

**IASBABA**



## [ WORLD PHYSICAL FEATURES AND RESOURCES- GS 1 ]

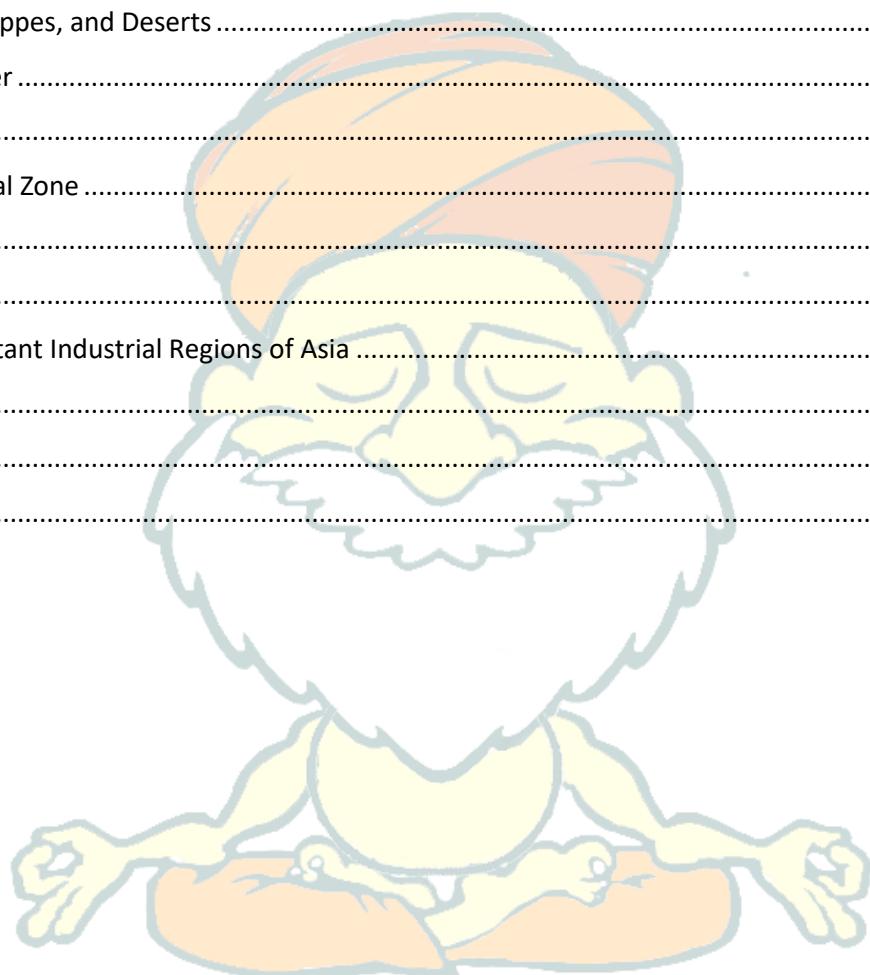
Integrated Learning Programme 2018 is a step towards ‘Enabling a person located at the most remote destination a chance at cracking AIR 1 in UPSC/IAS’

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In this module we are going to discuss about the important resources and their distribution across the World. We will also discuss about the important industrial regions of the World.

Now there can be two approaches for this, either we go systematically and discuss the distribution on one resource at a time like coal, aluminium etc. across the world or we can go through regional analysis and discuss one area and all the resources available there.

In this module, we will take the regional approach because UPSC is asking questions on regional basis. As in we will take one continent at a time and cover the resources and industries. We hope that you'll be able to identify all the locations and remember them.

**Let's revise some concepts which we have already covered in previous Value Add –**

**Resource:**

**"Anything that can be used to satisfy a need is a resource"(NCERT definition)**

A **resource** is a source or supply from which benefit is produced. Typically resources are materials, energy, services, staff, knowledge, or other assets that are transformed to produce benefit and in the process may be consumed or made unavailable. Benefits of resource utilization may include increased wealth, meeting needs or wants, proper functioning of a system, or enhanced well-being. From a human perspective a natural resource is anything obtained from the environment to satisfy human needs and wants.

**All resources have two things in common- Utility and Value**

**Utility:** Utility or Usability is what makes a substance a resource.

**Value:** Value refers to its worth. Some resources have tangible economic value like petrol, while others might not have an economic value, but they will still be resources, like a beautiful landscape, fresh air etc.

**An important point to be remembered is that, "Resources are not, they become."**

Utility of a substance or object depends upon the time and the technology available. Time and technology are two important factors that can change substances into resources. Both are related to the needs of the people. People themselves are the most important resource. It is their ideas, knowledge, inventions and discoveries that lead to the creation of more resources. Each discovery or invention leads to many others. The discovery of fire led to the practice of cooking and other processes while the invention of the wheel ultimately resulted in development of newer modes of transport. The technology to create hydroelectricity has turned energy in fast flowing water into an important resource.

We have covered the type of resources in detail in previous Value Add. In this Module our focus will be entirely on the locational distribution.

### Some Thumb Rules

It is a general notion that distribution of resources is very random and it is not possible to remember the location of so many resources. ‘Not possible’ would be too harsh to say but indeed it is very difficult to remember all of that.

Before we get into details there are some thumb rules which you can remember while answering a question. These are not exactly scientific rules but they will help you to write something even if you don’t know the exact answer.

#### **1) Taiga Region:**

This region lies over  $40^{\circ} - 45^{\circ}$  North and South latitudes. It covers countries like Russia (Siberia), Scandinavian countries (Norway, Sweden, Finland etc), Canada, USA (Alaska) and Countries of Southern hemisphere (parts of Australia, New Zealand, Argentina and Chile).

Even if you don’t remember anything you can mention that in this region large forest stretches are there of coniferous forests. Because there is just single dominant vegetation, they are easy to exploit.

Lumbering is the major economic activity.

These trees have soft wood so paper and pulp industry flourishes.

Paper and pulp industry needs chemicals. So, chemical industry is also dominant.

#### **2) Coastal Areas:**

One economic activity is common in all coastal areas – Fishing.

Because of fishing food processing and packaging industry is dominant. You will have to remember some dominant centers in every continent which we will cover later in the module.

Many oil and gas fields are also along the coastal areas on the continental shelf. You can mark them.

Some coastal cities are famous for ports and navigations like Rotterdam, Vladivostok, Glasgow etc.

**3) Metallic Resources:** Metallic minerals are generally found in the interior of the continent. Usually in the craton/shield area. Ex – Canadian Shield, Ural region, Siberia, Central China, Chota Nagpur plateau of India, Great Dividing range of Australia, Great lake region of US etc.

**4) Aluminium smelting:** Usually all the metal smelting plants are found near the raw material i.e. where ore is found. But Aluminium industry is found near the area where cheap electricity is there. Aluminium is extracted through electrolysis process. Hence a large cost of production is spent on electricity. So, it is usually found near hydroelectric plants or thermal power plants.

**5) Industrial Location:** According to a geographical theory, the location of an industry is largely influenced by the transportation cost of raw materials and finished product.

- If an industry is a **weight losing industry**, i.e. the net weight of product is less than the net weight of raw material, then the industry is **located near the raw materials**. Eg. Iron and steel industry, glass industry etc.
- If there is no loss or gain in the net weight of raw material and product, then the industry can be placed anywhere between raw material and market. Other factors become more important. Eg. Cotton, leather etc.
- If an industry is **weight gaining industry**, i.e. the net weight of final product increases, then the industry is **located near the market**. Eg. Automobile, heavy machinery etc.

Using the above rules you can explain the location of several industries. Even in GS, you need to write a few lines on the above rule of industrial location and explain.

**For example,** if location factor of Iron and Steel Industry is asked, You will have to write as it is a weight losing industry it will be located close to its raw materials i.e. Iron ore and coal.

**Equatorial Region:** Equatorial regions are moist. Equatorial forests have hard wood trees. But because of high diversity, it is not easy to exploit them. All the equatorial countries are famous for plantation crops of one kind or the other. eg. Malaysia/ Indonesia for natural rubber, Columbia for cocoa, Ethiopia for coffee etc.

**Let's get to business now and discuss one continent at a time.**



Physical map of North America

## North America

It is a continent entirely within the Northern Hemisphere and almost all within the Western Hemisphere. It can also be considered a northern subcontinent of the Americas.

- It is bordered to the north by the Arctic Ocean, to the east by the Atlantic Ocean, to the west and south by the Pacific Ocean, and to the southeast by South America and the Caribbean Sea.
- North America covers an area of about 24,709,000 square kilometers (9,540,000 square miles), about 16.5% of the earth's land area and about 4.8% of its total surface.
- North America is the third largest continent by area, following Asia and Africa, and the fourth by population after Asia, Africa, and Europe.

### Physical features of North America

North America can be divided into five physical regions:

- The mountainous west
- The Great Plains
- The Canadian Shield
- The varied eastern region
- The Caribbean.

Mexico and Central America's western coast are connected to the mountainous west, while its lowlands and coastal plains extend into the eastern region.

### Some Interesting Facts about North America:

#### Extreme points:

- **Most Westerly point** – Attu, Aleutian Islands
- **Most Easterly point** – Nordstrunden, North East Greenland
- **Most Northerly point** – Kap Morris Jesup, Northern Greenland
- **Most Southerly point** – Peninsula de Azuero, Panama
- **Highest Point** – Mt. McKinley (Denali), Alaska (6194m)
- **Lowest Point** – Death Valley, California (- 86 m, below sea level)
- **Lowest Recorded Temperature** – Northice, Greenland (-66°C)
- **Highest Recorded temperature** – Death Valley, California (57°C)

- Largest Lake – Lake Superior

## Resources:



## Agriculture:

From the freezing Arctic to the tropical jungles of Central America, North America enjoys more climate variation than any other continent. Almost every type of ecosystem is represented somewhere on the continent, from coral reefs in the Caribbean to the ice sheet in Greenland. These differences contribute to North America's variety of agricultural industries, which are often divided by climate zone:

- tropical zone,
- subtropical zone,
- cool temperate zone,
- dry zone.

**Tropical Zone –**

Farmers harvest oranges, sugar cane, coffee, cocoa, and bananas. These crops grow on coastal plains and humid mountain slopes. Cotton and hemp are cultivated in the warmer and drier intermediate climate zone. These crops are important exports for Central American countries.

**Sub – tropical Zone –**

Fruits, vegetables, cotton, and tobacco are predominant in the warm, subtropical zones of northern Mexico and the United States.

Important agricultural areas in this zone include the Rio Grande Valley (citrus fruits) in the U.S. state of Texas and Mexico, California's Central Valley (fruits and vegetables), the Gulf Coastal Plain (vegetables), and the sandy valleys of the Appalachians (cotton and tobacco).

These areas benefit from ample rain and warm air currents.

**Cool Temperate Zone –**

Important agricultural areas in this climate include the Finger Lakes region of New York in the U.S.; the Niagara Peninsula in the Canadian province of Ontario; the Columbia River basin in the U.S. state of Washington and the Canadian province of British Columbia; and the valleys of the Appalachians.

These areas benefit from excellent drainage and predictable, established frosts.

The Dairy Belt, Corn Belt, and Wheat Belt are three agricultural areas in the continents cool temperate zones.

- **Dairy animals**, including cows, goats, and sheep, feed on the hay and hardy small grains that thrive in New England and the Great Lakes-St. Lawrence region along the Atlantic coast. This is the Dairy Belt.
- **The Corn Belt**, located between the Ohio River and the lower Missouri River, receives ample water and strong summer sun, ideal for corn and soybeans.
- **West of the Corn Belt**, the **Wheat Belt** stretches from the U.S. state of Kansas through the Canadian Prairie Provinces of Alberta, Saskatchewan, and Manitoba. This vast area of the Great Plains allows wheat to be cultivated in both winter and spring.

