# GEOGRAPHY BOOK 4 SUPPLEMENTARY NOTES.

Chapters

Chapter. 25.

# MINERAL RESOURCES AND MINING IN AFRICA

Mining is the extraction of organic and inorganic substances found in rocks naturally like metallic, none metallic and mineral, fuels.

Methods of mining.

**Open cast mining:**

This involves breaking the earth crust using explosives, tractors, excavators, machines, mining equipments.

It is mostly used for getting minerals which are near the earth surface e.g. copper, diamond, iron ore, limestone, sand and clay.

It is commercial and cheap but it causes a lot of environmental degradation. Less accidents, skilled labour and cheap transport.

**diagram**

Tasks

a. *Suggest minerals which can be mined using this method*
b. *With the aid of the diagrams, describe the process of open cast mining*

c. *What are the advantages and disadvantages of this method of mining*

**Adit, Tunnel, Shaft mining: (underground mining)**

This involves digging tunnels and shafts which are vertical and horizontal into the earth crust and it is mostly used for getting minerals in deeper layers like concealed copper, coal.

The minerals are exploited underground using explosives and they are transported by using railway wagons moving on conveyor belts.

It is commercial but it needs a lot of capital, skilled labour, technical and it causes less environmental damage.

Diagram

**Task**

a. *Suggest minerals which can be mined using this method*
b. *With the aid of the diagrams, describe the process of underground mining*
c. *What are the advantages and disadvantages of this method of mining*

**Drilling method.**

This method is used in the extraction of oil and natural gas from the ground onto the surface. This method Use of machines known **as drecks:** This is used for exploiting minerals like oil, petroleum, natural gas. It is an expensive method and it needs a lot of skilled labour and technology.

This method involves a drill which is sunk into the ground and upon reaching the liquid, the mineral flows surface ward due to differences. Pumping the fluid out is also done

**diagram**

**Advantages of drilling method**

- They are easy to set up and organize in terms of numbers and equipment.
- They are easy to monitor
- Many can be used as purely fitness activities
- etc

**Disadvantages of drilling method.**

- Accidents due to collapse to tunnels
- Landslides due to instability of the land
- Air pollution within tunnels causing deaths
- etc

**Alluvial mining or placer method:**

This is mining on a small scale by using simple technology or traditional methods. It is mostly used for getting minerals in small quantities e.g. gold, tin, platinum, Aluminum, and the method is cheap but it leads to low production which is not good for commercial purposes.

## CASE STUDIES OF MAJOR MINING COUNTRIES IN AFRICA.

### MINING IN SOUTH AFRICA

South Africa is gifted /blessed with plenty of mineral resources and the country has the most developed mining sector in Africa. Minerals mined in South Africa include: gold, diamonds, coal, iron ore, tin, manganese, platinum, uranium, chromium, phosphates, copper, asbestos, limestone, zinc, and nickel among others.

**Gold mining in south Africa.**

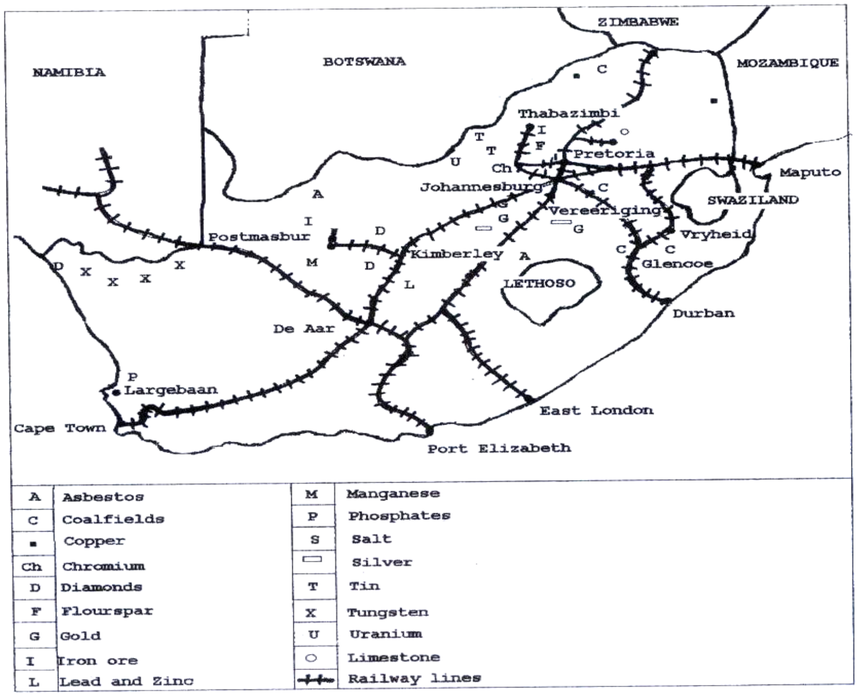
Gold is a heavy, fairly soft yellow metal and easily molded. It is greatly valued by man since it is the world's money (international currency). South Africa has the world's largest known reserves of gold. Gold mining takes place on the Rand (Witwatersrand) covering parts of the Orange Free State and Transvaal.

**The main gold fields of the Rand include:**

- Johannesburg
- Springs
- Krugersdorp
- Klerksdorp
- Rietfontein
- Odendalsrus

Gold mining started in 1886 and many people came in to dig/exploit this precious metal and eventually big companies.

***A sketch map showing the minerals of South Africa.***




**Method of gold mining in South Africa**

1. ***Suggest methods of mining used in the extraction of gold in south Africa?***

Gold mining in South Africa is similar to copper mining in Zambia (using the underground / shaft method). The rocks which contain gold are called reefs

**NB**: The minerals which occur with gold include: uranium and silver.

Other African countries with significant gold deposits include: Ghana, Zimbabwe, and Democratic Republic of Congo (DRC).

**Conditions which have favoured gold mining in South Africa**

- Presence of large gold reserves /deposits which encourage investment in the mining sector/making mining economically viable.
- High quality of the gold mines, with gold being a very precious metal used as international currency encourages mining investment.
- Presence of cheap labour to work in the mines provided by local people and migrants from neighboring countries.
- Presence of skilled labour to carry out extraction and processing provided by foreigners and locally trained people.

- Presence of sufficient/adequate capital to invest in the mining sector provided by foreign and local companies.
- Presence of a ready market for gold both locally and internationally.
- Availability of large power supply for mining and processing such as hydroelectricity, coal and oil.
- High level of technology used by mining companies such as use of caterpillars, shaft /underground mining to increase production.
- Efficient transport and communication system such roads and railway to transport gold to processing centres and markets.

- Positive/supportive government policy such as encouraging local and foreign investors, controlling the mining activities.
- Increased research to discover more valuable gold fields and advancing the mining technology.
- Political stability of South Africa which encourages many investors in mineral exploration, extraction and processing.

Task

a. *Why do you think gold mining is important to the development of south Africa?*

**Uses of gold**

- Mainly used in jewelry industry.
- Used in gold craft industries
- Internationally used as money and hence a medium/standard of exchange.
- Etc

b. *Explain the problems affecting gold mining in south Africa*.

c. *Identify other minerals which are mined in south Africa and where they are mined.*

**Diamond mining**

Diamonds are formed beneath the ground by great heat of volcanic activity and occur in rocks called **kimberlite**.

The leading producers of diamonds in Africa include: DRC, South Africa, Botswana, Ghana, Namibia, Sierra Leone, Tanzania, and Angola.

In South Africa diamond has the greatest deposits in **Kimberley** and **Hope town** in the Rand. Other mines include: the premier mine near Pretoria, Bultfontein, Jagersfontein, and Klopfenstein.

Most industries connected with diamonds are found in Johannesburg—with most of the diamond cutting factories plus diamond research centre.

*Note: Diamonds are a hard material, form of carbon and look like pieces of ice. When cut they glitter and shine beautifully. But they are difficult to find, mine and recover from parent rock.*

**Method of diamond mining**

Diamond mining is done using:

- Open-cast mining
- Shaft/underground mining

South Africa also has alluvial deposits. These are found along the Vaal—Hartz—Orange valleys, in stream beds, dried up river courses and on river terraces.

It is believed that these deposits were removed from their original pipes many years ago by riverine and rain-wash erosion and hence deposited. Such deposits are also located along the coastal margins in marine sands and gravels between Fort Nolloth and Walvis Bay.
Such alluvial diamonds are mined using a method called **placer or alluvial mining**. In this method a steel dredge or a gravel pump is used to dig up the alluvial deposits (waterlogged alluvium).

The alluvium is mixed with a great deal of water. The mixture is rotated and, in the process, the lighter particles (sand, mud, dust) are washed off, leaving the heavier ores (diamonds settled down.

***A sketch map showing the diamond fields of South Africa***

**Uses of diamonds**

- Used in making jewelry
- Making industrial equipment like drill bits and abrasive drilling wheels.
- Cutting tools in industries
- White sparkling diamonds are cut into pyramidal gems.

**Coal mining**

Coal is a major industrial mineral especially for iron and steel industries. It is also used to generate electricity alongside other sources of power. Southern Transvaal is the leading coal producing state in South Africa. Huge deposits occur at Witbank and Vereeniging.

**Iron ore mining**

Iron is possibly the most useful metal. In South Africa large deposits occur in Pretoria, Middleburg, Waterburg, Vryburg and north western Cape.

***Problems facing the mining sector in South Africa***

- Shortage of labour to work in the mines and related industries which undermines production.

- Shortage of water needed in processing of minerals especially in the Rand which also limits production.
- Price fluctuations of minerals on the world market leading to uncertain incomes.
- Competition with other mineral producing countries like Ghana, DRC producing gold which limits the available market.
- Long routes to the coast which increases the transport costs.
- Labour unrest which often leads to strikes and hence limiting production. This is due to poor working conditions and racial segregation.
- Accidents occur during mining leading to loss of life such as due to falling rocks.
- Suffocation due to lack of fresh air and flooding of the mines which scares away many potential workers.
- High costs of mining due to increasing depth of the mines.
- Exhaustion of some high-grade mineral deposits due to over exploitation.

***Solutions to the problems facing the mining sector in South Africa***

- Recruiting labour from neighboring countries such as Swaziland, and Mozambique to minimize labour shortage.
- Construction of dams to trap water such as Vaal dam and Vaal Barrage on Vaal River. Underground sources are also tapped to minimize water shortage.
- Carrying out market research in order to expand market for the minerals.
- Emphasis on processing the minerals into finished goods to minimize the effects of price fluctuations on the world market.
- Controlling production to reduce price fluctuations.
- Abolition of apartheid which has reduced racial segregation and labour unrest.
- Emphasis on production of high value minerals such as gold and diamonds to offset the high costs of mining.
- Pumping fresh air into the mines to reduce suffocation and tunnels are supported to prevent collapsing.

