REGIONAL GEOGRAPHY OF AFRICA

NB: This is the rest of Africa, so avoid examples from East Africa

Topics to be studied in term 1 senior three

- **Introduction**
- **Relief of Africa**
- **Drainage of Africa**
- **Climate of Africa**
- **Vegetation of Africa**
- **Population of Africa**

Introduction

Africa is one of the six continents in the visible world and the second largest continent after Euro- Asia. Covering an area of about 30,368,609sqkm, which is 20% of the world's land mass, comprising 64 political territories including adjacentislands.

It has a population of 1.311.000.000 billion people having a population density of $32/km^2$ accounting for 15% of the world's population with a growth rate of 92.293 million pa.

The continent is strategically located astride the equator crossed by the three latitudes i.e.

- Tropic of Cancer in thenorth
- Equator in the centraland
- Tropic of Capricorn in thesouth

N.B: About 77% of the total land area in Africa lies within the Tropics i.e. between the Tropic of Cancer 23 1\2 degrees in the north and Tropic of Capricorn 23 1\2 degrees in the south.

It is also crossed by the major longitude called Greenwich Meridian.

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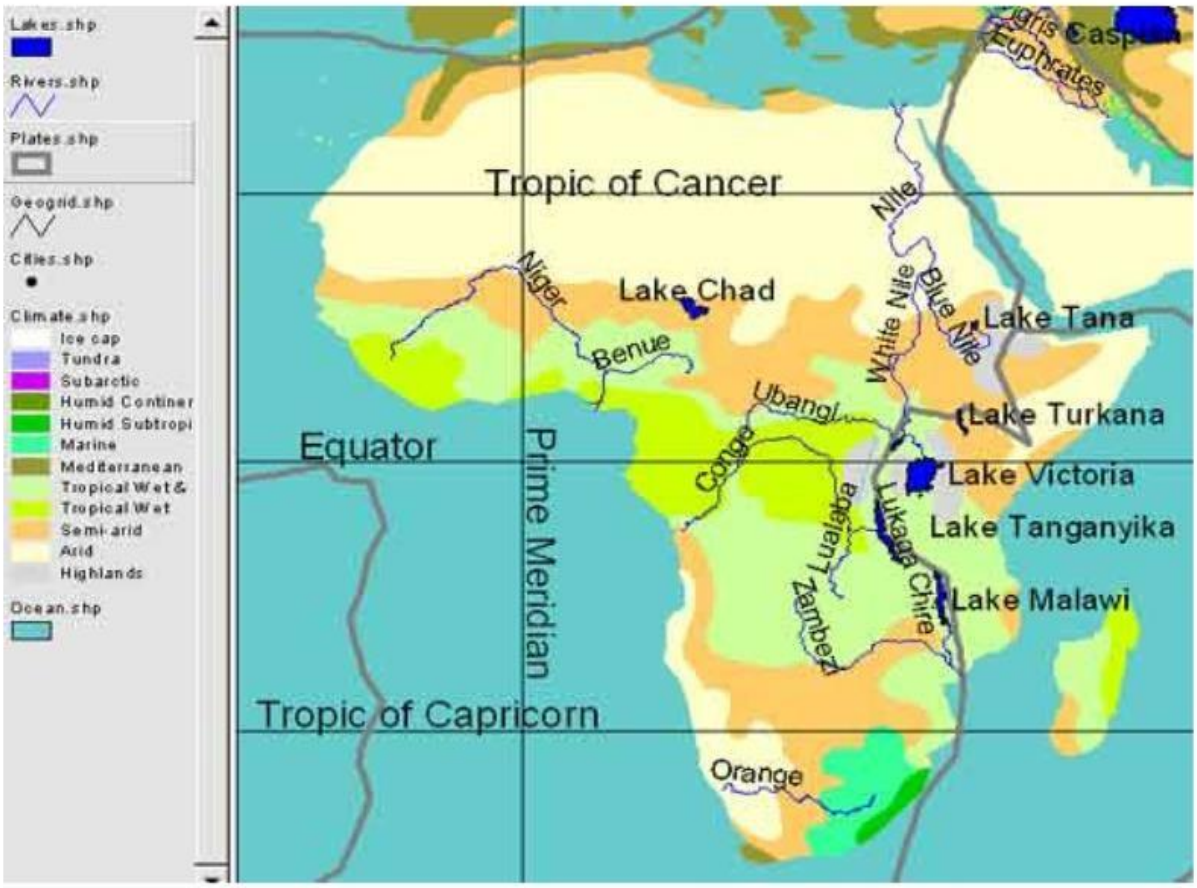
Sketch map of Africa showing Major latitudes, longitude, neighboring water bodies and continents



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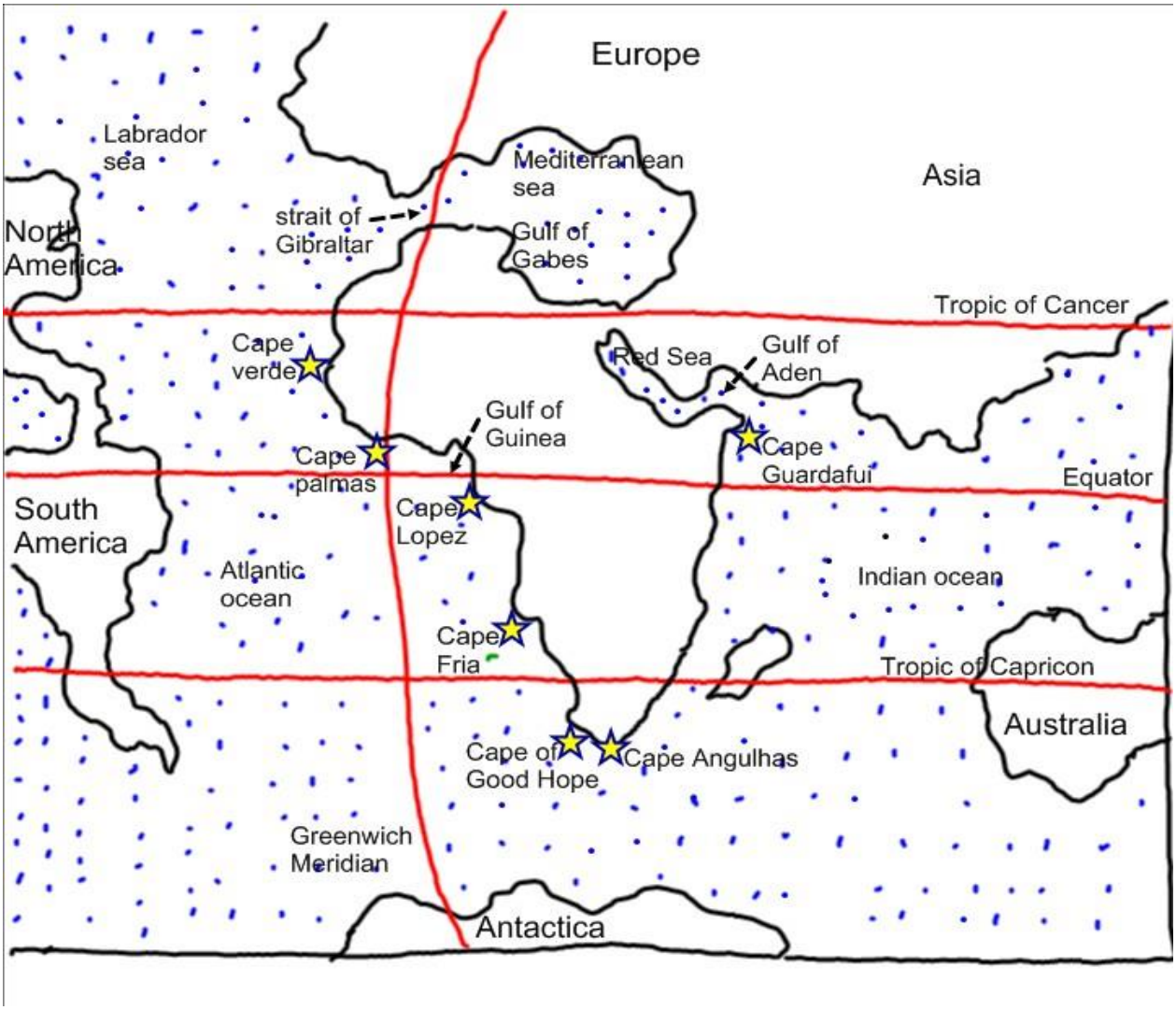

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RELIEF OF AFRICA.

Relief refers to the physical or natural appearance of the general landscape.
Africa is endowed with a spectacular landscape ranging fromplateau/plains,basins, highlands/mountains, rift valleys, etc. There origin is attributed to a number of geological processes e.g. Vulcanicity,faulting,folding etc.
A sketch map of Africa showing Relief.

Plateau

It refers to a generally flat raised landscape that covers a wide area (a plateau has no peak like a hill) Africa has many plateaux that are higher in the east and lower in the west ranging between 600m - 2000m above sea level. E.g. Central plateau in east Africa, Bie plateau in southwest in Botswana, Jos plateau in west in Nigeria, Kalahari stretch in Namibia, Great Karoo in South Africa,etc.

Importance

- Conducive for grazing and cultivation due to the flat nature that ease movement and mechanization.
- Mineral mining e.g. oil in the Kalahari stretch
- Tourism due to abundant fauna and flora e.g. the Kalahari stretch in western Botswana,Eastern Namibia.
- Wild life conservation due to existing fauna and flora e.g. the Kalahari stretch in Namibia.
- Stone quarrying due to rock outcrops which are blasted for construction.
- Areas of recreation through motor rallying, bird watching, desert walks due to its flat nature.
- Human settlement e.g. the Karoo in South Africa and the Jos plateau in Nigeria.

Plain

This refers to a generally flat low land and covers many miles.

It was formed due to perennial erosion for a long time that removed large amounts of soil from the earth's crust between the east and west coast highlands. E.g. the Veld in South Africa, Sahel region in North Africa, etc.
The plain can also be formed due to the flowing of basic lava that is fluid in nature and takes long to solidify on the earth's surface.

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Basin

This refers to a saucer shaped depression that is found mainly between a plateau and mountain. It is formed by faulting or down warping when two adjacent land masses are raised leaving the central block to sink forming a saucer feature. Basins become water bodies when filled with water e.g. Nile basin, Orange Zambezi basin, Niger basin, Congo basin, etc while those that are empty are called depressions e.g. Qattara basin, Chad basin, Okavango basin, etc.

Illustration

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BASIN OR DEPRESSION

Importance

- Water reservoirs
- Important for fishing in the various lakes.
- Aquatic life conservation
- Tourism due to fauna and flora
- Mineral mining especially oil
- Areas of recreation
- Industrialization due to the presence of water for cooling machines and as a raw materia

Mountain

This refers to a cone shaped landform that is many meters above the sea level formed by faulting, folding and vulcanicity giving rise to block mountains, Fold Mountains and volcanic mountains.

Volcanic mountains- these are formed when molten magma from the earth's interior is exposed to the surface of the earth through a vent exploding into the air thus cooling

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to form a cone shape. E.g. Ethiopian highlands, Cameroon highlands, Futa Djalon mountains, mount Giluwe, etc
Illustration

Importance

- Mineral mining e.g. iron ore, cobalt, copper, etc
- Tourism attraction due to fauna and flora
- Source of rivers
- Human settlement on the gentle fertileslopes.
- Agriculture is possible due to the presence of fertile soils.
- Forestry and floraconservation
- Lumbering
- Recreation and research, education
- Stone quarrying
- Wild life conservation

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Disadvantages

- Little or no rain at the leeward side affecting settlement, grazing and cultivation
- Soil erosion on the steep slopes
- Landslides, rock fall and mud flows on steep slopes and volcanic eruptions that interrupt movement and activities.
- Land fragmentation due to high population
- Low temperatures on high altitudes
- Forested mountains harbor wild animals and rebels
- Difficulty in transportation and construction

Fold mountains- these are formed when compressional forces act against the earth's crust with extreme pressure leading to synclines (valleys) and anticlines (hills). The many anticlines form the Fold Mountains in form of ranges. E.g. the Atlas and cape ranges.

