

## **INDUSTRIALISATION IN AFRICA.**

Manufacturing industries involve a process of transforming raw materials into semi-finished and finished products e.g. cotton is transformed into cloth, tobacco to cigarettes, copper into wires, etc.

### **Major industrialized countries in Africa:**

- **South Africa.** Centers are Johannesburg, Pretoria, Port St Elizabeth, Durban and East London. **Egypt** industrial centers: Alexandria, Cairo, Port Said, Asyut.
  - **Zimbabwe Centre:** Harare.
  - **Morocco:** Rabat, Casablanca.
  - **DRC.** The Shaba province; Kisangani.
  - **Ghana:** Tema, Accra, Takoradi.
  - **Angola:** Luanda.
  - **Nigeria.** Lagos, Abuja, Benin and Kaduna.

### **Factors that have favoured the growth and location of industries.**

- Availability of a variety of **power/energy resources** like hydroelectricity power, coal, nuclear, oil, thermal, to run industrial machinery.
- Availability of a variety raw of materials to feed the industrial machinery. Examples of raw materials are in the category of:
  - (i) **Water resources** like; rivers, oceans, lakes for both water and fish.
  - (ii) **Forest resources** like; forests for timber, poles, pulp and paper, etc.
  - (iii) **Mineral resources** e.g. oil, gold, iron ore, coal, limestone. Copper, aluminum, uranium, etc.
  - (iv) Agricultural resources e.g. sugarcane, cocoa oil, palm oil, tobacco, sisal, fruits, hides and skins, maize, millet, wheat, etc.
- Presence of large population to provide both skilled and semi-skilled labour to work in the various activities in the industries.
- Presence of large market both locally/ at home provided by large population and abroad/ internationally/ external for sell of industrial products.
- Availability of a constant supply of cheap water resources from rivers greatly needed in industrial processes like cooling of machinery.
- Presence of gentle slope/ flat relief provides ideal sites for establishment of the industries.
- Presence of large and cheap land provided by government to investors for establishment /expansion of industries.
- Availability of developed transport network like roads, railways, waterways and air for easy accessibility and transportation of both raw materials to industrial centers and finished goods to markets.
- Presence of a large capital base provided by private investors and government to invest in various industrial requirements like; machinery, raw materials and related infrastructure.
- Presence of advanced technology that ensures quality in production and efficiency for highly quality products to the market.

- Availability of supportive / favorable government policy to encourage investors through provision of cheap land, loans, tax holidays, and market research for industrial development.
- Political stability/ security of industries encourage investors for assured protection of their investments and expansion.

**EXPLAIN THE PROBLEMS FACED BY INDUSTRIES IN AFRICA.**

- Pollution of environment through dumping of solid wastes, discharge of liquid wastes and gasses in air in form of smoke causing global warming, related diseases.
- Limited supply of cheap labour both skilled and semi-skilled labour force to effectively work in various industrial activities due to constant migrations from one sector to another.
- Limited supply of water for important uses in the industry especially during dry season, rivers fluctuate and dry out.
- Increasing hydroelectricity power tariffs and sometimes unstable during peak hours of production lead to load shedding causing losses to investors.
- Distant markets through ports and abroad lead to increased costs of production for industrialists.
- Limited markets at home lead to dependence on highly competitive external markets.
- Depletion of local raw materials leading to importation of high cost raw materials from abroad.
- Stiff competition for market of industrial products at the world markets.
- Industrial unrests in form of strikes due to low pay and poor working conditions.
- High taxes imposed on industries have led to increased costs of production.
- Price fluctuations of products in the world markets affect the profit margins of investors.
- Shortage of land for expansion of industries / high costs of land for expansion due to competition for land with other sectors of the economy like agriculture, housing estates, forestry, etc.

**Outline the effects of industrialization on the physical environment.**

***In this case the question aims at only negative effects because positive effects are already given above.***

- Pollution of the environment **through** gasses pumped into the atmosphere, solids dumped on land and liquids in water from industries cause diseases to people.
- Traffic congestion on transport routes in the industrial Centres **due to** busy industrial activities lead to delays and high costs of transport.
- High rates of unemployment **due to** increased automation of industrial activities.
- Exhaustion of minerals like coal and iron ore **resulted into** high cost of importation of expensive iron ore from Sweden, Mauritania, Liberia and closing of some industries.
- Limited land for expansion of industries **due to** congestion of industries limiting areas where more industries could be setup.
- Shortage of raw materials like iron ore and other energy resources which are heavily imported from far countries **lead to** high costs of production.
- Environmental degradation in form of destruction of scenic beauty **during** construction and disposal of industrial wastes like smoke fumes into the air, solids on land etc.

- Losses of vegetation cover **during** the establishment of industries and related infrastructure.
- Competition for highly skilled labour with other economic sectors to work in various industrial activities.
- High costs of labour **due to** constant migration looking for better paying employment increase cost of production.
- Competition for market for finished industrial goods with other producing countries.

**NB: We need to make emphasis on the problem and what impact it has caused on environment which includes; land, water, vegetation, animals, air, people etc.**

**Measures being taken to solve problems faced by manufacturing industries.**

- Led to Improvement of transport and communication to ease transportation of industrial products and raw materials.
- Importation of raw materials from other countries to feed industries.
- Treatment of industrial wastes before disposal and recycling for re-use to control pollution of environment.
- Anti-pollution laws / Legislation and imposition of heavy tax on industrialists (license) to combat this menace.
- Seeking for external markets, produce for exports and promote regional cooperation to expand market.
- Diversification of energy sources, e.g. coal, nuclear, etc. to fight shortage due load shading of electricity.
- Human resource development through training of workers and recruiting trained experts for quality products.
- Recycling of wastes e.g. plastics, scrap, paper, etc. and establishment of bi-products based industries.
- Use of raw material saving technology to produce precision goods.
  - Use of migrant labour to replace laid-off workers.
  - Strengthening trade unions to fight for workers' rights.
  - Relocation of Industries / dispersal to areas with enough land for expansion and near raw materials e.g. gold mines.
  - Automation of industrial activities to minimize shortage of labour by introduction of appropriate technology of automated machines, robots, etc.
  - Seek assistance from international financial Institutions, provision of loans from commercial banks at low interest rates.
  - Import advanced technology for quality of products through further research as this can mitigate losses from stiff competition.
  - Formation of manufacturers associations at regional levels to manage problems facing their sectors through sharing experiences.

**Contributions of industrial sector to development of economy.**

- Provision of employment opportunities to the local population that has improved their standard of living.
- It has earned income to the local people hence improving their standard of living.
- It has earned foreign exchange to the country through export of industrial products to other countries.

- Promoted international relations between production country and her importers e.g. China, Britain, Japan, etc.
- Provision of market for agricultural and mining sectors thus improving standards of living of the local people.
- Development of infrastructures such as roads, railway, schools, health centers, recreational centers thus bringing services nearer to the people.
- Development of urban centers, industrial centers, e.g. Pretoria, port Elizabeth, East London, etc. for South Africa; Alexandria, Cairo, port Said for Egypt etc. to provide various services to people e.g. administrative, accommodation.
- Generation of revenue to government through taxes from various industrial sectors e.g. companies and industrial workers to provide services to people.
- It has led to economic diversification reducing over dependence on one sector.
- Has led to educational research for students and researchers.
- Industrialization is a tourist attraction that has generated foreign exchange to the country.

## **Case study Areas**

### **INDUSTRIAL DEVELOPMENT IN SOUTH AFRICA.**

South Africa is most industrialized nation in Africa.

South Africa has of recent developed her industries during apartheid and is almost Comparable to other world industrialized nations, like: Germany, Japan and USA.

### **Identify any two industrial centers in Rep. of South Africa;**

- **Johannesburg:** –chemical manufacturing, textile, cement, food processing, electronics, metallurgical, iron ore, car assembly, tobacco processing, diamond cutting, engineering-railway equipment manufacturing.
- **Klerksdorp;**- chemical, food processing, electronics, metallurgical, engineering.
- **Vereeniging:** - chemical, food processing, electronics, brick and tile manufacture, engineering industry.
- **Pretoria;** food processing, cement manufacturing, match box, glass making, sheet metal industry, iron and steel engineering of cable/ Electricals.

### **Describe the factors that have favoured industrial development in Rep. of South Africa.**

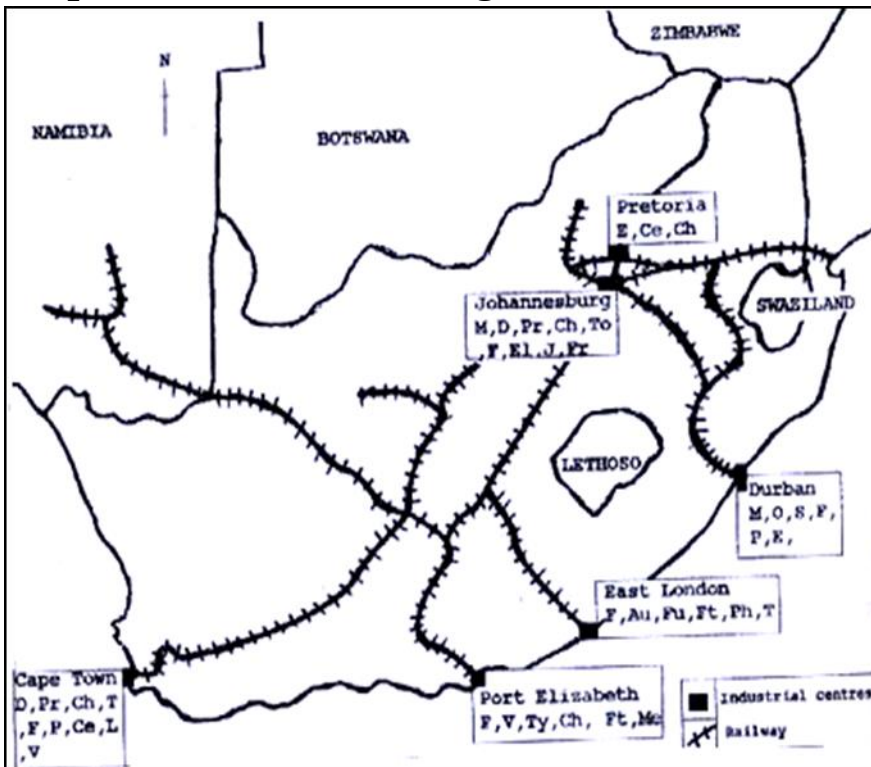
- Presence of large deposit of industrial mineral resources e.g. iron ore, Gold, Diamonds, Coal, Chrome, Limestone, Manganese, Phosphate, Tungsten, Uranium, Fluorspar, Asbestos and Salt in South Africa.
- Existence of high-grade minerals that produce high quality raw materials for industrial goods for market.
- Presence a wide range of raw materials that include; mineral resources, agricultural, forest materials etc. to feed the industry.
- Presence of cheap migrant labour (Bantustans) and white settlers both skilled and semi-skilled to work in the various activities in the industry.
- Availability of reliable power/ energy in form of Coal, Uranium, solar energy and Hydro electricity from Vaal River and Orange river to run the industrial machinery.