*Table 25.2. sectors contributions to mineral exports in south Africa.*

| Minerals | Quantity in percentage. |
|---|---|
| Gold | 17 |

| | |
|---|---|
| PGM | 26 |
| Iron ore | 20 |
| Coal | 18 |
| Diamonds | 03 |
| Manganese | 06 |
| Chrome | 02 |
| other | 08 |

*Source: chamber of mines estimates; stats SA (2016)*

a. *illustrate with a suitable diagram to portray the information in the table above.*

**COPPER MINING IN ZAMBIA AND CONGO;**

Mining is the most important economic activity in Zambia and the dominant mineral is copper. Zambia's deposits are found in a 50km wide belt extending from Ndola–Luanshya areas north westwards to Bancroft. These deposits are continued into Zaire through Lubumbashi.

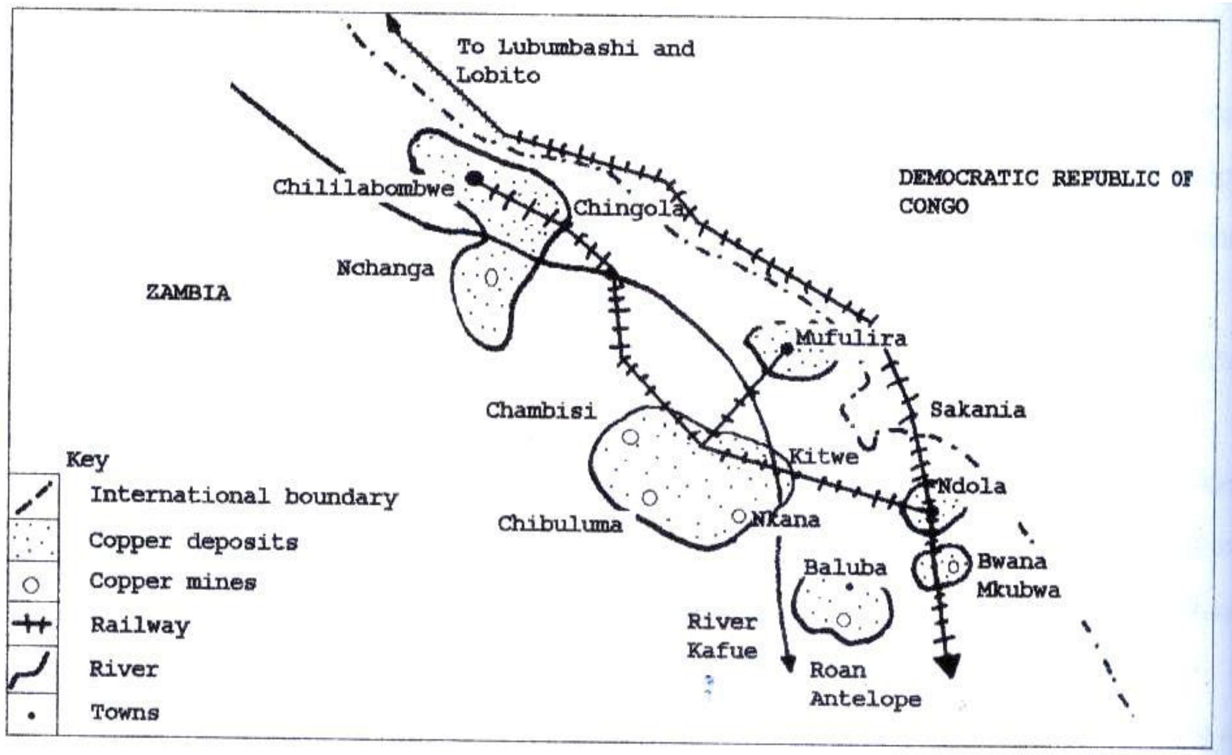
Mining started in the old mines of Roan-Antelope, Nkana, Mufulira, and Chibuluma. Copper mining is the largest customer of railway transport and power.

Other minerals in the Zambian copper belt include:

- Cobalt in Chibuluma and Nkana
- Gold and silver are removed during copper processing
- Zinc, manganese, and lead mined at Kabwe.

***NOTE: other copper producing countries in Africa include: Democratic Republic of Congo, South Africa, Zimbabwe, Namibia, and Morocco.***

***A Sketch map showing the Zambian copper belt***




**Factors which have favoured the development of the mining sector in Zambia**

- Presence of extensive/large deposits of copper. The copper belt covers 50km wide and 110 km long, hence economically viable to exploit for a long time.
- Nearness of some minerals to the surface, making the use of the cheap open cast method possible.
- Presence of cheap labour to work in mining sector provided by nationals, since there is no gainful employment in agriculture.
- Presence of skilled labour provided by foreign companies for high quality production in refining and processing. Even local people have been trained.
- Availability of large quantities of power supply necessary for processing and smelting mainly got from Kariba dam on river Zambezi and Kafue power station.
- Presence of large sums of capital mainly provided by foreigners who invest money in extraction and processing of copper.
- Presence of a large market for copper such as United Kingdom and Japan. Copper is used in making electrical appliances, armaments, minting coins among others.

- Improved transport infrastructure such as the completion of the Tazara railway connecting the copper belt to Dar- es-salaam port for export.
- Improved technology (such as the use of caterpillars) brought in by foreign companies to increase efficiency, making mining relatively cost-effective/increasing efficiency.
- Supportive/positive government policy towards the mining sector. The Zambian government has a controlling interest in the mines administered by the Zambian consolidated copper mines company/corporation.

**Methods of copper mining**

There are two types of mining used:

- Open cast mining
- Underground mining

**Open cast mining**

This method is used when the copper ore is near the surface. The top soil is removed and the copper ore is blasted using explosives. The copper ore is then crushed to reduce the size. It is then loaded into trucks and taken to the processing plants.

Open cast mining exists at Kalengwa, Baluba, Bwana mkubwa, Nchanga mines.

**Shaft/ underground mining**

A large part of Zambia's copper production comes from underground mines, and therefore underground/shaft mining is greatly used. Vertical shafts are dug into the ground to appropriate levels. From these, horizontal tunnels leading to the ore body are constructed. Supporters are provided from the roof to the floor of the tunnels.

The copper ore is then blasted using explosives causing shattering. The ores are crushed and loaded on small wagons and taken to the vertical shaft, and lifted to the surface, and taken to processing plants.

Underground mines exist at Nchanga, Konkola, Mindola (Ndola), Mufulira, Chibuluma.

**Uses of copper**

- Making household utensils
- Making wires for electrical equipment

- Minting of coins(money)
- Making military weapons (like bullets)
- Making machinery bearings
- Good alloy with zinc to form brass.

**Export routes**

Tanzam /Tazara railway –most of the copper is transported by railway to the port of dare s salaam for export.

**Railway to Lobito port in Angola.**

A combination of road and railway through Malawi to port Nacala in Mozambique.
The Zambian copper is exported mainly to United Kingdom, Japan, Germany, and Canada.

**Environmental problems resulting from mining sector in Zambia**

- Pollution of the environment in form of noise, dust from the mines and the discharge of toxic wastes from the copper refineries, which causes health complications.
- Destruction of vegetation where minerals are being extracted and hence destroying the habitat of wild life.
- Destruction of the soil structure/disfiguring of the landscape. It is also associated with soil erosion, and slides and general land degradation.
- There is stagnant water in the hollows/depressions created, hence breeding of disease-causing vectors. There is also flooding of the mines.
- Destruction of what would be agricultural land due to large quantities of waste rock debris deposited allover covering the soil.
- Influx/movement of people from rural areas to the mining centres which has also reduced agricultural production.
- Displacement of people due to development of large open cast mining with less or no compensation.

- Urban—related problems result such as traffic congestion, high crime rate, drug abuse.
- Emergence of ghost towns where minerals are exhausted and hence the towns abandoned.
- Regional imbalances in development in terms of infrastructure, since the areas without minerals are given less attention by government.
- Mining accidents occur leading to loss of life and property.

**Ways of solving the above problems**

- Environmental laws /standards put up to control pollution of the environment.
- Emphasizing reforestation and afforestation programmes to reduce vegetation depletion.
- Refilling of the mining pits/hollows to avoid stagnant water and possible accidents.
- Spraying with chemicals to kill disease causing vectors and medical treatment of the affected people.
- Resettling /re-location of the displaced people elsewhere.
- Strengthening urban authorities and police to control urban problems like drug abuse and high crime rate.

**Problems faced by the miners when extracting copper**

- Suffocation due to too much dust leading to diseases such as lung cancer
- Flooding of the mines at times which limits their work
- High underground temperatures (too much heat) unfavorable for workers.
- Collapsing roofs and flying stones leading to loss of life
- Noise pollution during mining reducing the quality of life.
- There are too many tunnels that sometimes the miners get lost. This is compounded by darkness of the mines which affects their work.

**Problems resulting from over dependence on one dominant export commodity (copper) in Zambia**

- Price fluctuation on the world market which greatly affects the economy by leading to uncertain incomes, and this was especially during the 1970s.
- Restrictive international commodity quotas which reduces the available market.
- Over exploitation leading to quick exhaustion of the copper.
- Neglect of other sectors of the economy such as diverting labour and funds from agriculture to copper mining.
- The closure of some mines leading to the problems of unemployment.
- Competition from other producing countries leading to narrow market
- Competition from synthetic substitutes which also reduces the demand for copper.
- Large scale exploitation of copper leads to environmental degradation such as ugly landscape created.

**Steps being taken to solve these problems**

- Efforts of diversifying the economy such as the growing of tobacco and maize; and developing the industrial sector.
- Zambia is now a member of regional and international agreements which is widening the market potential.
- Improving of the processed mineral quality to the acceptable international standards to expand its market.
- Importing of more food especially maize in order to supplement the available food supply.
- Controlling production to reduce price fluctuations.
- Opening up of new mines after the exhaustion of some old mines.