**Dry Zone –**

Dry zones, common in the southwestern U.S. and northern Mexico, are ideally suited for livestock ranching.

Ranches with thousands of cattle are common in this region. Traditionally, livestock fed on locally grown fodder such as prairie grasses. However, irrigation for fruit and cotton farming has drained water supplies in the region.

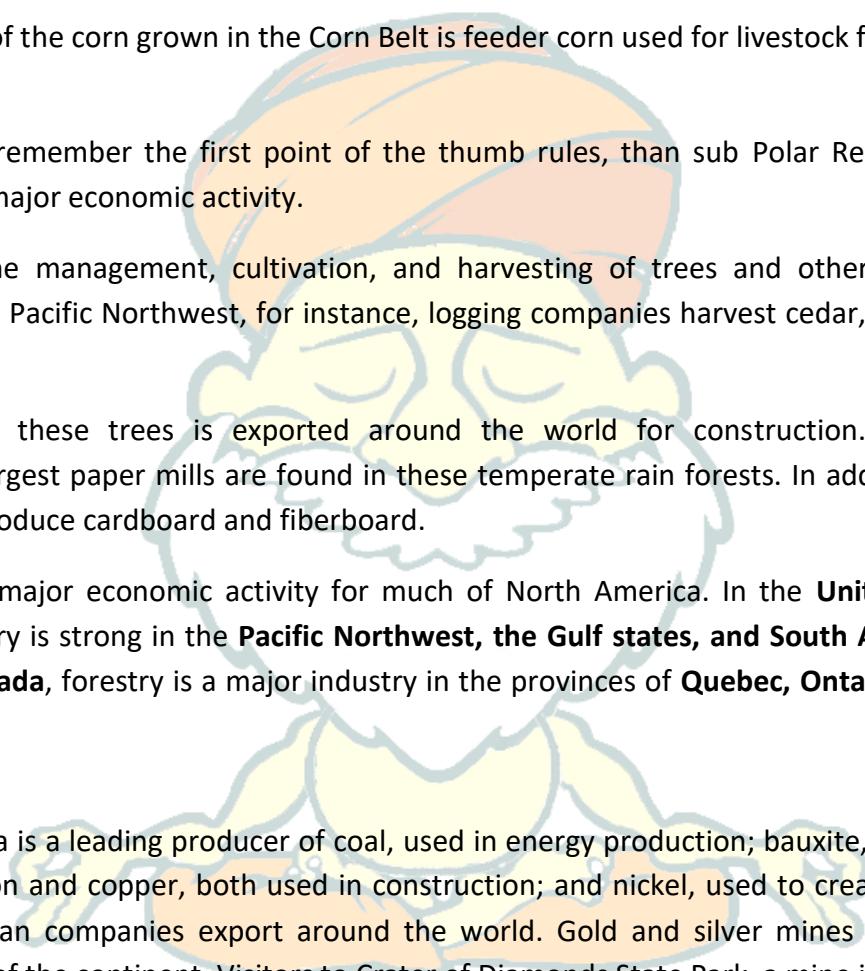
Native grasses cannot nourish the huge herds of livestock kept by ranchers. Cattle, sheep, hogs, and other livestock are less likely to graze than to eat corn-based feed.

In fact, most of the corn grown in the Corn Belt is feeder corn used for livestock feed.

### **Forestry:**

**Note:** If you remember the first point of the thumb rules, then sub Polar Regions will have forestry as a major economic activity.

Forestry is the management, cultivation, and harvesting of trees and other vegetation in forests. In the Pacific Northwest, for instance, logging companies harvest cedar, fir, and spruce trees.



Lumber from these trees is exported around the world for construction. Some of the continent's largest paper mills are found in these temperate rain forests. In addition to paper, paper mills produce cardboard and fiberboard.

Forestry is a major economic activity for much of North America. In the **United States**, the timber industry is strong in the **Pacific Northwest, the Gulf states, and South Atlantic coastal plains**. In **Canada**, forestry is a major industry in the provinces of **Quebec, Ontario, and British Columbia**.

### **Mining**

North America is a leading producer of coal, used in energy production; bauxite, used to create aluminum; iron and copper, both used in construction; and nickel, used to create steel, which North American companies export around the world. Gold and silver mines operate in the western part of the continent. Visitors to Crater of Diamonds State Park, a mine in the U.S. state of Arkansas, can search for their own diamonds.

#### **Coal**

Coal remains a primary industry for the U.S., and is often linked with states near the Appalachians.

Coal can be mined underground or in large, open pits. Around 20% of the World's Coal is mined in Pennsylvania, USA.

## Metallic minerals

- USA is the eighth largest producers of iron ore (China- 1st). Iron ore and coal are essential raw materials for Iron and steel industry, which is known to be the backbone of the economy.
- Large deposits of iron ore are found in the areas around Lake Superior and Eastern part of the Canadian shield. Iron is also found in the southern Appalachians.
- USA is one of the largest producers of the copper in the world. It is mined extensively around the great lakes and the Rocky Mountains. (Chile- 1<sup>st</sup>)
- Mexico is the world's largest producer of silver. Large deposits of silver are found in USA and Canada too. It is a byproduct of Zinc industry as well. Chihuahua is the largest Silver mine of the World. It is in Mexico.
- Canada and US produces substantial amount of Gold which is mined in the Rocky mountains. California and Alaska saw the Gold rush in early 1900s.
- Canada produces about 90% of the world's Nickel.
- Canada is also the largest producer of Asbestos, Zinc and platinum and the second largest producer of cobalt, Uranium and radium.
- USA (among top 10) is also one of the world's largest producers of Uranium. Kazakhstan is the world's leading producer of Uranium.

## Drilling

North America is home to vast deposits of oil and natural gas, which are drilled for energy and fuel. Oil and gas extraction are key elements of North America's economy. The United States, Canada, and Mexico are among the world's top oil producers.

The **Athabasca tar sands**, in the Canadian province of **Alberta**, are the **world's largest reservoir of heavy crude oil**. More than 20 national and international extraction projects are established in the Athabasca tar sands.

Large reserves of Petroleum are found in North America in a great arc from Alaska to Texas in USA. USA is the third largest producer of petroleum in the world.

**Mexico** leads other North American countries as one of the top oil exporters in the world, largely because of its reserves in and around **the Gulf**. (Although both the United States and Canada produce more oil than Mexico, they also consume far more. Both countries are mostly importers, not exporters, of oil and natural gas.)

**Note:** Try to locate these resources on the map of North America.

## Important Industrial Centers of North America:

### United States of America:



A very simplified map of USA to show the important cities

#### West Coast Important Cities –

- **Seattle** – world's largest aircraft assembly center. Lumbering, fish canning, aluminium smelting electrical engineering are important industries.
- **San Francisco** – known as 'The City of Golden Gate'. Famous for oil refining and ship building.
- **Los Angeles** – known for its film industry – Hollywood.

#### Great Lake Region:

- Famous for heavy industries and iron and steel.
- Important cities – Chicago, Pittsburgh, Cleveland, Toledo, Detroit etc.
- **Detroit** – greatest automobile region of USA

- **Akron** – world's largest synthetic rubber and tyre making center.
- **Pittsburg** – highest production of Iron and steel

**Texas –**

**Houston** – Oil refinery, ship building, chemical and machinery are important industries located here.

### **Canada**

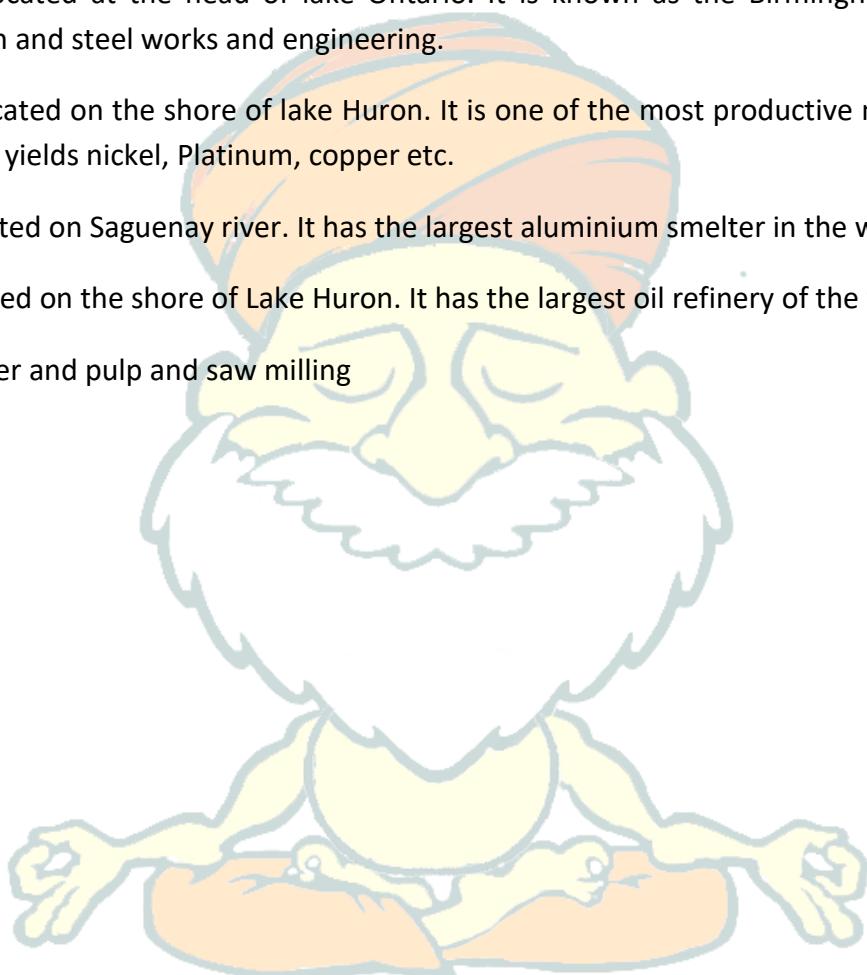
**Hamilton** – located at the head of lake Ontario. It is known as the Birmingham of Canada. Center for iron and steel works and engineering.

**Sudbury** – Located on the shore of lake Huron. It is one of the most productive mining areas of Canada which yields nickel, Platinum, copper etc.

**Arvida** – Situated on Saguenay river. It has the largest aluminium smelter in the world.

**Sarnia** – Located on the shore of Lake Huron. It has the largest oil refinery of the world.

**Ottawa** – Paper and pulp and saw milling



# **South America**

## **Physical Map of South America**



## Some interesting Facts about South America

### Most Extreme points

- **Most Northerly Point** – Punta Gallinas, Colombia
- **Most Southerly Point** – Cape Horn, Chile
- **Most Westerly point** – Galapagos Islands, Ecuador
- **Most Easterly point** – Cabo Branco, Brazil
- **Largest Lake** – Lake Titicaca, Bolivia/ Peru
- **Highest Point** – Cerro Aconcagua, Argentina
- **Lowest Point** – Peninsula Veldas, Argentina (40m below sea level.)
- **Highest recorded temperature** – Rivadavia, Argentina (49°C)
- **Lowest Recorded temperature** – Sarmiento, Argentina (- 33°C)

## Physical Features of South America

South America, the fourth-largest continent, extends from the Gulf of Darién in the northwest to the archipelago of Tierra del Fuego in the south.

South America is a continent of extremes. It is home to the world's largest river (the Amazon) as well as the world's driest place (the Atacama Desert).

