seaside holidays and adventure trips are the components of the total offer from Italy for the tourists.

Domestic and Outbound Tourism

Domestic tourism in Italy accounts for around 60% of the total overnight stays annually. This is despite its being a hotspot for the foreign visitors. The government of Italy has entitled the four week holiday annually for the citizens and hence there is a good percentage of population playing significant role in the domestic tourism in the country. The domestic market very much seasonal mostly between July and August. Summer beach holidays are the most preferred by the domestic tourists though recently winter sports and adventure sports are picking up gradually. The Adriatic coast and Liguria known for spas and beach tourism are also famous among the locals as for the foreigners.

Italy is among the world's top ten tourist-generating countries as Italians are also increasingly travelling abroad. They mostly visit long-

haul destinations. Italy has a substantial surplus on its travel account and tourism accounts for 3.5 per cent of gross domestic product (2010) its expenditures on the outbound are far less compared to the inbound or the international receipts.

As said earlier Italy is one of the leading receivers of international tourism which next only to France and Spain within Europe. Though there was a peak in its foreign visits, it was hit in the late ninetees due to global economic slump whci again has picked up in the recent years. Some of the leading markets for Italy are Germany, USA, France, UK, Japan and Austria. The destinations preferred are Milan, Turin, Venice, Rome, the Alto Adige region, Sicily,Tuscany, Campania, Emilia-Romanga, Florence etc.

Tourism Statistics

Italy ranks fifth highest tourist receiver in the world with 46.1 million foreign tourist arrivals recorded in the year 2011 which increased to 46.4 million in 2012. Tourism accounts have been stagnant since 2004 which as in 2010 contributed 3.5% of Italy's GDP. Italy earned through inbound tourism 43.2 billion U.S. dollars and it slightly decreased to 41.2 U.S.dollars in 2012.

During the last decade employment in the industry has risen from 4.6% of total employment to 5.2%. The industry has generated a lot of areas for employment. There are approximately 1.3 million people employed in the hotel and restaurant sectors alone. The tourism expenditures of Italy during 2011 amounted for 26.2 billion U.S. dollars which increased to 28.7 U.S. dollars in 2012.

International Tourist Arrivals of Italy

Rk	Country	Region	FTAs(2012)	FTAs(2011)	Change '11-'12	Change '10-'11
1	France	Europe	83.0 million	81.6 million	+1.8%	+5.0%
2	USA	North America	67.0 million	62.7 million	+6.8%	+4.9%
3	China	Asia	57.7 million	57.6 million	+0.3%	+3.4%
4	Spain	Europe	57.7 million	56.2 million	+2.7%	+6.6%
5	**Italy**	**Europe**	**46.4 million**	**46.1 million**	**+0.5%**	**+5.7%**
6	Turkey	Europe	35.7 million	34.7 million	+3.0%	+10.5%

Source: *UNWTO World Tourism Barometer* for the full rankings.

Statistical Review of Tourism in Italy between 2006-2010

Domestic overnight tourism

	Units	2006	2007	2008	2009	2010
Number of overnight stays	Thousands	89 759	93 453	103 149	94 353	81 760
Number of nights spent	Thousands	569 328	524 161	550 010	530 830	493 681

Source: Italian Institute of Statistics (ISTAT).

International arrivals and receipts

	Units	2006	2007	2008	2009	2010
Total international arrivals	Thousands	66 353	70 271	70 719	71 692	73 225
Top 5 markets						
Switzerland	Thousands	10 185	11 000	12 008	12 234	13 297
Germany	Thousands	10 742	11 441	11 517	11 422	10 857
France	Thousands	10 262	9 851	10 107	10 168	9 976
Austria	Thousands	6 212	6 798	6 573	7 318	7 660
Slovenia	Thousands	2 909	2 700	3 900	4 226	4 117
International travel receipts	Million EUR	30 368	31 121	31 090	28 856	29 257

Outbound tourism – Number of trips

	Units	2006	2007	2008	2009	2010
Number of tourism trips	Thousands	46 369	49 166	54 421	54 839	55 304
International travel expenditure	Million EUR	18 399	19 952	20 848	20 015	20 416

Source: Bank of Italy.

Top Attractions of Italy

Canals of Venice: Also called as 'The City of Water', Venice is the crown jewel of Italian cities. The Italian architecture and Romantic gondolas along the Grand Canal helped the city earn the status of the best of water cities in the world. The artfully crafted network of over 150 canals that have become central to its character bind the city together. There are more tourists than the residents in the city especially during peak season. Venice with its romantic charm has become one of the top tourist attractions in Italy.

Colosseum: It took eight years to build this wonder architecture during Roman era. Its construction was started by emperor Vespasian of the Flavian dynasty in 72 AD and was finished by his son Titus in 80 AD. The Colosseum of Rome listed as one of the modern wonders of the world is the largest and most famous amphitheater in the Roman world. The Colosseum when completed was capable of holding some 50,000 spectators who could enter the building through no less than 80 entrances. The sails called as velarium were attached around the top of the attic to protect the spectators from rain and heat of the sun. though partially ruined it still attracts large number of tourists to this day.

Santa Maria del Fiore:, This iconic attraction is a beautiful cathedral and symbol of the Florence city. The construction began in 1296 in the Gothic style and completed in 1436. The exterior of the basilica is faced with polychrome marble panels in various shades of pink and green and is bordered by white. It remains as the largest brick dome ever constructed. The basilica is one of largest churches of Italy. The dome was the largest in the world until the modern era.

Piazza del Campo: The Piazza del Campo is the principal public space of the historic center of Siena in Tuscany. One of Europe's greatest medieval squares. Its beauty and architectural integrity make it a renowned attraction in the world. The shell-shaped piazzacis surrounded by the Palazzo Pubblico and its famous tower, as well as various palazzi signorili belonging to the wealthiest of Siena families. Palio di Siena, a horse race held twice a year is added event of the attraction.

Pompeii: A two thousand year old city which was then buried under ash and soil cover due to the eruption of the volcano Vesuvius on the dreadful day August 24, 79 A.D. Everything from jars and tables to paintings and people were frozen in time. Its excavation has provided an extraordinarily detailed insight into the life of people living two thousand years ago. Today Pompeii is one of the most popular tourist attractions of Italy as more than 2.5 million tourists visit this place annually.

Positano: On the coast of Amalfi is located the small town Positano. The small stretch of coastline is renowned for its rugged terrain, scenic beauty, picturesque towns and diversity. The city looks as though scattered from top to bottom down a hillside upto to the coast. The the city had ups and down during medieval ages it went from being a poor fishing village to a very popular tourist attraction in the twentieth century.

Lake Como (Italian Lake District): This lake is part of the Italian Lake District an area popular with visitors for well over 100 years for its combination of good weather, fresh air, mountains and. The lake is shaped much like an inverted 'Y', with two branches starting at Como in the south-west and Lecco in the south-east, which join together half way up. The attractive villas which have been built here since Roman times are main attractions of the lake. Number of gardens with tropical and temperate plants is another attraction of the place.

Leaning Tower of Pisa: A poorly laid foundation resulted in sinking of the tower slowly and slowly after its construction in the year 1173. It was left alone for the next hundred years since then. Late when the construction resumed the engineers built higher floors with one side taller than the other to compensate for the tilt and the tower was finally finished in the 2nd half of the 14th century which put together took almost 177 years to complete the structure. For year it public was not allowed to climb up for its uncertain condition. It is now opened to public since 2001and tourists can experience 296 steps climb.

Manarola (Cinque Terre): Manarola is one of the oldest towns in Cinque Terre nestled in the Italian Riviera. Known as the land of 'The Five Lands' actually comprises five beautiful countryside villages with full of scenic beauty. Boats, trains and paths connect the villages. Cars cannot reach it from the outside upto the villages. A breathtaking view of the Mediterranean sea possible from the towns on the mountainside in the region

Towers of San Gimignano: It is nicknamed as the medieval Manhatten. San Gimignano is a village in Tuscany famous for its 14 stone towers. At the height this medieval town's wealth and power, more than 70 towers were built to defend the town against enemy attacks and secure themselves. The power and glamour of the city faded abruptly when in 1348 it was completely devastated due to spread of plague. Though it actually kept enemies away out of fear and the some of the towers were thus preserved.

Conclusion

Italy was also one of the country most visited since the period of the Grand Tours. It is the fifth largest country in terms of foreign tourist visits and same in terms of foreign exchange as well. Italy has good number of world heriage sites. It is also famous for it's the pilgrimage destinations especially the city of Rome. There are best of the best spas and ecotourism spots in Italy. Italy has become the capital for fashion, art and music. This country draws most of its visitors from within the Europe most of whom are repeat visitors apart from US and Canada.