Illustration

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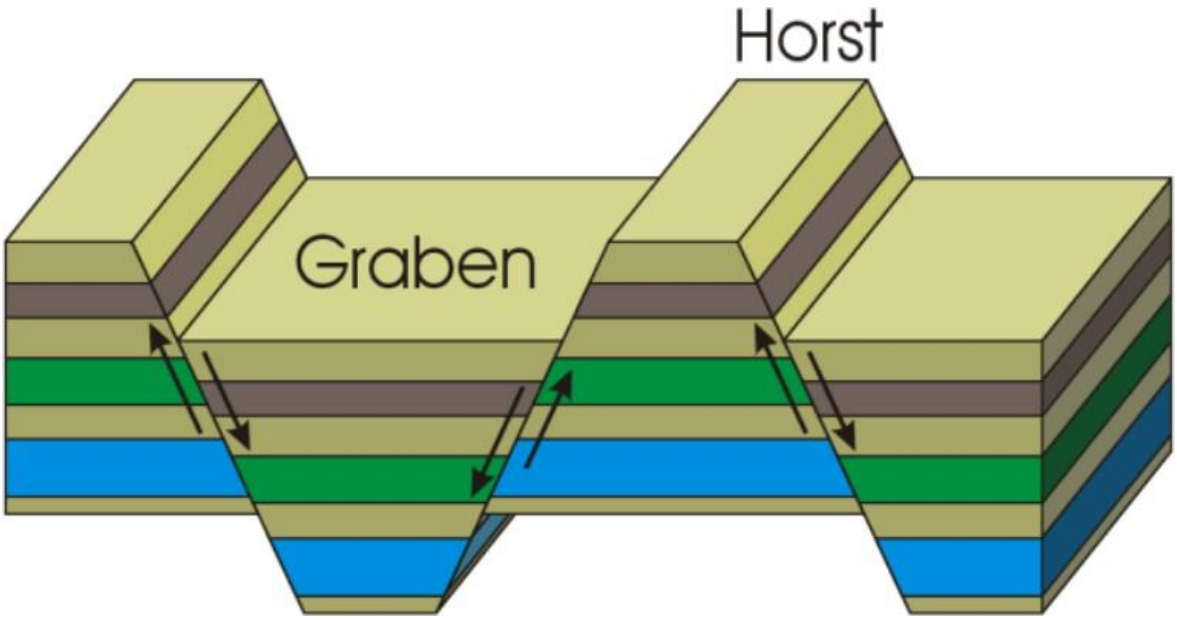
Block mountain- these are formed by faulting when compressional forces act upon the earth's crust leading to lines of weakness/fault lines forcing the central block to rise higher than the other blocks making the central block project as a horst or the adjacent blocks sink lower than the central block leaving the central block projected out as a horst. E.g. (Avoid examples from East Africa) Illustration



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Rift valley

This refers to a long narrow depression that is bordered by fault scarps on either sides formed by faulting of the earth's crust leaving behind a trough.

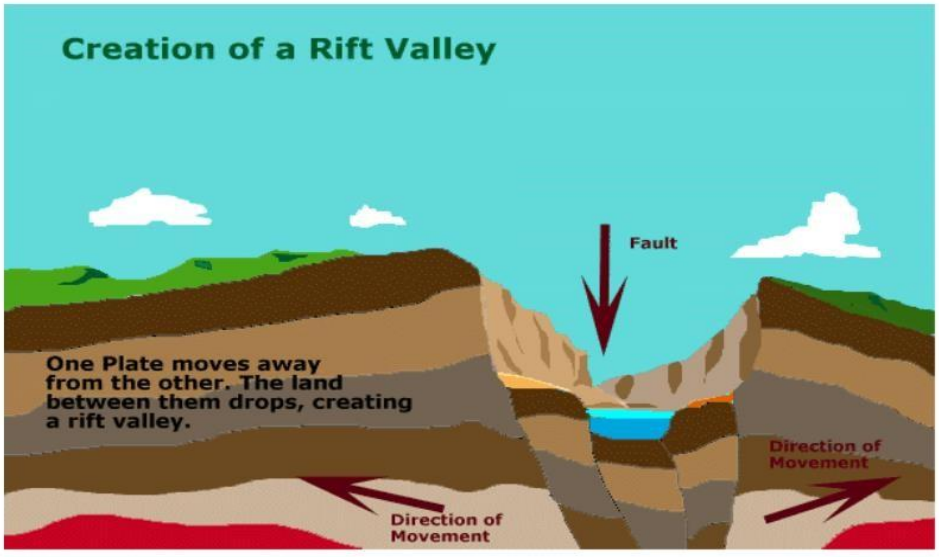
The great African rift valley is about 7200 km and 5600 km is in East Africa with a varying width of 30 to 60 km stretching from the Red sea in the northeast to river Zambezi in Mozambique.

In east Africa the rift valley subdivides in central Tanzania giving rise to the eastern arm in Kenya and Tanzania and the western arm in Tanzania, Burundi, Rwanda and Uganda. It has small depressions on the valley floor called grabens that were filled with water giving rise to rift valley lakes e.g. lakes like Turkana, Baringo, Natron, Naivasha, Rukwa, Nyasa, Tanganyika, Kivu, Edward and Albert lake.

Formation

The African Rift valley was formed by tectonic forces particularly faulting which can be explained in three basic theories;

- Tensional force byGregory
- Compressional force by Wayland
- Differential uplift by Dixey and Troupe Illustration



Tensional force theory (Gregory)

The earth's crust is acted upon by tensional forces that pull away the earth's core forming normal lines of weakness. The crust is sub-divided into blocks where the adjacent blocks are forced to rise while the central block forms a trough called a rift valley. This is more in the eastern arm of the rift valley in Kenya.

Illustration

Rift valley

Compressional force theory(Waylland)

The earth's crust is acted upon by compressional forces that pull towards the earth's core forming reverse fault lines. This sub-divides the earth's crust into blocks where the adjacent blocks rise with projected scarps which are acted upon by denudation forming a well structured rift valley. This is visible in the western arm in the Albertine area.

Illustration

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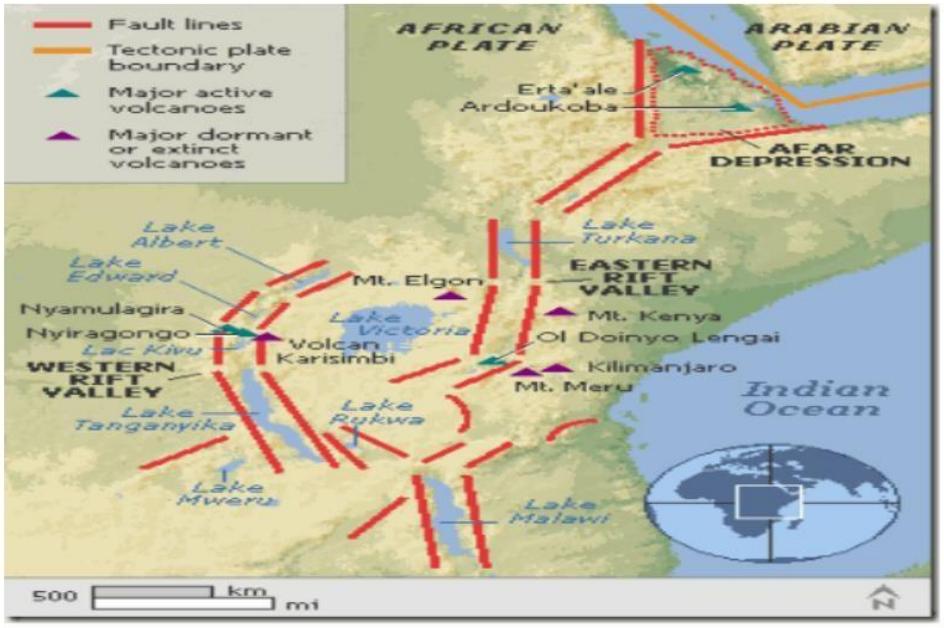
Differential uplift theory (Dixey and Troup)

The earth's crust is acted upon by tensional forces forming various lines of weakness which are also supplemented by up-warping and down-warping raising the adjacent blocks to different heights. This leaves the central block at a lower elevation forming the rift valley.

This explains the rift valley stretch of East Africa near Nairobi.

Sketch map showing extent of the rift valley



Importance

- Mineral exploitation in the grabens/lakes like soda ash.
- Gentle slopes of the scarps are used for agriculture due to fertile soils
- Fishing in the graben lakes.
- Wild life conservation of the fauna and flora
- Livestock farming in the dry grassland belts.
- Human settlement on the gentle slopes and due to fertile soils that support

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agriculture.

- Tourism due to beautiful scenery
- Industrialization due to the presence of graben lakes that provide fresh water
- Forests on the slopes are sources of timber for industrialization and construction.
- Transport in the graben lakes hence easing movement of passengers and cargo.

Problems

- Flooding of the rivers like the Nile in the western arm
- Steep scarps limit transportation, construction and settlement
- Remoteness of some areas because they aren't connected to the major infrastructures like roads, due to their steepness.
- Prone to landslides and rock fall because of the existence of mountains around which when disturbed by earthquakes, rocks can easily break and fall off.
- Western arm is dry being in the rain shadow zone hence cannot favour agriculture and settlement.
- High temperatures in the valley floor due to low altitude
- Some lakes are salty which discourages agriculture and industrialization.
- Earthquakes may destroy people's property.

GORGE.

It is a deep narrow steep sided valley formed in the youthful stage of a river due to mainly vertical erosion.

It is formed when a river flows across a landscape made of alternating soft and hard rocks.

The soft rock is undercut or eroded deeper leaving the hard rock projected out.E.g on R.Zambezi in Mozambique (quebra gorge),Black river in Mauritius,Fish river in Namibia etc.

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Importance.

It is a tourist attraction earning a lot of foreign exchange to countries.

- It is ideal for hydroelectric power production
  e.g Quebra gorge having Cabbora bossa dam in Mozambique.
- It provides ground for recreation and leisure activities.
- It's narrowness is ideal for bridge construction.

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DRAINAGE OF AFRICA

Drainage refers to the hydrological system comprising of rivers, lakes and seasonal or permanent swamps.

Africa is endowed with many rivers e.g. the great Nile (Uganda, Sudan, Egypt), the Niger (Nigeria, Niger, Burkinafaso, Liberia), the Congo (DRC), the Zambezi (Zambia, Zimbabwe, Mozambique), the Orange/Vaal (south Africa), Limpopo (Botswana, south Africa, Swaziland,Mozambique,Shibeli (Ethiopia, Somalia), etc.

Major lakes include Victoria (Uganda, Kenya, Tanzania), Nyasa/Malawi (Tanzania, Malawi, Mozambique), Nasser (Sudan, Egypt), Chad (Chad republic), Tana (Ethiopia), etc with seasonal and permanent swamps like lake Kyoga in Uganda.

Factors influencing drainage

Africa's drainage is determined by four major factors which influence its nature of flow on the earth's surface i.e. relief, nature of rocks, gradient/slope and volume of water.

- **Relief**- this refers to the general appearance of the landscape e.g. mountains, valleys, plains, etc. rivers flowing in mountainous areas tend to diverge in the course when trying to avoid raised landforms. However rivers flowing on plateaux and plains tend to develop a regular course due to less interruption in the flow pattern.

- **Nature of rock**- rock composition of the earth's crust influences the flow of a given river. Rivers flowing in areas of hard rocks tend to meander towards areas of soft rocks developing new flow channels or river course. However rivers that flow in areas of soft rocks develop a regular course though others create meanders with ox- bow lakes, flood plains and levees/ braided channels.

- **Gradient/slope**- this refers to the proportionate elevation of a river's course from the source to the mouth. Rivers flowing in areas of high gradient tend to develop a straight course which is supported by gravitational pull and acceleration/ velocity of flow.

  However, rivers flowing in areas of gentle or very low gradient easily spread on the earth's surface developing meanders and ox-bow lakes and levees/braided channels.