**General Problems facing the mining industry in Zambia**

- Exhaustion of some mines, since mining has taken place for long such as in Bwana Mkubwa and Roan-Antelope, this limits production.
- Due to exhaustion of minerals and closure of some mines, ghost towns have emerged with redundant infrastructure.
- Fluctuation of copper prices on the world market leading to uncertain incomes yet Zambia greatly depends on copper exports.
- Accidents occur during mineral exploitation leading to loss of life such as due to falling rocks.
- Limited power supply for the mines and this has resulted into importation of coal from Zimbabwe.
- Landlockedness of Zambia with no direct and easy access to the sea. It has to export through other countries which are often in political unrest such as Zimbabwe, Angola, and DRC.
- Increasing costs of mining due to increasing depth of the copper bearing rocks (seams/layers).
- Profit repatriation by the foreign owned companies (such as Anglo-American company) resulting into loss of revenue.
- Competition from other countries producing copper such as USA, DRC, and South Africa which limits the market for Zambian copper.
- Limited labour supply to work in the mines and the poor working conditions there which limits copper production.
- Underdeveloped technology and use of depreciated machinery in some areas, which limits efficiency in mining sector.

**Possible ways of solving those problems**

- Opening alternative routes for copper exports.
- Building political relations with the neighbors for easy exportation of copper.
- Opening up new mines where some are exhausted.
- Carrying out market research to widen the export market for copper.

- Recruitment of labor from the neighboring counties such as Angola, DRC, Malawi to work in the mines.
- Replacement of the old and outdated machinery with new modern machinery to increase production.
- Emphasize processing of mineral ores into manufactured goods to minimize the effects of price fluctuations on the world market.
- Pumping fresh air into the mines to reduce suffocation.
- Supporting tunnels to prevent collapsing.

***The Shaba—Zambia copper belt***

**OIL IN NIGERIA.**

Nigeria is the largest producer of oil south of the Sahara. Oil mining started in 1937, but commercial production started in 1956. Large scale oil fields / deposits exist in the Niger delta and offshore in the ocean. Refineries exist at Port Harcourt, Warri, and Kaduna.

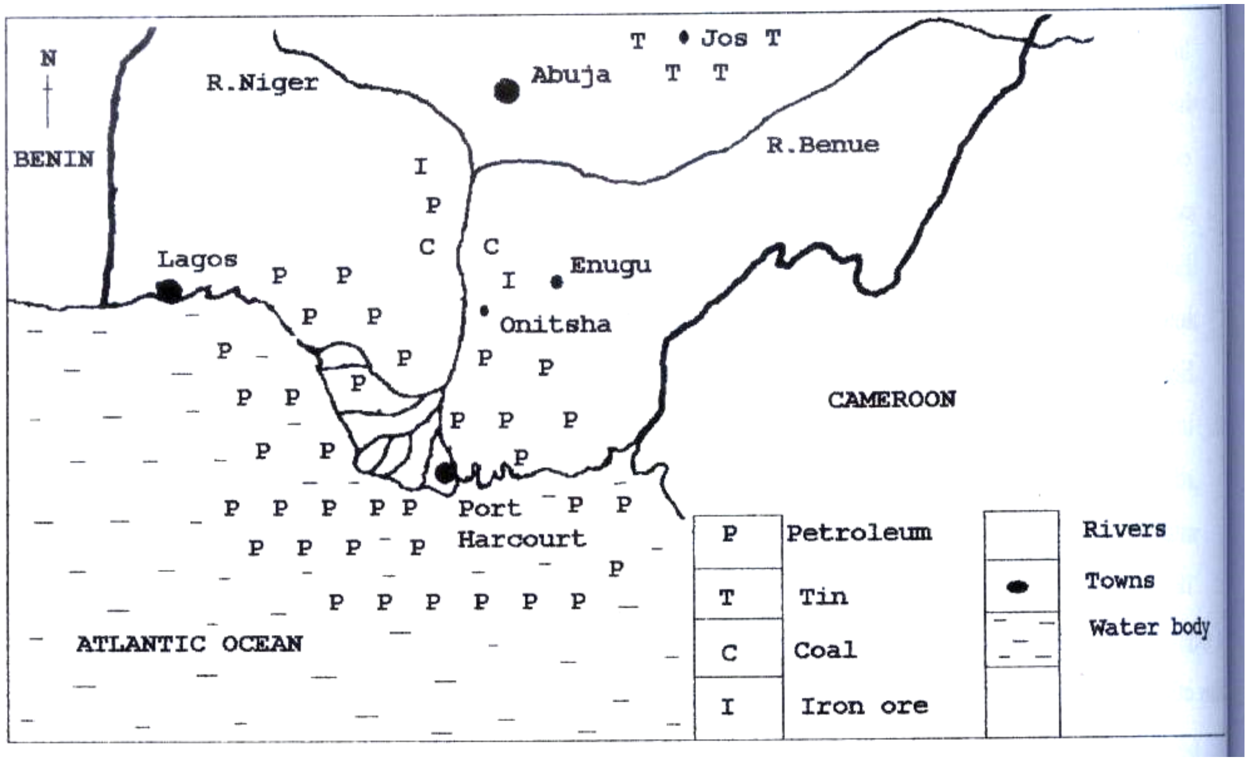
In Nigeria many companies both domestic and foreign are engaged in the oil industry such as shell—BP, Gulf, Mobil, Texaco, Nigerian national oil corporation.

Most foreign companies originate from Britain, USA, France, Italy, Japan, and Germany. Apart from oil/ petroleum, Nigeria produces natural gas, a cheap clean industrial

fuel. Other important minerals in Nigeria include:

- Iron ore at Enugu and Itakpe near Lakoja
- Coal mined at Lafia and Enugu supplying power
- Tin in Baunchi on Jos plateau

***A sketch map showing the distribution of minerals in Nigeria***




**Note:** other countries producing oil in Africa include Libya, Algeria, Egypt, Angola, Namibia, Ivory Coast, Sudan, among others.

**Process of oil drilling**

- The basic equipment for oil drilling is a derrick—which is a steel tower about 40m high.
- Exploration /prospecting/survey of the oil is done and installing of the derricks/oil rigs follows.
- The derrick carries a drill stem on which steel drilling pipes are screwed /attached, having a drilling bit. The drilling bit is used to drill into/cut through the rock strata/layers to reach the oil well below.
- Lubricating mud is pumped into drilling pipe to lubricate the bit and to bring up rock samples.
- Once the bit reaches the oil stratum/layer, crude oil rushes out by natural pressure or pumped out to the surface using oil pumps if natural pressure is weak.
- The oil is then transported through pipes, fuel tankers, trucks to the refinery.

*Illustration*

**Transportation of oil**

(a) Pipe lines

This is the cheapest and most efficient way of transporting oil. The initial cost in laying the pipes is high but cheap in the long run and simple to operate and maintain.

(b) Tankers

These are special cargo vessels designed to carry oil only.

(c) Oil trucks

These are more used for important delivery of the refined oil.

**Marketing of oil**

Oil from African countries (like Nigeria) is exported to countries like USA, United Kingdom, Italy, France, Germany and Belgium. Nigeria became a member of OPEC (Organization of petroleum exporting countries) in the late 1970s.

**Uses of oil/ petroleum**

1. Providing fuel for transport vehicles, airplanes, ships, railway transport

2. Used to generate thermal electricity used in industries, homes, and institutions

3. Oil is a lubricant in vehicles, machinery and other appliances (Greece, engine oil)

4. Used in making plastics, fertilizers, insecticides, drugs, perfumes, detergents, acids, synthetic rubber and fibres

5. Making tar (Asphalt),

6. Making gases, and spirits.

**Problems of over depending on crude oil as an export**

1. Price fluctuations leading to unstable incomes

2. Over exploitation of crude oil leading to quick exhaustion

3. Closure of some mines leading to problems of unemployment.

4. Over production leading to a fall in prices and low incomes

5. Competition from other producing countries leading to narrow market

6. Restrictive international commodity quotas reduce market hence low export earnings

7. Neglect of other sectors hence limited resource base

8. Competition from alternative sources of energy which limit income/ market

9. Large scale exploitation leads to environmental degradation such as by disfiguring the landscape.

**Factors which have favoured the development of the mining sector in Nigeria**

- Presence of large reserves of minerals in the country. For example, large reserves of oil at Oloibiri, port Harcourt and offshore deposits.

- Presence of adequate capital to invest in the mining sector such as oil drilling, oil refining—provided by local and foreign investors.
- Large supply of skilled and semi-skilled labour to work in the mining sector, brought in by the foreign companies and those trained locally such as engineers, geologists
- High level/improved technology employed in mining such as oil drilling pipe technology and refining technology.
- Presence of a large market, both domestic and foreign. Nigeria mainly exports oil to USA, United Kingdom, Italy, France and the rest of Africa.
- Efficient transport system. Nigeria is not landlocked and is lucky to have oil reserves at the coast which minimizes the transport costs to export markets.
- Large quantities of power in form of hydro-electric power at Kainji dam on Niger River, oil and natural gas to support the mining industry.
- The setting up of various processing industries such as the port Harcourt refinery, at Warri, and Kaduna, to increase the quality of output.
- Positive/ supportive government policy such as encouraging many companies to invest in the mining sector.

- Nigeria is also strategically located reasonably close to the markets in Western Europe, USA and South America which leads to easy exportation.

**Problems resulting from oil mining (negative effects of mining sector)**

- Pollution of the environment, involving water, air and noise pollution from the mines and processing industries.
- Results into underdevelopment of rural areas. Distant people have been attracted to the mining areas, hence neglecting rural activities like agriculture.
- Dereliction of land, disfiguring of the landscape where mining has taken place. After exhaustion of minerals, wasteland is left behind.
- Profit repatriation by the foreign—owned companies such as shell, Texaco. These send profits back to their home countries.
- Resulted into income inequalities. High wages are paid to workers in the sector unlike other sectors.
- Results into regional imbalance in development, in terms of infrastructure. Mining zones are more developed than other areas.
- Urban—related problems such as unemployment, high crime rate, slum growth, among others.
- Results into destruction of vegetation when clearing mining sites which has damaged the landscape and water sources.
- Displacement of people from areas where minerals (oil wells) were discovered, with les or no compensation.

**Effects of mining on environment / importance**

- Source of government revenue by taxing people and companies leading to high incomes and the improvement in social services and investment opportunities like development of industries.

- Conflicts over ownership of mineral resource areas

- Provision of employment opportunities like in mining gold, coal in areas of in processing factories leading to high standards of living.
- Source of foreign exchange by exporting minerals and their products like gold, coal, oil to countries
- Improvement in social services around the mining areas like water and power supply, health facilities leading to high standards of living like in the mining areas.
- Economic diversification by influencing other economic activities like trade, transport, industrialization.
- Promotion of education and research activities by visiting mining areas, mineral processing areas leading to acquisition of skills, improvement in science and technology
- Growth of urban centres, ports and towns because of high industrial activities helping in promoting trade and improving social services.
- Promotion of international relations and regional cooperation by exporting minerals and their products.
- Improvement in transport and communication by constructing roads, railway lines, ports connecting the mining areas and marketing centers.