South America can be divided into three physical regions:

- Mountains and highlands,
- River basins,
- Coastal plains.

Mountains and coastal plains generally run in a north-south direction, while highlands and river basins generally run in an east-west direction.

### Mountains and Highlands –

South America's primary mountain system, the Andes, is also the world's longest. The range covers about 8,850 kilometers (5,500 miles). Situated on the far western edge of the continent, the Andes stretch from the southern tip to the northernmost coast of South America. There are hundreds of peaks more than 4,500 meters (15,000 feet) tall, many of which are volcanic.

**River Basins –**

South America has three important river basins: the Amazon, Orinoco, and Paraguay/Paraná.

The Amazon River basin has an area of almost 7 million square kilometers (2.7 million square miles), making it the largest watershed in the world. The basin, which covers most of northern South America, is fed by tributaries from the glaciers of the Andes.

The Orinoco River flows north of the Amazon. The Orinoco flows in a giant arc for more than 2,736 kilometers (1,700 miles), originating in the Guiana Highlands of northern Brazil and discharging in the Atlantic Ocean in Venezuela.

The Paraguay/Paraná River basin covers almost 2.8 million square kilometers (1,081,000 square miles), which is much of southeastern Brazil and Bolivia, Paraguay, and northern Argentina.

**Coastal Plains –**

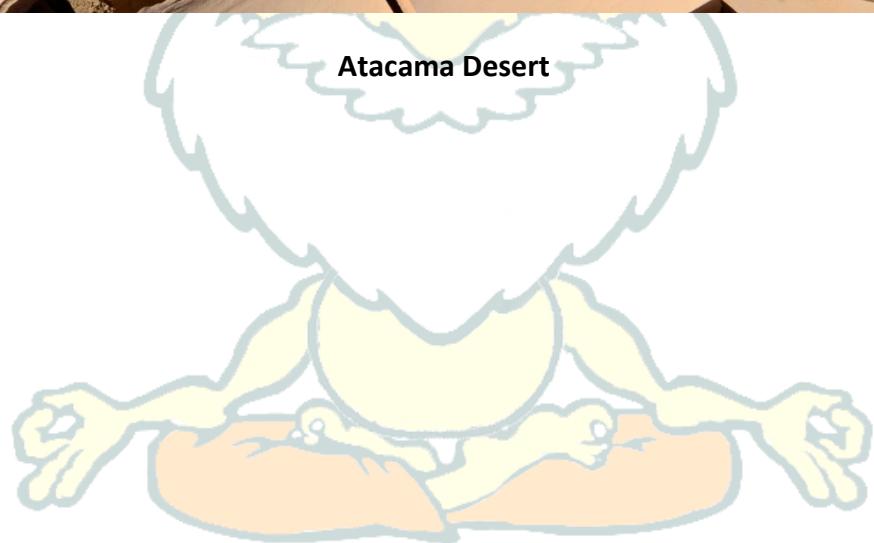
A coastal plain is an area of low, flat land next to a seacoast. South American coastal plains are found on the northeastern coast of Brazil, on the Atlantic Ocean, and the western, Pacific coast of Peru and Chile. The coastal plains of northeastern Brazil are extremely dry. The Brazilian Highlands act as a wedge that pushes moist sea winds away from the coastal plains.

The western coastal plains are also extremely dry. They are trapped between the cold Peru Current to the west and the Andes Mountains to the east. The Peru Current brings cold water to the Pacific coast of Peru and Chile. This cold surface water results in thermal inversion: cold air at sea level and stable, warmer air higher up. Thermal inversion produces a thick layer of clouds at low altitudes. These low-lying clouds blanket much of the Pacific coast of South America. They do not allow precipitation to form.

The Atacama Desert is part of the western coastal plain. The **Atacama** is considered the **driest region** in the world. The average rainfall is about 1 millimeter (0.04 inches) a year, and **some parts of the Atacama have never had rain in recorded history.**



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## Resources of South America



### Agriculture:

South America extends from a broad equatorial zone in the north to a narrow sub-Arctic zone in the south. It can be divided into four climatic regions: **tropical, temperate, arid, and cold**.

#### Tropical Climate –

Tropical climates—which include both tropical rainy and tropical wet and dry climates—cover more than half of the continent.

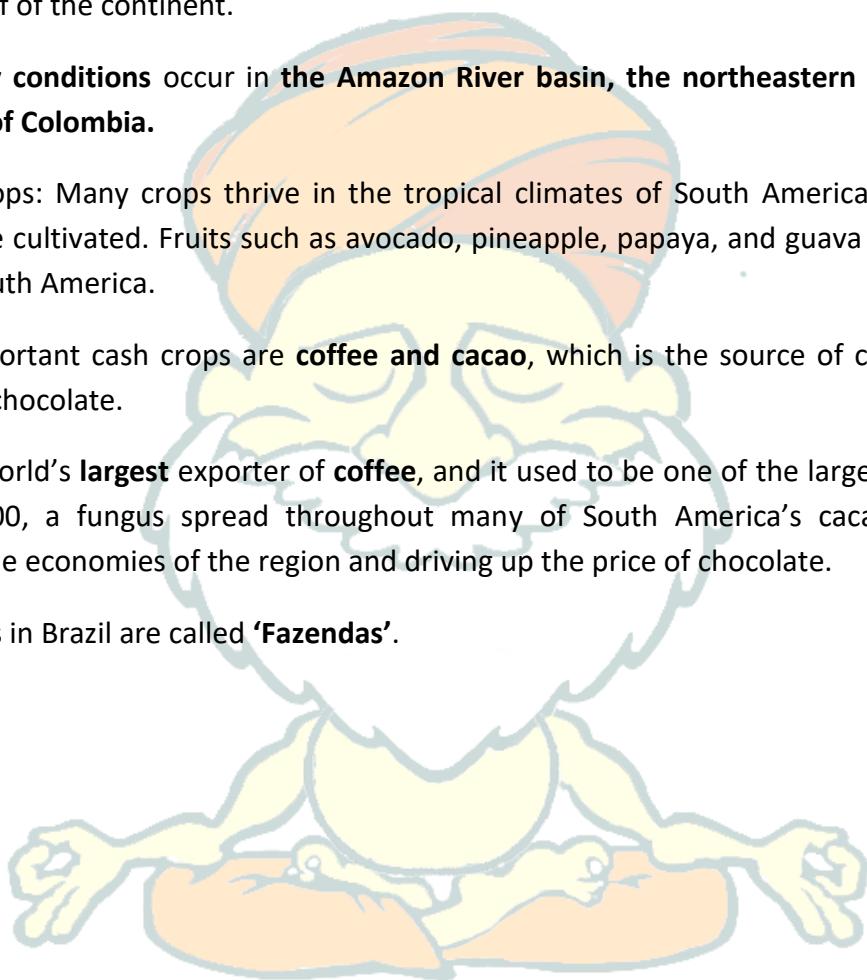
**Tropical rainy conditions** occur in **the Amazon River basin, the northeastern coast, and the Pacific coast of Colombia**.

**Important Crops:** Many crops thrive in the tropical climates of South America. Cashews and Brazil nuts are cultivated. Fruits such as avocado, pineapple, papaya, and guava are also native to tropical South America.

Two very important cash crops are **coffee and cacao**, which is the source of cocoa, the base ingredient in chocolate.

Brazil is the world's **largest** exporter of **coffee**, and it used to be one of the largest exporters of cacao. In 2000, a fungus spread throughout many of South America's cacao plantations, devastating the economies of the region and driving up the price of chocolate.

Coffee estates in Brazil are called '**Fazendas**'.





### Coffee Fazendas of Brazil

**Rubber plantation** is done in Equatorial rainforests of Amazon. Manaus in Brazil is the rubber collection center of Brazil. This is also the most inland port of the world.

#### Temperate Climate:

South America's temperate climates are home to a number of industrial crops and livestock. **Corn** is produced throughout the temperate climates, and soybeans have become an increasingly lucrative crop in the **Pampas**. Mixed farming is practices on large scale.

The Pampas' vast, high-quality pastures are also the center of South America's huge ranching industry. **Brazil** is the world's **third-largest beef exporter**. Argentina is also an important beef exporter.

Pampas of Argentina are good for growth of wheat. Argentina has a wheat crescent – Rosario, Bahia Blanca and Buenos Aires. Rosario and Buenos Aires have well developed slaughter houses called '**Frigorificos**'.

**Arid Climate:**

Arid climates are found in deserts, coastal areas, and interior regions throughout South America. Some of these climates are extremely cold, while others are extremely hot—but they all receive very little precipitation. This makes agricultural production difficult.

However, heavily irrigated crops, such as **rice and cotton**, are grown in desert oases.

**Cold Climate:**

Cold climates occur in the southern ends of Argentina and Chile and the highest elevations of the Andes.

They are home to thousands of native **potato** species and the native **quinoa** plant—a grain-like crop grown for its edible seeds. Potatoes and quinoa are starchy food staples of the Andean diet.



**Quinoa Plant**

In addition to potatoes and quinoa, **grazing animals such as sheep, llamas, alpacas, and vicuñas** also thrive in cold climates. These animals are bred for their meat and wool, which is used in high-quality textiles exported throughout the world.

### Forestry:

Major activity of Tropical South America, especially **Amazon Forests**.

Many high-value tree species, such as **mahogany and rosewood**, are native to the rain forest. Lumber from these trees is exported to foreign markets for use in cabinets and floors.

Some countries have tree plantations. Chile, for example, is an important exporter of wood chips, plywood, and paper pulp.

Lower-grade woods are important to the construction market in South America. The most familiar of these less-expensive woods is **eucalyptus**. Eucalyptus is not native to South America, but it grows at an incredibly quick rate. Eucalyptus is used as both a building material and as fuel in low-income communities throughout South America.

### Fishing:

Marine fisheries are the most important economic activity along **South America's Pacific coast**.

The **cold Peru Current** brings nutrient-rich waters to the coast, creating a fishery with everything from whales to shrimp.

Peru and Chile's abundant anchovy catches are processed into fishmeal, an ingredient used in animal feed and fertilizer.

Chile is a global leader in farm-raised salmon and trout, while Ecuador is an important shrimp exporter.

### Mining:

- The continent contains about one-fifth of the world's iron ore reserves. Minas Gerais is known as the iron Heart Brazil.
- More than one-quarter of the world's known copper reserves are in South America, mostly in Peru and Chile. Copper accounts for nearly one-third of the exports of **Chile, the world's largest copper exporter**. **Chuquicamata** mine is the largest copper mine of the World. It is located in Northern Chile.
- Brazil, Peru, and Bolivia are major producers of **tin**.
- **Lead and zinc** deposits are found primarily in higher elevations of Peru, Bolivia, southern Brazil, and northern Argentina.
- Peru is known for its **phosphate** mining. The main source of it is '**bird droppings**' or **Guano**.

**Drilling:**

- South America is home to some deposits of oil and natural gas, which are drilled for energy and fuel. Oil and gas extraction is the dominant industry of Venezuela, with major deposits found around Lake Maracaibo and the El Tigre region.
- The oil sector accounts for about one-third of Venezuela's total gross domestic product (GDP).

**NOTE: Locate the above locations on a physical map of South America.**



## Europe

### Physical map of Europe

# Europe's Physical Geography



Europe is the **second-smallest** continent. Only Oceania has less landmass. Europe extends from the island nation of Iceland in the west to the Ural Mountains of Russia in the east. Europe's northernmost point is the Svalbard archipelago of Norway, and it reaches as far south as the islands of Greece and Malta.