- **Volume of water**- the amount of water carried by a river at any time in its

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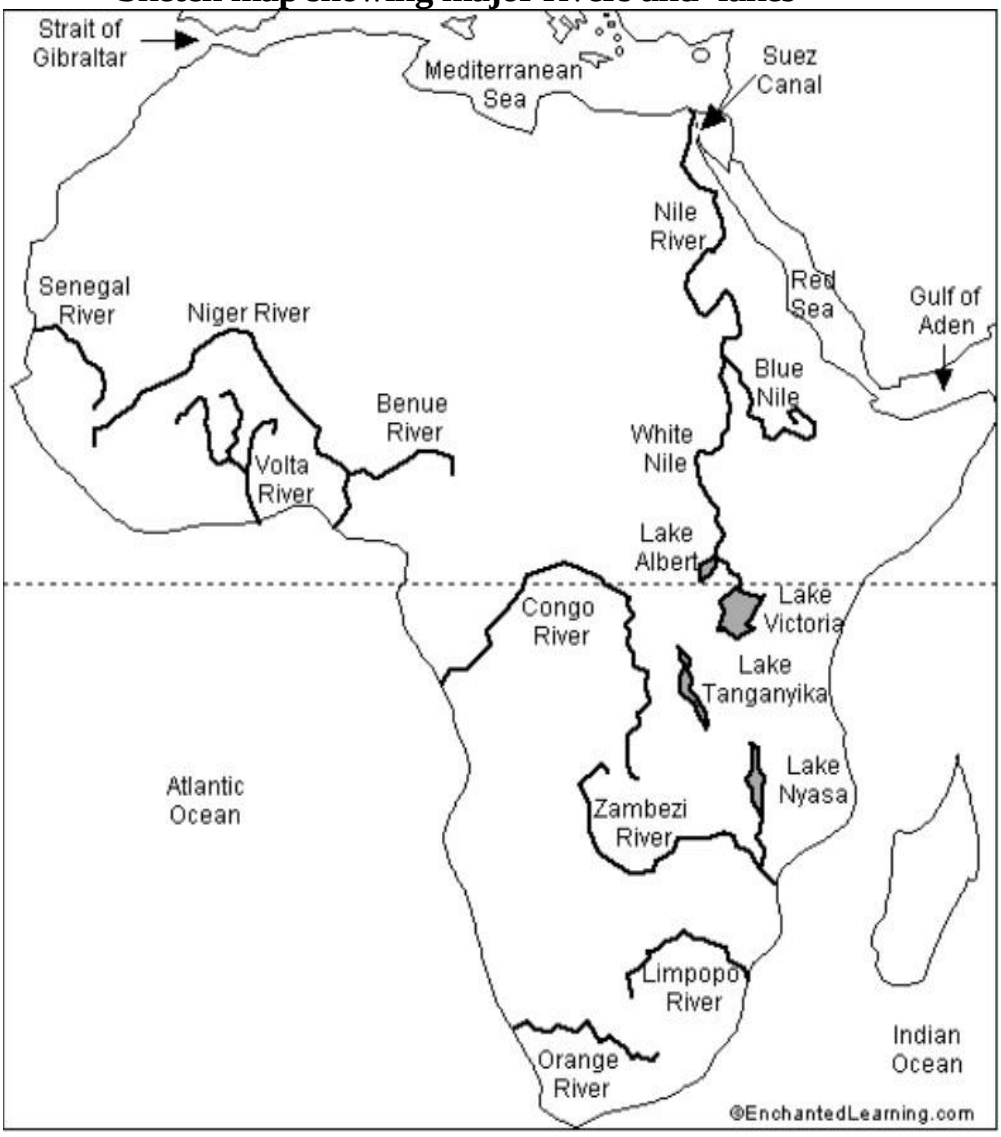
valley along the course from the source to the mouth affects its flow relating to rejuvenation and river capture. When rivers obtain more water from heavy rainfall they are rejuvenated/strengthened with more erosive power. This may lead to capturing of a neighboring weak river terminating its flow course.

As for the rivers flowing with low volume of water, thus they have low flow speed and erosive power leading to deposition of sediments in the river bed or valley flow.

Sketch map showing major rivers and lakes



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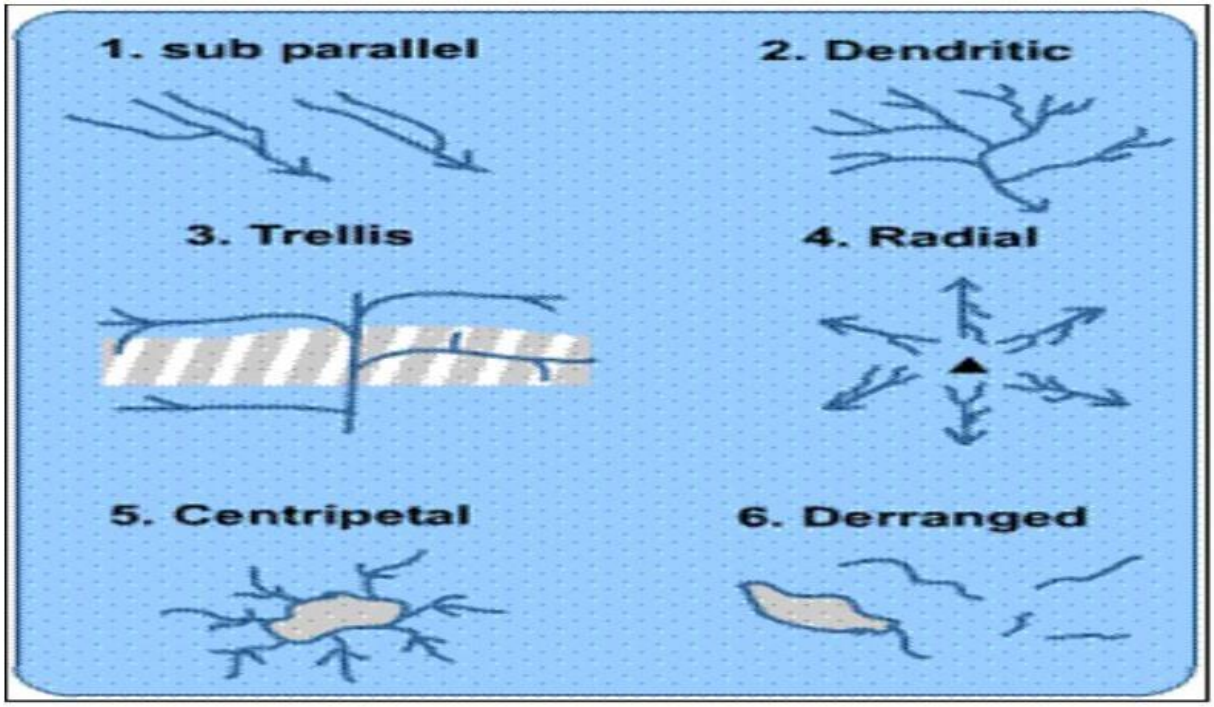
Drainage patterns

This refers to the general lay out plan made by a river and its tributaries on the surface of the earth.

Africa has got a variety of drainage patterns which include trellis, dendritic, parallel, braided, antecedent, radial, centripetal and fault-guided.

Illustration



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- **Trellis pattern**- this is where the tributaries join the main river at nearly 90 forming rectangular shapes e.g. river Tana and Mara in Kenya, river Charl in Chad and river Orange in South Africa.

- **Radial Pattern**- this is where rivers flow from the same source mainly a mountain top radiating to different directions. Thus the summit or mountain top is made up of a water shed or water catchment area e.g. river Siti, Koitobos.

- **Centripetal pattern**- this is where rivers and their tributaries discharge water into the same

  basin originating from different directions common in areas surrounded by raised plateaux and highlands.

- **Parallel pattern**- this is where rivers flow adjacent to one another with neither the same origin (water shed/water catchment area) nor sharing tributaries but may discharge water into a bigger river or ocean/sea. This pattern is common in areas of hard rock structure or gentle flat lands e.g. river Lagh-tula, Chiraman, Galole into main Tana; Lagh-kifulu, Lagh-bar**,** Lagh- dera towards Somalia and Indian Ocean.

- **Braided pattern**- this is where a river experiences sediment deposition within the valley bed forming interweaving channels/streams separated by deposited sand, gravel, boulders, etc. The deposited material forces the water to erode the banks of the river creating a new flow way thus leaving behind long narrow bars of deposited sand and gravel with in the valley forming a braided channel.

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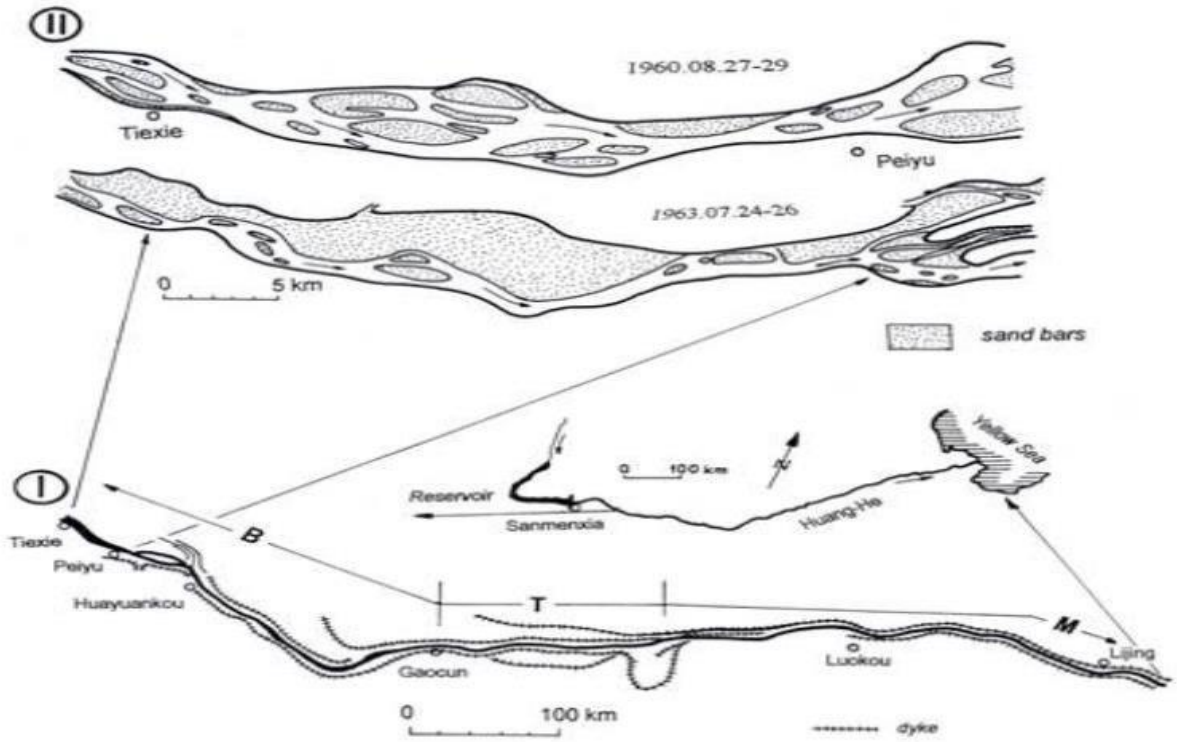
Illustration



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- **Dendritic pattern**- this is where tributaries join a main river at nearly acute angles (less than 90) forming a branch-like or root-like shape e.g. river Niger in Nigeria, Nile in Sudan (White and Blue Nile), Congo in DRC, Zambezi in Zambia, etc

- **Antecedent pattern**- this is where a river flows in an area undergoing uplift creating raised land

  in one section of the river's course. This forces the down-streaming river to cut through the raised land giving rise to a narrow steep sided valley (gorge) e.g. river Gilgil, Malewa.