Etc

*Chapter 26.*

## *INDUSTRIAL DEVELOPMENT IN AFRICA*

Industry involves transforming raw materials into finished or semi-finished goods. Industries are either heavy or light industries.

Many African countries have established industries which are at different stages of development. South Africa is the most industrialized country on the continent. Others are Egypt, Nigeria, Zimbabwe, Morocco, Ghana and Angola.

**Industry in South Africa**

Rapid industrialization has taken place in South Africa and the country is a major exporter of industrial goods.

**Distribution of industries**

The heart of South African industry today lies on the Rand (Witwatersrand) and Johannesburg is the heart of the Rand. Specifically, the major industrial centres of the Rand are:

**1) Johannesburg**

The major industries include iron and steel, manufacture of railway wagons, mining machinery, vehicles, farm machinery, textiles, electricals, chemical, furniture, and cement.

**2) Pretoria**

This is the administrative capital of the country. The industries include iron and steel, glass, cement, cables, motor engineering etc

**3) Vereeniging and Vanderbijl park**

This is a major coal mining, engineering, and iron and steel centre. There is also tin plate industry, manufacture of alloys.

**4) Germiston**

This town is a home of the Rand's gold refinery. It produces metal goods, chemical, textiles and foods.

**5) Springs**

The main industries are gold and coal mining, mining machinery, food processing, electrical goods, bicycles, printing machinery, glassware, paper etc

Apart from the Rand, other industrial zones of South Africa include:

**a) Cape town**

Major industries include food processing, textiles, vehicle assembly, chemicals, leather, printing, paper.

**b) Port Elizabeth**

Industries include food processing, vehicle assembly, tyre manufacture.

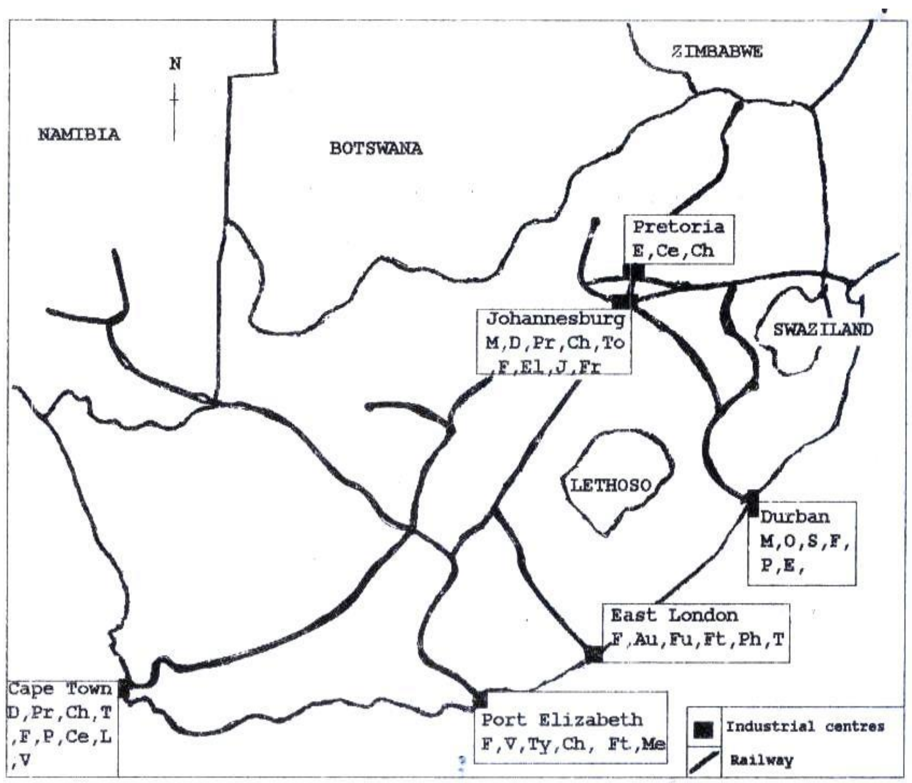
**c) East London**

Industries include soft drinks, furniture, building materials, textiles, vehicle assembly.

**d) Durban**

Industries include shipbuilding, oil refinery, soap manufacture, textiles, light engineering etc

***A sketch map showing the industrial regions of South Africa***




**Factors which have favoured industrial development in South Africa**

- Availability of a wide variety /large quantities of raw materials used in industries to make goods such as mineral resources, water resources, forest resources and agricultural resources.

- Availability of various sources of power to run industrial machinery in form of coal, HEP from Vaal dam.
- Availability of strong capital base/ adequate capital to invest in industrial development provided by the government and private investors.
- Presence of skilled and unskilled labour to work in industries. The unskilled labour is provided by the blacks and migrants from neighboring countries.
- Well-developed transport system by road, railway, water and air to transport/move inputs and finished goods.
- Presence of a ready/large market for produced goods, both domestic and foreign.
- Availability of vast land for industrial establishment and expansion.
- Supportive/positive government policies to promote home production instead of importation/ carrying out market research/encouraging investors etc.
- High level of technology employed to improve the quality of output copied from Japan, Europe and North America.
- High industrial research such as on engineering technology and industrial products; to improve the quality and quantity of output.
- Internal competition between and among industries in South Africa; which leads to high quality production.

**Problems facing industrial development in South Africa**

- Shortage of water for industrial use especially in and near the Rand, which limits production.
- Artificial raw material shortages due to strikes leading to low output/ which increases the cost of production.
- Racial segregation causing industrial strikes/riots which limits the quality and quantity of production.
- Competition from other industrial countries which limits the exports market for output. There is also competition from imported industrial goods which limits the local market for the industries.

- Inadequate supply of hydroelectric power for industries which limits production.
- Environmental pollution which undermines the quality of production/ increases the costs of production (such as purifying water).
- Dominance of foreign industrial investors who repatriate the profits instead of investing back in the industrial sector/ limits further investment in industry.
- Fluctuations in labour supply due to migrant nature of labour which also undermines industrial production.
- Shortage of land for industrial expansion in the highly industrialized zones, which also limits production.

- High taxes imposed on industrial output and industries by government which increases the costs of production.

**Steps taken to solve the above problems**

- Importation of raw materials from other countries to minimize domestic shortages and increase production.
- Use of raw material saving technology such as recycling of waste material to minimize raw material shortages.
- Establishment of related industries which use the products of other industries as inputs, hence increase in industrial production.
- Government efforts of sensitization of the masses against racial segregation to minimize industrial unrest.
- Protection of local industries from foreign competition by levying higher taxes on similar goods from abroad.
- Strengthening regional cooperation to expand the markets such as south Africa is a member of COMESA.
- Diversification of energy sources such as nuclear energy and HEP replacing coal to increase energy supply.
- Emphasizing treatment of industrial wastes to reduce environmental pollution.

- Enforcing anti-pollution laws / legislation to control pollution.
- Adopting automation of industrial activities / more use of machines to minimize labour shortage.
- Carrying out market research and advertising to expand market for output.

***General factors limiting industrial development in Africa***

- Inadequate capital to set up large scale industries and thus limited quantity of production.
- Limited skilled labour to operate especially the large-scale industries, which limits the quality and quantity of output.
- Limited market domestically due to the low incomes of the people and this discourages industrial investors.
- Low levels of technology leading to industrial inefficiency (low quality and quantity of output).
- Landlockedness of many countries and hence high transport costs and delays in delivery of raw materials and finished goods.
- Underdeveloped transport routes connecting industries and market centres which discourages local and foreign investors.
- Competition from well-developed industrial countries which limits the export market for industrial output.
- Political instability limiting investment in industries such as DRC, Liberia, and Somalia due to reduced confidence of investors.
- Limited industrial research and hence limited quality improvement of output.
- Insufficient power supply to run industrial machinery and this discourages investors.
- Limited/inadequate basic raw materials for industries, hence limiting the quantity of output.
- High taxes imposed on industries by government, hence increased cost of production.

***Strategies to encourage industrial development in Africa***

- Attraction of foreign investors to raise capital and upgrade industrial production.

- Training more local manpower to increase the quality and quantity of industrial output.
- Formation/ strengthening of regional integrations/organizations to expand market for industrial output.
- Carrying out research to develop technology and increase efficiency in production.
- Improving transport network for easy delivery of raw materials and output.
- Carrying out market research to widen the external market for output.
- Protection of some local industries from foreign competition by levying high taxes on similar imported goods.
- Diversifying the sources of energy such as use of H.E.P, oil, and nuclear energy for industries.
- Importation of some raw materials to supplement the limited domestic resources.
- Diversification of the industrial sector to avoid over reliance on a few industrial products for exports.
- Adopting raw material saving techniques such as recycling of scrap items.
- Automation of industrial activities/ increase mechanization to minimize labour shortage.
- Restoring peace and stability in various parts of the respective countries to increase confidence among industrialists.

## Chapter. 27

# MINING AND INDUSTRIAL DEVELOPMENT IN CHINA.

### Minerals and mining in china.

China's mining industry is enormous. It is the world's leading producer, often by a large margin, of more than 20 metals, including aluminum, cement, coal, gold, graphite, iron and steel lead, magnesium, rare earths, and zinc

china also carries out mining because it has mineral deposits. it has coal in abundance.

## MINING CENTRES IN CHINA.


*Figure 27.1: A map showing mining areas of China*

Mining area include Shanxi, Gansu and Tibet and minerals mined include coal, kaolin and asbestos, iron ore, fluorspar and mirabilite respectively

china has huge mineral resources such as oil, natural gas and coal which provide raw materials which favor industrial development. these raw materials also run the machines in the factories

*Task 2*

a. *Suggest methods of mining used in the extraction of coal in china*
b. *Why do you think coal mining is important to the development of china?*
c. *Explain the problems affecting coal mining in china*
d. *Explain the importance of minerals in the development of industries in china.*

**INDUSTRIAL DEVELOPMENT IN CHINA**

China was once an agricultural country with a few industries. however, since there is abundance of coal, oil natural gas and iron reserves a lot of effects were made to industrialize china with the rise to power of the communists in 1949.

**The main industrial regions of china.**

There are seven major industrial regions in china with different types of industries are located in the northeast, east, north, central south and southwest regions china.

the main industries include the following

- Iron and steel
- Lubricating oil
- Chemical industry
- Engineering
- Flour and oil mill
- Cotton textile mills.
- Oil refining.

**The main industrial areas.**

- Manchurian
- Beijing and Tientsin
- lower Yangtze
- etc.