Europe is sometimes described as a **peninsula of peninsulas**. A peninsula is a piece of land surrounded by water on three sides. Europe is a peninsula of the Eurasian supercontinent and is bordered by the Arctic Ocean to the north, the Atlantic Ocean to the west, and the Mediterranean, Black, and Caspian Seas to the south.

Europe's main peninsulas are the **Iberian, Italian, and Balkan**, located in southern Europe, and the Scandinavian and Jutland, located in northern Europe.

### Some interesting facts:

#### Extreme point

- **Most Northerly Point:** Ostrov Rudol'fa, Russian Federation
- **Most Southerly Point:** Gavdos, Greece
- **Most Westerly Point:** Bjargtangar, Iceland
- **Most Easterly Point:** Novaya Zemlya, Russian Federation
- **Highest Point:** El'brus, Russian Federation
- **Lowest Point:** Caspian Depression, Russian Federation (28m below sea level)
- **Highest Recorded temperature:** Seville, Spain 50°C
- **Lowest Recorded temperature:** Ust'Schugor, Russian Federation -55°C

### Physiography of Europe:

Europe can be divided into four major physical regions, running from north to south:

- Western Uplands
- North European Plain
- Central Uplands
- Alpine Mountains

### **Western Uplands –**

The Western Uplands, also known as the Northern Highlands, curve up the western edge of Europe and define the physical landscape of Scandinavia (Norway, Sweden, and Denmark), Finland, Iceland, Scotland, and Ireland, the Brittany region of France, Spain, and Portugal.

Most of the landforms are carved here by glaciations.

### **North European Plain**

The North European Plain extends from the southern United Kingdom east to Russia. It includes parts of France, Belgium, the Netherlands, Germany, Denmark, Poland, the Baltic states (Estonia, Latvia, and Lithuania), and Belarus.

Most of the Great European Plain lies below 152 meters (500 feet) in elevation. It is home to many navigable rivers, including the Rhine, Weser, Elbe, Oder, and Vistula. The climate supports a wide variety of seasonal crops. These physical features allowed for early communication, travel, and agricultural development. The North European Plain remains the most densely populated region of Europe.

### **Alpine Mountains**

The Alpine Mountains include ranges in the Italian and Balkan peninsulas, northern Spain, and southern France. The region includes the mountains of the Alps, Pyrenees, Apennines, Dinaric Alps, Balkans, and Carpathians.

## **Resources of Europe**

### **Agriculture:**

Europe's climate falls under two categories: **marine west coast and Mediterranean**. Each of these climates supports a variety of agricultural products.

### **Marine West Coast –**

- The marine west coast climate covers much of northwestern Europe except for Scandinavia and the mountainous regions of Eastern Germany, Poland, and Switzerland.
- Principal crops include **wheat, rapeseed, and potatoes**.
- Livestock, such as sheep and cattle, are an import source of **meat, dairy, and wool products**. Some of the **world's finest cheeses** come from this climatic region.

### Mediterranean Climate –



- The Mediterranean climate covers the majority of Southern Europe, including Spain, Portugal, southern France, southern Italy, and Greece.
- Hot, nearly rainless summers and mild, rainy winters characterize this climate.
- **Olives and grapes** are two important crops that have thrived in this climate for more than a thousand years. **Spain, Italy, and Greece** are the **top three producers of olives** in the world. **France, Italy, and Spain** are the **top three world producers of grapes used for wine**.

### Forestry:

- Europe's most important forest industries are woodworking, paper products, and construction and furniture products.
- The continent is a prominent exporter of value-added forest products, which are finished goods made from raw materials.
- Europe's value-added forest products include quality papers, furniture, and wood-based panels.
- Europe also has a thriving non-wood forestry sector, which includes mushroom and truffle gathering, fruit and berry collection, and cultivation of medicinal plants, honey, and cork.
- Europe accounts for 80 percent of total cork production worldwide.



Cork Tree

### Fishing:

- Europe represents roughly 5 percent of global fisheries and aquaculture production.
- Wild catches are taken primarily in the eastern Atlantic and the Mediterranean. Important catches include Atlantic herring, sprat, blue whiting, and Atlantic mackerel.
- Leading fishing countries are Spain, Denmark, the United Kingdom, and France. Together, these nations account for about half of all of Europe's fish catches.
- Aquaculture is also a major activity in Europe. Aquaculture is the farming of freshwater and marine species in controlled environments.
- Aquaculture represents roughly 20 percent of Europe's fishery production.
- Important aquaculture species are Mediterranean mussel, rainbow trout, Atlantic salmon, and European sea bass.

### Mining:

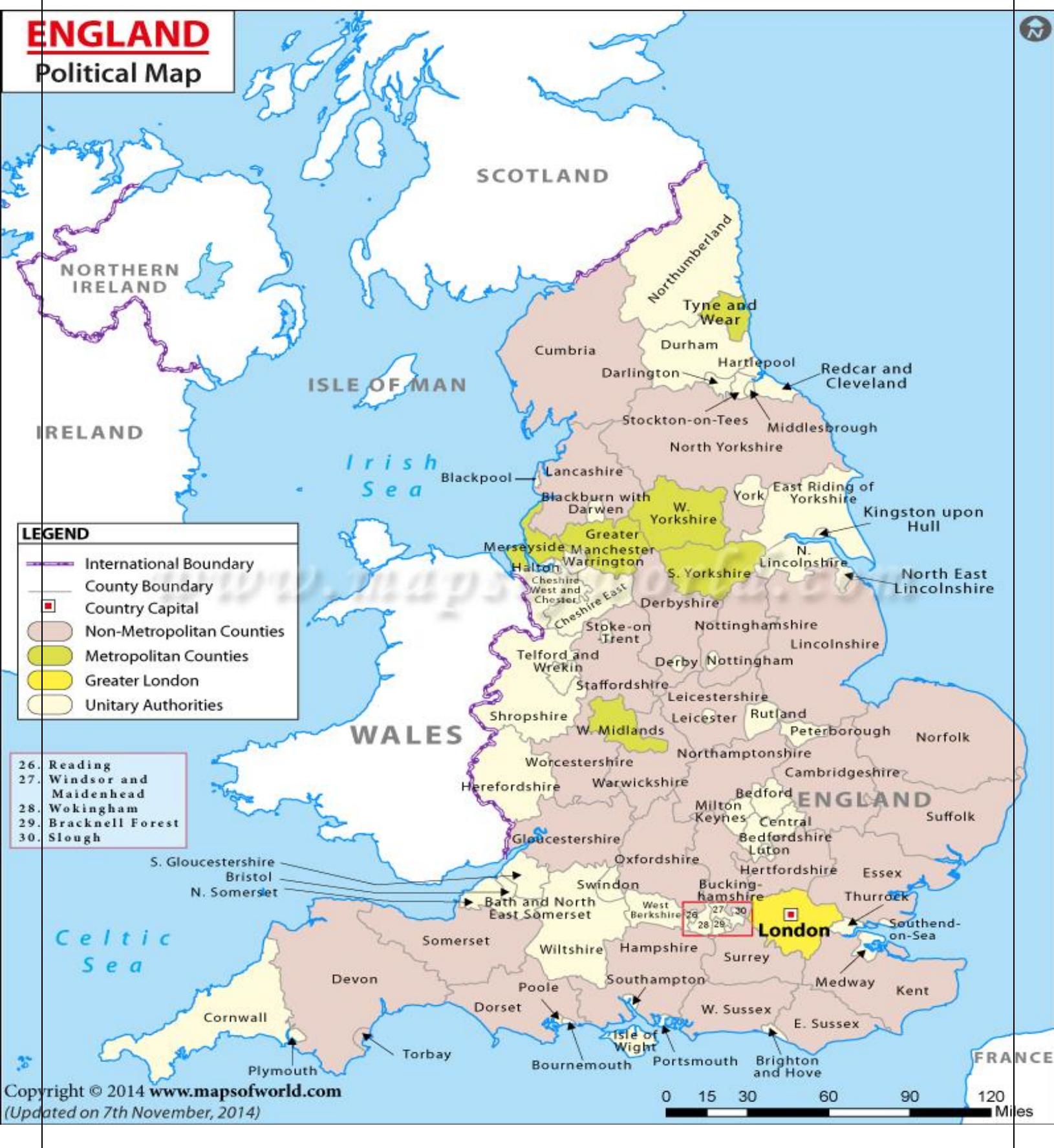
- While Europe is home to some of the world's largest mining companies, it is not a major producer of metals.
- Certain countries, however, are major producers of particular metals, such as chromium in Turkey, titanium in Norway, and silver in Poland.

- The continent's top five metals in terms of percentage of total world production are: **chromium (10.7 percent)**, used in stainless steel, dyes, and pigments; **silver (8.5 percent)**; **zinc (7.7 percent)**, used as an anti-corrosion agent; **lead (7.5 percent)**; and **titanium (7.1 percent)**, used in aircraft, armor plating, naval ships, and spacecraft.
- Many of the principle ores like Iron ore, Aluminum are found in small pockets. For example good quality iron ore and coal is found in Ruhr Valley Germany.
- Most of the heavy industries in Europe are import driven.
- Europe also produces a number of minerals used in industrial applications.
- The European Union, a group of 27 countries, is either the largest or second-largest world producer of feldspar, used in the production of ceramics and for archaeological dating processes; kaolin, used in ceramics, medicine, toothpaste, and cosmetics; magnesite, used in steelmaking and rubber production; perlite, used in plasters, insulation, and ceiling tiles; and salt.

### Drilling:

- Europe has limited deposits of oil and natural gas, which are drilled for energy and fuel.
- **Russia** has some of the **largest oil deposits** on the planet, although most of them are in the remote Asian part of the country. Russia is also **the world's largest exporter of natural gas**.
- **Norway** has significant oil deposits, and is the **world's second-largest exporter of natural gas**.
- The Netherlands and the United Kingdom are Europe's other major producers of natural gas. The United Kingdom's offshore facilities in the North Sea are Europe's second-largest producer of oil.
- Offshore exploration and drilling are expected to increase as onshore reserves become depleted and technological advancements make offshore practices easier.

## Important Industrial Centers of Europe:



## United Kingdom

This was the first country to get industrialized.

UK has three important rivers and industries flourished on the banks of these rivers. They are Thames, Trent and Clyde.

### Thames:

- Important cities of this region are London, Oxford, Birmingham, Coventry and Luton.
- Birmingham was World capital of Steel before Pittsburg took its place.
- Coventry, Oxford and Luton are famous for automobile industry. The first car was manufactured at Coventry.

### Trent River:

Important cities are Manchester, Nottingham, Sheffield and Derby.

- Manchester and Liverpool are important textile centers.
- Sheffield is World capital of Cutlery
- Swansea and Cardiff are famous for Chemical Industries.

### Clyde River:

- Important cities are Glasgow, Hamilton and Paisley.
- Glasgow is the world capital of Shipyards.

## France:

- **Paris** – known for its cosmetics and toiletries. It is country's leading center for engineering industries and secondary metal manufacturing.
- **Nantes** – main paper manufacturing center of France
- **Dunkirk** – Iron and steel manufacturing center of France.
- **Toulouse** – Aircraft assembly center. Known for airbus industries.