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Lesson 5.8 - Malaysia

Introduction

One of wealthiest, most developed leading tourist destinations of the South-East Asia, Malaysia is a multi-ethnic and multi-religious country. It is outranked in GNP only by Singapore and oil-rich Brunei. The Federation of Malaya became an independent country on 31 August 1957. On 16 September 1963 the federation was enlarged by the accession of the states of Singapore, Sabah and Sarawak. The name "Malaysia" was adopted from that date. Singapore left the federation on 9 August 1965.

Country Profile of Malaysia

Official Name	Persekutuan Malaysia,
Short form	Malaysia
Int'l long form	Federation of Malaysia
ISO Country Code	my
Local Time	UTC +8h: Thu-July-25 14:31
Country Calling Code	+60
Capital City	Kuala Lumpur (pop. 6.9 million in metropolitan area)
Seat of Government	Putrajaya
Other Cities	Penang, Ipoh, Malacca, Johor Baru, Kuching, Kota Kinabalu, Alor Setar, Shah Alam.
Government	Type: Federal parliamentary democracy with a constitutional monarch.
Independence	31. August 1957. (Malaya, which is now peninsular Malaysia, became independent in 1957. In 1963 Malaya, Sabah, Sarawak, and Singapore formed Malaysia. Singapore became an independent country in 1965.). Constitution: 31 August 1957, amended 16 September 1963.
Geography	Location: Southeastern Asia, partly on Malay Peninsula south of Thailand and on the northern one-third of the island of Borneo, bordering Indonesia, Brunei, and the South China Sea, south of Vietnam. Area: 330,000 km² (127,316 sq. mi.)

	Terrain: Coastal plains and interior, jungle-covered mountains. The South China Sea separates peninsular Malaysia from East Malaysia on Borneo. Climate: Tropical, annual southwest (Apr to Oct) and northeast (Oct to Feb) monsoons. People: Nationality: Malaysian(s)
Population	29 million (2012)
Ethnic groups	Malay 50%, Chinese 24%, Indigenous 11.0%, Indian 7%, non-Malaysian citizens 7 %.
Religions	Islam (60%), Buddhism (20%), Christianity (10%), Hinduism (6%),Confucianism (2.6%), Animism (1%), others (including Taoism, Sikhism, Baha'i faith).
Languages	Malay, Cantonese, Hokkien, Mandarin Chinese, English, Tamil, indigenous.
Literacy	94%.
Natural resources	Tin, petroleum, timber, copper, iron ore, natural gas, bauxite.
Agriculture products	Peninsular Malaysia - rubber, palm oil, cocoa, rice; Sabah - subsistence crops, rubber, timber, coconuts, rice; Sarawak - rubber, pepper; timber.
Industries	Peninsular Malaysia - rubber and oil palm processing and manufacturing, light manufacturing industry, electronics, tin mining and smelting, logging and processing timber. Sabah - logging, petroleum production. Sarawak - agriculture processing, petroleum production and refining, logging.
Currency	Malaysian Ringgit (MYR)

Source: Data sourced from www. mapsofworld.com, www.info.com and www.wikipedia.org

Geographical Regions of Malaysia

Political Map of Malaysia

Malaysia is divided into two main geographical regions, commonly known as Peninsular Malaysia and East Malaysia. Following is the list with details:

Peninsular Malaysia
West Coast (Kedah, KualaLumpur, Malacca, Negeri Sembilan, Penang, Perak, Perlis,Putrajaya, Selangor) The more developed region, offering the modern capital, Kuala Lumpur, UNESCO World Heritage cities with colonial flare and the Langkawi archipelago.
East Coast (Kelantan, Pahang, Terengganu) The more traditional Muslim region, home to *Taman Negara* (National Park), numerous unspoilt islands and the Jungle Railway, which winds through the rural hinterlands.
South (Johor): Comprising just one state, two coastlines, endless palm oil plantations and the gateway toSingapore overland.

East Malaysia
Sabah: Superb scuba diving in Sipadan island plus muck diving at Mabul, nature reserves, the federal enclave of Labuan and the mighty Mount Kinabalu.
Sarawak: The southern state of East Malaysia. Home to traditional longhouses, lush jungles and national parks in contrast to the state capital, Kuching.

Tourism in Malaysia

It is located partly on a peninsula of the Asian mainland and partly on the northern third of the island of Borneo. West Malaysia shares a border with Thailand, is connected by a causeway and a bridge called Malaysia-Singapore Second Link to the island state of Singapore, and has coastlines on the South China Sea and the Straits of Malacca. Borneo region of Malaysia shares borders with Brunei and Indonesia in the east.

The country is ranked as the 9th most visited place in the world. The government of Malaysia has pushed for tourism development in order to diversify its economy and reduce the burden on the other exports. This showed good results and very soon tourism became Malaysia's third largest source of income from foreign exchange and accounted for 7% of Malaysia's economy as of 2005. Since then it has been the major contributor. The Ministry of Culture, Arts and Tourism (MOCAT) was established in 1987 under which the TDC was incorporated. TDC existed from 1972 to 1992, when it became the Malaysia Tourism Promotion Board (MTPB), through the Malaysia Tourism Promotion Board Act, 1992.Tourism Malaysia aims to market Malaysia as a premier destination of excellence in the region. Tourism Malaysia now has 34 overseas and 11 marketing representative offices. In 1999, Malaysia launched a worldwide marketing campaign called "Malaysia, Truly Asia" which was largely successful in bringing in over 7.4 million tourists. The additional revenues rescued the country during the 2008 global slump in the economy.

Tourism Statistics and Highlights

In 2010, Malaysia recorded 24.6 million tourist arrivals. Following are the tables showing the ranking of Malaysia in terms of FTAs (Foreign Tourist Arrivals) and its major internal markets.

Ranking of Malaysia in the Global Tourism (Refer APPENDIX IX)

Rank	Country	UNWTO Region	International tourist arrivals (2012)	International tourist arrivals (2011)	Change (2011 to 2012)	Change (2010 to 2011)
1	France	Europe	83.0 million	81.6 million	+1.8%	+5.0%
2	United States	North America	67.0 million	62.7 million	+6.8%	+4.9%
3	China	Asia	57.7 million	57.6 million	+0.3%	+3.4%
4	Spain	Europe	57.7 million	56.2 million	+2.7%	+6.6%
5	Italy	Europe	46.4 million	46.1 million	+0.5%	+5.7%
6	Turkey	Europe	35.7 million	34.7 million	+3.0%	+10.5%
7	Germany	Europe	30.4 million	28.4 million	+7.3%	+5.5%
8	United Kingdom	Europe	29.3 million	29.3 million	-0.1%	+3.6%
9	Russia	Europe	25.7 million	22.7 million	+13.4%	+11.9%
10	**Malaysia**	**Asia**	**25.0 million**	**24.7 million**	**+1.3%**	**+0.6%**

Source: UNWTO World Tourism Barometer for the full rankings.

International Markets of Malaysia 2012

Rank	Country	Visitors	Growth
1	Singapore	13,042,004	2.4
2	Indonesia	2,506,509	7.04
3	Thailand	1,458,678	0.6
4	China	1,130,261	10.8
5	Brunei	1,124,406	5.9
6	India	690,849	17.1
7	Australia	580,695	8.9
8	Philippines	486,790	8.8
9	United Kingdom	429,965	-1.2
10	Japan	415,881	5.1

Source: www.unwto.org

Famous Cities and their USPs

Kuala Lumpur	➢ The multi-cultural capital, home of the Petronas Twin Towers
George Town	➢ The cultural and cuisine capital of Penang
Ipoh	➢ Capital of Perak with historic colonial old town
Johor Bahru	➢ Capital and former royal capital of Johor, and the gateway to Singapore
Kuantan	➢ Capital of Pahang, and commercial centre of the east coast
Kota Kinabalu	➢ Close to tropical islands, lush rain forest and Mount Kinabalu
Kuching	➢ Capital of Sarawak
Malacca	➢ The historical city of Malaysia with colonial-style architecture

Miri	➢ Resort city of Sarawak located near the border of Brunei and gateway to UNESCO World Heritage Site Gunung Mulu National Park

Top Tourist Destinations

Top Attractions on a traveler's list that one cannot miss while on trip to Malaysia are given below:

Kuala Lumpur: Being the capital it is a must visit place. The mix of three measure cultures, Malay, Chinese, and Indian influence will give a tourist culinary extravaganza cultural feast. Interesting sights such as the Petronas Towers, the Perdana Lake Gardens, and Menara KL Tower provide plenty of enjoyable distractions before one heads out to explore Malaysia.