**activity 27.2**

a. *what are the advantages of developing industries in china.*

*NB*:

china has a number of industries such as automobiles, electronics, pharmaceuticals and textiles. today china is the world's largest manufacturing country.

it produces nearly 50% of the world's major industrial goods, including steel, cement, coal and vehicles.

china is also the world’s largest producer of ships, high speed trains, robots, tunnels, bridge, highways, chemical fibers, machines tools, computers and sell phones.

**Evolution of industries in china.**

the first attempt was made between 1861 and 1911. it came on the heels of china’s defeat in 1860 by the British in the second Opium war.

Deeply humiliated by unequal treaties imposed by western industrial powers. the Qing monarchy that was then in control in china embarked on series of ambitious programs to modernize its backward economy including establishing a modern navy and industrial system.

**Task**

a. *how did industries evolve in china?*
b. *explain what was in the second five-year plan.*
c. *identify the industries which developed in china*
d. *explain the role of the government of china in planning industrial development*

ROLE OF AFRICA IN CHINA

Africa has emerged as a potential market for many Chinese businesses both states owned and private

**Activity 27.4** ***Understanding the role of Africa to china’s development***

a. *discuss the importance of Africa as a market for Chinese goods and investment.*
b. *identify any four Chinese products that are sold in Uganda*
c. *identify the projects in Uganda where the Chinese are investing*
d. *what are the merits and demerits of Chinese investment in Uganda.*
e. *of what importance is Africa in the economic development of china.*

*Chapter 28*

## POPULATION & URBANISATION IN AFRICA.

Population refers to the number of people living in a given area at a particular time/ over a specific period of time.

The study of population characteristics like growth, density, distribution, and movement is known as **demography.**

**Concepts related to Population.**

- **Population growth** Refers to the increase in the number of people in a given country/ region in a given period of time.

- This population growth is affected by:
- **Birth rate** Refers to the total number of children born alive per year per 1000 of the total population in a country / region.
- **Death rate** Refers to the number of people who die per year per 1000 of the total population.
- **Population growth rate** Refers to the percentage ratio of the death rate to birth rate per 1000 of the population per year.
  Or Refers to the rate at which the population of a country increases over a given period of time usually a year, expressed as a percentage.
- **Fertility rate** Refers to the average number of children a woman is capable of producing / bearing throughout her reproductive life (15-49 years). High fertility rates of over 6 children per woman are experienced in many parts of Latin America, Africa and South East Asia.
- **Infant mortality rate** Refers to the number of children who die before they are one year old per 1000 of the population in a given year.
- **Dependency ratio** Refers to the proportion of economically unproductive population (0-14 yrs) and (65+ yrs.) to the economically productive population (15-64 yrs).
  Children (0-14 yrs) and Elderly (over 65 yrs)

- **Rapid population growth** This is a situation where the rate of population growth is higher than the rate of economic growth to meet the demands of the increasing population.
- **Population census** Refers to the actual counting of the number of people living in the country at a given time.
- **Population pressure Refers** to the human weight exerted on the available resources of an area in a given period of time. It is a situation where the existing resources can no longer sustain the increasing population.
- **Life expectancy Refers** to the average number of years which people live from birth to death. Or average number of years a new born infant is expected to live (length of life).
- **Population density** Refers to the average measure of the total number of people per unit area of land.

- **Migration.** Refers to the movement of people from one place (origin) to another (destination). Population migration takes a longer span than say population mobility or tourism although they are interrelated. It is also sometimes temporary or permanent, internal or international.
- **Emigration** Refers to the movement of people out of a country. The people involved are called emigrants.
- **Immigrations** Refers to the movement of people into a country. The people involved are called immigrants.
- **Net migration** Refers to the difference between emigration and immigration.
- **Net migration gain** This is where the number of people coming into a country (immigrants) is more than the number of people leaving the country (emigrants).
- **Net migration loss** This is where the number of people leaving the country (emigrants) is more than the number of people coming into the country (immigrants).

**Factors leading to rapid population growth in Africa.**

Population growth refers to the change/ increase in the number of people in a given period of time. It is a result of natural population growth and net migration.

Rapid population growth is a situation where the rate of population growth is higher than the rate of economic growth to meet the demands of the increasing population.

**The causes of rapid population growth include:**

- High fertility rates among women in developing countries, in that, many women produce more children in their child bearing years, yet on the other hand there is a decline in the death rate due to improved healthcare, causing high population growth rate.
- Low levels of education. The less educated people prefer big families causing high birth rates. In developing countries there is a large number of school drop-outs leading to a long child-bearing period for girls.
- Strong belief in traditions and culture (that prefer large families)/ social benefits attached to many children. Many people see children as a source of wealth and prestige or

insurance in old age—, a source of labour in the field, dowry from girls –hence producing more children.

- Early marriages in many developing countries. Many people marry before the age of 20 years and therefore a long child bearing period / which increases the incidence of teenage pregnancies causing a high population growth rate.
- The prevalence of polygamy in many societies. This is also rooted in culture and promotes competition among the women who produce more children to please the husbands –leading to a high population growth rate.

- Low levels of income/high level of poverty. Most people lack productive economic activities to occupy them and resort to producing many children—causing a high population growth rate. Studies show that the poorest people have low ambitions in life unlike the middle class who have great material aspirations in life and find large families as a burden to their achievement.
- Low status of women in developing countries. Many women are poor, illiterate and many are full-time house wives lacking viable economic roles outside home, which causes high birth rates.
- Strong influence/effect of religion. Some religions work against population control measures like family planning using contraceptives. This position is in line with the holly books. Still some religions encourage polygamy.
- Limited use of family planning methods in developing countries. There is limited access to birth control devices partly due to being relatively expensive / unaffordable, limited sensitization and being urban-based. This explains why the family planning methods are mostly restricted to urban women and thus the high population growth rate.
- Increasing rate of immigration. This is in form of increased number of refugees from neighboring countries attributed to wars, displacements and famine among other factors. This leads to high population growth rate in the recipient country.

**STAGES OF POPULATION GROWTH.**

The population structure of developing countries greatly differs from that of developed countries because developed countries have a high life expectancy and a low rate of natural increase while the opposite is true for developing countries.

The best way to describe the population structure is the use of an age –sex graph / population pyramid.

**There are mainly/ majorly four (4) characteristic stages:**

**Stage I**

Most developing countries fall in this stage such as Kenya, Malawi, Uganda, Mozambique. This stage is characterized by the following:

- High birth rates due to a large number of people under 15 years of age (having a broad base)
- High death rates due to rapid fall in age-groups upwards
- A short life expectancy since the top is very narrow, implying very people living beyond 65 years.
- High infant mortality rate –evidenced by a rapid fall from the broad base
- Generally, females are more than the males in all age groups

**Reasons for the broad base**

- Limited use of birth control measures such as family planning devices
- Most cultures encourage polygamy
- Influence of religion such as Catholicism and Islam encouraging large families
- Social and cultural attachment to many children such as providing field labour.
- Low levels of education especially among women, making them to prefer large families
- Low desire for savings and investment among most people

**Reasons for the narrow apex**

- Rampant disease epidemics killing many people
- Poor medical services in many areas such as limited essential drugs, few doctors leading to high mortality
- Famine due to insufficient food supply in many areas
- Low life expectancy due to poor hygiene and malnutrition, with few people living beyond 50 years

**Stage II**

- This stage has a broad base due to high birth rates
- Relatively straight edged pyramid due to fall in death and increase in life expectancy.
- Due to reduced death rate/ mortality, a large useful population enters the production process to become economically active.
- India is seemingly at this stage, with 39% under 15 years, 3% over 65 years, and thus the remaining majority in the middle working age bracket.

Stage III

This stage is characterized by:

- Declining birth rate, young ones equal to those in the productive age bracket.
- As the death rate is much lower, more people are expected to live at an older age (top is convex shaped)
- Birth rates tend to be equal to death rates, and the population is said to be stagnant.
- Countries like Argentina are at this stage and has about % 26 % under 15 years and 8% over 65 years.

## Stage IV

Many developed countries are at this stage and the population structure is characterized by:

- Narrow base due to low birth rates i.e a small number in the pre-productive age groups
- Wider top/apex –a large population in the post-productive age groups due to increased life expectancy
- Low infant mortality and low death rates
- Wider productive age bracket (16-64 years)

## **Causes of the population structure of developed countries**

- Increased family planning through the use of contraceptives
- Increased industrialization and mechanization implying limited need for labour
- Increased desire for savings and investment among the people, hence less demand for large families.
- Increased government prohibition of large families through legislation.
- Emancipation of women, enabling them to follow their professional careers rather than being child bearers.

## EFFECTS OF POPULATION GROWTH IN AFRICA

- Results into increase in market potential/demand for goods and services. The size of the market increases as the population increases.
- Increases/ widens the labour force of the country. As the population increases more people enter the productive age bracket to enhance the production process.

- Increases pressure on government to undertake development programmes. The government is encouraged to provide social and economic infrastructure like roads, schools, and hospitals to cater for the increasing population.
- Encourages geographical and occupational labour mobility. Increasing population results into a big number of youths who are energetic and willing to move from one geographical area
- Increase in population stimulates investment/setting up of more production units to cater for the requirements of the population. This in turn increases national income.
- Promotes hard work among the population in the country. The individuals in the labour force are awakened to work harder in order to provide for the increasing population
- Results into increase in resource utilization especially natural resources such as minerals, water resources, forest resources in order to sustain the increasing population.
- Reduces the social overhead costs per person in the country. It becomes more economically viable/cheaper to provide social services since they are utilized by many

## Activity 28.5

1. ***what are the advantages of a rapidly increasing population in Africa.***

- Increasing population is source of market for locally produced goods leading to high production and employment to the locals.
- provision of large labour for agriculture and other sector of the economy
- lead to increased tax base of the country that leads to development of social and economic development.
- stimulates exploitation of natural resources leading to economic growth of the country
- it is the source of security to defend the country against robberies and rebel activities
- it brings about the innovativeness and inventiveness of the people as they try to satisfy the increasing demands

2. **what problems are most likely to result from a rapidly increasing population in Africa.**

- it leads to shortage of land resulting into land fragmentation hence low productivity

- shortage of social services leading to overcrowding on the existing amenities
- high crime rate due to unemployment, leads to easy spread of diseases due to overcrowding, under employment and un employment
- leads to rural- urban migration and its associated problems, problem of problem of shortage of housing facilities leading to growth of slum.
- high rates of immorality like prostitution and theft
- high government expenditure on the provision of social services
- environmental destruction that is destruction of vegetation, pollution
- source of taxes for the government which is used to develop infrastructure.