- Presence of large capital provided by rich white settlers and foreign investors like Ford and General Motors from USA, Leyland from Britain, etc. to invest in heavy industrial machinery, infrastructure, raw materials and wages.
- Existence of favorable government policy of financing large basic industries and encouraging foreign investors for home production and restricting importation of similar goods.
- Presence of developed transport and communication network like the railway system, roads, air and water for easy transportation of raw materials and finished goods to distant markets.
- The existence of apartheid rule in South Africa earned international isolation and trade sanctions made South Africa self-reliant by development of her own manufacturing industries against these sanctions.
- Availability of large market for industrial goods at home provided by a high population of over 40million people and abroad.
- Presence of stiff competition within the many industries from the country has led to increased quality of goods and high levels of production.
- Availability of cheap large land provided by government for industrial establishment has encouraged investors.

**Explain the problems faced by the industrial sector in South Africa.**

- High costs of production due minerals found in deep mines e.g. gold mines, diamonds, etc.
- Depletion of raw materials due to exhaustion of minerals in some mines lead high costs of importation of raw materials.
- Price fluctuation for industrial goods in the world markets cause uncertainties in production affecting foreign incomes.
- Competition from imported industrial goods produced from developed countries like USA, Britain, Japan, etc. affect production.
- Stiff competition for international markets with developed industrial nations.
- Shortage of water in and around the Rand region due to fluctuating Orange River and Vaal River during dry season.
- Fluctuation in hydroelectricity power supply especially in the dry season, sometime power is imported from Mozambique.
- Frequent strikes due to poor work conditions cause labour unrest.
- Shortage of land for expansion of industries especially in the Rand region that has become more expensive for investors to afford.

**Map of South Africa Showing industrial Centres**



**KEY**

Au- Auto Mobile  
Ch- Chemicals  
E- Engineering  
Ce- Cement  
D- Diamonds  
El- Electrical  
Equipment  
F- Food  
J- Jewelry  
O- Oil  
Ph-  
Pharmaceutical  
S- Ship building  
TO- Tobacco  
FU- Furniture

**Major Mineral Centers In South Africa.**

**Outline the measures being taken to solve the problems facing the industrial sector in South Africa.**

- Diversification of energy/ power sources e.g. Nuclear energy from Uranium, Solar power, geo-thermal, Coal, oil, etc to boost production.
- Enforce regional cooperation like SADC, COMESA, to widen markets within Africa to minimize competition with industrialized nations.
- Recycle waste products such as paper to reduce wastage and shortage.
- Establishment of precision industries that use few raw materials those are expensive.
- Establishment of by-product consuming industries e.g. saw durst to produce boards, etc.
- Automation of industrial activities like use of Robots where manual labour is in short supply.
- Relocation of industries to less congested areas such as near the Orange River where water and land for expansion is available.
- Promote aggressive marketing / extensive marketing strategy through advertising beyond the European countries.
- Importation of raw materials from countries where raw materials are abundant to supplement existing ones.

**INDUSTRIALISATION IN EGYPT.**

Egypt is the second industrialized country in Africa after South Africa. Industries contribute up to 35% of the GDP of Egypt and out of this, 25% is from manufacturing.

**The main industries include;**

Textile industries, iron and steel, food processing, chemical- manufacturing, petro-chemical and fertilizer making industries.

**The main industrial centers include;** Alexandria, Cairo, Suez, Maasara, Asyut and Aswan.

There are several industrial minerals such as **iron ore, Phosphate, Zinc, Chrome and Copper** but these do not occur in large quantities others are petroleum.

Development of manufacturing industries in the country was made possible by among other things, the availability of large quantities of HEP, iron ore and agricultural raw materials such as sugar cane and cotton.

The building of the Aswan High dam provided 2100 MW of electricity needed for expansion of industries in Egypt.

Great development has already taken place in the production of **cement, iron and steel, fertilizers, oil refining, textile goods, light and heavy engineering and electrical appliances of all kind.**

Most of Egypt's exports go to the neighboring Arab states which have large amounts of petro-dollars. Her exports, like those of other developing countries are dominated by minerals and agricultural raw materials that consist largely of cotton (raw and processed) and crude oil.

The new industries are able to supply the home market adequately, and in addition help the country save on the cost of such imports.

And neighboring Syria to work in the industrial sector

**Sample question**

- a) Draw a **sketch map** of Egypt and on it mark and name;
  - (i) Town: Alexandria, Cairo and Idfu.
  - (ii) Aswan High Dam.
  - (iii) Lake Nasser,
  - (iv) Areas where petroleum, phosphates and manganese are mined.
- b) Describe the **factors** which have favoured the development of industries in either Cairo or Alexandria.
- c) Explain the **contribution** of the industrial sector to the development of Egypt.
- d) Outline the **problems** of facing the industrial sector in Egypt.

**Describe the factors which have favored the development of industries in either Cairo or Alexandria.**

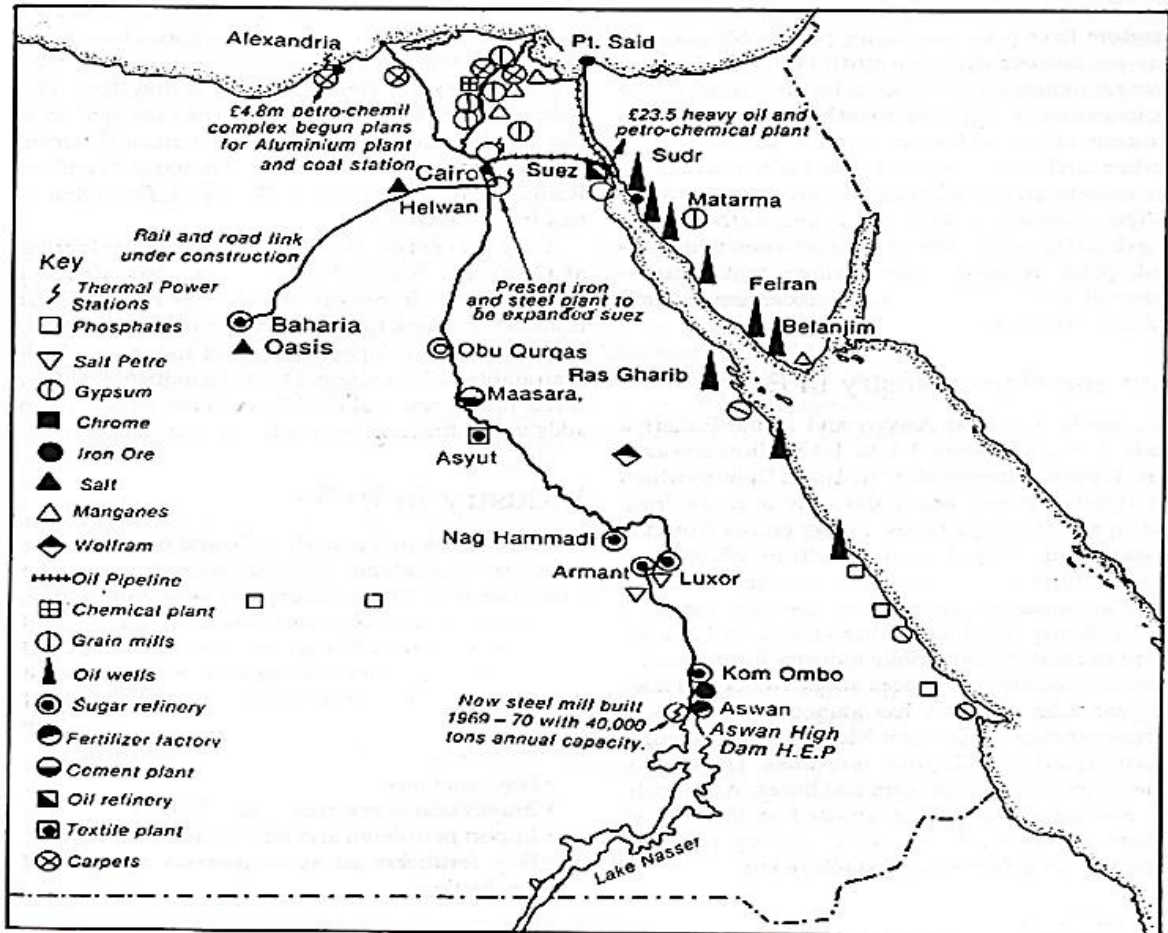
These are more less the same.