Illustration

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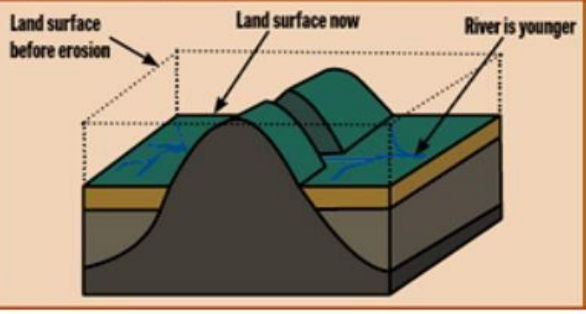
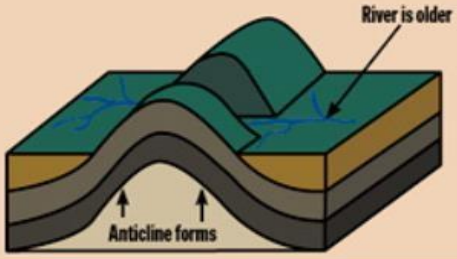
Superimposed drainage	Antecedent drainage
The river flows on a **landscape that is older than the river**. The river is **younger** than the landform that it flows through. The river developed its course from former layers of rock, which have since been removed by erosion. The river maintains its course and cuts through older rocks/structures that have been exposed.	The river flows through **structures that developed after the river**. The river is **older** than the landform that it flows through. The river developed its course from a previous landscape and then the landscape changed – the land folded and an anticline developed. The river maintained its original course and eroded a poort, or gap, through the new fold mountain.
	

- **Fault-guided pattern**- this is where a river flows through an area undergoing faulting which stretches across the river channel. This forces the river to divert its water flowing within the cracks or fault lines on the earth's surface thus a new fault guided river valley e.g. river Ewaso- nyiro in nguruman fault, Malewa in Soil-olool fault.

Importance of rivers

- Generation of hydroelectricity along the waterfalls e.g. Victoria falls etc.
- Recreation like swimming, game fishing, rafting, etc
- Tourist attraction due to fauna and flora, rapids and falls, etc
- Water for domestic and industrial use
- Climate modification at micro level through evapo-transpiration
- Navigation for passengers and goods
- River banks have fertile alluvial soils for cultivation. e.g. in Egypt and Sudan.

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- They provide water for irrigation in the dry areas, e.g. in Sudan for the Gezira Irrigation scheme, and Egypt.
- Source of food with proteins with marine animals i.e. fish.
- Mineral mining in the valley bed e.g. gold, petroleum, etc
- Habitat for wild aquatic animals and even around the river banks.
- Conservation of fauna and flora living within the river, at river banks and in the wetlands/swamps around the rivers.
- Research and study in hydrology, marine life, river-related features, etc.

OCEAN CURRENTS

This is a mass of water flowing along the coastline of a given continental landmass either from the Equator to the Polar regions or from the Polar region to the Equator. There are basically two types of ocean currents i.e. cool ocean current and warm ocean current.

- **Cool ocean currents** flow from the poles of the Polar regions of the northern and southern hemisphere towards the Equator in the Tropics
  e.g. the cool Canary from the north pole along the north western coastline of Africa and cool Banguela from the south pole along the south western coastline of Africa

- **Warm ocean currents** flow from the Equator in the Tropics towards the Polar regions of either the northern hemisphere or southern hemisphere
  e.g. warm Guinea from the Equator along the western coastline towards the North Pole and the warm Mozambique from the Equator along the eastern coastline towards the South Pole.

However, there exists the mild Equatorial current along the western coastline towards the Equator (a remnant of the cool Banguela current) and the Somalie current from the Gulf of Aden, south of the Red sea towards the Equator.

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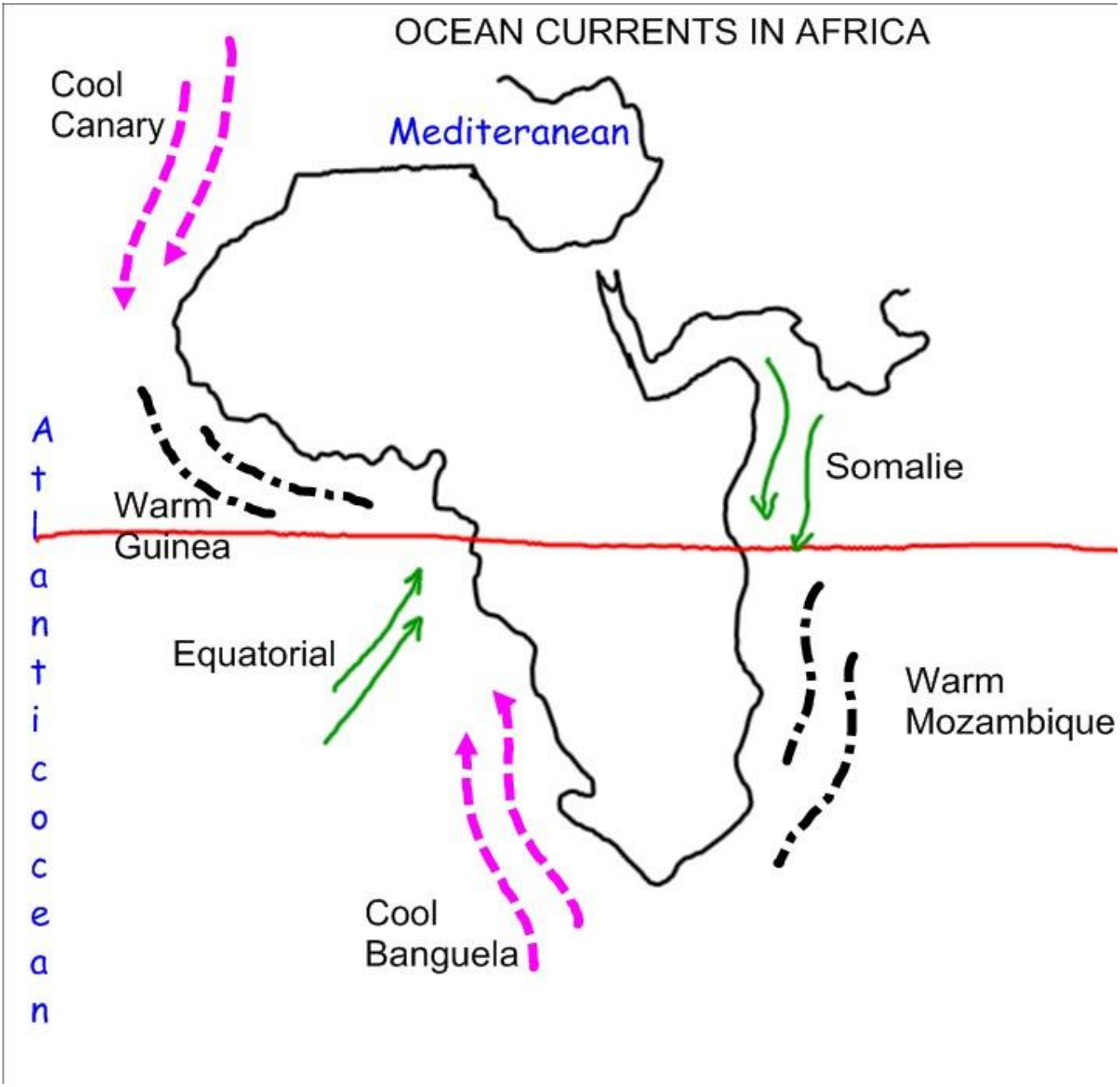

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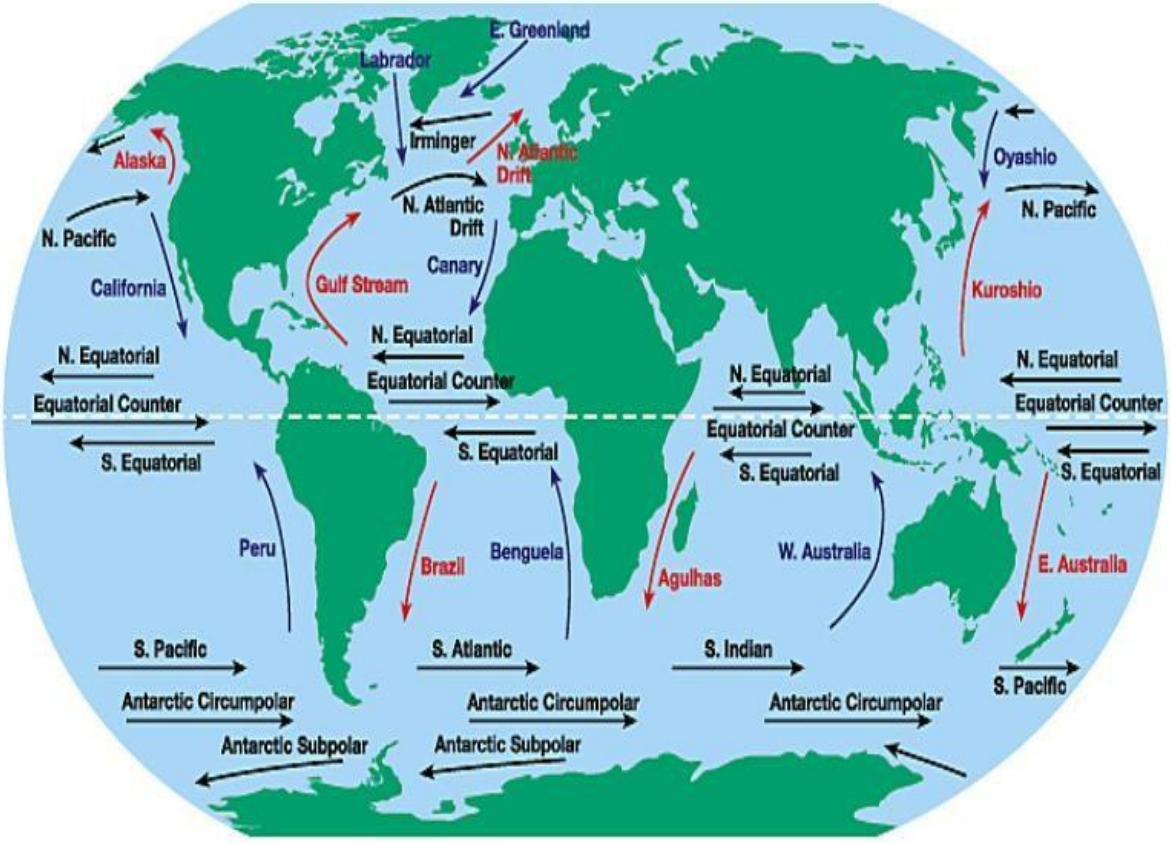
Sketch map showing ocean currents



Characteristics

(a) Cool ocean currents

- Cold in nature
- Originate from the poles to the Tropics
  Carry cold conditions towards the areas they flow to e.g. northwest coast and southwest coast

Influence on climate

- Reduce on atmospheric temperatures of areas to which they flow e.g. Morocco and Mauritania
- Cause the cold desert effect where heavy moist air fails to evaporate so as to form convectional rainfall e.g. Namib/Kalahari desert in the south west

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(b) Warm ocean currents

- Warm in nature
- Originate from the Tropics towards the north and south pole
- Carry warm conditions from the Equator toward the areas along which they flow e.g. West coast and southeast coast.

Influence on climate

- Increase in atmospheric temperatures of coastal areas e.g. Natal, Durban in south Africa, Maputo in Mozambique
- Bring about on-shore rainfall experience whereby warm moisture rises forming on-shore convectional rainfall on the eastern and western coastal areas

CLIMATE OF AFRICA

Climate is the average weather condition observed and recorded for a given region after a long period of time between 30 to 35 years e.g. desert, equatorial, Mediterranean, montanne, etc.

Weather is the daily atmospheric condition observed and recorded for a particular place at a given time e.g. sunny, rainy, windy, cloudy, etc.

Africa experiences a variety of climate patterns all the way from the north down south as well as from the west to the east e.g.