## POPULATION DISTRIBUTION AND POPULATION DENSITY IN AFRICA.

Population distribution refers to the way people are spread out in a given area on the earth's surface. The population of Africa is unevenly distributed.

The population is unevenly distributed and the densely populated areas include the Nile valley, Nile delta, Niger delta, Maghreb of north west Africa, Johannesburg industrial area of south Africa, East and west African coastal regions

The moderately populated regions are Ethiopian highlands, and Margins of the densely populated areas
The sparsely populated areas include Sahara Desert areas, Namib and Kalahari Desert areas, Hot-wet forests (such as the Congo basin areas, Gabo

### Factors influencing population distribution in Africa

**Physical factors**

**Climate**.

Areas which receive heavy and reliable rainfall, and hot temperatures favor arable farming/ crop growing hence attracting dense population such as south east Nigeria, Lake Victoria, and Kenya highlands. However, areas which receive low and unreliable rainfall of less than 500mm per annum and very hot temperatures discourage crop farming leading to sparse population such as Kalahari Desert areas.

**Soils**.

Areas with deep / well-drained fertile soils promote crop growing hence attracting dense population such as the fertile alluvial soils of river valleys and deltas such as South West and South East Nigeria, Nile valley and Nile delta. The volcanic rich soils of the Kenya highlands and Ethiopian highlands also support crop growing and hence attract moderate to dense population.
However, areas with thin /infertile soils such as Sahara Desert areas with sandy soils limit crop growing hence leading to low population density.

**Altitude**.

Population decreases with increase in altitude in response to environmental conditions such as reduced atmospheric pressure, low oxygen content, dampness and cold temperatures. This explains why there are very few settlements above 2700m above sea level on the highlands of Africa like Mt. Kilimanjaro. However, areas of low altitude have warm conditions which attract dense settlement such as the coastal regions of West and East Africa.

**Relief**.

In the high mountain areas such as Rwenzori, Mt. Cameroon, the rugged relief/ steep slopes limit construction of structures and mechanization of farming leading to low population settlement. However, areas of relatively flat relief/ gentle slopes or the foothills of the mountains encourage construction of structures and mechanization of farming hence leading to dense settlement.

**Vegetation**.

The dense /thick forest vegetation such as tropical rain forests of the Congo basin and West African coastlands hinder the construction of transport routes/ are not easy to clear, and thus have sparse population. These areas also favour the breeding of mosquitoes that cause malaria. However savanna grasslands of Africa are easy to clear for various activities such as farming and thus have dense settlement.

**Biotic factors**.

Areas infested with diseases causing vectors such as tsetse flies—like the Miombo woodlands of Tanzania and the Fulani areas of Nigeria scare away people leading to sparse population settlement. However, areas free from disease causing vectors attract more people to settle and carry out various activities leading to dense settlement.

**Drainage.**

Water logged areas/ areas with periodic flooding have low population density due to problems in cultivation and construction. Such as the East coast swamps of Somalia. However well-drained areas encourage growing of various crops and construction leading to dense population such as plateau areas of central Uganda.

Presence of water bodies such as rivers, lakes, oases, springs. Desert oases like in the Sahara Desert favour some settlement due to provision of water and some little crop farming. Areas with large water bodies such as the Lake Victoria region favour various activities like farming, industry due to provision of water. However, areas without large water bodies such as Kalahari and Sahara Desert are sparsely populated due to limited water supply.

**Human factors**

**Economic activities such as industry, trade and commerce.**

Presence of many economic activities such as industrialized centers of Africa provide more employment opportunities to the people and hence attract dense population such as in Johannesburg and Pretoria in south Africa, Lagos and port Harcourt in Nigeria, Cairo and Alexandria in Egypt.

However, areas with limited economic activities such as mining, industry have less chances of employment, hence have low population density.

**Level of urbanization.**

The development of towns/ urban centers attracts a large population such as cape town and springs in south Africa, Mombasa and Nairobi in Kenya, Accra and Port Tema in Ghana, Free town in Sierra Leone, Yaoundé in Cameroon. These urban centres have developed banking facilities, insurance, entertainment, education, port facilities and thus offering more opportunities to the people. However, areas without developed urban centers offer less opportunities to the people and hence are sparsely populated.

**Level of development of transport routes.**

Areas with developed transport system such as along main roads, railways, rivers and coastal areas are easily accessible and thus promote economic activities like trade, farming hence attracting dense population as seen in the Mediterranean city of Alexandria and Cairo in Egypt. However, areas which are remote / far from main roads such as the Southern highlands of Tanzania are less accessible / limit economic activities leading to sparse population settlement.

**Culture**.

In some parts of Africa where people depend on primitive cultural ways of life such as shifting cultivation and fruit gathering there is sparse population such as parts of the Congo basin. areas where is nomadic pastoralism dominant until today areas, there is sparse population since the system requires large land area for grazing such as the Fulani areas of West Africa and Maasai regions of Southern Kenya and Northern Tanzania.

However, in areas where there are cultural changes and activities like modern dairy farming, trade and commerce. (like central Uganda, central Kenya) have developed there is a moderate to dense population.

**Historical factor**

**(a) Slave trade.**

There was compulsory transfer of people from some areas in the past. Slave trade depopulated some parts of Africa like the middle belt of West Africa, Southern Tanzania and Northern Zambia. Upto today these areas sparsely populated.

**(b) Duration of settlement.**

Areas of ancient kingdoms / with long history of settlement and with strong kingdoms attract more opportunities upto today such as trade, jobs; and thus, densely populated like Nile valley and delta of Egypt, Mombasa on the coast of Kenya, Ibo land and Yoruba land in Nigeria, Buganda in Uganda. While areas of relatively recent settlement or those with weak kingdoms have fewer opportunities for development leading to sparse population.

**Government policy.**

Governments deliberately direct people to migrate and settle in certain parts of the country for strategic, economic or social reasons. Government policy of forest conservation (such as national parks, forest reserves) discourages settlement in such areas leading to sparse population. Government policy of resettlement schemes, infrastructural development attract settlement leading to moderate to dense population.

**Political climate/situation**.

Areas which are politically stable encourage productive activities such as trade, farming leading to dense population. Examples are Kano region of Nigeria and western DRC. However, areas which are insecure / unstable such as Eastern DRC, Southern Sudan and Somalia discourage productive activities like trade leading to sparse population.

## ADVANTAGES AND PROBLEMS OF HAVING A LARGE OR RAPIDLY INCREASING POPULATION IN THE COUNTRY.

- A large population provides a great market potential especially for the manufacturing goods.
- A large population encourages rapid exploitation of the available resources such as land(farming), minerals, forestry, water resources and even tourism.
- A large population in a country leads to the provision of cheap labour which can be used in the various sectors of the economy.
- A large population distribution in a country stimulates rapid economic growth and development of a country.
- A large population in a country increase on the possibility of defense for the same i.e. a large population is easily mobilized for defensive purposes.
- A large market stimulates rapid economic development for the economy in relation to agriculture and industrial development.
- A large population provides a great potential for future investment.

METHOD THAT CAN BE USED TO CONTROL RAPID POPULATION GROWTH.

- Encouraging family planning methods to reduce on the birth rates involving the use of pills, condoms and other contraceptives.
- Encouraging outward migration from the densely populated region to the sparsely populated areas.

- Encouraging monogamy to reduce polygamy.
- Rising the marriage age for girls to reduce early marriages.
- practicing one child policy in rapid populated countries.
- giving sex education to the teenagers to control the unwanted polygamy.
- etc.

## URBANIZATION

- Urbanization is the growth and development of towns
- Urbanization is a process where by an increasing number of formerly rural residents become residents in towns or urban centers.
- It can also be defined as a process whereby the rural areas develop into towns or cities.
- it can also be referred to as the process through which the cities grow, and higher percentages of the population shift from rural areas to urban centres.

urbanization in Africa is not uniform. some cities are more urbanized than others. urban areas in Africa are poorly planned. this has resulted in the development of slums or informal settlements in the areas surrounding urban centres.

**Explain the characteristic of urban Centre's in Africa.**

- They are trade and commerce centres with banks and insurance companies
- They are industrial centres e.g. Kampala and Jinja
- They have the necessary infrastructure e.g. improved roads, hospitals etc.
- They are administrative centres e.g. districts headquarters.
- They normally have high population concentrations.
- They have relatively improved social amenities e.g. electricity, running water etc.
- They have residential facilities e.g. planned settlements.

### THE TEN TOP CITIES IN AFRICA

- Dar es salaam, Tanzania
- Abuja, Nigeria
- Johannesburg, south Africa

- Cairo in Egypt
- Addis Ababa, Ethiopia
- Lagos, Nigeria
- Nairobi, Kenya
- Abidjan, ivory coast
- Windhoek, Namibia
- Kigali, Rwanda.

**NB.** *In areas where urban centres have developed due to the various functions these will always attract more population to settle in those areas so as to enjoy the service provided by the urban centres so urbanization and population increase are very related one leads to the other***.**

## *FUNCTIONS OF URBAN CENTRES*

- Urban centres have administrative functions where by many of them have administrative centres

- They have commercial functions with collection, selling and distribution centres of goods.

- Many urban centres have industrial functions. Many towns have industrial establishments.

- Residential functions. Towns provide accommodation and residential facilities where by many people settle and reside in the urban centres

- Resort and recreation functions. Urban areas in Africa have such facilities like cinema halls, theatres, stadiums, golf course and many others.

- Social functions where by many urban centres have Educational institutions e.g. schools, churches and many other social facilities.

- Transport and communication functions. Many urban centres in Africa also serve as transport and communication terminals

- Tourism functions where by many towns in Uganda are tourism destinations with various tourist attractions and hotels

- Some towns provide mining functions especially those near mining centres

- Security functions where by many towns house various security organs and agencies e.g. police head quarters

***Task.***

***Suggest ways through which urbanization lead to development lead to development of an area?***

**FACTORS RESPONSIBLE FOR RAPID URBAN GROWTH.**

Africa has experienced very urban growth in the last 20 year. growth rates have been about 3.5% per year. these are many factors that are responsible for this rapid urban growth.

Activity 28:12 ***understanding factors responsible for rapid urban growth.***

The generally flat and gentle slope landscape have also favored development of urban centres. This is because this kind of landscape makes it easy and relatively cheaper for the establishment of the necessary infrastructures like residential building roads that consequently encourage urbanization

Drainage, the well-drained areas encourage the development of urban centres. Such areas are suitable for settlement thus attracting relatively high population concentrations in those particular areas that consequently develop into town councils.