- Presence of adequate mineral raw materials like iron ore, petroleum, phosphates and cotton to feed industrial machinery.
- Existence of abundant supply of power/ energy such as thermal power and hydroelectricity to run the industrial machinery.

Presence of reliable transport like railway, water and air for the transportation of manufactured goods and raw materials to market centers.

- Strategic location of Egypt near Europe being the major market for her industrial products makes transportation of goods easy in form of imports like inputs and exports.
- Presence of adequate skilled labour provided by the large population in the country.
- Presence of abundant supply of water from R. Nile and surrounding seas for industrial uses.
- Availability of political stability in the country which has provided peace for more concentration on industrial development.
- Presence of advanced technology applied in industries for easy production and efficiency.
- Presence of extensive land provided by the government to investors for establishment of industries.

### **Egypt : industrial centers.**



### **Explain the contributions of industrial sector to development of Egypt.**

- Source of employment opportunities to the local population that has improved their standard of living.
- Source of income to the local people improving their standard of living.
- Generation of foreign exchange to the country through exportation of industrial products to other countries.



- Promoted international relations between Egypt and her importers e.g. European Union Countries, Britain, Japan etc.
- Provision of market for agricultural and mining sectors thus improving standards of living of the local people.
- Development of infrastructures such as roads, railway, schools, schools, health centers, recreational centers thus bringing services nearer to the people.
- Development of urban centers like industrial centers, e.g. Alexandria, Cairo, Port Said, etc.
- Generation of revenue for government through taxation of various industrial sectors e.g. companies and industrial workers for provision of social services to people.
- Led to economic diversification reducing over dependence on one sector.
- Has led to educational research for students and researcher

**Outline the problems facing industrial sector in Egypt.**

- Exhaustion of minerals due to over exploitation.
- Competition for market with other countries.
- Shortage of capital for investing in industries.
- Shortage of skilled labour with technical skills to work using advanced technology.
- Under developed infrastructure like roads, railway, etc. in the mining areas make transportation of minerals to industries difficult.
- Existence of minerals in small quantities thus uneconomical to mine.
- High costs of production limit profits for investors.
- Price fluctuations and trade restrictions have limited foreign income to the country.
- Profit repatriation by foreign investors have led limited foreign exchange earnings for the government investments.
- Limited domestic market due to low incomes among the local population of Egypt.
- Limited land for expansion due to urbanization and rapid population growth.

**Sample question.**

Study table below showing the export earnings from manufactured goods (1999) for selected African countries and answer questions that follow;

<b>Country</b>	<b>Export earnings (ooo' US dollars)</b>
Egypt	2,080,000
Algeria	46,000
Rep. of South Africa	4,622,000
Nigeria	27,000
Cote d' Ivory	1,309,000
Zimbabwe	640,000
<b>Total</b>	<b>8,724,000</b>

*Adapted: Africa Development indicators,(1997) World Bank, Washington D.C. p104.*

- a) Draw a pie-chart to show the **relative importance** of export earnings for selected countries.
- b) Name the country with the:
  - (i) Highest
  - (ii) Lowest

export earnings from manufactured goods.

- a) (i) Name any two manufactured goods exported by either Egypt or Rep. South Africa.
- (ii) Describe the conditions which **have** favoured the development of manufacturing sector in the country chosen in (c) (i) above.
- b) Outline the **steps being** taken to solve the problems in (d) (i) above.

## **MANUFACTURING IN ZAMBIA**

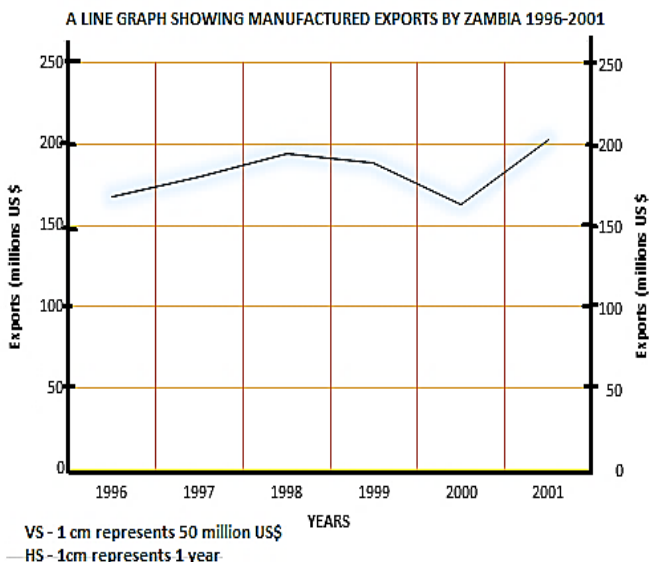
### **Discussion question**

Study the table below showing manufactured goods exported by Zambia and answer questions that follow:

Year	Exports (in 000s US dollars)
1996	168,000
1997	180,000
1998	194,000
1999	189,000
2000	163,000
2001	203,000

- a) Draw a line graph to represent the information shown in the table.
- b) Describe the:
- (i) Trend of manufactured exports from Zambia between 1996 and 2001.
- (ii) Conditions which have led to the trend in (b) (i) above.
- c) Explain the problems faced by the manufacturing sector in Zambia.
- d) Outline the benefits of manufacturing sector to the development of Africa.

## **Solution.**



**(i) Describing the Trend of manufactured goods**

- From 1996 to 1998, there was an increasing trend / upward trend in exports of manufactured goods by 26,000,000 US dollars.
- From 1998 to 2000, there was a decreasing trend / downward trend by 31,000 USD.
- From 2000 to 2001, there was an upward trend / increasing trend in manufactured goods exported by 40,000USD.
- There was a general fluctuation in the exported manufactured goods by Zambia

***NB. Conditions should be assessed for both upward and downward trends, separate each.***

**Describing Conditions for upward/ increasing trend.**

- Presence of a large market abroad for the manufactured goods.
- Availability of a positive government policy that encourages export trade to increase the volume of foreign exchange.
- Presence of advanced technology used to manufacture high quality goods for export.
- Availability of adequate capital to invest in various manufacturing sectors to manufacture large quantity of goods for export.
- Presence of adequate supply of both agricultural and mineral high grade raw materials to feed the manufacturing machinery.
- Availability of developed transport and communication network e.g. roads, railway, waterways, etc. to transport manufactured goods to marketing centers.
- Presence of improved political stability in Zambia that has created a favorable investment climate for manufacturing industry.

**Conditions for decrease in trend/ downward trend.**

- Price fluctuation on the world market has discouraged manufactures.
- Competition for international markets reduces Zambia's exports.
- Exhaustion of raw materials especially mineral ores.
- Trade restrictions (quotas) affect Zambia's exports.

**Explain the Problems faced by the manufacturing sector in Zambia.**

- Shortage of skilled labour has led to over reliance on expatriates who are very expensive.
- Land lockedness leads to high costs of transporting raw materials and manufactured.
- Limited capital to invest in manufacturing industry.
- Competition for market with other producing countries due to low quality.
- Limited domestic market due to low incomes of the people to buy manufactured goods.
- Political instability in the neighborhood like DR. Congo, Angola, Zimbabwe and Burundi affects industrial operations and transport of goods to ports for export to distant markets.
- Shortage of raw materials required to feed the manufacturing industries.
- Inadequate power required to run industrial machinery led to high costs of buying fuel to run generators.

**Outline the benefits of manufacturing sector to the development of Zambia.**

- Provision of manufactured goods to the local people at cheap prices.
- Source of revenue to government through taxation for provision of social services to people.
- Provision of markets for agricultural and mineral resources used as raw materials for industries and food.
- Source of income to the people to improve their standard of living.
- Led to diversification of the economy from dependence on a few sectors like agriculture and copper mining for more revenue to government for development.
- Facilitated development of urban centers to provide various related functions like administrative, commercial, etc.
- Led to development of infrastructure like roads, railway to facilitate transportation of goods and socio-economic infrastructure.
- Creation of employment opportunities to earn income that help to improve people's standard of living.
- Promotion of international relations / cooperation with the importing countries.

**INDUSTRIALISATION IN ZIMBABWE.**

Industrial growth in Zimbabwe is primarily for domestic market that is based on local products as raw materials at cheaper costs than imported.

Most of the industries are small scale, though there is tremendous growth towards the large sector.

The iron and steel industry is growing fast with the main center at **Red-Cliff** near Queue with three blast furnaces.

There is oil refinery at **Umtali** started in 1963 with oil as a raw material prompted. Crude oil being pumped (piped) from tanker terminal at **Beira**.

The cotton textile industry located at Gatooma is one of the cotton growing districts, while great concentration of industries are at Bulawayo and Salisbury.

A great variety of industries include;

- ***Sugar refining.***
- ***Food processing,***
- ***Textiles,***
- ***Clothing,***
- ***Foot-wear manufacture,***

Agriculture inputs such as fertilizers, fencing wires, farm machinery, livestock dips and animal feeds are produced as there is increasing variety of engineering products.

Motor vehicle assembly reduced since the trade sanctions that were imposed on Zimbabwe compared to consumer goods of the same kinds has increased fast to replace imported goods in short supply.

The manufacturing industry is the largest employer of labour more than mining and construction. Over 160,000 people are employed by manufacturing, 64,000 people by construction industry, 64,000 by the mining sector, etc.

Zimbabwe's trade patterns are: Britain, U.S.A, Germany and recently Rep. of South Africa.