- Mediterranean
- Hot desert and semi-desert
- Tropical/ savanna
- Equatorial
- Tropical maritime
- Mountain/montanne
- Warm temperate continental

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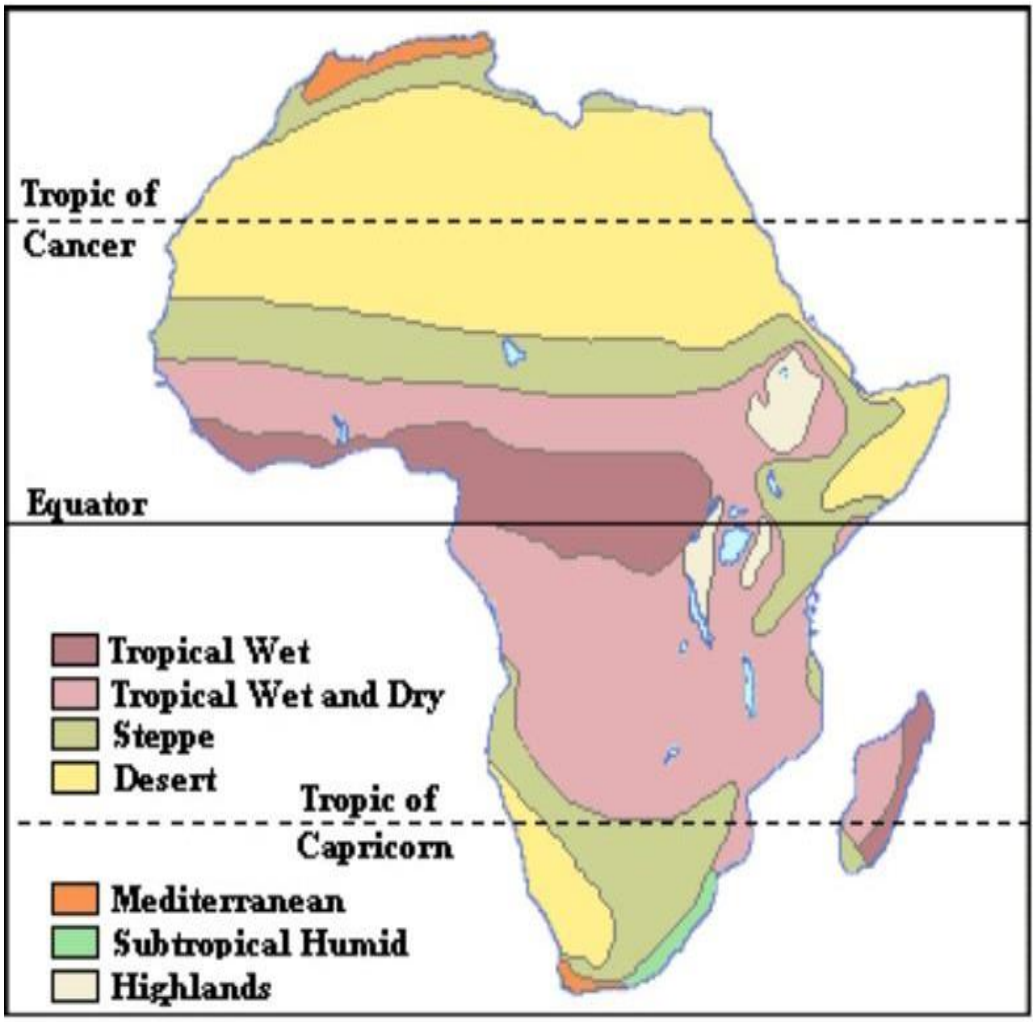
Sketch map showing climatic patterns



Factors influencing climate

Relief- area with mountains and highlands tend to have cool wet climatic conditions due to the interference of moist laden winds that are forced to raise forming relief rainfall on the windward side and descending dry winds on the leeward side. On the other hand, plateaux and flat areas differ in climatic conditions due to lack of intercepting relief.

- **Aspect**- slopes that are directly facing the sun receive solar radiation tend to have high

  temperatures unlike the other side in the shadow zone receiving low cool temperatures

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- **Apparent movement** of the sun- this concerns the movement of the overhead sun north or south of the equator forming a low pressure belt. On June 21st, the overhead sun in the north creates a vacuum attracting the northeast trade winds from the Arabian Desert and southeast trade winds from the Indian Ocean giving rise to the inter-tropical convergence zone. This causes high temperatures with heavy rainfall in the northern hemisphere (summer conditions) and cool conditions in the southern hemisphere (winter condition). The reverse is true on 22nd December in the south.

- **Altitude**- areas near the sea level (0m) tend to experience very high temperatures due to absorption of solar radiation by the earth crust which is later reflected and scattered to the surrounding areas. Areas which are many meters above the sea level (1000m+) tend to have relatively cool climatic conditions due to moisture in the atmosphere and nearness to the condensation level. This explains the cool climatic conditions in the highland or mountain areas

- **Vegetation cover**- areas which are highly vegetated or are having luxuriant vegetation tend to receive cool or mild or wet climatic conditions through evapo-transpiration where vapor is released into the atmosphere forming convectional rainfall. The reverse is true in areas with scanty vegetation or bare ground.

- **Distance** from large water bodies- areas near large lakes and seas/oceans experience wet climatic conditions due to the land and sea breeze effect. This is so because moisture from either land or lake/sea/ocean evaporates to form on-shore or off-shore rainfall which is not the case in areas which are far from water bodies (this only applies where other factors don't exist).

- **Latitudes**- areas which are near and those crossed by the equator tend to have wet climatic conditions with a double maxima (two rainfall peaks) caused by the equinox when the overhead sun is directly above the equator on 21st march and 23rd September. The areas that are far from the equator have a single maxima (one rainfall peak) leading to relatively dry climatic conditions.

- **Prevailing winds**- Africa is influenced by two great trade winds i.e. the

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Northeast trade winds from the **Arabian desert** bringing with it dry conditions that explain the desert and semi- desert conditions in Somalia, Egypt, Sudan, Libya, Tunisia, etc plus the **southeast trade** winds from the **Indian ocean** bringing heavy moisture that explains the wet conditions in many parts of eastern Africa, Mozambique, Swaziland and south Africa.

- **Human activities**- practices engaged in by man affect the climate of an area on a micro and macro level. Activities like bush burning, deforestation, swamp reclamation, charcoal burning, etc destroys the vegetation cover and disorganizes the hydrological cycle and discharge of moisture into the atmosphere to Cause rainfall. The reverse is true in areas which are not tampered with by man.

- **Ocean currents**- these affect climate with respect to their origin e.g. the cool currents bring cool climatic conditions in the southwestern areas like Walvis bay, Namibia and northwest coast of Tunisia, Morocco, etc while the warm currents bring about warm climatic conditions causing convectional on-shore rainfall in those areas like Durban, Natal, Mozambique, Madagascar in the southeast and Tema, Accra, Lagos, port Harcourt, etc in the west.

- **Industrialization**- this concerns the discharge of dangerous gases into the atmosphere which affect the ozone layer that filters the dangerous sun rays like ultra-violet and infra-red that tend to increase atmospheric temperatures. Thus areas which are highly industrialized experience warm climatic conditions brought by the depletion of the ozone layer coupled with the emission of heat from industrial machines and vice versa where other factors are not dominant).

- **Influence of the Inter-Tropical Convergence Zone**
  The apparent movement of the overhead sun north or south of the equator brings about a geographical phenomenon referred to as the inter-tropical convergence zone concerning the movement of the great easterlies i.e. the northeast trade winds from the Arabian desert and southeast trade winds from the Indian Ocean.

- **21st march and 23rd September**- this is when the overhead sun is directly above the equator leading to the equinox which brings about a double maxima (two rainfall peaks). Areas near and those crossed by the equator receive high temperatures and heavy convectional rainfall

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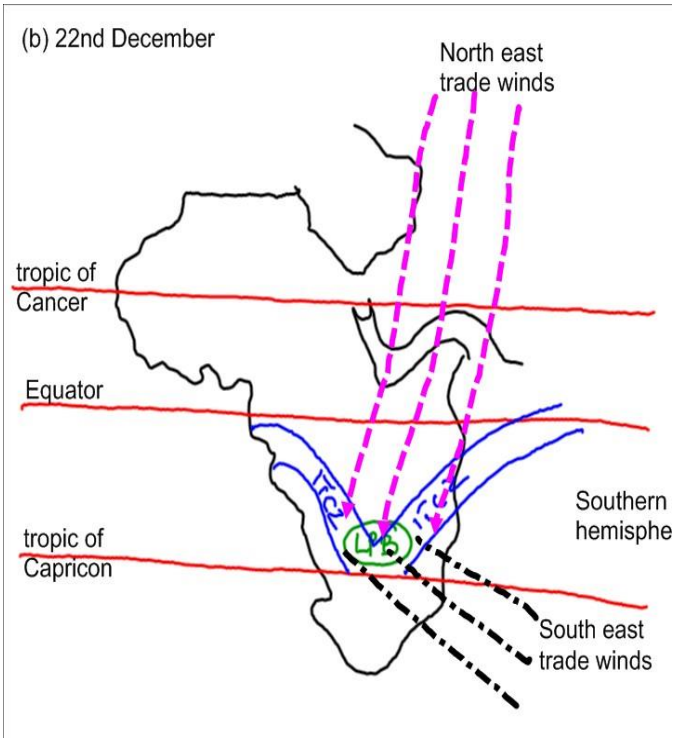
- **21st June**- this is when the overhead sun is seemingly moving northwards near the Tropic of Cancer bringing about very hot temperatures that form a low pressure belt. This low pressure belt attracts the northeast trade winds from the Arabian Desert and southeast trade winds from the Indian ocean north of the equator forming convectional rainfall. The north therefore will

  have 'summer conditions' i.e. high temperatures with heavy rainfall while the south will have 'winter conditions' i.e. cool and wet.

- **22nd December**- this is when the overhead sun is seemingly moving south near the Tropic of Capricorn bringing about very hot temperatures that form a low pressure belt. This attracts the northeast and southeast trade winds south of the equator. This brings about high temperatures with heavy rainfall in the southern part of Africa except for the Mediterranean areas like Cape town influenced by the Benguela current.

Illustration (sketch map showing the ITCZ) on 22nd December



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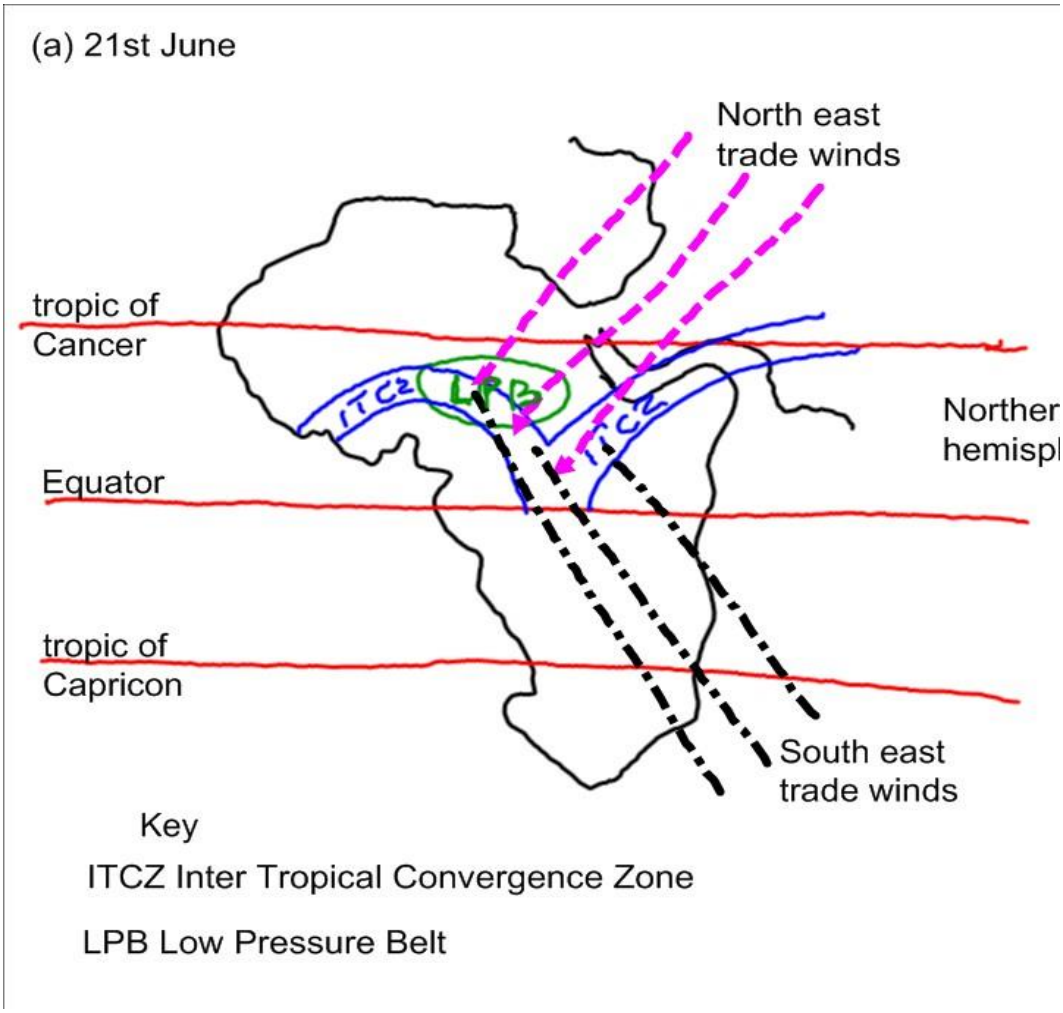

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Effects of the Inter-Tropical Convergence Zone

- Brings about climatic subdivisions with respect to the apparent movement of the overhead sun

  i.e. if the overhead sun is in the north, it

  Experiences 'summer conditions' while the south experiences 'winter conditions'.