Malaysian Borneo: It is the natural wonders on earth's third-largest island. The island gives chance to witness and experience from endangered orangutans to rainforest canopy walks and some of the best diving in the world, Malaysian Borneo should definitely be a part of any trip to Malaysia. The most referred of many destinations.

Penang: The colonial city of Georgetown was made a UNESCO World Heritage Site and has plenty to offer in the way of museums, a fort, historic homes, and most importantly, famous food. The city is considered one of the best places in Southeast Asia to sample incredible street food. The waterfront esplanade known as Gurney Driven Penang is inescapable attraction.

Taman Negara: Taman Negara is Malaysia's oldest national park and is considered to be one of the world's oldest tropical rainforests. A long canopy walkway gives visitors a chance to see life high in the trees that normally isn't visible from the ground. Visitors can enjoy waterfalls and beautiful trekking, bird watching, rafting, fishing, and have a chance to see wild elephants.

Perhentian Islands: Backpackers and budget travelers love to visit these Islands, especially Perhentian Kecil, the smaller of the two islands where fine sand and excellent snorkeling and diving is famous. Nearby Perhentian Besar, the big island caters more to families and smaller resort crowds.

Cameron Highlands: These have plenty of lush scenery, beautiful tea plantations to tour, and access to decent trekking trails that weave through plantations and around volcanoes. Strawberry farms, butterfly gardens, and flower greenhouses are all enjoyable distractions in the Cameron Highlands.

Malacca: The city is worthwhile stop for cultural, historical, and colonial sites. UNESCO even declared Malacca a World Heritage Site in 2008.

Tioman Island: It located on Malaysia's east coast and not too far from Singapore. It is a secluded island and duty free. Also offers cheap stay plus plenty of diving spots across.

Langkawi: It is located off the northwest corner of Malaysia, Pulau Langkawi is the top island destination in Malaysia for both foreign tourists and Malaysians. Langkawi could be called Malaysia›s version of Phuket, the busiest island in Thailand. Langkawi has loads of tourist attractions such as Malaysia›s largest indoor aquarium and natural features such as the crowded-but-beautiful Pregnant Maiden Lake, a beautiful formation that is purported to help make women fertile.

Selangor: Selangor houses the Formula One race track, the National Zoo of Malaysia, and enormous theme parks including an indoor snow park. Close by are the Genting Highlands Malaysia's version of Vegas perched on top of a mountain. Batu Caves are main attraction for the Hindus coming from across the globe.

Conclusion

Malaysia show cases the systematic tourism development model to the world based on the sustainable principles. It was the first to realise the importance of tourism in the south-east Asia. For the last few three decades Malaysia has steadily grown in its tourism. It houses some of the world's rarest rain forests. Most tourist visit to witness its natural galour and cultural heritage. There is everything for leisure tourists and ecotourists in Malaysia from beaches to hill stations to thick forests and top class hotels.

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Lesson 5.9 - Maldives

Introduction

The recent archaeological evidence suggests that the Maldives islands were first inhabited in around 1500 BC. It is also believed that the Aryans who migrated from northern part of the Indian sub-continent settled during the early history during the same time when they also settled in the island of Sri Lanka. Subsequent migrations from Southern India and Sri Lanka, served to further expand the population of the Maldives. Arab traders profoundly influenced Maldivian society and culture, the Maldives officially converted to Islam in 1153 AD who's culture and society was earlier profoundly influenced by the Arab traders.

Its geographic location is strategic as it falls on the line of major sea routes. During the colonial rule it was under the control of the British and became independent in the year 1965 and a republic in 1968. Fishing is another important economic activity apart from tourism.

Country Profile of Maldives

Official Name	Dhivehi Raajjeyge Jumhooriyyaa
short form	Dhivehi Raajje
int'l long form	Republic of Maldives
int'l short form	Maldives
ISO Country Code	mv
Time	
Local Time	UTC +5h
Country Calling Code	+960
Capital City	Male'
Government	*Type:* Republic *Independence:* 26 July 1965 (formerly a British protectorate) *Constitution:* 11 November 1968.

Geography	*Location:* Southern Asia, group of atolls in the Indian Ocean, south-southwest of India *Area:* 298 km² (115 sq. mi.) *Terrain:* Flat coral islands
Climate	Hot and humid
People	*Nationality:* Maldivian(s) *Population:* 330,000 (2012)
Ethnic groups	South Indians, Sinhalese, Arabs
Religion	Sunni Islam
Languages	Dhivehi (official); many government officials speak English
Literacy	98%.
Natural resources	Fish, corals
Agriculture products	Coconuts, corn, sweet potatoes; fish
Industries	Tourism, fish processing, shipping, boat building, coconut processing, garments, woven mats, rope, handicrafts, coral and sand mining
Currency	Exports partners: USA 32.1%, Thailand 17%, Sri Lanka 13.4%, Japan 10.7%, UK 9.8%, Indonesia 4.5% (2003) Imports partners: Singapore 24.8%, Sri Lanka 13.8%, India 10.2%, Malaysia 7.6%, UAE 7.6%, Thailand 5.1% (2003) Rufiyaa (MVR)

Geography of Maldives

There are approximately 1,190 coral islands grouped in a double chain of 26 atolls. These are spread over roughly 90,000 square kilometers. A submarine ridge 960 kilometers long that rises abruptly from the depths of the Indian Ocean and runs from north to south and its over this ridge that beautiful atolls have formed mainly composed of live coral reefs and sand bars.

As it is a very sensitive region of marine life, there are only two passages opened in the southern end of the island group. Fourteen administrative divisions have been made for the ease of governance.

Gan is the largest island of Maldives islands. Most atolls of the Maldives consist of a large, ring-shaped coral reef supporting numerous small islands. Islands average only one to two square kilometers in area, and lie between one and 1.5 meters above mean sea level. No individual island is longer than eight kilometers but some of the larger atolls are approximately 50 kilometers long from north to south, and 30 kilometers wide from east to west. There neither hills nor rivers on these island except for some dune as tall as eight metres and some lakes. The topography of each varies from mostly sand to marshy wetlands. Its highest point, an unnamed point on Wilingili Island, is only 7.87 ft. (2.4 m). The islands of Maldives that are inhabited by people are 200 in number while 80 more islands are used exclusively for tourism purposes.

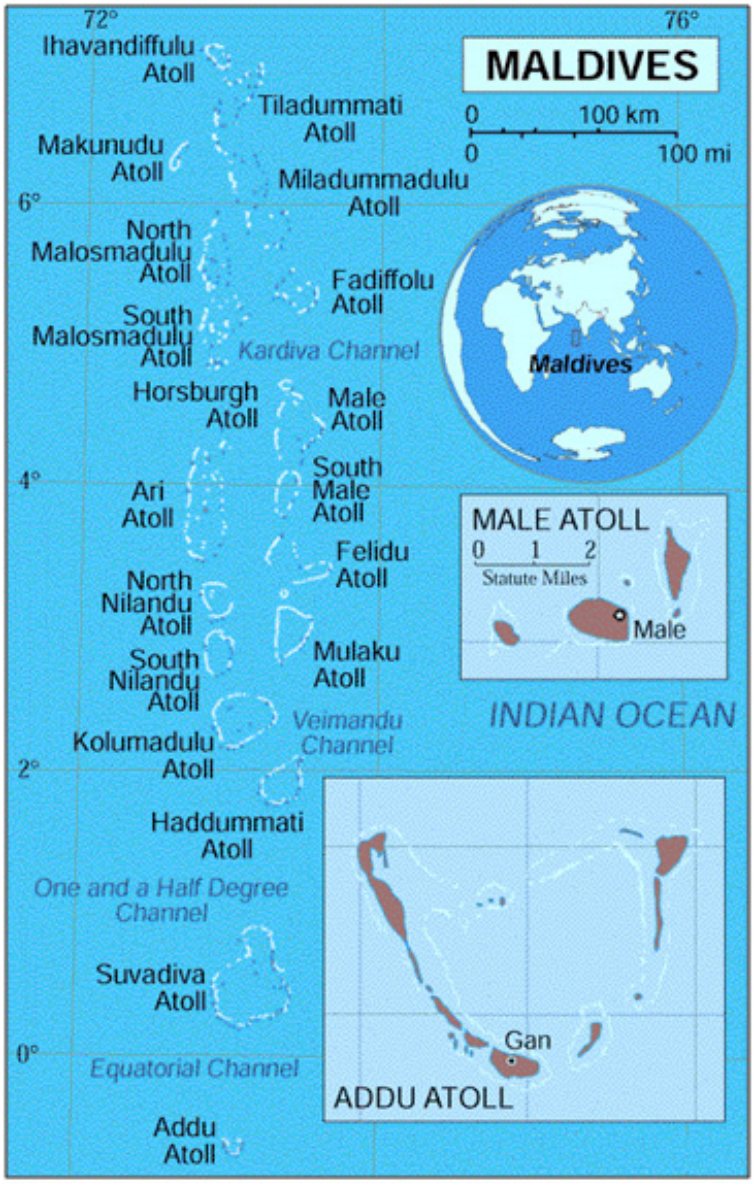


Figure. 5.10 Geopolitical Map of Maldives
Source: www.mapsofworld.com

Tourismin Maldives

Tourism was given a kick start lately in 1972 in Maldives. It all started with just two resorts with a capacity of about 280 beds in Kurumba village and Bandos island resort. Kurumba island resort is the first resort which was opened in Maldives than Bandos island resort was opened. At present, there are over 105 resorts located in the different atolls constituting the Republic of Maldives. Over the past few decades, the number of tourists in Maldives has risen continuously.