Climate, the central region is more urbanized than any other part of the country partly due to its favorable climatic conditions. The relatively hot and wet climate attracts activities like settlement and other human activities like agriculture that provides food to the big urban population

The nature of soils, the areas with relatively fertile soils have also favoured urbanization in such a way that such areas support crop growing that provides adequate food stuffs on which the big urban population feed

Migrations, this has encouraged urbanization in such a way that people move from one area to another for various reasons more likely for economic and social. The resultant effect of this is that many of those go to urban centres thus increasing the rate of urbanization even more.

The government policy of gazetting new districts, municipalities and town councils. This attracts a big population in such areas due to the associated job opportunities and improved social services like supply of electricity and water, improved security.

Industrialization has also favoured urbanization. Areas that have industrial establishments and services attract many people who seek for employment opportunities and other related activities.

The availability of trade opportunities and markets. People are always attracted to areas that avail to them trade opportunities especially those engaged in trade and commerce as a business therefore areas with such opportunities have attracted big concentrations of population and consequently such areas have turned into major urban centres

Availability of adequate supply of clean water for both domestic and industrial use. Water is a basic need for life therefore its presence in a particular area attracts human settlement and this partly explains why urban centres

The presence of mining activities have also favoured the development of different areas into major urban centres. This is due to the fact that mining activities attract human settlement due to available job opportunities and other related businesses and consequently those areas have turned into major urban centres

The influence of the agricultural activities. Areas with large plantation farms have turned into major urban centres because people tend to settle around due to the available job opportunities in the plantation farms and also the improved social facilities and services provided by the plantation farms

Some areas have developed into major urban centres partly because of the tourism activities. These activities have led to establishment of facilities like hotels, hostels and other related tourism related businesses that attract high concentration settlements.

Availability of vast vacant land for establishment of the necessary infrastructure like residential houses, roads, recreational facilities and also for further expansion. Areas with vast land therefore have encouraged urbanisation

Some areas have developed into urban centres as a result of the influence of the already existing urban centres. As the population increase in the existing town, it spreads over the surrounding areas and as a result there will be also development of other urban centres that starts with a few shops and some residential houses then later into a major urban centre.

Proximity to borders. Some areas that are located at the borders of the country are used as handling points for imports and exports this is also associated with other related businesses that attract many people who intend to benefit from such businesses and as a result these areas have developed into urban centres.

Improved security also encourages urbanisation. People are always attracted to areas where they feel secure for settlement and business therefore with time such areas that are secure facilitate high urbanisation rates.
The presence of research and education centres has also facilitated urbanisation in some areas. Areas that have high institutions of learning like colleges, universities and secondary schools attract a big population that seek for those services and as a result other related services crop up like accommodation facilities, supply of electricity, water etc.

The influence of improved technology. Areas where there is relatively improved technology are associated with better mechanisms of production thus facilitating things like industrialization together with innovativeness and these attract many people who Come with different skills thus encouraging urbanisation

Availability of skilled labour. The skilled labour helps in building the necessary infrastructure like roads, supply of water and electricity plus managing the urban administrative authorities all these facilitate urbanisation therefore many areas with skilled labour have developed into major urban centres.

Natural increase in population in some areas. In some areas there are relatively high population growth rates and consequently high population and such areas have also attracted supply of essential services provided by the government e.g. hospitals, electricity, water thus developing into major urban centres.

Availability of adequate capital that is used in the construction and establishment of the necessary infrastructure like roads, electricity, water, for the urban population. Capital is also important in the day to day running of the urban centre like paying salaries and wages to the workers and many other things therefore areas with adequate capital have developed into urban centres

The presence of fishing activities in a particular area can also facilitate urbanisation. Areas that are associated with fishing activities like ports and landing sites tent to attract a big population due to the job and business opportunities around such areas and with time some of those areas have developed in urban centres

The presence of improved infrastructure like roads, electricity and power stations, housing, banks etc. Many People tend to settle near such facilities because of the convenience that comes along with such.

**Problems faced urban areas in Africa.**

**CASE STUDIES OF URBANIZED CITIES IN AFRICA**

**(a) CAIRO**

Cairo is the capital city of Egypt.it is among the top ten cities of Africa. Cairo is also the $19^{th}$ largest city in the world and among the world's most densely populated cities.

Cairo has the oldest and largest film and music industries in the Arab world, as well as the worlds second oldest institution of higher learning. Al-Azhar university.

Many international media, businesses and organizations have regional headquarters in the city, the Arab league has had its headquarters in cairo for most of its existence

**characteristics of cairo.**

- it is capital and largest city of Egypt.
- it is located near river Nile and the pyramids of Giza in the northern part of Egypt.
- it is one of the largest cities in Africa
- it has an area of 528 square kilo metres

**Functions of cairo.**

- It is administrative centre
- Trade centre
- Tourist centre
- education centre
- residential centre
- commercial centre
- industrial centre
- financial centre with banking institution
- cultural centre
- recreational centre.

- ETC

**Factors influencing growth of Cairo**

- Availability of educational facilities
- natural increase in population
- investment opportunities
- presence of water used in industrialization provided by river Nile
- presence of power
- etc.

**Problems facing cairo.**

- High levels of pollution
- unemployment
- traffic congestion
- high rate of crime including terrorism
- growth of slums
- poor garbage disposal
- high costs of living

**solution to the problems.**

- Initiating development in the rural areas
- setting up industries far from residential areas
- increasing the number of police officers on patrol.
- etc

JOHANNESBURG

Johannesburg is the biggest city of south Africa's and capital of Gauteng province. its growth began as a $19^{th}$ century with the gold mining settlement.

Johannesburg is the site of large-scale gold and diamond trade due to its location on the mineral rich Witwatersrand range of hills.

The city was established in 1886 following the discovery of gold on what had been a farm. due to the extremely large gold deposit found along the Witwatersrand, within ten years, the population had grown to 100,000 people.
Johannesburg is the seat of the constitutional court, the highest court in south Africa.

**(b) Lagos, Nigeria**

It is the most populous city or Populous conurbation in Nigeria, with nearly 8m inhabitants, and the second most populous city in Africa
Lagos has a total of 1380.7 square miles (3577 square kilometers), of which 303.8 square miles (787 square kilometers) is made up of lagoons and creeks. Greater Lagos includes Mushin, Maryland, Somolu, Oshodi, Oworonsoki, Isolo, Ikotun, Agege, Iju Ishaga, Egbeda, Ketu, Bariga, Ipaja, Ajah and Ejigbo.

**FACTORS**

Ice free conditions all the year enhances activities use
Easy access to the rich hinterland consisting of Nigeria, Niger and northern Cameroon
Well-developed transport routes connecting the islands by bridges and freeways, air ports, railway lines, etc
Low tidal range at the Atlantic shores enabling easy landing and sailing
Ancient kingdoms like the Yoruba and the Benin that often transacted with neighbors like the Ghana kingdom.
Historical activities like slave trade i.e. trans- Sahara and Triangular trade where human beings were being sold and later legitimate trade
Supportive government policy that aimed at putting up a territorial administrative centre to run the regions activities before it was later transferred to Abuja
Shielded from strong waves by ocean islands like Equatorial Guinea making it safe for activities
Conducive equatorial climate that attracted traders and natives to move to the coastal areas hence developing the area
Relatively flat and gently sloping relief towards the ocean conducive for settlement, agriculture and trade

**Functions of Lagos**

- Industrial center with textile, printing, motor vehicle assembly, saw milling, vegetable oil processing, plastic making, etc
- Financial center with the leading major banks, insurance companies, etc.
- Education center with the University of Lagos, Yaba college of Technology, Lagos State university, etc
- Residential center housing thousands of people working in industries, government, etc.
- Cultural center with many art galleries, entertainment, museum etc.
- Nodal/transport center from which major air, road and railway routes radiate from
- Administrative center with many government offices, non-governmental organizations, etc.

**Problems faced Lagos city**

- Overcrowding in the city with a density of over 2500 people per square kilometer
- Pollution of the environment from industries, vehicles and people
- Inadequate supply of fresh water due to the increasing population
- Development of slums and their related evils
- Limited land for expansion as the city is basically surrounded by water
- Flooding due to the low-lying altitude and heavy rains
- High crime rate caused by high population and unemployment
- Traffic jam due to the high number of vehicles on the road slowing down movement of passengers and goods
- Silting of the water ways that limits sailing inland towards the dock

**Solutions to the above**

- Transfer of the capital from Lagos to Abuja to reduce on the number of administrative duties

- Increasing on the number of states from twelve to nineteen each with its own capital
- Construction of housing estates and sky scrapers reducing on slums and crowing
- Construction of bridges to link islands to the mainland like Encouraging self-help projects providing more employment opportunities.
- Tightening security to curb crime and ensure law and order

## Addis Ababa

Sometimes spelled Addis Ababa, is the capital city of Ethiopia. It is the largest city in Ethiopia, with a population of 3,384,569 according to the 2007 population census.

### Factors for development

- Strategic location at the foothills of Ethiopian highlands
- Ice free conditions all the year enhances activities use
- Easy access to the rich hinterland consisting of Djibouti, Sudan
- Well-developed transport routes connecting the city to major regions, air ports, railway lines, etc
- Historical activities like Christian civilization from Israel by the queen of Sheeba during the reign of king Solomon
- Supportive government policy that aimed at putting up a territorial administrative centre to run the regions activities
- Shielded from strong winds by the Ethiopian highlands making it conducive for settlement
- Conducive tropical climate mixed with desert climate that attracted traders and natives
- Relatively flat and gently sloping relief towards the Awash river for settlement, agriculture and trade

### Functions of Addis Ababa

- Industrial center with textile, printing, motor vehicle assembly, saw milling, etc
- Financial center with the leading major banks, insurance companies, etc
- Education center with colleges, universities, etc,
- Residential center housing thousands of people working in industries, government, etc
- Cultural center with many art galleries, entertainment centers, religious institutions, etc
- Nodal/transport center from which major air, road and railway routes radiate to Egypt, Sudan and Djibouti
- Acts as political capital of Africa formerly housing the O.A.U and now the A.U

**Problems faced**

- Over crowing in the city due to the influx of natives, tourists and foreigners
- Pollution of the environment form industries, vehicles and people
- Development of slums and their related evils
- Limited land for expansion as the city is near the highlands in the north and Awash river valley in the south
- Flooding due to the low-lying altitude of the Blue Nile an Awash and heavy rains
- High crime rate caused by high population and unemployment
- Traffic jam due to the high number of vehicles on the road slowing down movement of passengers and goods

**Solutions to the above**

- Construction of housing estates and sky scrapers reducing on slums and crowing
- Encouraging self-help projects providing more employment opportunities
- Tightening security to curb crime and ensure law and order
- Acquiring more land on the western side for expansion

# RURAL URBAN MIGRATION.

**Migration** refers to the movement of people from one place (origin) to another (destination). The movement of people is called **migration** and the people involved are called **migrants**.