- Helps show rainfall patterns with respect to latitude i.e. areas near or crossed by the equator receive double maxima while those far from the equator receive a single maxima.

- Shows the direction of flow in the northeast and southeast trade winds which follow the low pressure belt created either in the north or south of the equator.

Climate types

As noted earlier, Africa experiences a variety of climatic patterns stretching from the north through the central to the south and from the west to the east.

Equatorial climate

This is experienced between 0° to 5° south and north of the equator particularly in the western part of Africa e.g. Nigeria, DRC, Cameroon, Gabon, Central African Republic, etc. As for East Africa, it

Receives modified equatorial climate influenced by the mountains and highlands.

Summary table

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp	23	23	23	22	22	22	21	22	22	22	22	23
R'fal l	40	70	150	230	205	115	65	80	195	225	150	50

Characteristics

- Receives rainfall throughout the year
- Has two rainfall peaks between March to May and September to November
- Rainfall totals range from 1500 mm and above
- Rainfall is convectional in nature due to hot temperatures causing evapo-transpiration
- Temperatures are relatively hot ranging between 21°C and 23°C evenly

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distributed throughout the year

- It has a small annual temperature range of approximately 2°C (23°C-21°C=2°C) Experiences high humidity due to abundant vapour being discharged in the atmosphere throughout the year

Economic activities

- Agriculture e.g. cocoa in Ghana, palm oil in Nigeria, rubber in Liberia, sugar cane and banana in DRC due to heavy rainfall.
- Fishing e.g. river Congo in DRC, river Niger in Nigeria, etc due to heavy rainfall that fills the water bodies.
- Forestry and forest conservation in Cameroon, DRC and Gabon due to the rain that support tree growth
- Lumbering due to abundant flora e.g. in Gabon, DRC, etc
- Tourism due to abundant fauna and flora
- Wild life conservation due to abundant fauna and flora
- Mining of oil in Nigeria, gold and uranium in DRC, etc
- Educational research and study in botany, zoology, etc
- Hunting of wild game in the forests.

Likely problems

- Pests, disease vectors and man eaters
- Seasonal flooding due to heavy rains
- Difficulty in construction of transport and communication networks due to dense vegetation diverse drainage and heavy rainfall.
- Landslides, mud flows and rock fall in mountainous areas due to water infiltration coupled with gravitational pull
- Soil erosion on steep slopes and plains with bare ground
- Soil infertility caused by leaching where soil nutrients are dissolved vertically and horizontally

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Tropical climate

This is experienced between 5° to 15° north of the equator extending to 23° south of the equator. This stretches from West Africa through east and central to southern Africa.

It is sometimes referred to as Savanna or Sudan climate and the most extensively experienced in Africa.

Summary table

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp	22	23	22	21	20	18	17	18	20	23	24	24
R'fall	250	175	100	25	20	00	00	00	00	50	100	175

Characteristics

- Receives two distinct climatic seasons i.e. wet season from October to march and dry season from June to September
- Day times are always very hot while the nights are cold
- Rainfall totals are approximately 860 mm per annum
- Rainfall is convectional in nature due to the hot temperatures especially in 'summer'
- Temperatures are relatively hot ranging between 17°C and 24°C
- Annual temperature range varies from 4°C to 9°C
- Rainfall is received mainly in 'summer' while the 'winters' are dry
- Rainfall is unevenly distributed

Economic activities

- Agriculture especially annual crops like beans, groundnuts, etc
- Hunting due to abundant fauna
- Livestock farming due to abundant flora.
- Charcoal burning due to abundant flora(woodland)

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- Bee keeping due to abundant pollination of the flora.
- Tourism due to abundant fauna and flora in the grass land
- Mineral mining e.g. gold in Mwadui-Tanzania and Witwatersrand- South Africa
- Wild life conservation in national parks and game reserves
- Educational research and study in zoology.

Likely problems

- Unreliable rainfall limiting agriculture i.e. the rainfall received is only 860mm per annum, that doesn't allow them to grow perennial apart from annual crops.
- Occasional wild fires due to friction of dry leaves and branches
- Occurrence of pests and disease vectors together with man eaters
- Soil erosion due to limited vegetation and bare ground.
- Over grazing arising from overstocking

Mediterranean climate

This is experienced in the northern extreme of Africa in Morocco, Tunisia, Algeria and extreme south particularly Cape Town in South Africa.

Summary table

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp	21	20	20	17	15	13	12	13	15	16	18	20
R'fall	12	12	15	50	90	110	87	87	50	35	20	15

Characteristics

- Has four distinct climatic seasons i.e. spring, summer, autumn and winter
- Rainfall total range between 500 to 1000 mm per annum
- Occurrence of fog due to heavy moisture brought by the cool Banguela current failing to evaporate to form convectional rainfall

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- ‘Summers’ are relatively hot and dry while the ‘winters’ are cold and wet.
- Summers are generally sunny

Economic activities

- Agriculture especially fruits and cereals like apples, orchards, citrus fruits, barley, wheat, etc
- Tourism due to the climatic conditions like those in Europe
- Marine fishing near the coast of Atlantic ocean for whales and sharks
- Animal rearing e.g. merino sheep for wool and mutton, cows for milk and beef
- Forestry and forestconservation
- Mineral mining at small scale like tin and copper in south Africa

Likely problems

- Occasional fog causing difficulty in visibility
- Temperatures in ‘winter’ tend to be very low causing severe coldness
- Sometimes the ‘summers’ get very dry affecting grazing and cultivation

Hot desert and Semi desert climate

This is experienced in the tropical belt of North Africa i.e. Sahara desert, and the Mediterranean coastal lands i.e. Kalahari and Namib deserts of southwest Africa.

Africa has two categories of deserts i.e.

Marine deserts- those next to large water bodies influenced by cold ocean currents like the Namib desert in southwest Africa

Continental deserts- those found in the interior of the continental mass like the Sahara desert in the north and Kalahari desert in the southern section.

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Summary table

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp	12	15	20	25	30	35	37	36	33	26	20	16
R'fall	00	00	03	10	10	35	85	50	13	12	00	00

Characteristics

- Rainfall totals range between 250mm and 650mm which sometimes reduces
- Occurrence of strong winds in form of desert storms
- Little and unreliable rainfall affecting human activities
- Clear sky with little or no cloud cover due to limited humidity
- Rainfall is received in thunder form during the hottest part of the year
- Temperatures between day and night have a remarkable range which ishigh
- Dominated by sandy soils
- Bare ground with scattered vegetation

Economic activities

- Tourism due to the hot conditions good for the temperate people
- Desert sports e.g. motor rallying and motorcycling
- Filming due to the brightness of the environment for easy scene capturing
- Normadic pastoralism like the Fulani and Tuaregs of north Africa

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- Irrigation farming like the Gezira scheme of cotton in Sudan along the Nile and Richard Toll scheme in Senegal along R.Senegal.

Likely problems

- Limited open surface water due to high evaporation rates
- Prolonged drought as evident in the table i.e. dry spell
- Deadly fauna like scorpions, poisonous snakes, etc
- Airborne diseases due to dryness, storms, etc
- Infertile sandy soils affecting agriculture

Tropical Maritime climate

This is experienced in the coastal areas of eastern Africa stretching from Kenya, Tanzania and Mozambique influenced by the southeast trade winds (monsoon wind) and the warm Mozambique ocean current

Characteristics

- Generally warm , a little humid and evenly hot
- Rainfall is received throughout the year due to the warm ocean current and south easterlies causing on-shore rainfall
- Occurrence of tropical cyclones giving rise to the cyclonic rainfall
- Temperatures are generally hot i.e. 25°C and above

Economic activities

- Tourism due to the warm conditions attracting the temperate dwellers
- Commercial crop cultivation like sisal, cloves, coconuts, etc
- Marine fishing at the shores of theocean
- Trade and industrialization at major ports like Mombasa in Kenya, Dar-es-

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salaam in Tanzania, Maputo and Beira in Mozambique

- Recreation i.e. leisure and entertainment at different beaches.
- Education research and study on coastal geomorphology and marine life
- Filming by the music industry due to the beautiful beach scenery

Warm Temperate climate

This is experienced only in South Africa particularly in the Veld region (Natal province). The climate belt is bordered by the Mediterranean in the west and the Tropical Savanna in the north.

Characteristics

- Warm and humid 'summers' with dry 'winters'
- Temperatures range from 10°C in 'winter' to 25°C in 'summer'
- Rainfall totals range from 500mm to 700mm per annum
- High evaporation rate especially in 'summer' due to the high temperatures

Economic activities

- Tourism due to the mild conditions attracting temperate dwellers
- Viticulture/market gardening/dry farming involving growing of fruits and vegetables
- Plantation farming for wheat and sugarcane in Natal
- Industrialization basically agro-based
- Elementary mining of tin, copper etc

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VEGETATION IN AFRICA.

Vegetation is the natural plant cover in man's visible environment either on the surface of the earth (continental crust) or under water bodies i.e. river bed, lake bed or sea bed (oceanic crust).

Africa is blessed with a variety of vegetation cover from the north to the south and from the west to the east e.g. Mediterranean, desert, savanna grassland/woodland, equatorial/tropical rain forest, mangrove/swamp, mountain/montanne, temperate, etc.

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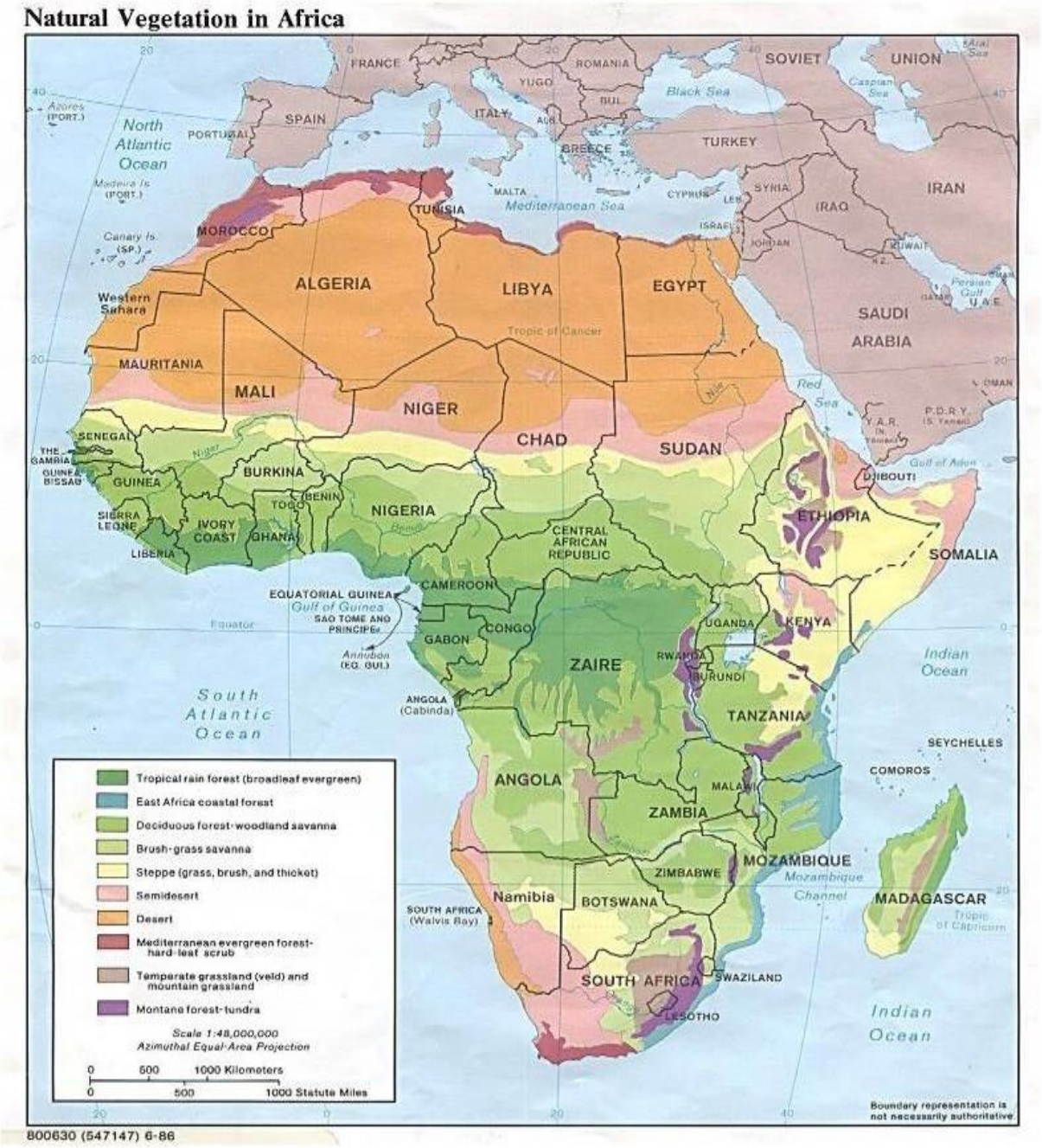