## Italy:

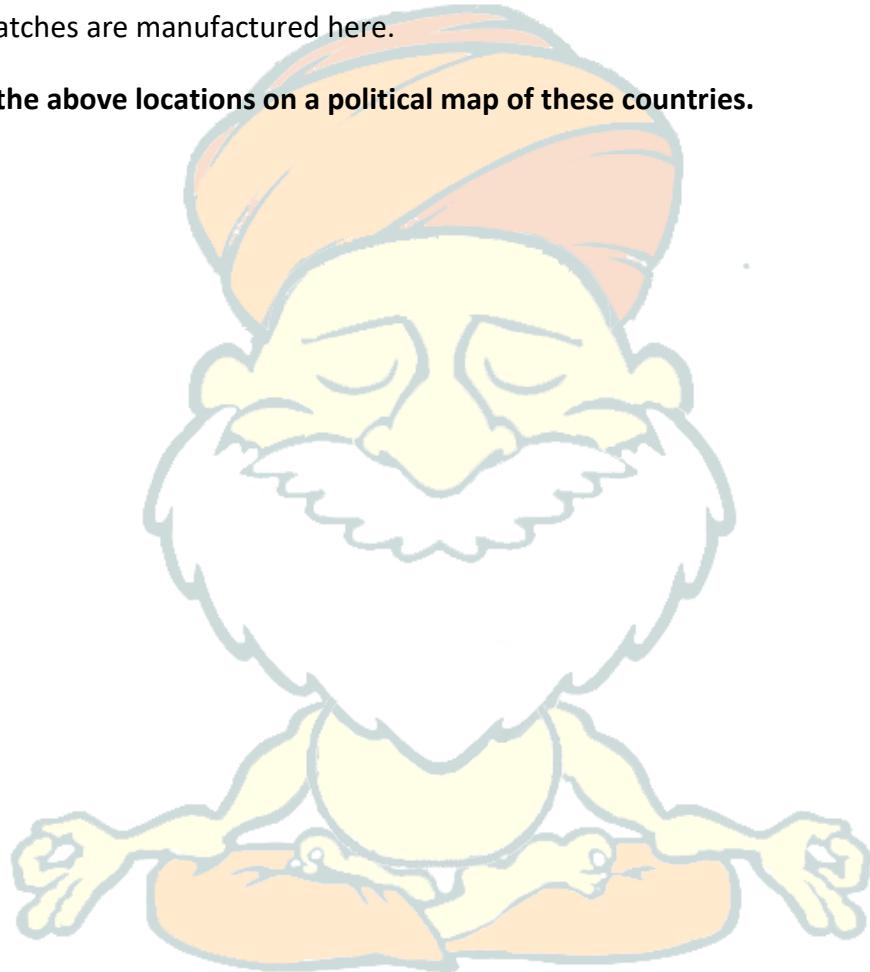
Lombardy plains: largest industrial plain consisting of Milan, Turin, Genoa and Venice.

- **Milan** – is known as Manchester of Italy. It is famous for its textile industries especially silk.
- **Turin** – Detroit of Italy. Famous for automobiles, aircrafts and rail coaches.
- **Naples** – Wine making and Petrochemicals

**Germany:**

- **Essen** – situated in Ruhr Valley coal fields. Big iron and steel plants are located here.
- **Frankfurt** – situated on the Rhine River. It is a very important inland port. Most of the sea going vessels passes through Frankfurt.
- **Cologne** – famous for cars, perfumes and chemicals.
- **Munich** – Famous for Beer, musical instruments and photographic equipment.
- **Stuttgart** – famous for Benz cars. Automobile industry, optical and surgical equipment and watches are manufactured here.

**Note:** Locate the above locations on a political map of these countries.



**Africa**

# Physical features of Africa

**Atlas Mountains****Horn of Africa****Great Rift Valley****Kalahari Desert****Namib Desert**

Africa, the second-largest continent, is bounded by the Mediterranean Sea, the Red Sea, the Indian Ocean, and the Atlantic Ocean. It is divided in half almost equally by the Equator.

### Some interesting Facts about Africa:

#### Extreme Points:

- **Most Northerly point:** Jalta, Tunisia
- **Most Southerly point:** Cape Agulhas, South Africa
- **Most Westerly point:** Santo Antao, Cape Verde
- **Most Easterly point:** Raas Xaafun, Somalia
- **Highest Point:** Mt Kilimanjaro, Tanzania
- **Lowest Point:** Lake Assal, Djibouti (156m below sea level)
- **Highest recorded temperature:** Al Aziziyah, Libya (58°C)
- **Lowest Recorded temperature:** Ifrane, Morocco, (-24°C)
- **Largest Lake:** lake Victoria (Uganda, Kenya, Tanzania)

### Physiography of Africa:

Africa has eight major physical regions:

- The Sahara,
- The Sahel,
- The Ethiopian Highlands,
- The savanna,
- The Swahili Coast,
- The rain forest,
- The African Great Lakes,
- Southern Africa



## Sahara



The Sahara is the world's largest hot desert, covering 8.5 million square kilometers (3.3 million square miles), about the size of the South American country of Brazil. Defining Africa's northern bulge, the Sahara makes up 25 percent of the continent.

The Sahara has a number of distinct physical features, including ergs, regs, hamadas, and oases.

About 75 percent of the Sahara's population lives in oases, which make up only 2,071 square kilometers (800 square miles) of the deserts vast area.

## Sahel

The Sahel is a narrow band of semi-arid land that forms a transition zone between the Sahara to the north and the savannas to the south. It is made up of flat, barren plains that stretch roughly 5,400 kilometers (3,300 miles) across Africa, from Senegal to Sudan.

The Sahel contains the fertile delta of the Niger, one of Africa's longest rivers. Unfortunately, the Sahel's fertile land is rapidly becoming desert as a result of drought, deforestation, and intensive agriculture. This process is known as desertification.

## Ethiopian Highlands

The Ethiopian Highlands began to rise 75 million years ago, as magma from Earth's mantle uplifted a broad dome of ancient rock. This dome was later split as Africa's continental crust pulled apart, creating the Great Rift Valley system. Today, this valley cuts through the Ethiopian Highlands from the southwest to the northeast.

The Ethiopian Highlands are home to 80 percent of Africa's tallest mountains.

## Savanna

Savannas, or grasslands, cover almost half of Africa, more than 13 million square kilometers (5 million square miles). These grasslands make up most of central Africa, beginning south of the Sahara and the Sahel and ending north of the continents southern tip.

Among Africa's many savanna regions, the Serengeti (or Serengeti Plains) is the most well-known. The Serengeti is a vast, undulating plain that stretches 30,000 square kilometers (11,583 square miles) from Kenya's Massai-Mara game reserve to Tanzania's Serengeti National Park.

## Swahili Coast

The Swahili Coast stretches about 1,610 kilometers (1,000 miles) along the Indian Ocean, from Somalia to Mozambique. The nearby coral reefs and barrier islands protect the coast from severe weather.

## Rain Forest

Most of Africa's native rain forest has been destroyed by development, agriculture, and forestry. Today, 80 percent of Africa's rain forest is concentrated in central Africa, along the Congo River basin.

Africa's rain forests have a rich variety of animal life; a 6-kilometer (4-mile) patch could contain up to 400 bird species, 150 butterfly species, and 60 species of amphibians.

## African Great Lakes

The Great Lakes are located in nine countries that surround the Great Rift Valley. As the African continent separated from Saudi Arabia, large, deep cracks were created in the Earth's surface. These cracks were later filled with water. This geologic process created some of the largest and deepest lakes in the world.

There are seven major African Great Lakes: Lake Albert, Lake Edward, Lake Kivu, Lake Malawi, Lake Tanganyika, Lake Turkana, and Lake Victoria. Lake Victoria, the largest lake in Africa, is the southern source of the Nile River, the longest river in the world.

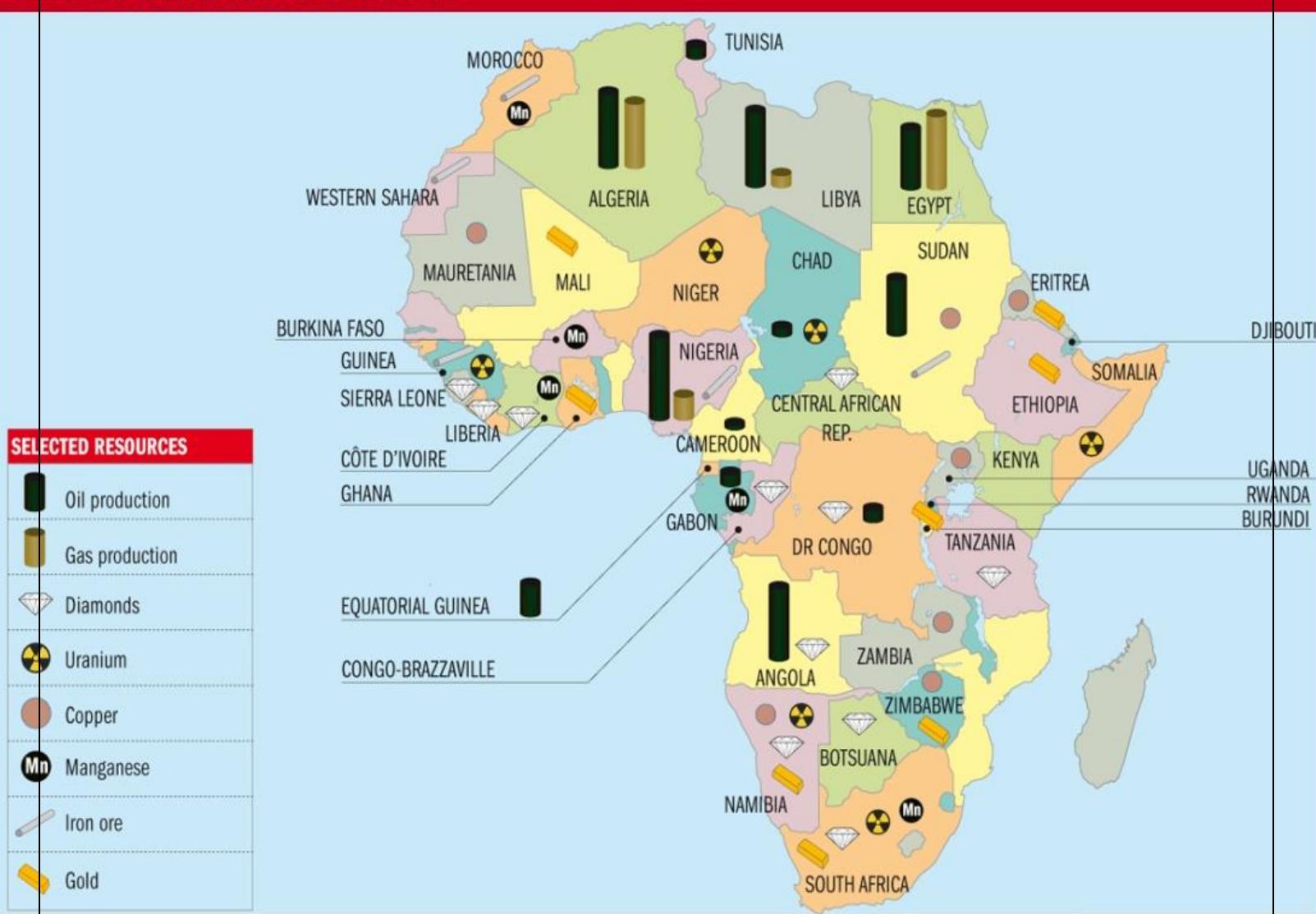
## Southern Africa

The region of Southern Africa is dominated by the Kaapvaal craton, a shelf of bedrock that is more than 2.6 billion years old. Rocky features of Southern Africa include plateaus and mountains, such as the Drakensberg range.

Southern Africa's Cape Floral Region is one of the richest areas for plants in the world. While the Cape Floral Region covers less than 0.5 percent of Africa, it is home to nearly 20 percent of the continents flora.