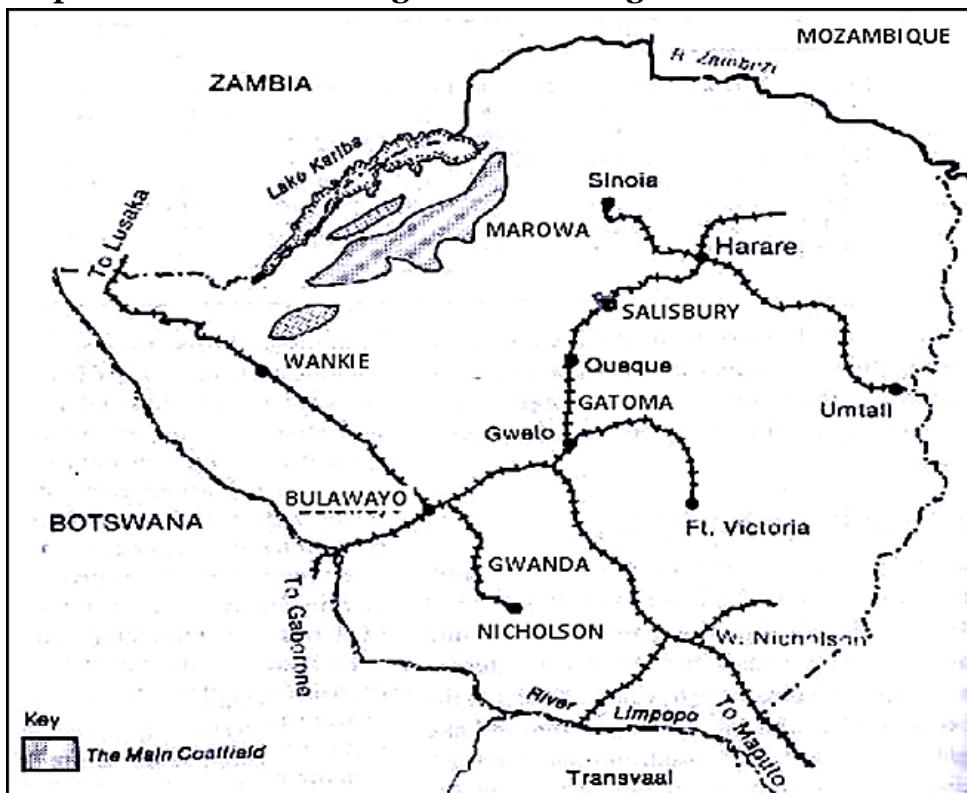
Today South Africa has major trade relations with Zimbabwe because of former sanctions imposed on Zimbabwe by United Nations.

Zimbabwe exports relatively large quantities of her manufactured goods.

**Factors that have favoured The growth of industries in Zimbabwe include:**

- Presence of large reserves of high grade coal used as source of power to run machinery and raw material.
- Coal is located at Wankie south- west, estimated to be 5000 million tons of Bituminous, high coking quality. At west Sabi there are 4,250mn tones of poor grade non-coking coal with rather high ash content in beds some soft thick.
- The construction of Kariba hydro-electricity generation Dam on L. Kariba provided cheap electricity for running industrial machinery.
- Presence of a large population of white settlers provided relatively potential domestic market for manufactured goods.
- Existence of relatively developed railway and road transport both raw materials and manufactured goods to markets.
- Presence of other mineral resources like Chrome and asbestos in Zimbabwe of industrial use.
- Availability of reliable water supply for industrial use in processing.

**Map of Zimbabwe showing Manufacturing centers.**



## **INDUSTRIALISATION IN NIGERIA.**

Manufacturing in Nigeria's economy is small compared to the large market, cheap labour supply and abundant petroleum resources it has.

It is estimated that the average workforce size of industrial establishments is small, about 14%. The whole manufacturing sector employs 150,000 people representing about 17% of the total labour force.

### **Factors that have led to low industrial establishments in Nigeria.**

- Presence of foreign investors who dominate largest portion of over 70% of the capital invested to industrial establishments, these include; Britain, Japan, France and Germany that concentrate on manufacturing of consumer goods,
- Presence of skilled labour force employed in this type of for high quality products.

### **Industrial development is still at slow pace compared to population size due to:**

- Inadequate infrastructure development such as port facilities e.g. at Lagos and port Harcourt are the major country's entry points and yet the greater part of Nigeria's industries and commerce concentrate at Lagos present hardships like congestion during shipping.
- Inadequate railway system is still based on the colonial network established in 1898 to meet the available demand for transport to facilitate transportation of goods with 80% of goods from Lagos alone is by road.
- Limited power supply highly interrupted that affects efficiency and effectiveness of industrial operations.
- The country's industry is dominated by light industries designed to produce for import substitution on consumer goods e.g. beverages, and tobacco processing account for 34% of the total manufacturing industry.
- The engineering industry in Nigeria is still on a very small scale and there is need for basic industries producing heavy machinery, chemicals, machine tools, and agricultural equipment, electrical and engineering equipment.
- Up to the present many industries in Nigeria are processing type like palm oil extraction, brewing, and soft drink.

### **NIGERIA: MAJOR INDUSTRIAL CENTERS.**

#### **At Kano – Kaduna industrial North**

Nigeria's traditional industry - the craft is located at around Kano. Other industries found here are; leather and dyeing, cotton wearing, wood carving and processing industries such as palm oil, groundnuts oil milling.

#### **At Lagos and Ibadan industrial zone:**

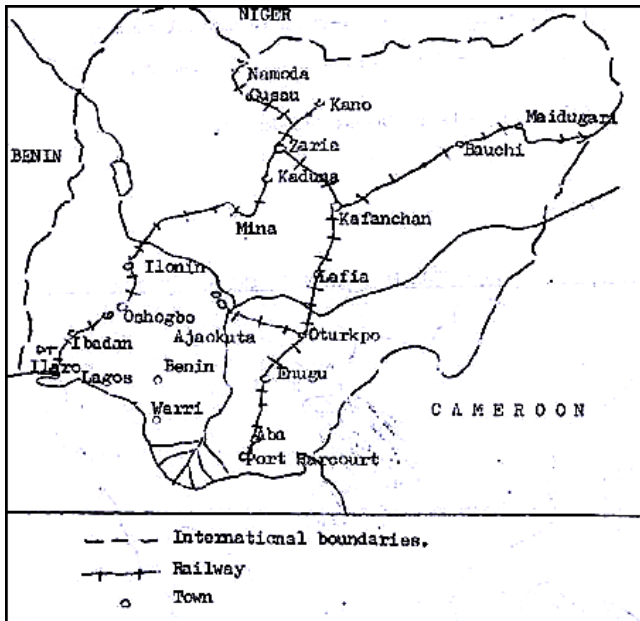
Industries found here are; engineering, breweries, and soft drinks processing, cigarettes, textiles, railway workshop, soap manufacture, chemical industry, etc.

#### **At port Harcourt- Enugu industrial zone;**

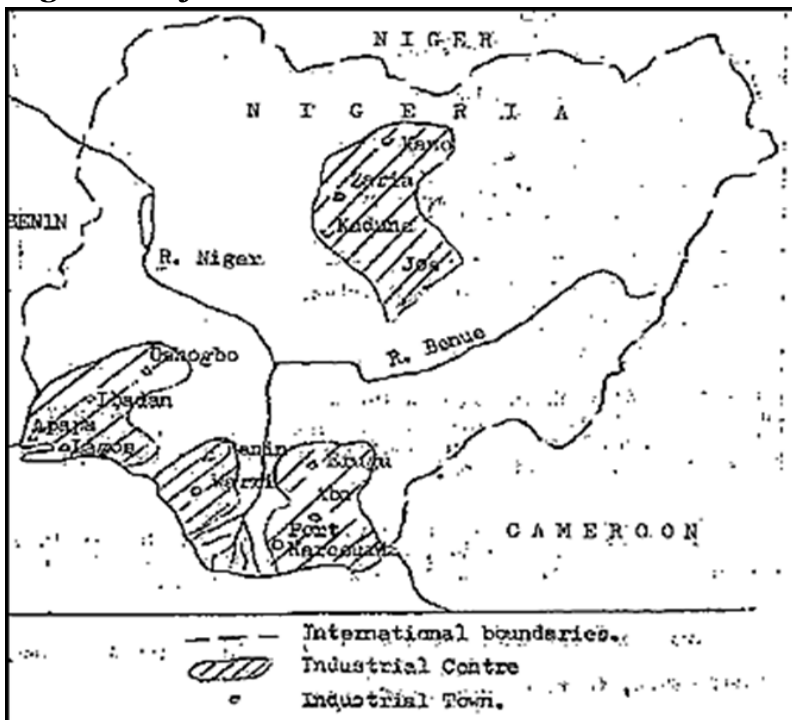
There are oil refinery, heavy industry, chemical manufacturing, and textile industry, Etc. The major industrial centers in Nigeria:

1. **Lagos** – Ibadan- Oshogbo industrial region.
2. **Port Harcourt** – Aba- Enugu industrial centers.
3. **Kaduna** - Zaria – Kano industrial centers.
4. **Benin** – Warri industrial center.

**Nigeria: Railway network a basis for industrial development**



**Nigeria: major industrial centers.**



### Textile manufacturing in Nigeria.

In Nigeria the textile industry is the most important, employs more than 50,000 workers. There more than 60 textile mills located in Nigeria today.

Nearly half of these are found in Kaduna and most of these are owned by the Japanese and British companies. However, the Nigerian textile industry is still unable to satisfy the domestic market.

### The motor vehicle assembly.

Is the most recent industry introduced by the West Germany Volkswagen company located at Kaduna

There is also the Leyland for the British and French Peugeot Firms which produce most of Nigeria's cars on demand.