Factors determining vegetation distribution

The present day man-made and natural vegetation in Africa is attributed to the following factors i.e. altitude, relief, climate, soil texture and biotic factors

- Altitude- this refers to the change in atmospheric temperatures above the mean sea level. Height above sea level brings about climatic conditions that influence growth of different vegetation

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types, this is common in mountainous or highland areas with savanna, tropical forests, bamboo, heath and moorland plus bare rock at the peak

- Relief- this refers to the nature or gradient of the landscape being flat, gentle or steep. The gradient favors growth of vegetation with respect to height, size and root makeup. The relatively flat land is dominated by forests and grassland while the gentle sloping land is covered with grassland and scattered trees. As for the very steep land, it's covered with grass having very short roots. However some mountainous areas have dense vegetation like the Drakensburg, Elgon, Cameroon, etc.

- **Climate**- this concern the temperatures and rainfall received in a given region. Climate determines the dominant vegetation cover and tree species that survives in a given area. E.g. high temperatures with very little rainfall favor desert vegetation having thickets, scanty trees while hot temperatures with heavy rainfall favors tropical rain forests.

- **Soil texture**- the nature of soil in a given region influences the type of vegetation and tree species
  i.e. very steep areas with thin soils support very short trees and grass while gently sloping or flat lands with deep fertile soils support very tall trees with deep roots though even grass does well in loam soil.

- **Biotic factor**- this concerns the work of humans, animals, insects and bacteria e.g. man/woman, elephants, caterpillars, termites, etc. As for man he influences vegetation by either conserving the natural vegetation, planting man-made forest belts of pine trees and eucalyptus, reclaiming swamps, deforestation, bush burning, etc. On the other hand, animals can destroy vegetation by eating it or simply destroying it like monkeys and elephants; insects like caterpillars, locust/grass hoppers, termites also destroy vegetation.

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Types of Vegetation

As noted, Africa has a variety of vegetation cover due to the different soil types, drainage, relief, etc as can be seen below

Equatorial/ Tropical rainforest

This is dominant in West Africa in Gabon, Cameroon, DRC and Central African republic, Congo Brazaville, Equatorial Guinea though patches exist in Uganda and Kenya mainly in areas near the equator. This vegetation cover is found in the equatorial climate belt with hot temperatures and heavy rainfall. The tree species include mahogany, ebony, okoume, 'mvule', etc

Characteristics

- Ever green due to the abundant rainfall received
- Have broad leaves for photosynthesis
- Have a great height of 30 to 50 m
- Develop a straight posture due to competition for sun light
- Do not occur in a pure stand
- Have buttress roots due to big size and great height
- Have little or no under growth due to limited sunlight for photosynthesis
- Have hard wood
- Form a thick canopy of three layers

Economic activities

- Lumbering due to abundant flora
- Tourism due to abundant fauna and flora
- Hunting due to abundant fauna
- Agriculture at the periphery or border of the forests
- Fruit and food gathering of wild fruits and tubers
- Academic research and study in zoology, botany, etc
- Wild life conservation

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- Forestry and forest conservation of extinct species
- Leisure and entertainment
- Fishing since they act as water catchment areas
- Bee keeping
- Filming

Mediterranean

This is located in the northern extreme of Africa in Algeria, Tunisia, parts of Libya and the southern extreme in South Africa particularly Cape town. Tree species include pine, oats, etc

Characteristics

- Trees are scattered
- Do not occur in a pure stand i.e. a mix of pine and oat
- Develop longroots
- Have a considerable height of above 15m
- Have little under growth
- Have fresh bulb roots for water storage
- Leaves are waxy and shiny to reduce water loss

Economic activities

- Tourism due to abundant fauna and flora
- Lumbering of pine trees
- Arable farming especially horticulture or viticulture
- Animal husbandry of cattle, sheep,goats
- Academic research and study
- Leisure and entertainment
- Sport hunting especially by the tourists

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Savannah

This is very extensive from the western part of Senegal through the central like Cameroon and DRC to the eastern like Uganda, Kenya towards the south like Botswana and South Africa. It is sub-divided into;

- Savannah grassland- dominating the Central, Eastern and Southern parts.
- Savannah woodland- particularly in the northern part of Tanzania called Miombo woodlands. Tree species include baobabs, spear grass, cactus, etc,

Characteristics

- Trees are scattered
- Have a relative height of 2 m
- Do not occur in a pure stand
- Leaves are green during the rainy season and turn yellow-brown in the dry season
- Dominated by grassland
- Most trees shade off their leaves during the dry season to avoid water loss i.e. deciduous trees
- Trees are of hard wood
- Develop an umbrella shape as branches spread out with small stalks

Economic activities

- Animal husbandry due to abundant grassland
- Crop cultivation due to extensive relatively flat land
- Tourism due to abundant fauna and flora
- Wild life conservation
- Hunting due to abundant fauna
- Academic research and study

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- Industrialization due to extensive land
- Trade and commerce coupled with transportation
- Settlement

Mountain/Montanne

This is found mainly in mountainous and highland areas where altitude influences change in rainfall and temperature patterns giving rise to different vegetation types at different levels above the sea level from the foot of the mountain to the peak.

Illustration

Characteristics

- Does not have specific characteristics due to the variety of vegetation but leaf can be borrowed from Savannah, Tropical rainforest and Alpine vegetation

Economic activities

- Tourism due to abundant fauna and flora
- Crop cultivation on the gentle slopes and foothills of mountains /highlands
- Animal husbandry on the foothills due to grassland
- Hunting due to abundant fauna
- Academic research and study
- Fruit and food gathering in theforests.

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- Wild life conservation
- Forestry and forestconservation
- Lumbering e.g. in the tropical forest zone
- Settlement at the foothills

Desert

This is wide spread in the northern part of Africa referred to as the Sahel region and in the southwest part called Namib/ Kalahari region. Tree species include cacti, coarse grass, etc.

Characteristics

Very short trees made of shrubs, thickets and thorny bushes
Have needle like leaves to reduce water loss
Have waxy leaves to reflect sunlight and regulate transpiration
Have thin stems with thick barks to reduce water loss
Some treesdevelop thorns on their barks to reduce water loss.
Have very deep roots to access water underneath/from underground.

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Economic activities

- Tourism in terms of sun bathing and desert travel
- Animal husbandry especially nomadic pastoralism
- Leisure and recreation like desert rallying
- Mineral mining of oil, gold, etc
- Wild life conservation of desert fauna like scorpions, snakes, tortoise, etc
- Filming due to the bright environment i.e the clear blue sky.
- Agriculture especially irrigation farming in Egypt, Sudan, Senegal, etc in those areas that are located along major rivers.e.g the Nile in Sudan and Egypt,R.Senegal inSenegal.

Temperate/ H i g h **veld**

This is found only in South Africa in the provinces of Natal, Transvaal and the Orange Free state partly Lesotho. It comprises of grassland, flowers and shrubs.

Characteristics

- It shares with the savannah grassland

Economic activities

- Crop cultivation e.g. sugarcane and wheat in Natal
- Fruit and flower growing/horticulture and viticulture.
- Animal husbandry of merino sheep for wool and mutton
- Tourism due to abundant fauna and flora
- Industrialization based onagriculture

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POPULATION IN AFRICA

Population in the general sense refers to the total number of living and non-living phenomena in geographical space at a specific time. As for humans, it refers to the total number of people living in an area at a given period of time.

Africa has diverse population patterns i.e. dense, medium and low that is unevenly distributed throughout the continent.

The population of Africa is estimated at 1.111,000,000 with some countries being densely populated like Nigeria, Egypt and South Africa

While others are sparsely populated like Equatorial Guinea, Djibouti andBurundi.

Africa accounts for 15% of the world's population, having the growth rate of 92.293 million people per annum.

Population terms

- Population distribution- the number of people in a place at a given time.
- Population density- the number of people in a given place at a given time per square kilometer. PD=no. of people/area
- Birth rate- number of live births per a 1000 people in an area per year.
  BR=no. of live births/1000
- Death rate- the number of deaths per a 1000 people in an area per year.

  DR=no. of deaths/1000
- Natural increase- the difference between the death rate and the birth rate
  NI=BR-DR
- Growth rate- the natural increase in population size of an area in a specified period of time. GR=current population-previous population

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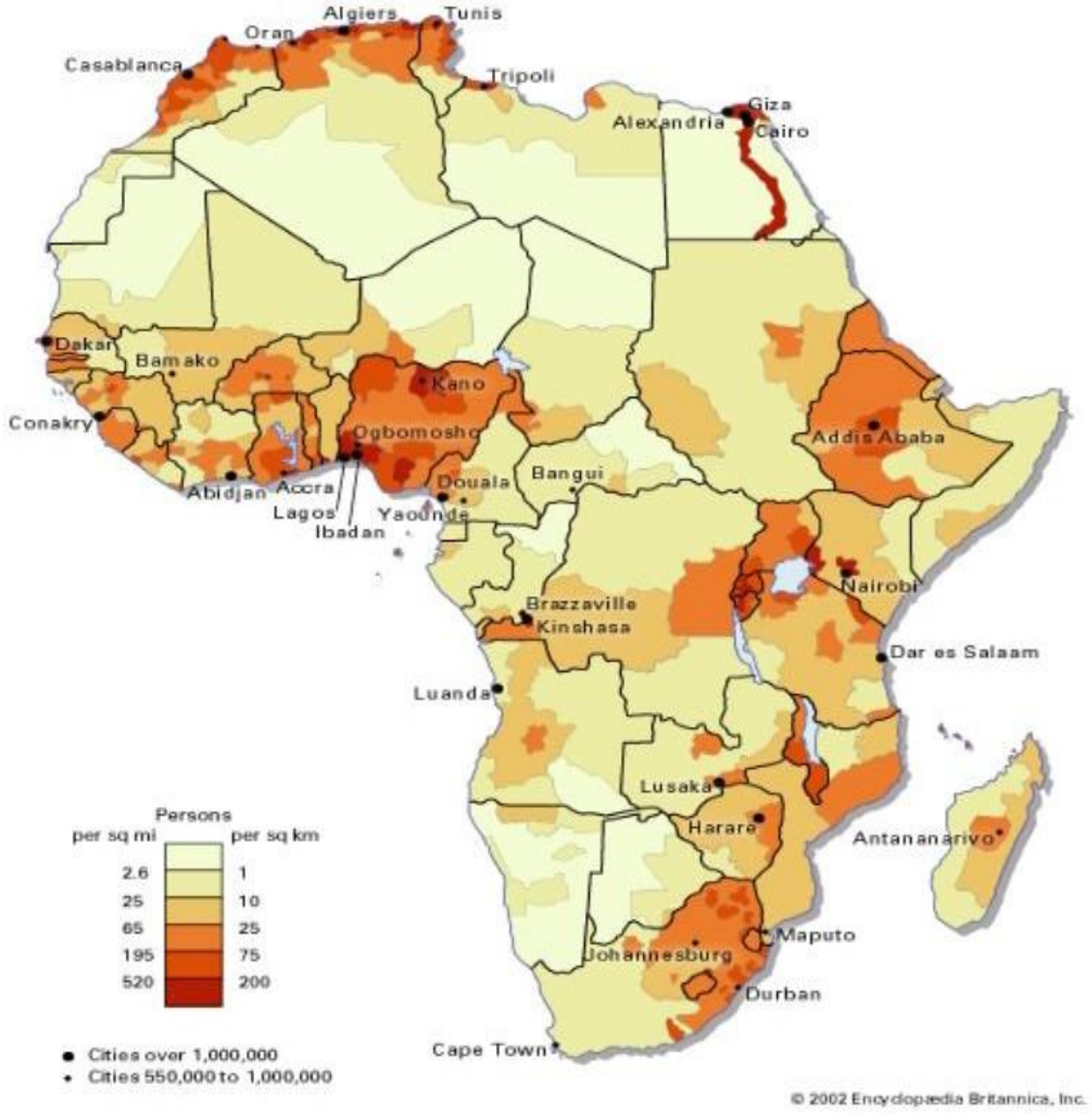
- Dependency ratio- the ratio of the productive population (15-65) to the economically non- productive population (0-14 and above 65)
- Migration- the transfer of persons from one geographical location to another either temporarily or permanently. E.g. RUM, URM, RRM, UUM, emigration, immigration, etc.