## Resources

### Africa: Natural resources



## Agriculture:

Climatic factors greatly influence Africa's agriculture, which is considered the continent's single most important economic activity. Agriculture employs two-thirds of the continent's working population and contributes 20 to 60 percent of every country's gross domestic product (GDP).

Important climatic regions of agriculture include

- Tropical wet
- Savanna
- Desert
- Mediterranean
- Highland

### Tropical Wet:

Tropical wet conditions occur along the Equator, the Gulf of Guinea, and the east Madagascar coast.

Important crops to Africa's tropical wet regions include the plantain, pineapple, coffee, cocoa, and oil palms. (Oil from this palm tree is the primary cooking oil in Africa, as familiar as olive oil or corn oil in North America.)

### Savanna:

Savanna conditions occur in much of eastern and southern Africa.

The dry season in the savanna can last as long as six months. Important savanna crops include the cassava (related to the potato), peanuts, peppers, okra, eggplant, cucumber, and watermelon. Africa's most important grain crops, millet and sorghum, are grown here.

### Desert:

Desert conditions occur in northern Africa, especially in the Sahara and the Sahel.

Annual precipitation never exceeds 25 centimeters (10 inches), and some areas go without rain for years. Important desert crops include date palms and cotton.

### **Mediterranean Climate:**

Mediterranean climate conditions occur along the extreme northern and southern coasts of Africa. These regions have mild temperatures, dry summers, and moderately rainy winters.

Important crops include figs, olives, oranges, tomatoes, onions, and large vegetables, such as cabbage and cauliflower.

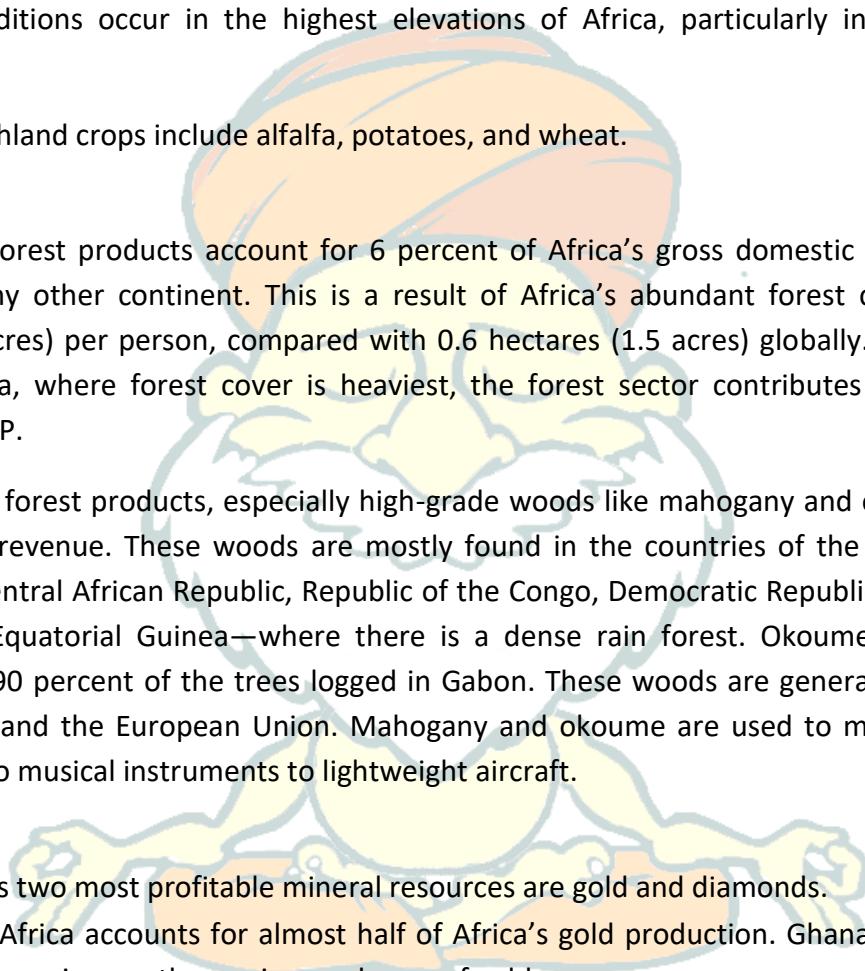
### **Highlands:**

Highland conditions occur in the highest elevations of Africa, particularly in the Ethiopian Highlands.

Important highland crops include alfalfa, potatoes, and wheat.

### **Forestry**

On average, forest products account for 6 percent of Africa's gross domestic product (GDP), more than any other continent. This is a result of Africa's abundant forest cover, with 0.8 hectares (2 acres) per person, compared with 0.6 hectares (1.5 acres) globally. In central and western Africa, where forest cover is heaviest, the forest sector contributes more than 60 percent of GDP.



The export of forest products, especially high-grade woods like mahogany and okoume, brings in significant revenue. These woods are mostly found in the countries of the Congo Basin—Cameroon, Central African Republic, Republic of the Congo, Democratic Republic of the Congo, Gabon, and Equatorial Guinea—where there is a dense rain forest. Okoume, for example, accounts for 90 percent of the trees logged in Gabon. These woods are generally exported to Japan, Israel, and the European Union. Mahogany and okoume are used to make everything from homes to musical instruments to lightweight aircraft.

### **Mining:**

- Africa's two most profitable mineral resources are gold and diamonds.
- South Africa accounts for almost half of Africa's gold production. Ghana, Guinea, Mali, and Tanzania are other major producers of gold.
- Africa dominates the global diamond market. In 2008, the continent produced 55 percent of the world's diamonds. Botswana, Angola, South Africa, the Democratic Republic of the Congo, and Namibia are Africa's largest producers of diamonds.
- Madagascar is the largest producer of Graphite.
- Metals exported by African countries include uranium, used to produce nuclear energy; platinum, used in jewelry and industrial applications; nickel, used in stainless steel,

magnets, coins, and rechargeable batteries; bauxite, a main aluminum ore; and cobalt, used in color pigments.

### Important centers of Africa:

**Petroleum** – Port Harcourt, Nigeria; Dahrah, Baida, Libya; Algeria

**Gold** – Johannesburg, South Africa; Gold Coast, Ghana

**Graphite** – Madagascar (Largest graphite reserve in the world)

**Cobalt** – Katanga plateau, Republic of Congo (Largest Cobalt reserve in the world)

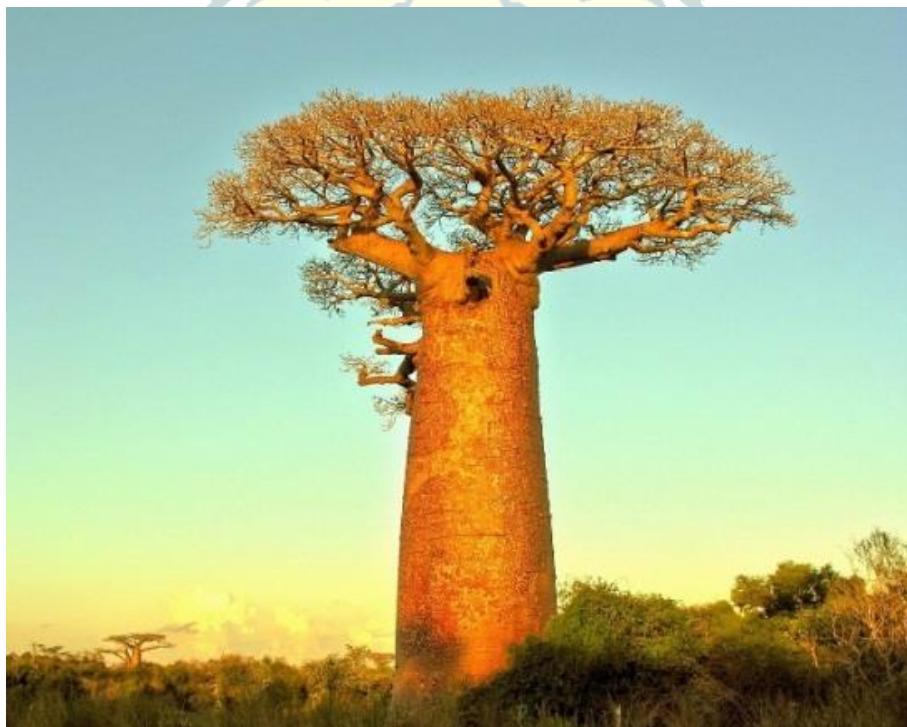
**Copper** – Mitumba plateau, Republic of Congo

**Uranium** – Rossy mines, Namibia

**Tin** – Nigeria josh plateau

**Iron Ore** – Only South Africa

**Coal** – South Africa, Nigeria and Wankei in Zimbabwe.



**Baobab Tree, A unique vegetation of Madagascar**

## Australia/Oceania



**Extreme Points:**

**Most Northerly Point:** Eastern Island, midway Islands

**Most Southerly Point:** Macquarie Island, New Zealand

**Most Westerly Point:** Cape Inscription, Australia

**Most Easterly Point:** Clipperton Island

**Highest point:** Mt. Wilhelm, Papua New Guinea

**Lowest Point:** Lake Eyre, Australia

**Highest Recorded Temperature:** Bourke, Australia (53°C)

**Lowest Recorded Temperature:** Canberra, Australia (-22°C)

**Largest Lake:** Lake Eyre

## Physiography of Australia

Oceania is dominated by the nation of Australia. The other two major landmasses of Oceania are the microcontinent of Zealandia, which includes the country of New Zealand, and the western half of the island of New Guinea, made up of the nation of Papua New Guinea. Oceania also includes three island regions: Melanesia, Micronesia, and Polynesia (including the U.S. state of Hawaii).

Oceania can be divided into three island groups: continental islands, high islands, and low islands. The islands in each group are formed in different ways and are made up of different materials.

### Continental Islands

- Continental islands were once attached to continents before sea level changes and tectonic activity isolated them.
- Australia, Zealandia, and New Guinea are continental islands. These three regions share some physical features. All three have mountain ranges or highlands—the Great Dividing Range in Australia;
- The North Island Volcanic Plateau and Southern Alps in New Zealand;
- The New Guinea Highlands in Papua New Guinea. These highlands are Fold Mountains, created as tectonic plates pressed together and pushed land upward.

- New Zealand and Papua New Guinea also have volcanic features as a result of tectonic activity.

Although they share some landscape features, each of these regions has distinct physical features that resulted from different environmental processes.

- Australia's landscape is dominated by the Outback, a region of deserts and semi-arid land. The Outback is a result of the continent's large inland plains, its location along the dry Tropic of Capricorn, and its proximity to cool, dry, southerly winds.
- New Zealand's glaciers are a result of the islands' high elevations and proximity to cool, moisture-bearing winds.
- Papua New Guinea's highland rain forests are a result of the island's high elevations, proximity to tropical, moisture-bearing winds, and location right below the warm Equator.

## High Islands

High islands, also called volcanic islands, are created as volcanic eruptions build up land over time. These eruptions begin under water, when hot magma is cooled and hardened by the ocean. Over time, this activity creates islands with a steep central peak—hence the name “high island.” Ridges and valleys radiate outward from the peak toward the coastline.

Important volcanic mountains in Melanesia include Mount Tomanivi, Fiji; Mount Lamington, Papua New Guinea; and Mount Yasur, Vanuatu.

## Low Islands

Low Islands are the islands of coral formations.

The island regions of Micronesia and Polynesia are dominated by low islands. The Kwajalein Atoll in the Marshall Islands, for example, is composed of 97 islands and islets that surround one of the largest lagoons in the world, with an area of 2,173 square kilometers (839 square miles). The nation of Kiribati is composed of 32 atolls and one solitary island dispersed over 3.5 million square kilometers (1.35 million square miles) of the Pacific Ocean.