Migrations can either be **voluntary or forced/ compulsory migrations**. Generally, the voluntary migrations are associated with the search for better economic opportunities / conditions existing in other regions.

People move willingly and it mainly occurs due to economic push and pull factors while compulsory migration may be legislation by government, slave trade or even wars etc.

**Rural-urban migration** is the most common type of migration in the developing countries. It refers to the movement of people away from the countryside to towns or cities. Over the last 50 years in Africa and South America a large proportion of people, especially the young move from rural areas to urban areas. This is mainly a result of economic pull and push factors. This stems from the unequal distribution of facilities between the rural areas and the urban areas.

Rural-urban migration tends to lead to rural under development because the young ones move leaving only the aged and children; but also causing urban problems (resulting from urbanization).

**Activity 28.1**

a. *Discuss factors that have led to rural- urban migration.*

**pull factors**

- Availability of social amenities in towns which make people to migrate from villages to towns.
- employment opportunities which towns offer attract and employ from rural areas
- security also attracts people in towns because they are relatively peaceful and have different security peaceful and have different security service.
- people have also moved from rural centres to take advantage of the existing trade and commercial opportunities.

- family ties have also influenced people to move from villages to towns to live with relatives.

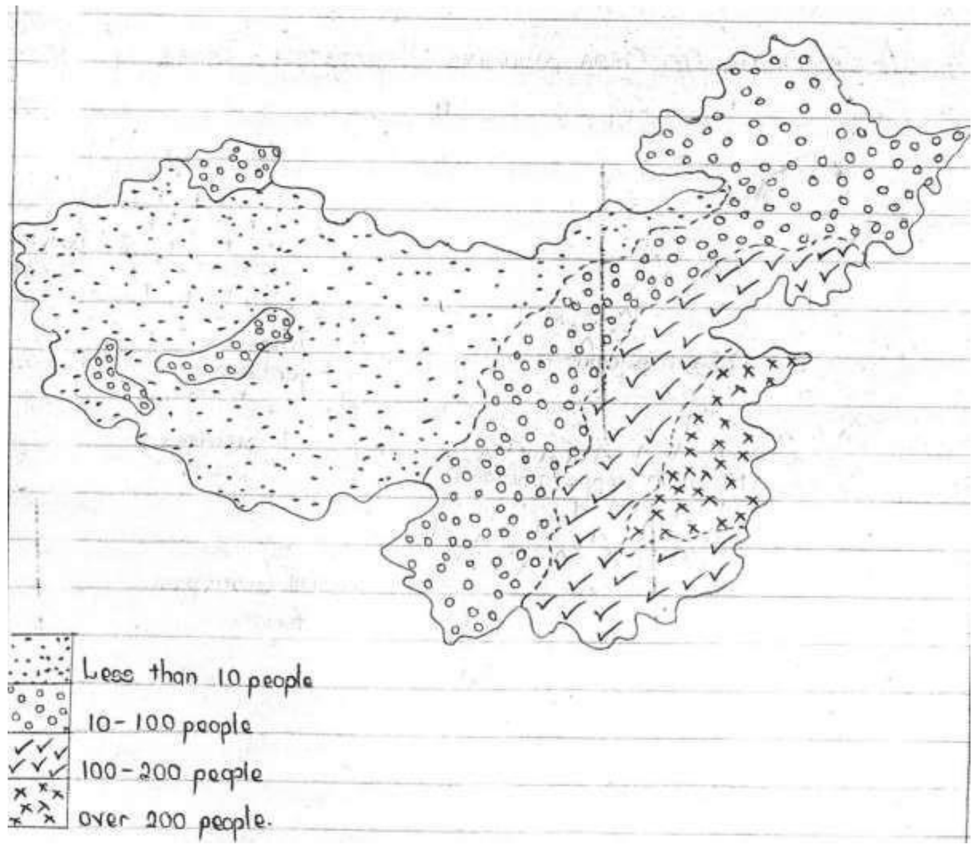
**push factors.**

- low productively of land due to over cultivation
- limited social services like medical centres, education service piped water
- cultural practices which scare away people in the villages
- limited employment opportunities in villages
- land disputes in rural areas force people to move to towns
- Natural hazards like landslides, drought, el nino floods which displace people from villages and force them to go live in towns.

## POPULATION AND URBANIZATION IN CHINA.

China is the world's most populous country with approximately 1.6 billion people, with a population growth rate of nearly 2% and her population represents 20% of the world's population of 6.8 billion people. The country's total fertility rate is 1.7 and consists of 56 ethnic groups which include the Han, Manchu, Zhuang, Puyi, Yi, Hui, Korean, Tibetan, Uygur, Mongols, Miaa.

### A SKETCH MAP OF CHINA SHOWING POPULATION DISTRIBUTION




**FACTORS INFLUENCING POPULATION DISTRIBUTION IN CHINA.**

Population distribution in china is highly uneven where the high population concentration is in the eastern area with a density of over 400 persons per km.

Sparse population is found in the northern and western parts of the country where the density is less than 50 persons per km.

**Several factors explain such a pattern of population and some of them include the following;**

1) Presence of fertile alluvial soils along river valleys such as Sikiang and Yangtze and yellow river in the east which favor human settlements hence dense population in the east while thin infertile soils in the Himalayas and the desert sands in the west limit crop cultivation and livestock farming thus a low population.

2) Heavy rainfall and warm temperatures especially in the south and central parts of china at least high population while the very cold temperatures in the Tibetan highlands together with hot temperatures in the west limit population in the area.

3) The plains and lowlands especially in the central and eastern regions have attracted infrastructural development prompting dense settlement unlike the mountains west on the Himalayas with a steepness that limits population settlements.

4) The existing mineral potential of various areas stretching from Nanling to Xinfiang and the north – eastern region of Manchuria area attracting a dense population to enjoy mineral benefits unlike the less endowed west thus low population.

5) Eastern china is well- drained with numerous rivers and lakes which provide water for both domestic and industrial use and also useful for navigation which attracts a dense population compared to the west with poorly drained river valleys and water scarcity limiting population settlements.

6) The poor pastures in the west encouraged herding which leads to sparse populations in the west.

7) Urbanization with better social facilities especially in the coastal areas of Hongkong, shanghai, Cantan, Beijing (Peking) attract high densities of population compared to the rural areas in the west and north with low densities.

8) Presence of well-developed transport and common networks ranging from airports, waterways roads and railway systems has attracted dense populations in the east, central and northern parts unlike the less accessible areas in the west and south parts.

9) Industrial areas like Shangal, Beijing, Manchuria, Hongkong and Guanzhou have attracted dense population in search for employment and trade partnerships unlike the less industrialized areas of the west.

10) The positive government policy of starting up communes and redistributing the people led to dense populations in agricultural zones unlike places where agriculture was not possible i.e. the western areas.

11) Historical factors have also influenced population distribution in china. Early civilization stated along river valleys in the east creating a long history of dense settlements in such areas unlike western china where such histories are not traced.

12) Presence of social services such as education, health insurance, and banks recreation centers especially eastern china attracted large settlements unlike western china where such services are limited.

13) Presence of employment opportunities in mining areas, manufacturing industries and agriculture in eastern china accounts for the large population unlike the western part of china is limited in the same.

14) Racism in china where the easterners regard themselves as more superior than the Chinese in the interior. The easterners are more in number and cannot migrate to mix with the minority in the west.

15) Culturally, nomadic herders in western china encourage small population densities compared to the settled farmers in eastern china.

## SIZE AND RAPID GROWTH OF CHINA'S POPULATION.

The great majority of 69% of the population is between 15-64years. While 25% is of the age of 14 and below, 7% of the age of 65 and above. The life expectancy of china is estimated at 71.9 years i.e. 69.6years for males and 73.3years for females.

The areas that are known to have dense population on china's land mass include the coastal region of china, the North China Plaine, Xijiang basin, Sichuan basin, and the provinces of Fujlan, Jiangzou, Shandong, Guangdanand, Anthui.

**Activity 29.2. describing china's population growth rate.**

| **Year** | **population** | **Growth rates.** |
|---|---|---|
| 1950 | 554,419,273 | 0.00 |
| 1960 | 660,405,056 | 1.57 |
| 1970 | 827,601,394 | 2.68 |
| 1980 | 1,000,089,235 | 1.42 |
| 1990 | 1,176,883,674 | 1.60 |
| 2000 | 1,290,550,765 | 0.71 |
| 2010 | 1,368,810,615 | 0.56 |
| 2020 | 1,439,323,776 | 0.39 |

**CONDITIONS FOR THE DENSE POPULATION IN THESE REGIONS.**

The warm ice – free conditions at the coast brought by the warm Kuro-Siwo current attracted dense settlements.

The high level of industrial developments attracted people for employment opportunities and trade.

The growth of urban centers on the eastern seaboard attracted many people because of the social amneties and provided.

The rich alleviate and losses soils on the North China plains support agriculture hence attracting dense settlements.

The efficient transport and common systems by water, air and land increases accessibility attracting people to such areas.

Availability of various mineral resources stretching from Manchuria region to Shanghai area up to Nanting attracted people of work in the mines.

Abundant freshwater sources such as rivers and lakes which attracted early dense settlements. Along these basins.

The relatively flat landscape made it easy to settle on and contract infrastructure hence dense settlements.

The density concentrated areas also produce conducive subtropical climate with warm conditions favoring settlement.

**PROBLEMS FACED BY POPULATION IN DENSELY POPULATED AREAS**

They have limited accommodation leading to the development of slums.

There is congestion of people and vehicles (traffic jam) which leads to delays in delivery of goods and services.

High levels of unemployment since the available jobs are not enough for the high population leading to idleness and high crime rates

This is too much pressure on land and other available socio- economic infrastructure leading to depletion of natural resources.

They suffer from food shortages leading to malnutrition and starvation.

Flooding is experienced due to land degradation.

There are unhealthy environmental and sanitation conditions experienced leading to high spread of diseases.

There is a lot of devegetation of the areas settled in leading to environmental degradation and deformation.

The government spends a lot in providing of the areas settled in leading to environmental degradation and deformation.

The government spends a lot in providing the necessary social- economic services such as hospitals, roads, schools etc.

High level of pollution arising from industrial productions to meet the demands of the big population.

The government finds difficulty in planning and catering for the large population.

High costs of living are experienced due to shortage of the necessary goods and services.

TO BE CONTIUNED ..