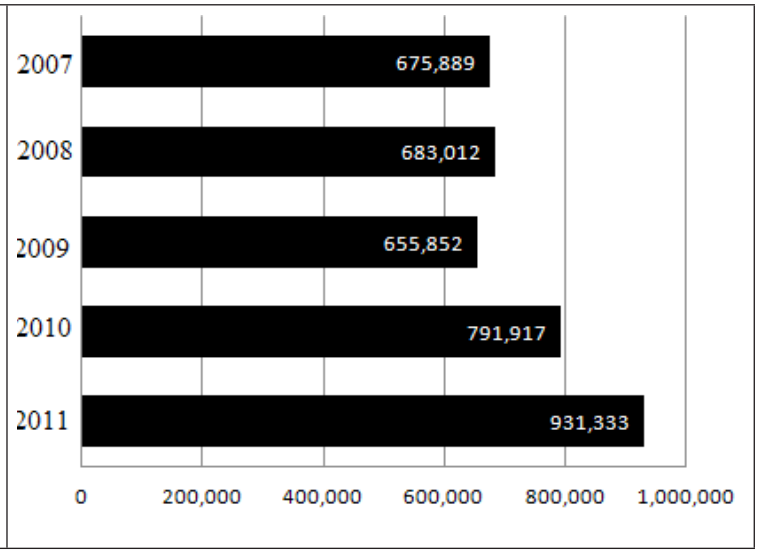
The prime tourism resource of the islands is the pristine and authentic marine environment. Nowhere in the can had one find the quality of the coral reefs and marine life found here. Most of the international tourists coming to these islands come with the primary motivation of experiencing the purity and the originality of the marine environment amidst the atolls. Apart from the beach tourist water sports is also yet another inducing motivational factor for the foreigners visiting the islands. One of significant features of tourism here is each of the resort islands has a diving base and the resort *house reef* is commonly within swimming distance from the resorts. The resorts have been developed and maintained by The Ministry of Tourism through MTDC (Maldives Tourism Development Corporation). In the late 1990s the Maldives Tourism Promotion Board was created to promote the islands in the markets which have today been able to position themselves as the hotspots for ecotourism, beach tourism, water sports and leisure.

Tourism Statistics

Tourist arrivals to the Maldives increased at an average rate of 9.5% over the last five years between 2007 and 2011. Due to world economic crisis foreign tourist arrivals to the Maldives declined in the year 2009. However the very next year a formidable growth of 20% was recorded among the foreign tourists with the change in global conditions. The islands registered a new record in the year 2011 with an impressive growth of 17.6% and international arrivals of 931,333. This growth rate during 2011 over its previous year prompted UNWTO to highlight in its 2012 edition as the fastest growth rate of the year.

Tourist Arrivals in Maldives from 2007 to 2012

2007	675,889
2008	683,012
2009	655,852
2010	791,917
2011	931,333



Source: Annual Report 2012, MTDC Maldives

The regional markets for Maldives in 2011 show that Europe was the leading market generator with 57% market share and it recorded a growth rate of 6.4% against 2010. U.K, Germany, Italy, Russia, France and Switzerland were the major countries from Europe for the Maldives. During the same time Asia and the Pacific shared 37% of the market which is steadily increasing year after year. Major countries contributed to the share from this regions were China, Japan, India and Republic of China. Similarly the Americas, the Middle East and Africa region contributed 2.5%, 1.6% and 0.7% respectively.

Top Ten Markets of Maldives Tourism

Rank 2011	Country	2011		2010		Rank 2010
		Arrivals	Market Share (%)	Arrivals	Market Share (%)	
1	China	198,655	21.3	118,961	15.0	1
2	United Kingdom	104,508	11.2	114,158	14.4	2
3	Germany	90,517	9.7	77,108	9.7	4
4	Italy	83,088	8.9	89,596	11.3	3
5	Russia	63,936	6.9	49,111	6.2	6
6	France	59,694	6.4	54,789	6.9	5
7	Japan	35,782	3.8	38,791	4.9	7
8	Switzerland	32,504	3.5	27,766	3.5	8
9	India	30,978	3.3	25,756	3.3	9
10	Korea	25,285	2.7	24,808	3.1	10
	Global Total	**931,333**		**791,917**		

Source: Department of Immigration & Emigration

Top Tourist Attractions

Maldives National Museum: National Museum of Maldives was established after republic in the location of Sultan's palace, having a preserved collection of ancient times. In this museum the visitors have a great opportunity to watch the spectacular display of regal objects, coins, royal sunshades, jewelry, thrones and even the artifacts of pre-Islamic era over a thousands year ago. Apart from these it also contains the priceless statue of Buddhist cenotaphs.

Maldives Esjehi Art Gallery: Esjehi Art Gallery takes you back in the time of 1870s where the antique traditional arts and crafts are displayed. The gallery has proper decorous artworks, also host exhibitions where the various Maldivian artists give an opportunity to buy the finest art pieces. This gallery is placed in the capital city Male.

Maldives Grand Friday Mosque: The Islamic center officially named as Masjid-al-Sultan Muhammad Thakurufaanu Al Auzam is an architectural landmark in Male opened in the month of November 1984 by the President Maumoon Abdul Gayoom. Many occasions like weeding ceremony and official meetings are held in the Mosque. Is became the house of Ministry of Islamic Affairs in 11 November 2008. It is also the major tourist attraction due to its beautiful architecture of the Mosque. It one of the biggest Mosques in the country having the striking golden vault that stands out on the Male's skyline.

Maldives Fish Market: Maldives Fish Market is one of the most exciting places in Male where you can watch the unique fish market located along the beach front to west republic, the main center of trade of fishes.

Maldives Artificial Beach: Maldives being an island nation have no deficiency in the number of islands. It has over 1000 islands out of which almost 200 are habited by humans. Most of these islands are used for tourism as an island destination. However to catch with the commercial and tourism needs, the Government of Maldives has started many projects to create some artificial islands. Mainly there are three artificial islands in Maldives till now. They are Hulhumale, Thilafushi and Gamarugiri.

Kurumba Village in Maldives: Located at a short ride of about 20 minutess from the airport at Male lays the Kurumba village in the Kurumba Island, which is the first island resort in Maldives. It can be called a jungle resort. It serves as a magnet to tourists visiting Maldives. This place is filled with lush green coconut trees. The white sandy beaches and excellent calm lagoons make it a perfect place to spend a holiday. This village is supported by some of the finest villas and bungalows in Maldives. Excellent bars, spa and massage centers make this place more adorable. Water sports like snorkeling, scuba diving, kayaking etc. are famous in this place.

Seenu Atoll Maldives: This Atoll was formerly known as the Addu Atoll. It is located in the southern most part of Maldives Atoll. Unlike other Atolls of Maldives, this Atoll is a land locked atoll surrounded by islands from all the sides. Due to this geographical feature, Seenu Atoll is protected to a great degree from the storms and bad weather of the Indian Ocean. The waters surrounding this Atoll has rich marine life. This place is famous for dolphins and whales.

Naifaru island Maldives: It is located 142 kms north of Male. Naifaru is listed in the top 5 famous islands in Maldives. This island is a part of Laviyani Atoll and is a perfect place to relax and enjoy your life. It is considered as family holiday spot where you can enjoy climbing the sand mountains, taking part in exciting water sports, go shopping with your family, enjoy some exquisite dishes in the local restaurants and much more.

Conclusion

The island group of Maldives in the Indian Ocean is the most impressive tourist destination in the world for island tourism. Majority of its economy is supported by tourism. The government is proactive and has developed the attraction adhering to the environmental principles. Pristine beaches, unspoilt inland, crystal clear water and very rich marine life make it one of the most sought after destination in the world. Atolls are unique selling propositions of these islands.