## Agriculture:

- Australia has the most diverse climate on the continent because of its large size and position on the Tropic of Capricorn, which runs through the middle of the country.
- Australia's northern coast is tropical. This area is used principally for dairy and beef production.
- The country's southern region has a Mediterranean climate. Wheat and other cereals, oilseeds, and legumes are mainly produced in this region. This area is also a major wine-producing region.
- Australia's interior is mainly desert, surrounded by more temperate grasslands. Sheep ranching is common in grassland areas that flank the desert's eastern and western edges. Australia is the world's largest exporter of wool.

## New Zealand

- New Zealand's isolation from other continents and exposure to cold western winds and ocean currents gives it a much milder climate than Australia.
- This climate is suited to livestock grazing and ranching, including beef cattle, dairy cattle, domestic deer, and, most importantly, sheep. Sheep outnumber people by about 12 to 1 in New Zealand.
- The country is the world's largest producer and exporter of crossbred wool, a rougher-textured material than regular wool.
- Much like Australia, New Zealand is becoming an important wine producer. Grapes are grown on the northern tip of the North Island and the south-central area of the South Island.

## Papua New Guinea

- Papua New Guinea lies in the warm equatorial region. Almost all of the country has a tropical wet climate. Its principal commercial crops are sweet potatoes, sugar cane, copra (dried coconut meat), coffee, cocoa, and rubber.
- About 85 percent of the population engages in subsistence agriculture, meaning they grow enough food to support themselves and their families. This is because Papua New Guinea is an extremely rural country, with many people living in isolated communities that have access to fertile lands but not centralized markets.

## Forestry

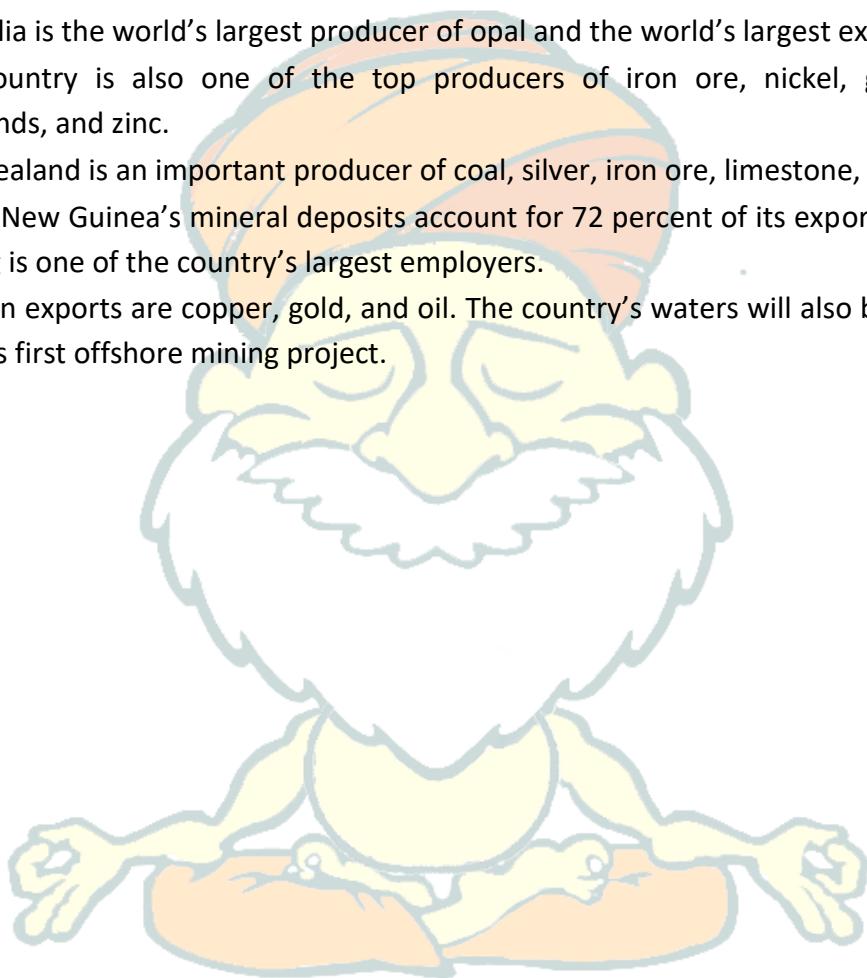
- Australia's forest industry has benefitted from the development of tree plantations, which yield up to 14 times more wood per hectare than native forests. Plantations now

supply more than two-thirds of harvested logs in Australia. Fast-growing trees such as eucalyptus and Monterey pine dominate these plantations.

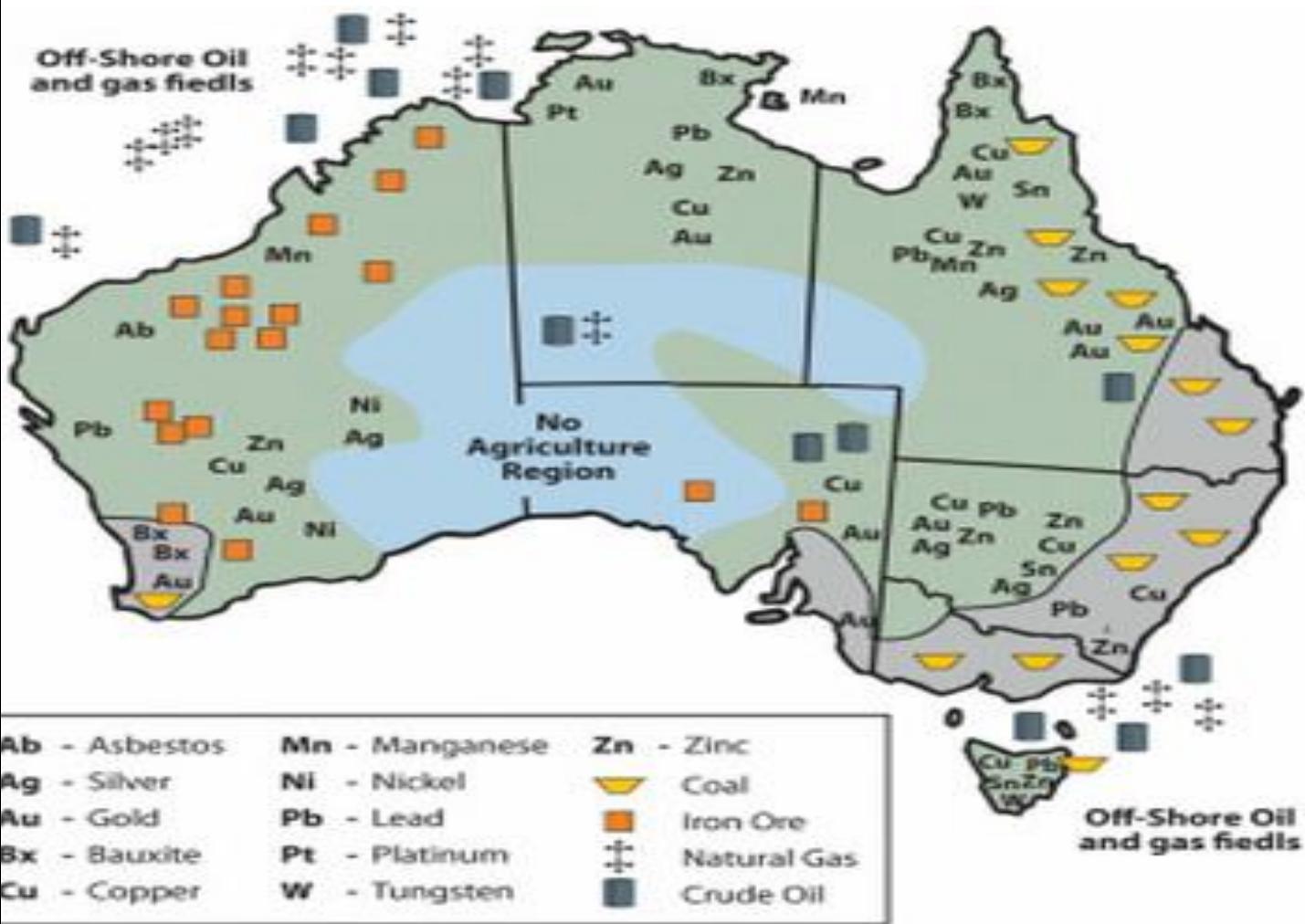
- The lumber industry is also important to the economy of Papua New Guinea. The country has a unique forest-ownership program. Tribal clan groups own 95 percent of the total land area of the country. In order to carry out any forest-related operations, meetings must take place between government agencies and clan groups. The country's main exported tree species are eucalyptus, rosewood, and pine.

### Mining

- Australia is the world's largest producer of opal and the world's largest exporter of coal.
- The country is also one of the top producers of iron ore, nickel, gold, uranium, diamonds, and zinc.
- New Zealand is an important producer of coal, silver, iron ore, limestone, and gold.
- Papua New Guinea's mineral deposits account for 72 percent of its export earnings, and mining is one of the country's largest employers.
- Its main exports are copper, gold, and oil. The country's waters will also be home to the world's first offshore mining project.



### Important Industrial Regions of Australia:



#### Western Australia:

- Kalgoorlie mines – Important center for Gold
- Pibara – known for its iron ore reserves
- Perth is an important center for iron and steel, machinery and textile manufacturing.

#### Northern Territory:

- Alice Spring has large reserves of oil and gas.
- Darwin is the chief port of Northern Australia which export timber, grain and meat.
- Weipa is known for bauxite deposits. They are one of the largest in the world.

**South Australia:**

- Adelaide is an important city.
- It is famous for agricultural industries like fruit canning, flour milling, dairy industry and woolen textiles.

**South Eastern Australia:**

- Great Dividing Range lies in this region.
- Because of the resources, this region is highly industrialized.
- Sydney is a major center for iron and steel, paper and printing and chemical industries. It is also known for lead – Zinc and silver mines.

**Note:** Try to locate the above centers on a political map of Australia.



# Asia



Asia is the largest of the world's continents, covering approximately 30 percent of the Earth's land area. It is also the world's most populous continent, with roughly 60 percent of the total population.

## Physiography of Asia

Asia can be divided into five major physical regions:

- Mountain systems
- Plateaus
- Plains, Steppes, and deserts
- Freshwater environments
- Saltwater environments

### Mountain Systems

The **Himalaya Mountains** extend for about 2,500 kilometers (1,550 miles), separating the Indian subcontinent from the rest of Asia.

The Himalayas cover more than 612,000 square kilometers (236,000 square miles), passing through the northern states of India and making up most of the terrain of Nepal and Bhutan. The Himalayas are so vast that they are composed of three different mountain belts.

The **Tien Shan** mountain system stretches for about 2,400 kilometers (1,500 miles), straddling the border between Kyrgyzstan and China. The name Tien Shan means "Celestial Mountains" in Chinese. The two highest peaks in the Tien Shan are Victory Peak, which stands at 7,439 meters (24,406 feet), and Khan Tängiri Peak, which stands at 6,995 meters (22,949 feet).

The **Ural Mountains** run for approximately 2,500 kilometers (1,550 miles) in an indirect north-south line from Russia to Kazakhstan. The Ural Mountains are some of the world's oldest, at 250 million to 300 million years old. Millions of years of erosion have lowered the mountains significantly, and today their average elevation is between 914 and 1,220 meters.

### Plateaus

The **Iranian plateau** covers more than 3.6 million square kilometers (1.4 million square miles), encompassing most of Iran, Afghanistan, and Pakistan. The plateau is not uniformly flat, but contains some high mountains and low river basins.