### Nigeria: iron and steel industry

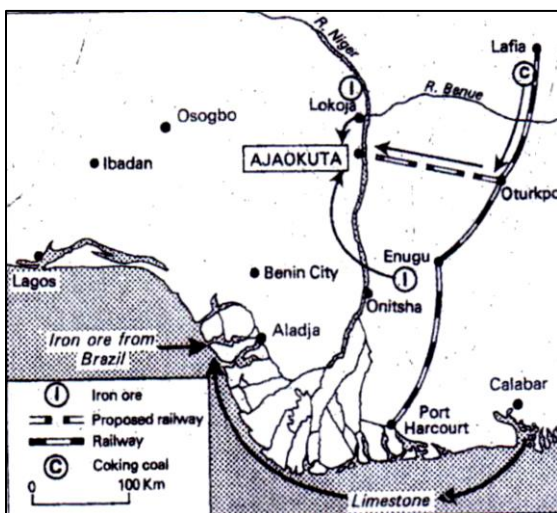
In Nigeria iron ore is mined at Lokoja and Enugu. Iron ore mining at Hakpe near Lokoja and Enugu have facilitated the development of iron and steel industry of Nigeria at Ajaokuta.

At Lafia and Enugu coal is also mined used in the iron and steel industry to run machinery.

The three steel rolling mills at Oshogbo, Jos and Katsina are supplied by Ajaokuta and the new Aladja steel plant near Warri.

These projects make Nigeria self-reliant in Iron and steel requirements.

#### **LOCATION OF IRON ORE MINING CENTER OF NIGERIA**





## **NIGERIA: OIL REFINERY.**

Petroleum deposits were discovered in Nigeria in 1956.

Commercial production, started at Oloibiri West of Port Harcourt.

Later on other oil fields were also started around Port Harcourt.

An oil refinery was built at Port Harcourt to process the crude oil.

An oil pipe line from oloibiri was put down to transport crude oil to the refinery at Port Harcourt.

**Companies that are involved in oil extraction in Nigeria include;**

Shell BP (British Petroleum), Gulf, Mobil Agip, Texaco and Safrap. In 1971, the Nigerian National Oil Corporation (N.N.O.C) was established.

Today, the Nigerian national oil corporation (NNOC) has shares in several of the companies producing oil.

## **INDUSTRIALISATION IN GHANA.**

Industrial development in Ghana is of recent based on mineral exploitation and food processing. But generally, Ghana depends more on agricultural exports than the manufactured goods.

### **Describe the factors that have led to present industrial development in Ghana.**

- Availability of cheap hydro-electricity power generated from Akosombo dam on river Volta to run the industrial machinery.
- Availability of developed transport network based on railway especially in the southern part of the country facilitated the movement of raw materials and goods.
- Presence favourable policy of the successive governments of Ghana both colonial and independent encourages development secondary industries through establishment of Industrial Development Corporation (IDC) that aimed at promoting industrial growth
- Existence of a large home market for the manufactured goods especially in the urban centers in the South.
- Availability of raw materials especially agricultural type that has encouraged the development of agro-based secondary industries.
- Presence of foreign investors like West Germany that has invested large capital in the industrial prospects of Ghana.
- Availability of abundant water supply from Volta River to feed the industrial uses.
- Proximity to coast on Atlantic Ocean for easy transport of manufactured goods to export markets.
- Existence of advanced technology from West Germany has led to production of high quality products for export markets.
- Presence of variety of large minerals deposits e.g. diamonds, gold, bauxite, chrome, salt, Manganese, zinc, oil and coal to feed the industrial machinery.

**The major industrial centers of Ghana are;**

- Accra – Tema industrial area.
- Takoradi – Sekondi industrial area.
- Cape Coast industrial area.
- Kumasi industrial area.
- Nsawan and
- Tarkwa and Tamale industrial area in North.

Most of the industries tend to concentrate on production of consumer goods like;

- |                   |                |                  |
|-------------------|----------------|------------------|
| – woven articles, | – tools,       | – pottery,       |
| – soap,           | – furniture,   | – bread,         |
| – silver and      | – coconut oil, | – confectionery, |
| – Gold ornaments, | – Lime juice,  | – baskets, etc.  |
| – simple metal    | – bricks,      |                  |
| instruments and   | – tiles,       |                  |

**The greatest developing industry is aluminum industry;**

Has a growing market in all industrial countries for its properties of being strong, rustles and lightweight metal produced from bauxite.

Ghana's objective is to become self-sufficient in industrial raw materials and to fully exploit and utilize mineral resources and agriculture products.

The production of local raw materials such as cotton, palm oil, livestock, cereals and Shea butter is encouraged by government.

**Recent industrial investments include:**

- new ceramics factory at salt pond using local clay works,
- food processing factory concentrate on baby foods,
- instant coffee and milk products,
- meat processing plants and
- battery making.

**At Tema** a major food processing complex with several separate factories have developed with a flour mill, animal feeds plant, fish meal factory, fish cannery, vegetable oil plant and margarine factory.

**Contributions of industrial development to Ghana.**

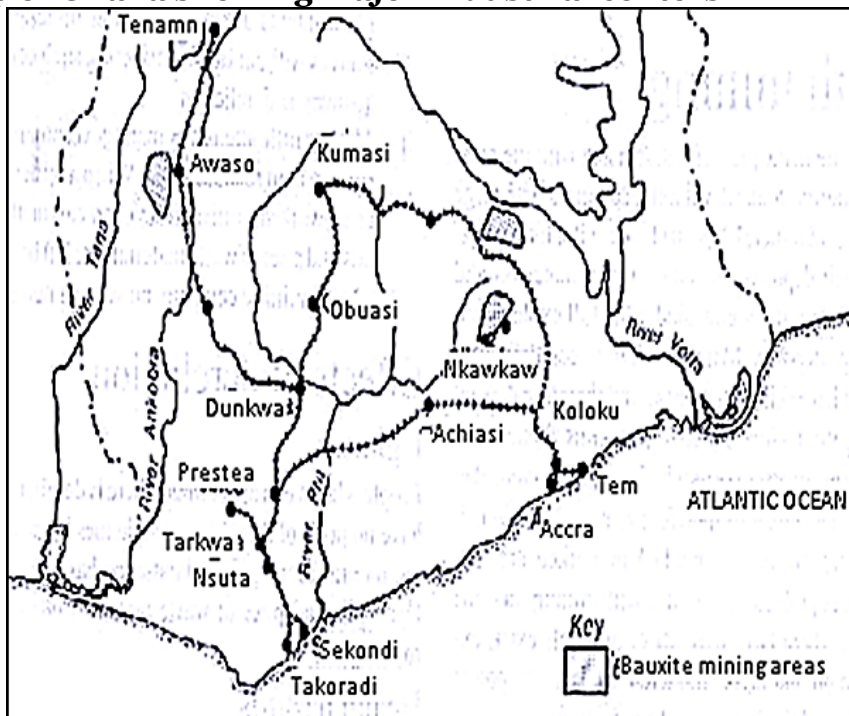
- Generate foreign exchange through export of industrial goods e.g. 315,000 tons of total output of aluminum is exported to United Kingdom.
- Provision of employment opportunities to the people of Ghana e.g. over 22,000 people are employed in gold mines alone, and 6,000 people in diamond cutting factories while 40,000 people are classed as miners that has improved their welfare.

- Industrialization has led to development of related infrastructure like railway and roads transport to ease delivery of goods and services to people. Improvement in social infrastructure like education, health, recreational, etc.
- Led to development of urban centers like Kumasi, Kade, obuasi and port like Takoradi, Tema, Accra and Cape Verde with modernized handling facilities for export.

### **Problems facing industrial development in Ghana.**

- Competition from imported manufactured goods like machinery, transport equipment, manufactured consumer goods, processed goods and vehicles that increase exchange for Ghana's Gold, bauxite, cocoa, timber and diamonds.
- Inadequate capital for industrial development due to the diversion of funds into the large schemes while much of the foreign capital invested in the past has gone to the mining and agricultural sectors of the economy.
- Inadequate skilled labour required to work in high levels of technology applied in the industries.
- Price fluctuations of the manufactured goods in the world market have led to uncertainties in production.
- Limited home market for heavy industrial goods as the economy is still underdeveloped.
- Under developed transport and communication infrastructure in the other parts of the country especially in the North parts of the country limit movement of goods.
- Inadequate power supply although oil has been discovered off-shore and coal is imported used to supplement to run machinery.

### **Map of Ghana showing major industrial centers**



## **URBANISATION IN AFRICA.**

### **Towns and ports**

Urbanization refers to an increasing proportion of the total population that comes to concentrate in towns or ports.

**Sometimes certain criteria is used to define urbanization to include;**

- population density,
- population size and
- functions of the town as well as legal,
- administrative,
- Social amenities.
- Economic criteria.

The distinction between rural and urban population is based on the continuum of population clusters ranging in size from the smallest to the large.

### **Describe the factors that have led to development of towns and ports.**

- Existence of rapid population growth in the recent 21st century worldwide has caused people to drift to towns from rural areas.
- Presence of high paying employment opportunities offered in urban areas compared to rural areas.
- Urban areas provide social services like clean water, electricity, better housing facilities, security and cheap transport attract population.
- Availability of developed infrastructure in form of roads, railway and air transport services for easy mobility of people from rural areas to towns to promote trade.
- Existence of education system that promote “white collar” job seekers who move to urban centers to search employment.
- Political stability / security guaranteed by urban areas have attracted urban dwellers and refugees than rural areas.
- Presence of large market for the businessmen to invest for high profit making in urban areas compared to rural areas.
- Availability of reliable food supplies provided by farmers from surrounding fertile soils in urban centers.
- The colonial administrative units by the early European settlers and kingdom headquarters relied to large towns to grow e.g. Axum in Ethiopia, Gao in Mali, Kampala in 1890, Kinshasa in 1881, Dar-es-salaam in 1862, Abidjan in 1903, cape town, etc.