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Lesson 5.10 - Sri Lanka

Introduction

The island nation located very close to the southern end of the Indian peninsula Sri Lanka formerly known as Ceylon, is rich in tourism resources. Its capital Colombo is well connected by air and sea routes crossing the Indian Ocean.

Its closeness to India and fabled wealth in the past attracted Arab traders, later were followed by the Portuguese, Dutch and British. The trade relations with people from different parts resulted in mixed culture though dominated by the Sinhalese in the south and the Tamilians in the north.

The history of Sri Lanka probably started with the coming of the Sinhalese from north Inda. The great city of early civilization at Anuradhapura is testimony to it. The Budhism came somewhere in the mid third century B.C. brought in by the children and followers of the emperor. The cultural richness brought to the island during 11-13 century A.D. at Polonnaruwa is also of great importance. In the 14th century, a south Indian dynasty seized power in the north and established a Tamil kingdom. Later the island came into the controlof the Portuguese in the 16th century and by the Dutch in the 17th century and was ceded to the British in 1796, became a crown colony in 1802, and was united under British rule by 1815.

The island got its independence in 1948. Since 1983 intense fight between the majory Sinhalese and the Tamil separatists prevailed unto 2009. Tens of thousands have died in an ethnic conflict between the LTTE and government forces. With the elimination of the LTTE, peace prevails even in the northern parts today which have boosted tourism industry.

Country Profile of Sri Lanka

Official Name	Socialist Republic of Sri Lanka
Short form	Sri Lanka
In Tamil	Ilankai
Former	Serendib, Ceylon
ISO Country Code	lk
Time:	Local Time = UTC +6h
Country Calling Code	+94
Capital	Colombo (pop. 1.3 million—urban area) (former names: Kalan-totta, Kola-amba-thota) The city of Sri Jayewardenepura-Kotte is the officially designated capital city and is the seat of Sri Lanka's Parliament, but it is currently just the administrative center.
Other Cities	Dehiwala-Mount Lavinia (210 000), Moratuwa (200 000), Kandy (150 000), Jaffna (100 000), Galle (80 000), Anuradhapura (50 000).
Government	*Type:* Republic *Independence:* 4 February 1948 (from the UK) Constitution: 31 August 1978.
Geography	*Location:* Asia, South of Indian subcontinent. *Area:* 65,610 km² (25,332 sq. mi.) *Terrain:* Coastal plains in the northern third of country; hills and mountains in south-central Sri Lanka rise to 2 133 meters (7 000 ft.).
Climate	Tropical; rainy seasons—light in northeast, fall and winter, with average rainfall of 50 in.; heavy in southwest, summer and fall, with average rainfall of 200 in.
People:	*Nationality:* Sri Lankan(s). *Population:* 20.6 million (2010) GNI per capita PPP: $ 4145 (year) *Ethnic groups:* Sinhalese (74%), Tamils (18%), Moor 7%, Burgher, and Vedda 1%.
Religions	Buddhism (69%), Hinduism (15%), Christianity (8%), and Islam (7%).
Languages	Sinhala and Tamil (official), English.
Literacy	91%
Natural resources	Paddy, maha, yala, rubber, tea, coconut.
Agricultural products	Rice, sugarcane, grains, pulses, oilseed, spices, tea, rubber, coconuts; milk, eggs, hides, beef.
Industries	Rubber processing, tea, coconuts, and other agricultural commodities; clothing, cement, petroleum refining, textiles, tobacco.
Currency	Sri Lanka Rupee (LKR)

The Geographic Regions of Sri Lanka

The island nation of Sri Lanka in the Indian Ocean is separated by the Palk Strait from India. The island has two major geographical regions. 1) The plains: A rolling plain which comprises 80% of the land area as well the entire northern half of the island and continues around the coast to the southern half. The plains of th island a flat lands known for their agriculture produce. 2) The South-Central Highlands: The south central region is hilly and mountainous.

There two important plateaus caleed the Hatton and Kandy, that rise abruptly from the Ura Basin. Sri Lanka's highest point is the Pidurutalagala Mountain which is approximately 8,200 feet above sea level. This mountain is a popular pilgrimage destination and also the only mountain site where people belonging to four different religions assemble for worship. Another mountain believed to be one of the world's most revered mountains is Sri Pada also known as Adam's Peak.

The country has sixteen rivers of which the Mahaweli Ganga and the Aruvi Aru are the longest. Major Cities are Colombo, Dehiwala, Moratuwa, Jaffna. The land Use pattern shows that a large area upto 33% is forested, 7% used for pastures, 29% under agricultural lands. With long coastal line suitable for shipping the island is developing modern ports to support the maritime trade.

Tourism in Sri Lanka

Sri Lanka had been a great tourism destination for centuries particularly for European Travellers. The internal ethnic conflict for three decades hampered tourism in the country but now the situation has altered. However, after the end of the conflict in 2009 the country's tourism prospects look promising. Immediately after the end of the war Sri Lanka had a growth of 46% in tourism arrivals in 2010. Between 2009 and 2011 the tourism arrivals doubled with the number of arrivals reaching 855,975 as at end 2011.

The Ceylon Tourist Board today known as the Sri Lanka Tourist Board was established in 1966 during which year only 19 000 foreign tourists visited the island. By 1982 this had grown to over 400 000 especially

brought in from the West European tour operators. The government has increased investment in developing the coastal regions and the famous tourist destinations by improving the infrastructure. It is also encouraging foreign investment..

The Sri Lanka Tourism Board started positioning the country around 8 different products namely; beaches, heritage, wildlife, scenic beauty, mind and body wellness, festivals, sports and adventure and Essence. The Essence of Sri Lanka tourism include the unique features of its people, art and culture, spices, tea, gems, handy crafts and others. It has the natural advantage of being an island. Beach tourism, health tourism, eco-tourism and pilgrimage are the major selling components.

Geopolitical Map of Sri Lanka

Source: www. Mapsofworld.com

Extensive sandy beaches along the south and west coast with resort hotels of an international standard, particularly at Bentota, east coast beaches with drier climate, the 'cultural triangle' of the interior, based on the historic cities of Kandy, Anuradhapura and Polonnaruwa, the Rock Fortress at Sigiriya, rising above the northern plain having the remains of ancient temples, palaces and complex irrigation systems, the traditional crafts and dances and Buddhist Shrine in Kandy, the wildlife such as elephant orphanage at Pinnawela, and number of national parks like Yala and Gal Oya in the south-east, major business and conference centre at Colombo and shopping for jewellery, batik, and wood-carving are some of the tourism resources of the most promising island destination of the India Ocean.

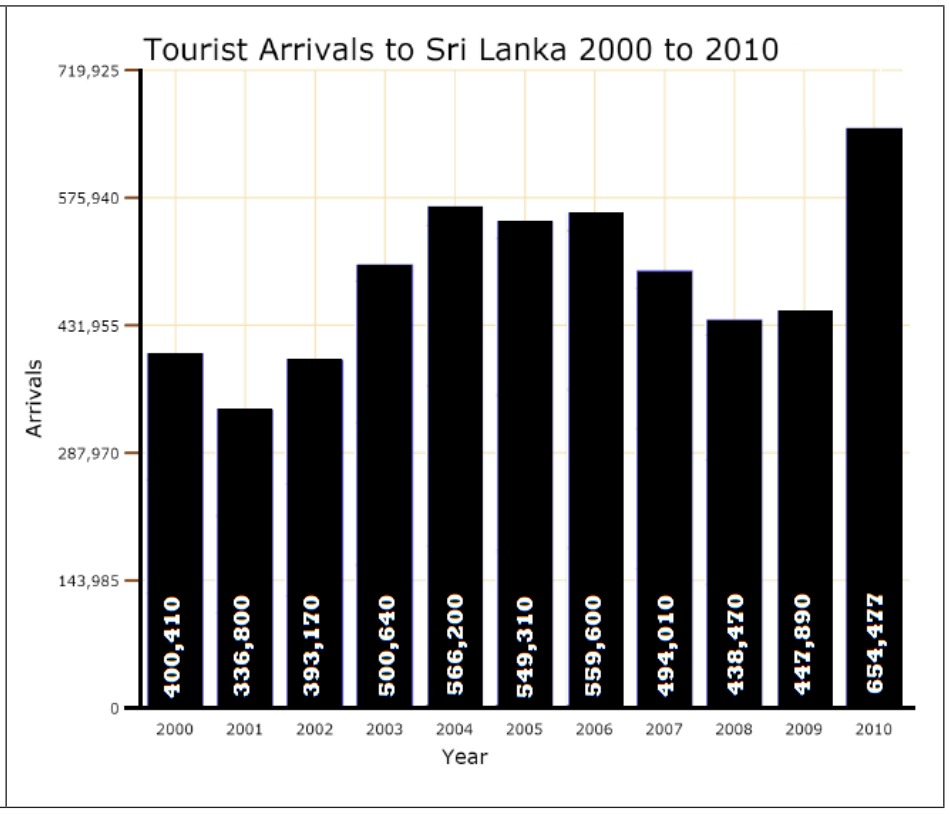
Tourism Statistics

Sri Lanka recorded new high of 654,476 foreign tourist arrivals in 2010 from 447,890 in 2009. This new record surpassed all its previous figures. The country had received only 336,800 tourists in 2001. After the ethnic conflicts there has been steady increase in the foreign tourists. The foreign exchange earnings also increased by 60.0% from ₹ 40, 133.00 million (349.3million U.S. dollars) in 2009 to ₹ 65,018.00 (575.9 million U.S. dollars) in 2010. Similarly foreign exchange receipts per tourist per day recorded an increase of 6.2 U.S. dollars from 81.8 U.S. dollars to 88.0 in 2010 compared to the previous year.