Sketch map showing population



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Factors favoring population distribution

- Nature of vegetation- either can be easily cleared like savannah for agriculture and settlement or is hardly cut like tropical rainforest with hardwood.
- Nature of landscape- either being very steep that are rarely inhabited, gently sloping or flat attracts population thus densely inhabited
- Women fertility rate- possibility of the number of children to be born by a woman in her reproductive life time
- Climatic conditions- either being conducive for settlement like tropical, equatorial or harsh conditions like desert
- Political atmosphere- either being politically stable attracting population or war tone areas being sparsely inhabited
- Economic activities- either having viable trade and employment opportunities attracting people in an area or non-economical forcing people to seek for better standards of living
- Social service delivery- either well served with education, health, banking, transportation, recreation, etc attracting many people or having limited/none to meet the increasing demand
- Open surface water- either having diverse rivers and lakes attracting many people or having few water sources or none having sparse population
- Mortality rate- either having a low death rate implying high population due to high life expectance and immunity against disease or having a high death rate implying low life expectancy thus lowpopulation.
- Morbidity or disease prevalence- either free from disease vectors with low sickness level attracting population or being prone to disease vectors compelling people to move to new areas leaving the former non-inhabited
- Soil fertility- either having deep fertile cultivable soils favoring agriculture and settlement or very infertile sandy soils limiting cultivation which is the basic livelihood of most people on the continent
- Extensive land- either free and not inhabited thus attracting people or already inhabited by wild animals, other humans and vegetated
- Migratory patterns- either undergoing RUM,RRM,UUM, emigration, immigration, and URM hence, causing variation in population
- Government policy- either supporting high birth rates together with RUM, URM, RRM, UUM, emigration and immigration or limiting immigration, RRM,RUM,

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URM, UUM and regulating number of children to be born

- Natural occurrences- either being prone to floods, earthquakes, landslides, mudflows, drought and famine hence discouraging settlement or being free from such calamities hence encouraging settlement.
- Cultural practice- either promoting polygamy and polyandry favoring increase in population or being conservative with monogamy
- Religion- either promoting polygamy and unlimited child bearing or supporting monogamy
- Accessibility- either it is very accessible with reliable transport and communication networks and social service delivery hence attracting settlement or very remote causing fear among the population.
- Historical activities- either areas engaged in slave trade, long distance trade, or any other that might have compelled people to move away or those less affected and benefited especially towns and collection centers like the East African and the West African coasts hence having dense population.
- Growth of ancient kingdoms- either inhabited by civilized and well organized centralized kingdoms like the Chwezi, Bunyoro-Kitara,Kanem-Bornu, Yoruba states or areas inhabited by primitive segimentary societies like the Khoi-San,Bamba /Ba-Konjo/Batwa, etc

High population distribution

This is a situation where an area has a high number of people coupled with a high growth rate and population density compared to the sustainable capacity of the land. This is attributed to a number of factors as seen above, and has the following advantages as explained below;

Advantages

- Abundant labor force to engage in the production process
- Better security of the country
- Ready market for fresh and manufactured goods
- Innovation, creativity, discovery and research in science and technology
- Urban development due to increasing population demanding basic infrastructure and social service delivery

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- Utilization of natural resources and land inclusive for agriculture, tourism, etc
- Encourages high food production in the area since labor is present.
- Industrial development especially of labor- intensive nature
- Easy movement of ideas and mobilization of the masses
- Favors unity of the masses due to socialization
- Economic diversification of the economy dealing in a variety of potential activities
- Promotes international relations through trade and labor exchange

Disadvantages

- High crime rate due to idleness
- High levels of unemployment
- High government expenditure in providing social services
- Slum development due to congestion
- Easy spread of airborne and sexually transmitted diseases.
- High levels of poverty and poor living standards
- Over utilization of natural resources
- High cost of living due to limited survival means
- Traffic congestion in urban and industrial areas
- Land fragmentation in congested areas
- High rate of dependence on the working population
- Promotes rural-urban migration in search for better living standards
- Moral decadence due to a mix of people from all walks of life
- Dependence on other countries for aid
- Dumping of industrial rejects due to high levels of poverty
- Difficult for the government to plan and implement national programs

Low population distribution

This is where the population is far below the sustainable capacity of natural resources coupled with a low growth rate and population density.

Advantages

- Easy to monitor and govern
- Easy planning and implementation of national programs
- Less strain on social amenities and service access

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- Low occurrence ofcrime
- Low risk of disease spread
- Less government expenditure in providing social services to the people
- Low congestion in inhabited areas
- Low cost of living as people seem to have the basics of life

Disadvantages

- Shortage of labor either skilled, semi or non- skilled
- Low tax base for the government
- Limited market for agricultural and manufactured items
- Low infrastructure development due to low expected returns
- High vulnerability to insecurity since the population is low and cannot stand against a strong external military force.
- Many resources remain redundant
- Low creativity, innovation, etc
- Low urbanization
- Prevailing of primitive cultural practices due to conservatism

Population studies in Nigeria

Nigeria is the most populated country in Africa having 1/6 of Africa's population with 389 ethnic groups like Hausa-Fulani, Nupe, Tiv, and Kanuri speaking a variety of languages like Hausa, Yoruba, Igbo, Fulani, I jaw and English.

The population of Nigeria stands at 149,229,090 with a population density of 1612 people, a growth rate of 1.999%, a birth rate of 36.65/1000, and fertility rate of 4.82/woman and a life expectancyof

46.94 Years.

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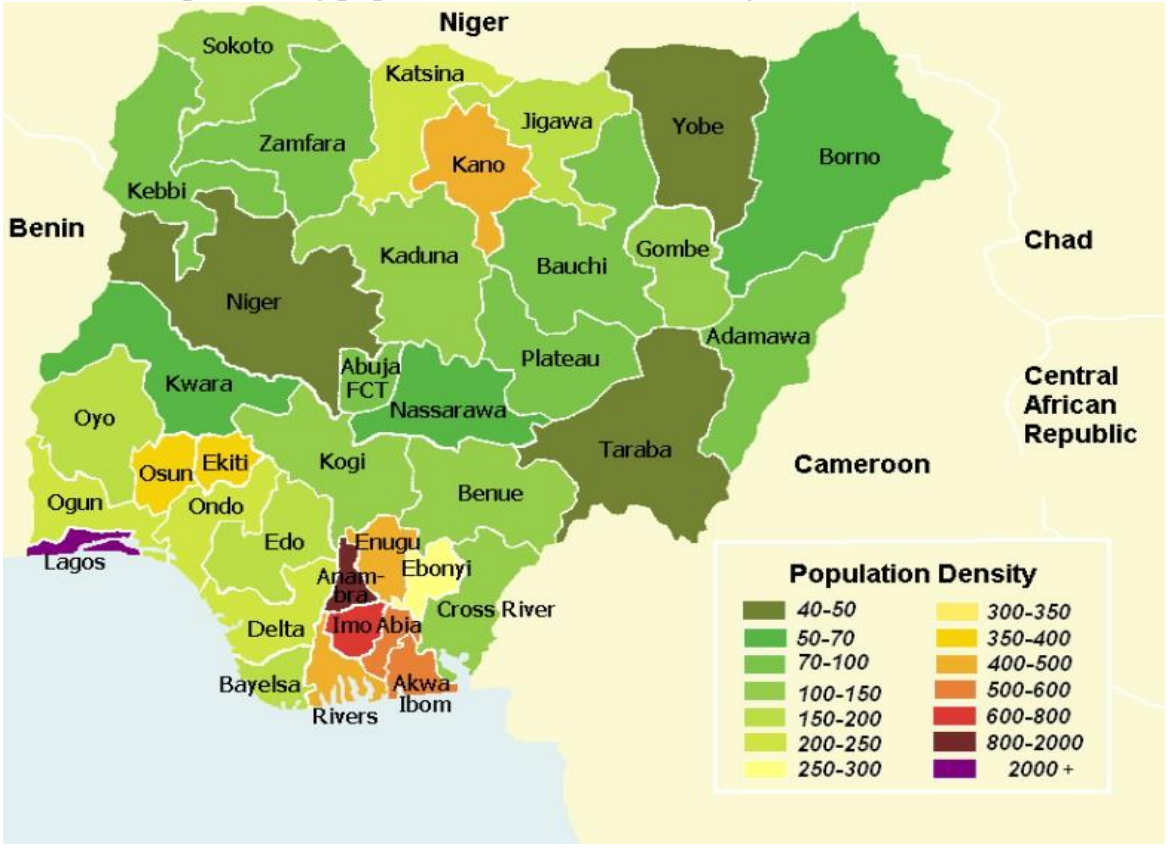
Sketch map showing population distribution in Nigeria



Summary table

Age group	Percentage	Male	Female
0-14	41.5	31,624,050	30,242,637
15-64	55.55	42,240,641	40,566,672
65+	3.1	2,211,840	2,343,250

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Factors for population distribution

- The general relief- the most inhabited areas are the plateaux, coastal low lands, river valleys where agriculture and settlement is possible.
- Climate- being a mix of tropical savanna in the central, equatorial in the south and desert in the north
- Soils- the sandy soils in the north, alluvial soils in the valley areas and coastal lowlands with deltas
- Vegetation- the desert vegetation in the north has discouraged settlement savannah in the east, equatorial vegetation in the west and south
- Mineral deposits especially in the south with great oil potential in the Niger delta
- Government policy- this aimed at resettling people in the west that was vegetated and the arid north sparsely occupied by the pastoral Fulani
- Industrialization- setting up of manufacturing industries in the south, east and north
- Urbanization- the increasing level of urban development in the south, west and along the Niger river valley
- Well laid transport and communication networks in the south delta area, west and central parts.
- Influence of ancient kingdoms especially in central and southern parts e.g. Hausa, Yoruba, etc
- Economic activities- the early practice of slave trade along the West African coast (Trans- Sahara and Triangular trade) greatly depopulated some coastal areas especially in the southwest and the collecting centres of slaves and trade items remained densely populated.
- Culture- the pastoral nature of the Fulani in the north makes the population projections unstable
- Religion- the dominance of Islam especially in the central and northern parts
- Natural occurrence- the southward movement of the Sahara and the consequent transhumance of livestock farming in the northern and southern parts

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Effect or impact of the high population in Nigeria

- Consider advantages and disadvantages of high population

Assignment: Using the knowledge obtained from population of Nigeria; study the population of Egypt.

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