### **Contributions of urbanization in Africa.**

- Leads utilization of scarce resources like clean water, electricity, security, housing units, health, education and recreational facilities.
- Promotes forging of national unity among the diverse tribal groups to come to live together.
- Promotes growth of commercial farming like horticulture, market gardening, dairy farming, and plantation agriculture through markets provided by towns and enables land consolidation in the upcountry as people move to town.

- Urbanization can facilitate rapid industrial development through provision of cheap labour and a potential market for manufactured goods.
- Promotes the establishment of economic and social infrastructure like roads, housing units, health facilities, education and recreational facilities beneficial to all people.
- Promotes development of tourist sector to contribute foreign income to a country.

### **FUNCTIONS OF TOWNS IN AFRICA.**

*Some towns tend to be multi-functional i.e. play more than one function.*

#### **1. Commercial functions;**

Towns that mainly offer commerce/ trade, they tend to grow up at the nodes of land routes (inland road crossing).

E.g. sea ports, river and lake landing sites like Accra, Brazzaville, Bamako, Niamey and Kumasi etc.

O

#### **2. Agricultural functions:**

Towns grow as a result of the flourishing farming system in an area, such that, harvested produce attract traders.

#### **3. Administrative functions:**

Towns that developed due to major function of administration although other functions are realized e.g. cities, district headquarters, regional/ state administrative headquarters, etc. like Cairo, Lusaka, Kinshasa, Abuja, Addis-Ababa, Khartoum, etc.

#### **4. Industrial functions:**

Towns where manufacturing is the common function. This category include; industrial centers in Africa like Johannesburg, Maputo, Pretoria, Cairo, Alexandria, Kaduna, Benin city, Tema, Accra, etc.

#### **5. Cultural functions:**

Towns which have Religious sites, Museums, Historical sites, experience regular pilgrimages so that in case of interference in these, the town may gradually decline in importance. They are tourist sites due to presence of historical sites available and others.

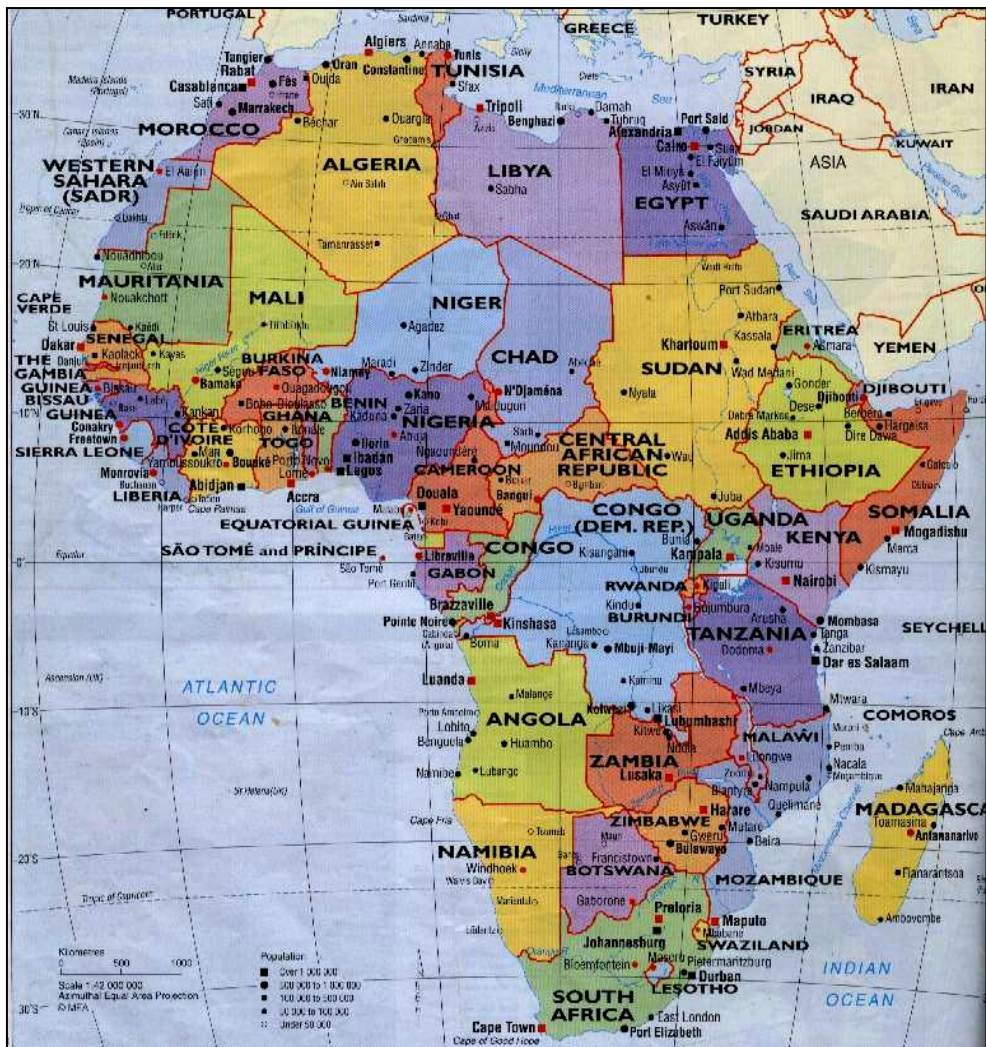
#### **6. Residential functions:**

Towns that mainly have housing estates for workers; mainly have labour lines, residential estates, etc.

#### **7. Mining functions:**

Towns that grow as a result of influence of mining activities. E.g. Kitwe and Lubumbashi in copper belt, Kimberley and Witbank in South Africa, etc.

## **MAJOR URBAN CENTRES IN AFRICA.**



### **CASE STUDY.**

#### **1. LAGOS – NIGERIA.**

(a) Draw a sketch map showing the site of Lagos Port in Nigeria and on it mark and name;

- (i) Harbour: Lagos Harbour
- (ii) Railway line
- (iii) Islands: Lagos and Ikoyi Islands
- (iv) Industrial area
- (v) Bight of Benin
- (vi) Residential area at Apapa

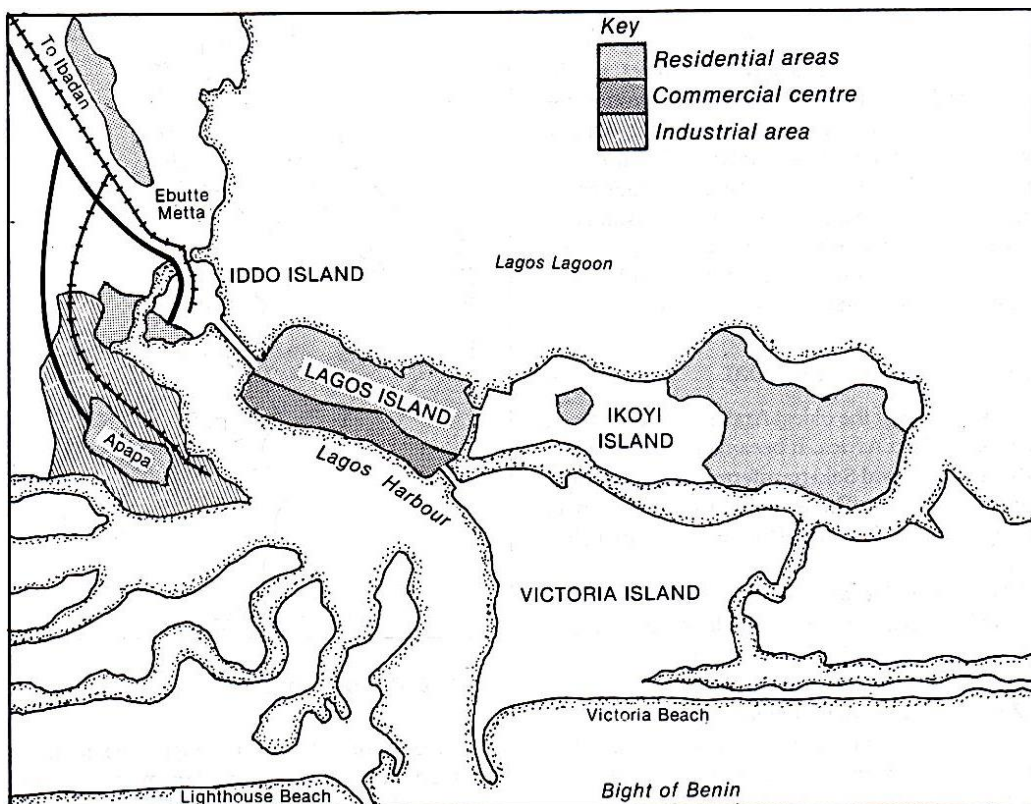
**(b) Describe the factors which led to the development of Port of Lagos.**

- Strategic location at head of Lagos lagoon; a break in a long sandbar provided an entrance into calm waters of the Lagoon.
- Presence of well sheltered Lagos harbour allows easy anchoring of ship.



- Presence of islands like Lagos, Victoria and Apapa mainland for construction of loading and unloading facilities.
- Availability of rich hinterland with valuable minerals and agricultural land to supply the Port.
- Presence of a deep dredged channel (Lagos harbour) over 8m deep, connecting the port to open ocean waters.
- Lagos port experience ice free conditions due to hot temperatures throughout the year allow busy operations throughout the year.
- Easy accessibility to rich hinterland through developed roads and railway to Niger, Benin and part of Cameroon.
- Tight security and political stability in the South and Niger Delta region promoted fast operations and development of port.
- Presence of both skilled and semi-skilled labour to work in various port activities like loading, dredging harbours, construction of port facilities etc.
- Availability of advanced technology used in construction of port facilities and handling of imports and exports during shipment.
- Presence of adequate capital to invest in purchase of port facilities, construction and payment of labour.