Tourism earned around 3.8% of the total foreign exchange earnings for Sri Lanka during 2010. Though Western Europe together with 39.2% stood as the major market, India as individual country ranked first as the leading tourism market with 19.38% of the total traffic. Asia contributed to 37.3%, North America 6.1% as international markets. At the same time tourism has also contributed towards employment generation in the country which recorded 132,055 in 2010 sharing 5.7% of total employment including both direct and indirect employment.

Foreign Tourist Arrivals in Sri Lanka from 2000 to 2010

2000	400,410
2001	336,800
2002	393,170
2003	500,640
2004	566,200
2005	549,310
2006	559,600
2007	494,010
2008	438,470
2009	447,890
2010	654,477

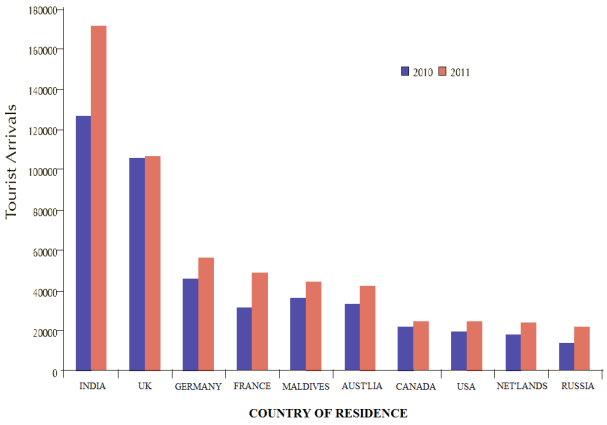


Source: Sri Lanka TDA Statistical Report 2012

Country of Residence	2005	2006	2007	2008	2009	2010	2011
WESTERN EUROPE	227,191	228,445	194,448	167,187	170,123	256,861	315,210
EASTERN EUROPE	9,290	14,221	25,573	29,440	26,310	35,517	49,249
MIDDLE EAST	10,236	10,345	13,554	16,776	23,741	37,540	57,501
AFRICA	2,340	3,235	2,712	2,141	1,549	2,308	3,614
EAST ASIA	69,998	73,349	52,854	44,944	48,329	68,430	96,194
SOUTH ASIA	153,353	168,783	149,626	128,098	126,205	175,694	237,647
AUSTRALASIA	29,738	25,127	22,924	21,839	26,068	37,290	46,467
NORTH AMERICA	46,457	35,323	28,355	24,311	24,948	40,216	49,057
LATIN AMERICA & THE CARIBBEAN	705	775	3,962	3,739	617	620	1,036
Total	549,308	559,603	494,008	438,475	447,890	654,476	855,975

Tourism Markets of Sri Lanka

Source: Sri Lanka TDA Statistical Report 2012



Market	Total Arrivals	Percentage Share
India	126,882	19.4
U.K.	105,496	16.1
Germany	45,727	7.0
Maldives	35,791	5.5
Australia	33,456	5.1
France	31,285	4.8
Canada	21,123	3.2
U. S. A.	19,093	2.9
Netherlands	17,861	2.7
Japan	14,352	2.2
Total	451,066	68.9

Top Ten Source Countries for Sri Lanka Tourism

Source: Sri Lanka TDA Statistical Report 2012

Top Attractions of Sri Lanka

Sigiriya Rock: The spectacular rock fortress of Sigiriya is one of top attractions of Sri Lanka which was built by King Kassapa-I (477-95 A.D). According to chronicle Mahawansa, he transformed the natural rock in to a heavenly Palace with water gardens, moats, walls and frescoes. The rock summit was replaced with a grandeur palace complex, which was approached through a brick – built tunnel entered through a gaping mouth of a lion built on the plateau. Of particular interest is the gallery of frescoes, which were painted on the sheer rock face. Only 22 out of estimated 500 pictures have remained now. Some of the paintings are still intact and remarkably in condition for the visitors to see.

Dambulla Cave Temple: The Dambulla cave temple complex is thought to be created during 3rd century BC when this area became the location for the largest Buddhist monastic settlements on the island of Sri Lanka. The site also includes archeological evidence of human occupation going back to the prehistoric period, including the megalithic cemetery at Ibbankatuwa. The cave temple complex, rock paintings in five caves and 157 statues of various sizes are jewels in the crown of cultural heritage of the Sri Lankan history.

Ancient city of Anuradhapura: Anuradhapura is known to be the oldest capital city of Sri Lanka. It was established in 4th century BC and

continued till the beginning of the 11th century AD. The sacred Bo Tree, which has grown from a branch of the legendary Bodhi tree that Buddha attained enlightenment, while standing under, is situated in Anuradhapura. In the surrounding regions of the city are situated the remains of the towering Ruwanweliseya Dagaba of 'The Kuttam Pokuna', Brazen Palace of 'The Seated Buddha' and many different temples, parks and palaces.
Pinnawela Elephant Orphanage: Sri Lanka Wildlife department in 1975 established this incredible 24-acres-large elephant orphanage which is the largest herd of elephants in captivity in the world. There are around 3000 elephants hosted by the orphanage.

Nuwara Eliya: It is a city in the Hill Country of Sri Lanka. Temperate climate gives makes it different from other parts of the country. The colonial architecture of the city earns it the name of 'Little England'. Hortons Plains and World's End Offer fascinating walks though this temperate mountain environment. Haggala Botanical Gardens are very impressive and Pedro Tea Factory offers fascinating tours through the tea plantations.

Polonnaruwa: It was the second capital of Sri Lanka after the destruction of Anuradhapura in 993. Polonnaruwa is today a showcase of the great ancient Sri Lankan architecture dating back to 12th Century AD. Many Buddhist monasteries and monuments which were built by the King Parakramabahu-I, showcase the inter -architectural influence. Later from Kalinga dynasty also had contributed to the development of many buildings and monuments at Polonnaruwa got many other marvelous monuments built and developed King Nissankamalla (1187-1196 AD) of Kalinga dynasty.

Sacred City of Kandy: Popularly known as the city of Senkadagalapura, this sacred Buddhist city was the last capital of the Sinhala kings whose patronage enabled the Dinahala culture to flourish for more than 2,500 years until the occupation of Sri Lanka by the British in 1815. Scenically located right in the heart of the town of Kandy, the 'Temple of the Tooth' is the prime monument and the most sacred shrine of Buddhism.

Yala National Park: Also known as Ruhunu National Park, it is the most visited and second largest national park in Sri Lanka. Best places for

sightings of wild elephants, home to many animals including buffaloes, leopards, monkeys, circles, crocodiles, wild boars and bears.

Galle: A continuous rampart, built by the Dutch from mid 17th century onwards and added to by the British, encircles the city, interrupted by 14 massive bastions. Unawatuna, less than 5km's southward around the coast of Galle, is a beach resort waiting to happen. This 4km sweep of palm fringed sand is listed as one of the best beaches in the world. Sheltered waters for swimming and well-preserved coral reef for snorkeling are major attractions of the place.

Botanical Garden of Peradeniya: Peradeniya Gardens of Sri Lanka have gone through colonialism and industrial change and today continue to flourish, representing significant national asset for the country. Today it is home to more than 4000 species from all the corners of the world and boasts more than 300 varieties of orchids, spices, medical plants and palm trees.

Conclusion

China is one of the leading tourist destinations in the world with a phenomenal growth rate. Being the third largest foreign tourist visited country China is also earning huge foreign exchange through tourists coming from different parts of the world. Huge investments in developing infrastructure and enhancing the transport systems have given fillip to the tourism growth in China.