The **Deccan Plateau** makes up most of the southern part of India. The plateau's average elevation is about 600 meters (2,000 feet). It is bordered by three mountain ranges: the Satpura Range in the north, and the Eastern and Western Ghats on either side.

The **Tibetan Plateau** is usually considered the largest and highest area ever to exist in the history of Earth. Known as the "Rooftop of the World," the plateau covers an area about half

the size of the contiguous United States and averages more than 5,000 meters (16,400 feet) above sea level. The Tibetan Plateau is extremely important to the world's water cycle because of its tremendous number of glaciers. These glaciers contain the largest volume of ice outside the poles.

### Plains, Steppes, and Deserts

The **West Siberian Plain**, located in central Russia, is considered one of the world's largest areas of continuous flatland. It extends from north to south about 2,400 kilometers (1,500 miles) and from west to east about 1,900 kilometers (1,200 miles). With more than 50 percent of its area at less than 100 meters (330 feet) above sea level, the plain contains some of the world's largest swamps and flood plains.

Central Asia is dominated by a steppe landscape, a large area of flat, unforested grassland. Mongolia can be divided into different steppe zones: the mountain forest steppe, the arid steppe, and the desert steppe. These zones transition from the country's mountainous region in the north to the Gobi Desert on the southern border with China.

The **Rub' al Khali** desert, considered the world's largest sand sea, covers an area larger than France across Saudi Arabia, Oman, the United Arab Emirates, and Yemen.

### Freshwater

- **Lake Baikal**, located in southern Russia, is the deepest lake in the world, reaching a depth of 1,620 meters (5,315 feet). The lake contains 20 percent of the world's unfrozen freshwater, making it the largest reservoir on Earth. It is also the world's oldest lake, at 25 million years old.
- The **Yangtze** is the longest river in Asia and the third longest in the world (behind the Amazon of South America and the Nile of Africa). Reaching 6,300 kilometers (3,915 miles) in length, the Yangtze moves east from the glaciers of the Tibetan Plateau to the river's mouth on the East China Sea. The Yangtze is considered the lifeblood of China.
- The **Tigris and Euphrates** Rivers begin in the highlands of eastern Turkey and flow through Syria and Iraq, joining in the city of Qurna, Iraq, before emptying into the Persian Gulf. The land between the two rivers, known as Mesopotamia, was the center of the earliest civilizations, including Sumer and the Akkadian Empire.

### Saltwater

- The Persian Gulf has an area of more than 234,000 square kilometers (90,000 square miles). It borders Iran, Oman, United Arab Emirates, Saudi Arabia, Qatar, Bahrain, Kuwait, and Iraq. The gulf is subject to high rates of evaporation, making it shallow and extremely salty.

- The Sea of Okhotsk covers 1.5 million square kilometers (611,000 square miles) between the Russian mainland and the Kamchatka Peninsula
- The Bay of Bengal is the largest bay in the world, covering almost 2.2 million square kilometers (839,000 square miles) and bordering Bangladesh, India, Sri Lanka, and Burma. Many large rivers, including the Ganges and Brahmaputra, empty into the bay.

**Asia's climate can be most generally divided into three zones:**

- North/central,
- Southwest
- Southeast

### North/central Zone

- The continent's north/central zone is affected by cold and dry Arctic winds, especially the Siberia region of Russia.
- **Hardier** grains, such as barley, buckwheat, millet, oats, and wheat, are grown in the central and southern areas of this zone, where permanent frosts inhibit plant growth.
- **Animal husbandry** is also very important in this zone. In Mongolia, for example, 75 percent of agricultural land is allocated to the rearing of livestock, such as sheep, goats, and cattle.

### Southwest

- The southwest zone is a dry, hot region that stretches from the Gobi Desert in Mongolia through Pakistan, Iran, and into the Arabian Peninsula.
- This zone has very few areas with enough moisture and precipitation to produce crops. Grains, such as **barley and corn**, are the principal irrigated crops of some countries.
- **Dates, figs, apricots, olives, onions, grapes, and cherries** are the most important of these fruit and vegetable crops.

### Southeast

- The southeast zone is greatly affected by the summer monsoon season.
- **Rice** is one of Asia's most important agricultural commodities and a major food staple of the entire continent.
- Many regions where rainfall is less, grows large amount of **wheat**.
- Southeast Asia is also a major producer of tropical fruits, such as **mango, papaya, and pineapple**. India is the world's largest mango-producing nation, accounting for roughly 40 percent of total global output.

### Mining:

- China, India, Russia, and Indonesia are the continent's most productive mining economies. These countries extract many of the same minerals.
- China is the **world's largest producer of aluminum, gold, tin, and coal**.
- India is also a major producer of **aluminum and iron ore**, along with other minerals such as barite (used in drilling fluids), chromium (used in steel production and dyes), and manganese (used in steel production).
- Russia is a **major producer of coal, tungsten (used in steel production), diamonds, iron, and steel**.
- Indonesia is a major producer of **coal, gold, copper, and tin**.

#### Drilling:

- Countries on the Arabian Peninsula have the **world's largest deposits of oil and natural gas**. These fossil fuels are drilled for energy and fuel.
- The oil found throughout the Arabian Peninsula and Middle East is of the highest quality: **light sweet crude**.
- Light sweet crude oil is used to make gasoline, kerosene, and diesel fuels.
- In 2010, Saudi Arabia was the **world's largest manufacturer of petroleum liquids**, producing 10.07 million barrels of liquid fuels every day. (An oil barrel is 159 liters, or 42 gallons.) It also has the world's largest oil reserves, at roughly 250 billion barrels.
- **Russia has oil reserves in Siberia**, and massive natural gas reserves throughout the Arctic. Russia is the **world's largest producer of natural gas**, and the largest supplier of natural gas to Europe.

## Some Important Industrial Regions of Asia

### Russia



Broadly Russia can be divided into four major industrial regions:

#### Moscow – Gorki Region:

- This lies west of the Ural mountains i.e. in European Russia.
- The region is noted for its **lignite coal**.
- The important ports of Baltic sea are connected to cities through rivers and canals.
- Major industries are steel mills, railway equipments **automobiles and aircraft manufacturing**.
- Ivanovo city is known as Manchester of Russia. It is a **major textile center** of Russia.

#### Ural Industrial Region:

- It is well endowed for **heavy and metallurgical** industries.
- **Copper, iron ore and Chromium** is found in the Ural range. But it does not have coking coal which is imported from Kuzbas region which is in the East of Ural.

### Kuzbas Region:

- It lies East of Ural.
- **High grade anthracite coal** is found in this region.
- In northern part, saw milling and paper and pulp industries are important.
- It has cheap hydel power and bauxite ore is found. Hence Aluminum industries are found in this region.

### Pacific Coast Region:

- Vladivostok is the most important city.
- It is an important center for **Shipbuilding, leather, matchbox, fishing and food processing.**
- It is also a center for agro – machinery.

### China:



Four important industrial regions are found in China:

**Manchuria Region:**

The region is famous for its fertile soil and agriculture. It gets high yield of **corn and rice**.

It is famous for **food processing and heavy industries**. 80% of China's heavy industries are found in this region.

**Beijing – Tianjin Region:**

- This lies on the bank of Hwang Ho River.
- Peking, Datong, Hope, Nanchun are important centers.
- **Heavy engineering** is an important industry.

**Shanghai – Wuhan Region:**

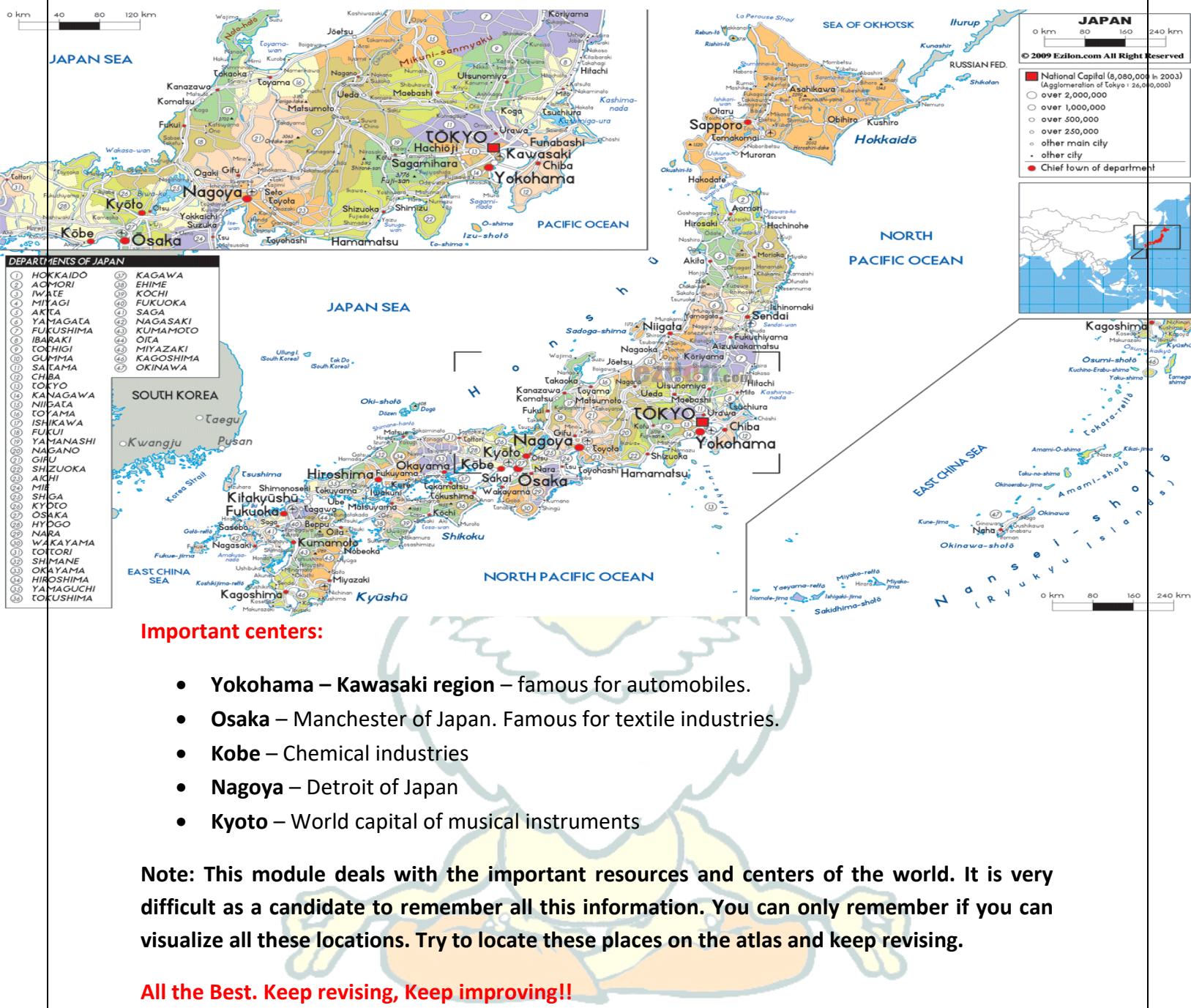
- It is an 800 km industrial corridor along Yangtze River.
- It is the **world capital of electronics**.
- Because of rapid growth of industries, the land prices got too high in this region and industries are now shifting to the fourth important region of China.

**Hong Kong, Guangzhou and Macau Region:**

- Famous for **electronics industry**.
- Because it has **access to South China sea**, most of the production is export oriented.

**Japan:**

Honshu Island of Japan is specifically famous for its industrialization.



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