### **SITE OF LAGOS PORT.**



#### **Lagos, Nigeria**

**Lagos, the largest city in Nigeria, is located on the Gulf of Guinea.**

**It occupies Lagos Island, Ikoyi Island, and Victoria Island, as well as a large area on the mainland, all connected by a series of bridges and freeways.**

**(c) Explain the functions of Lagos port.**

- Lagos is an **industrial centre**; with many manufacturing industries like; textile, printing and publishing, motor vehicle assembly, etc.
- Is a **financial center**; with major banks, insurance companies, financial institutions, etc.
- **Commercial centre**; with various trading activities; shopping malls, markets and capital exchange markets, etc.
- An **administrative centre**; has many offices dealing with public administration, ministry head offices, and head offices for State run organizations.
- Is a **residential centre**; with housing estates of thousands of people working in industries, administration and other sectors.
- **Educational centre**; with important centre of Nigerian Intellectual and cultural life, the university of Lagos, Yeba college of technology, state university and Lagos state polytechnic, Research institutes, etc.
- **Cultural centre**; with many art galleries, entertainment centre, and religious buildings.
- **Nodal point** for major air, road and railway routes that radiate from hinterland form Lagos as a busy seaport.

**(d) Outline the measures being taken to solve the problems in (c) above.**

- Re-location of capital city to Abuja to reduce on administrative costs and associated employment opportunities so as to decongest the port.
- Nigeria has increased the number of states from twelve to nineteen each with a capital city for easy administration.
- Expanding the port to accommodate the increasing population – the boundary of the town was changed to accommodate Great Lagos port.
- Construction of bridges between islands and mainland e.g. Carter bridge and Eko bridge.
- Encourage self-help projects to generate employment opportunities for local population at Lagos port.
- Development of health care centres like hospitals, clinics, and health awareness programmes.
- Enforcement of the law and tightening security to reduce crime.
- Vertical expansion of port facilities and construction of buildings like skyscrapers.
- Renewal of the port housing facilities in form of Housing Estates to reduce development of slums and associated evils.

**Outline the environmental problems faced by Lagos as a port.**

- Silting of the harbor which requires continuous dredging is expensive.
- Congestion at the port due to overcrowding.
- Pollution of land, air and water by industrial wastes and port activities.
- Sea pirates disturb fishing activities.
- Limited land for expansion since most of the original land was used up.



- Occurrence of accidents in the ocean by strong winds cause drowning and congestion of traffic at the port.
- Occurrence of water borne diseases e.g. Bilharzia.
- Urbanization and its associated problems e.g. high crime rates, prostitution, poor sanitation, etc.

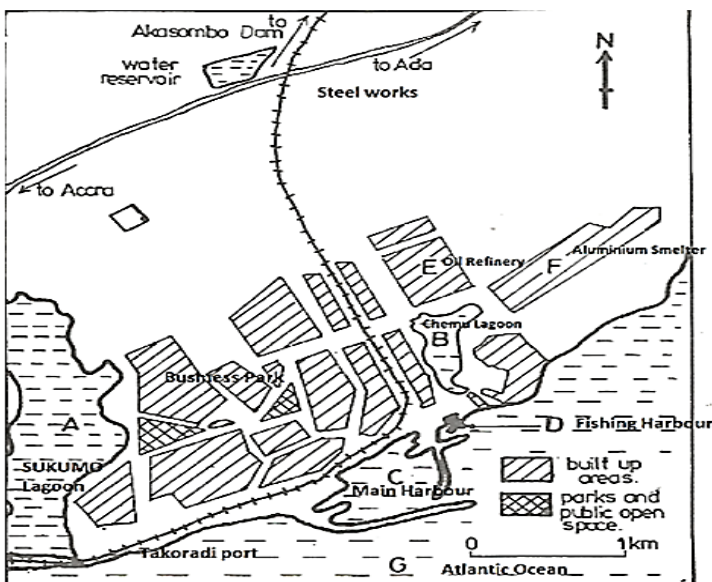
## **2. TEMA PORT – GHANA**

Is located along the coast of West Africa in Ghana, 30km East of Accra and it is linked to the Accra by a short railway line.

### **a) Factors which led to development of Tema port.**

- Presence of calm waters of the lagoons.
- Presence of deep off shore water permit sailing and docking of large ocean vessels.
- Presence of a rich hinterland with many minerals like aluminum, iron ore, oil, and gold, agricultural products like cocoa, cotton, and coffee to serve the port.
- Existence of a sheltered shoreline e.g. the Gulf of Guinea protects harbor from strong winds and waves of Atlantic Ocean.
- Presence of a low tidal range that helps to prevent accidents while the ships are sailing.
- Existence of flat relief which was ideal for the construction of port infrastructure and facilities.
- Favourable government policy to ease congestion from other existing ports like Takoradi, and Accra.
- Existence of adequate port facilities.
- Presence of well-developed transport network from the hinterland by railway connection to Accra, Kumasi, to Tema and other reliable transport network like roads.
- Presence of adequate capital to invest in development of skilled labour engaged to work in the port development e.g. dredging of shallow continental areas.
- Existence of vast land for establishment and expansion of the port and its facilities.

### **SITE OF TEMA PORT**



**c) Explain the functions of Tema port.**

- It is a fishing port with a fishing harbour on Atlantic Ocean.
- Tema is an entrepôt-port through which exports and imports are handled for Ghana.
- It is a residential centre with many housing estates.
- Tema is a commercial centre with a central business park; pharmacies, shops, markets, etc.
- It is a communication centre linked to well develop; railways, roads, water routes.
- Is an Industrial centre with many industries like oil refinery, aluminum smelting, steel works, etc.

**d)(i) Outline the problems faced by Tema as a port.**

- Silting of the harbour which requires expensive dredging
- Congestion at the port due to overcrowding.
- Pollution of land, air and water by industrial wastes and port activities.
- Sea pirates disturb fishing activities.
- Limited land for expansion since most of the original land was used up.
- Occurrence of accidents in the ocean by strong winds cause drowning and congestion of traffic at the port.
- Occurrence of water borne diseases e.g. Bilharzia.
- Urbanization and its associated problems e.g. high crime rates, prostitution, poor sanitation, etc.

**(ii) Outline steps being taken to solve problems faced by Tema port.**

- Dredging of the harbours to remove silt.
- Treatment and recycling of industrial wastes.
- Construction of sky scrapers to minimize the issue of land shortage for expansion.
- Practice of containerization to minimize space as a solution to congestion.
- Deployment of marine police to increase security to control the menace caused by sea pirates.
- Time tabling of the shipment routes to minimize congestion at the port facilities.
- Widening the harbor to accommodate the expanding port facilities.
- Improvement of medical services to control waterborne diseases.

**3. ADDIS ABABA – ETHIOPIA.**

Addis-Ababa is a capital city of Ethiopia. Today it is estimated to be having above 900,000 people.

The growth of Addis-Ababa traces its origin from the time of Menelik II in around 1800. Suitable for the governing of the rugged and turbulent territory of Ethiopia since it is located in the heart of the country.

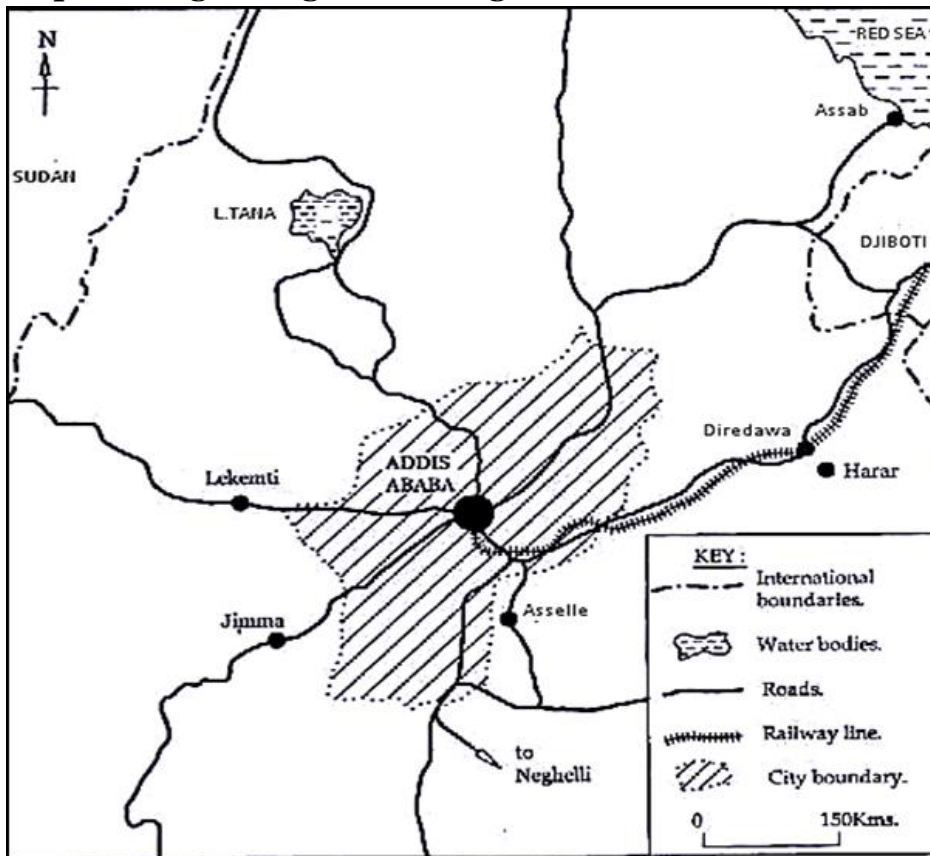
It was eventually linked up by railway in the 20<sup>th</sup> century to Djibouti an important outlet on the Red Sea.