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Lesson 5.11 - Papua New Guinea (PNG)

Introduction

The Independent State of Papua New Guinea, as it is officially called is an islands country in Oceania that occupies the eastern half of the island of New Guinea. It should be noted that the western portion of the island is a part of the Indonesian provinces of Papua and West Papua and many other islands in the offshore. PNG is located in the southwestern Pacific Ocean referred as Melanesia since the beginning of the 19th century. This part of the island was divided into north and south between Germany and the United Kingdom in 1885. Until independence in1975 it was under the control of Australia. Currently the islands nation is in peace after a nine-year secessionist revolt on the island of Bougainville ended in 1997, after claiming some 20,000 lives. The rich biodiversity and cultural strengths make it a unique tourist destination. The existence of 841 different languages is testimony to its cultural diversity. With a population of 6.3 million, 18% of which lives in urban areas are predominantly rural. It is known to be one of the world's least explored countries.

Country Profile of Papua New Guinea

Official Name	Papuaniugini
Short form	Papua New Guinea
Int'l long form	Independent State of Papua New Guinea
Int'l short form	Papua New Guinea (abbr.: PNG)
Former	Territory of Papua and New Guinea
Border countries	Indonesia, Papua New Guinea shares maritime borders with: Australia, Federated States of Micronesia, Solomon Islands, and New Caledonia (France)
ISO Country Code	pg
Time	Local Time = UTC +10h
Country Calling Code	+675
Capital City	Port Moresby (pop. 255 000)
Other Cities	Lae (78 000), Mt. Hagen (28 000)

Government	*Type:* Constitutional monarchy with parliamentary democracy.
	Independence: 16 September 1975 (from the Australian-administered UN trusteeship)
	Constitution: September 16, 1975
Geography	*Location:* Oceania, Group of islands including the eastern half of the island of New Guinea between the Coral Sea and the South Pacific Ocean, east of Indonesia
	Area: 462,840 km² (178,703 sq. mi.)
	Terrain: Mostly mountains with coastal lowlands and rolling foothills.
	Highest point: Mount Wilhelm 4 509 m
Climate	Tropical. NW monsoon, Dec-Mar. SE monsoon, May-Oct
People	Nationality: Papua New Guinean(s)
	Population: 7 million (2012)
	Ethnic Groups: Melanesian, Papuan, Negrito, Micronesian, Polynesian
Religions	Christians 66%, indigenous beliefs 34%
Languages	*Three official:* English, Tok Pisin, and Motu.
Literacy	60%
Natural resources	Gold, copper, silver, natural gas, timber, oil, fisheries
Agriculture products	Coffee, cocoa, copra, palm kernels, tea, sugar, rubber, sweet potatoes, fruit, vegetables, vanilla; shell fish, poultry, pork
Industries	Copra crushing, palm oil processing, plywood production, wood chip production; mining of gold, silver, and copper; crude oil production, petroleum refining; construction, tourism
	Exports partners: Australia 28.8%, Japan 8.6%, China 5.4%
	Imports partners: Australia 54.7%, Singapore 13.4%, Japan 4.3%, Malaysia 4.2% (2005)
Currency	Kina (PGK)

Geography of Papua New Guinea

The major land form being part of the New Guinea Island to its east is rugged. There are other s such as the islands of New Ireland, New Britain and Bougainville, and smaller nearby islands which are part of the PNG. The central part of the island rises into a wide ridge of mountains known as the Highlands, a territory that is so densely forested and topographically forbidding that the island's local peoples remained isolated from each other for millennia. The coastline is liberally endowed with spectacular coral reefs, giving the country an international reputation for scuba diving. The smaller island groups of Papua New Guinea include the Bismarck Archipelago, New Britain, New Ireland and the North Solomon. Some of these islands are volcanic, with dramatic mountain ranges, and all are relatively undeveloped and sparsely populated.

Map of Papua New Guinea

The islands are largely mountainous, and much of it is covered with tropical rainforest as they lie in the equatorial belt. The New Guinea Highlands runs the length of New Guinea, and the highest areas receive snowfall - a rarity in the tropics. Mount Wilhelm is the highest peak, at 4,509 m. As it is situated along the Pacific Ring of Fire it has several volcanoes.

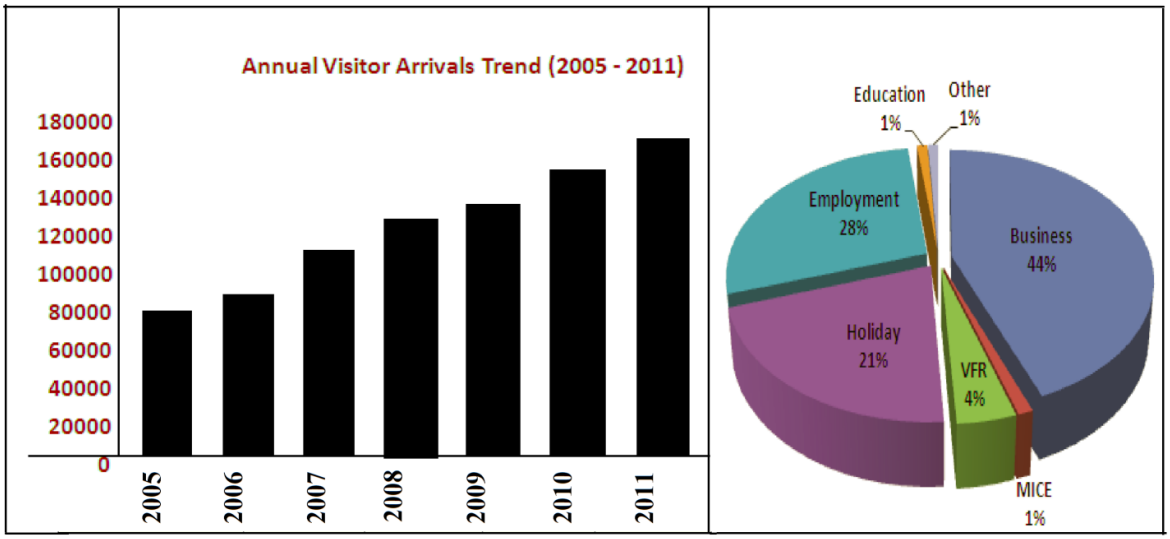
There are several major rivers, notably the Sepik River which winds through lowland swamp plains to the north coast for 1,126 kilometer and the Fly River flows through one of the largest swamplands in the world to the south coast for about 1050 kilometers. The PNG has a total area of 462,840 km^2, of which 452,860 km^2 is land and 9,980 km^2 is water. It has a coastline of 5,152 km. The country can is divided into 9 regions: Southern Papua New Guinea, Southwestern Papua New Guinea, Madang - Morobe, Highlands, Sepik, Milne Bay, New Britain, New Ireland and Manus and Bougainville.

Tourism Statistics

Papua New Guinea recorded more than 164,000 international visitors in 2011, an increase of more than 14% or additional 20,000 arrivals compared to 2010, with visitors injecting an estimated K1.6 billion into the national economy. Out of the total visitors to the country the purpose of visits was split as, leisure trips represented 21%, business 44%, VFR4%, employment 28%, MICE, education and other at 1% each.

Holiday arrivals to the country performed well by recording an increase of 9% in 2011 which is a healthy growth compared to the holiday arrivals recorded in the previous year. 2010 marked the seventh year to see growth in this sector since 2003, though there was a slight decrease in 2009 due to the global financial crisis that affected many destinations around the globe. The arrivals picked up again in 2010 with an 8% increase in holiday arrivals and similar growth has continued through 2011. The international markets for the Papua New Guinea showed inclination towards leisure holidays which included most of the visitors from Japan (51%), America (40%) and European markets (60%) while the majority of the visitors from Australia (50%) and Asia (38%) were more on business.

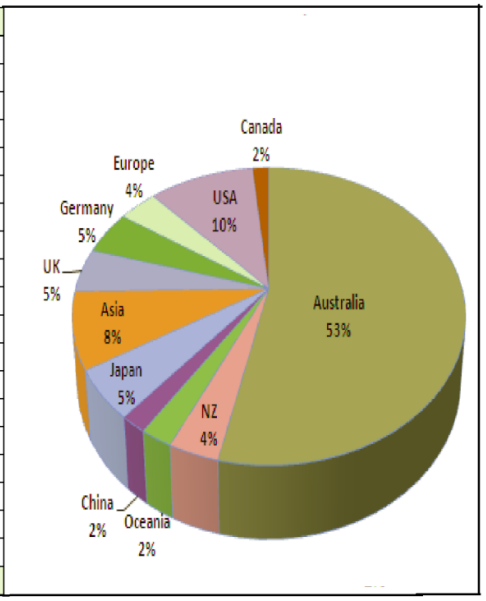
Tourist Arrivals between 2005-11 and Purpose of Visit



Source: www.papuanewguinea.travel

Holiday Arrivals by Source Markets in 2010 and 2011

Source Market	2011	2010	Change	% +/-
Australia	17,873	16,744	1,129	6.7%
New Zealand	1175	874	301	34.4%
Oceania	754	496	258	52.0%
China	617	583	34	5.8%
Japan	1,765	2,350	-585	-24.8%
Malaysia	653	566	87	15.4%
Philippines	702	795	-93	-11.6%
Indonesia	154	168	-14	-8.3%
India	323	210	113	53.8%
Other Asia	1514	914	600	65.6%
UK	1,599	1,779	-180	-10.2%
Germany	1,626	1098	528	48.1%
France	445	294	151	51.4%
Other Europe	1,174	1,205	-31	-2.5%
USA	3,452	3,220	232	7.2%
Canada	541	527	14	2.7%
Other America	98	119	-21	-17.6%
Africa	368	219	149	68.0%
Others	794	474	320	67.5%
Total Holiday	**35,627**	**32,635**	2,992	**9.2%**



Source: www.papuanewguinea.travel

Total Tourist Expenditure by Market Area in 2011

Country	Average length of Stay	Tourist Arrivals	Daily Expdt.	Total Expenditure		%tage Share
				Kina	('000 US$)	
Australia	13	16,873	872	191,272,328	57,381,698	*43.0*
New Zealand	14	1175	1,107	18,210,150	5,463,045	*4.1*
Pacific Islands	28	754	190	4,011,280	1,203,384	*0.9*
Japan	11	1,665	1,500	27,472,500	8,241,750	*6.2*
China	14	617	857	7,402,766	2,220,830	*1.7*
Philippines	14	702	913	8,972,964	2,691,889	*2.0*
Other Asia	14	2460	712	24,521,280	7,356,384	*5.5*
United Kingdom	21	1499	775	24,396,225	7,318,868	*5.5*
Germany	20	1626	986	32,064,720	9,619,416	*7.2*
France	16	300	1,281	6,148,800	1,844,640	*1.4*
Other Europe	14	944	1,357	17,934,112	5,380,234	*4.0*
USA	16	3,452	1,088	60,092,416	18,027,725	*13.5*
Canada	25	541	466	6,302,650	1,890,795	*1.4*
Africa	12	168	833	1,679,328	503,798	*0.4*
Other Countries	19	690	1,078	14,132,580	4,239,774	*3.2*
Total Average	**16.3**	**32,216**	**947.81**	**444,614,099**	**134,536,227**	***100***

Source: www.papuanewguinea.travel

Tourism in PNG

The great diversity of culture, scenery, flora and fauna, the Papua New Guinea is a little wonder that it offers the world so much as a travel destination. spectacular scenery, tropical beach resorts, cultural performances, mountain treks, fishing, under water adventure, bird watching, the historical sites and relics such as boats and aircraft (Balus) of second World War are some of the attractions and activities any tourist wishes to experience once they in these islands. From the bottom of its oceans to the highest mountain peaks it is all here. Majority of the population here depends on agriculture though there is an effort by the government to develop tourism. Shyness, generosity, humour, and good nature of the locals leave most visitors more than satisfied. Eco-tourism is a growing industry in PNG with a number of tour operators operating this exciting form of travel to the adventurous traveller.

- *Port Moresby:* It is the capital city and houses Zoological gardens, the Parliament building, the museum.
- *Alotau:* It is the laid-back capital of Milne Bay province and gateway to some fascinating but remote islands.

- *Goroka:* This town is built on an attractive highland. Centre of the country's coffee industry. Goroka show is famous event of the place.
- *Lae* : It is the country's second city, main commercial center and entry to the Highlands.
- *Mt. Hagen:* The 'wild-west' frontier town in the Highlands introduces the tourists to the cool, crisp Highlands weather and Highlands culture.
- *Madang:* It is a beautiful city with breathtaking flights of bats in the evening and even more breathtaking for diving.
- *Rabaul:* This city is at the foot of an active volcano which was evacuated and severely damaged by a major eruption in 1994.
- *Vanimo:* It is a popular surfing destination in the bordering zone with New Guinea.
- *Wewak:* It leads to the Sepik River, where one can experience Sepik culture; appreciate the elaborate carvings typical of the region and the river itself.

Conclusion

Papua New Guinea offers to its visitors everything in authentic form. The largest of the islands in the south Pacific houses the best of the tropical forests with a huge diversity of flora and fauna. Its ethnic tribes and cultural variety also make it special for the tourists along with the natural beauty, scenic extravaganza and splendid beaches. It's no wonder why most tourists visiting this part of the world hardly miss these islands.

V.III Let Us Sum Up The Unit

Tourism development depends not only on the available tourism resources but also appropriate allocation, planning and development and promotion. The case studies have given an insight into the existing conditions of the destinations from different climatic regions with differences in physiography, climate, and natural resources. It is revealed from the analysis of the destinations that places with selling propositions must be given thrust by facilitating infrastructure and conducive environment for the visitors China which entered into the serious business

of tourism lately is the fitting example for integrated tourism development of tourist destinations. The results of it are before the world to stand testimony to its efforts for the development of tourism. Other destinations have also fallen in line with the improved models of tourism development. As it is evident from another such destinations, the islands antion of Maldives has also been very successful in attracting international tourists and contributing towards its economy. To conclude, tourism development of any country should be given priority as it has the ability to steer the economy and create better societies.

CASELET 5. Galapagos Islands

Galapagos are the tourists' paradise for marine life diversity. The Galápagos archipelago is renowned globally for its unique and fearless wildlife- much of which was inspiration for Charles Darwin's Theory of Natural Selection. The islands are therefore very popular amongst natural historians, both professional and amateur. Giant tortoises, sea lions, penguins, marine iguanas and different bird species can all be seen and approached. The landscape of the islands is relatively barren and volcanic, but beautiful nonetheless. The highest mountain amongst the islands is Volcán Wolf on Isla Isabela, 1707 m (5600ft) high.

During the 19th and early 20th centuries, the islands were inhabited by very few settlers and were used as a penal colony, the last closing in 1959 when the islands were declared a national park The Galapagos were subsequently listed as a World Heritage Site in 1978. Strict controls on tourist access are maintained in an effort to protect the natural habitats and all visitors must be accompanied by a national park-certified naturalist tour guide. Lot had been damaged by the time the islands were declare as heritage site due to excessive tourist traffic nevertheless there is still enough to be conserved and protected for the benefit of the generations to come. The real need for sustainable destination management is the need and for a great extent the Galapagos Tourism Board is strictly following the principles of sustainability. The very existence of the people of these islands are the marine resources hence it becomes vital for their survival.

Discussion Points

a. Sustainable Destination Management has now become necessity for many sensitive destinations in the world. Examine the state of the Galapagos.
b. Galapagos Islands exhibit the signs of recovery from dooming. Comment.
c. Write a note on the natural richness of these islands necessitating for tourism growth.
d. Discuss the role of the local governance in preserving this world heritage site.
e. Find similar destinations in other parts of the world and analyse the current status.

V.IV Check Your Progress

a. Short Answer Type Question

1. What do you mean by FTAs and FEEs?
2. How many foreign tourists were recorded in the year 2012?
3. What were total foreign receipts during 2012?
4. Name some of the major tourist attractions of Malaysia and Maldives.
5. Name some of the major tourist attractions of Sri Lanka and Switzerland.
6. Name some of the major tourist attractions of France and Italy.
7. List out the beach destinations from the cases studied in this unit.
8. Write a brief note the geography of Brazil.
9. Write a small note on tourism statistics of Papua New Guinea.

b. Long Answer Type Questions

1. Compare the product profile of Maldives and Papua New Guinea in detail.
2. Discuss about the reasons behind the success of China as a leading destination.
3. Appreciate tourism in Brazil.

4. Write in detail about the tourist attractions in France.
5. Discuss the importance of geographical nature of Maldives in its becoming a famous tourist destination.
6. Elaborate on the strengths of Madagascar and propose an action plan.
7. Why has tourism picked up in Sri Lanka in the recent years? Reason
8. out.
9. Criticise the role of government in tourism development of Malaysia.
10. List out the top five destinations of Switzerland and Italy and their uniqueness.
11. Write an essay on the regional disparities in tourism development through the case studies studied in this unit.
12. Design an action plan for Sri Lanka for future tourism development.
13. Discuss on the FEEs of France, Italy, Maldives and Hawaii from tourism.

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