This had an effect on European population within the town that was an advantage in terms of market potentials.

Today the city has few industries but many modern buildings- the Ethiopian and Ghion hotels, the stadium, Parliament house, the University, the commercial bank and New African Hall where the African heads of states (AU) headquarters meet.

It is a communication center with an international Airport (Ethiopian Airways) and a network of roads and railway line.

**Map showing the regional setting of Addis Ababa.**



**Describe the factors which led to the development of Addis Ababa as urban Centre.**

- Presence of cool temperatures from Ethiopian highlands experienced in the city suitable for settlement.
- Existence of the city on relatively flat landscape/ plateau of 2500m a.s.l for easy construction of roads railway and housing units.
- Historically it was the headquarters of the empire/ emperor's seat which attracted many people to the area.
- Presence of a rich hinterland with agricultural and mineral resources boosted trade and industrialization.
- Centrally located in the heart of Ethiopia has made accessibility easy from all parts of the country.

- Presence of developed and efficient transport network by roads, railway and air and easily accessible by red sea.
- Existence of large population around the Ethiopian plateau and highlands which has facilitated the development of the city.
- Presence of adequate capital to invest in urban infrastructure like roads, buildings, recreational facilities.
- Availability of industries that provide employment to many people for improved welfare.
- Presence of favourable government policy that promote urban development for related functions.
- Availability of adequate water supply from L. Tana and Blue Nile for both industrial and domestic uses.
- Existence of large land for construction and expansion of the city infrastructures.
- Availability of adequate power for domestic and industrial uses in the city.
- Presence of both skilled and semi-skilled labour to work in the maintenance and construction of the city infrastructure.
- Availability of advanced technology used in the construction of skyscrapers and related infrastructure in the city.
- Political stability in the country has enabled investors to have courage to invest in the city.

**Explain the functions of Addis Ababa city.**

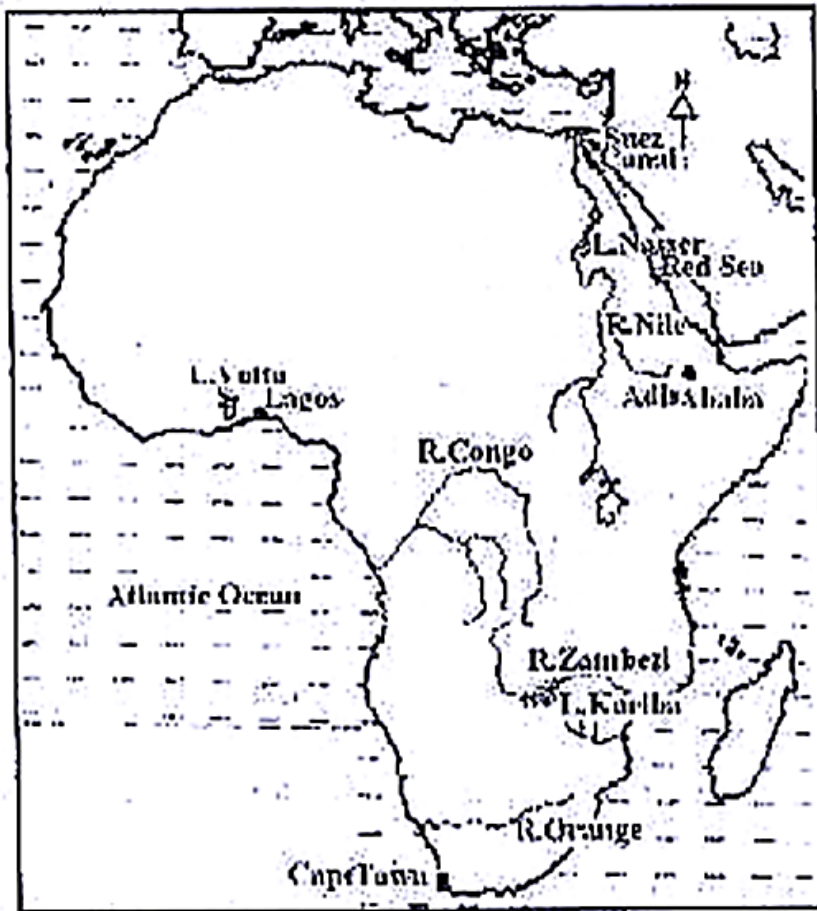
- Is an administrative center with the headquarters of the State ministry offices and parliament, etc.
- Commercial center housing the node of the country's successful businessmen both local and international investors are here, the central Business district.
- Capital city of Ethiopia housing all the big country's activities both private and state.
- Industrial center with the common industries being; food processing, leather tanning, textile, Gold workings and craft.
- It is the headquarters of international and regional groupings like IGAD, AU, etc. with new Africa Hall for AU meeting.
- A tourist center with museums, emperor's seat, Ghion hotels at five star level to house visitors.
- Recreational center with national stadium for sports and entertainment sites.
- Is education center with university, colleges and high schools.
- Is a financial center with many commercial banks and insurance companies.
- Residential center with many residential houses.

**Outline the effects of urbanization on the environment in Ethiopia.**

- Pollution of land, air and water by industries and urban waste.
- Destruction of vegetation cover during construction of the city infrastructure.
- Encroachment of productive agriculture land.
- Congestion of people and vehicles in the cities.
- Easy spread of communicable diseases like cholera, dysentery, HIV/AIDS, etc
- Poor housing facilities leading to development of slums.
- Poor visibility due to smog and fog.
- High crime rates and immorality.

- Rural urban migration and its related problems.
- Construction of concretes which caused poor infiltration of water leading to occurrence of floods.

**A sketch map of Africa showing urban centers: Cape Town, Addis Ababa, Lagos and rivers**



- Describe the factors which have favoured the development of any one urban center named **either** Lagos **or** Cape Town.
- Outline the functions of urban centers chosen in (a) above.
- (i) State any two urban centers in Africa with over 5,000,000 people.
- Explain the problems which are being faced by people living in urban centers.

### **KINSHASA CITY – DR. CONGO**

- The capital city of Zaire now Democratic Republic of Congo. During the colonial times it was called Leopoldville, after the Belgian king.
- Kinshasa is located 400km inland on the banks of Congo River. It was founded by Sir Henry Stanley in 1881.
- Kinshasa grew slowly up to the 1920s due to improved river transport and developed links to the coast on Atlantic Ocean made her trade to begin flourish.
- The Second World War encouraged the development of industry and from then the city started to expand rapidly

- Massive migration into Kinshasa from all middle and lower Zaire after 1959, on the eve of independence partly stimulated political insecurity and fear led to the move to the capital.
- Since the country gained independence foreign trade and investments by America have transformed Kinshasa into bustling city of more than 2.5 million people of more than 50% are in slums.
- After 1940, urban growth in Kinshasa meant the construction of new townships, a few kilometers further south and these had rather improved housing facilities than the old townships.
- After 1960s the growth of Kinshasa had no clear plan, it was full of illegal squatters on a massive scale by immigrants and the poor residents cover the hills of the south.
- Today the squatter zone has major problems to city authorities in the provision of modern infrastructure.

### **Problems facing Kinshasa city of DRC**

- Tribalism/ ethnicity due to separation of residential areas along tribal/ethnic and socio-economic basis.
- The relief has affected the systematic growth of the city to scattered development.
- Rapid development of slums facilitating shanty housing facilities, prostitution, moral decay, high crime rates and urban violence.
- Shortage of social service due to rapid growth of the city e.g. electricity, clean water, health facilities, etc.
- Pollution of the Congo River due to waste disposal from industries, sewage from the city led to environmental hazards.
- High rates of unemployment due to big turn up of immigrants into the city.
- Limited skilled labour to employ in development projects due to large number of primary schools drop outs in the city.
- Easy spread of communicable diseases and HIV/AIDS due to immorality and poor sanitation.
- Insecurity due to juvenile delinquency, crime, drunkenness, prostitution, violence etc.

### **FUNCTIONS OF KINSHASA CITY.**

- It is a commercial center with shopping arcades, central Business district and markets.
- Is an administrative center and capital city hosting ministerial offices and state house.
- Residential center with many European residential area and housing units including slums in the city outskirts.
- Transport node with railway headquarters, an airport, roads and river Congo landing port.
- Recreational center with national stadium, theater, beaches along the Congo River.
- Educational center having state University for research and education using French as a medium of instruction.
- Tourist center, located in equatorial climate and rainforest, R. Congo and diverse Congolese culture of musicians and dance.
- Industrial center possesses an industrial zone for manufacturing and processing goods

**JOHANNESBURG CITY OF REPUBLIC OF SOUTH AFRICA.**

- Is the largest city of Rep of South Africa among others are Pretoria, Cape Town, Durban, Kimberley.
- Johannesburg is the largest city in African continent. That started as a small mining settlement in the last half of the 19<sup>th</sup> century after the discovery of Gold at Witwatersrand.
- The city is located on Limpopo-Vaal watershed on the Veld.
- The mining of Gold is the major factor for the growth of the city being the world famous for its gold mines near the city along with other minerals like Uranium and industrial diamonds are extracted.
- Existence of developed transport and communication network like roads, railway network, and international airport facilitate movement.
- Presence of many industries for manufacture of mining equipment, automobile parts, electrical and communication equipment and chemicals has attracted investors and traders to build in the city.
- Led to the development of separate suburbs (Soweto) for different racial groups as a result of apartheid policy of the white government that began to be change in 1990s.
- Availability adequate power imported from Mozambique, some is generated from Vaal river and coal from Witbank have facilitated mining and industrial development in the city.
- Existence of large capital provided European settlers from the coastal towns and government to the establishment of infrastructure in the city.
- Availability of favourable government policy on self-reliance through mining, industrialization supported the development of the city to promote trade.
- Presence of adequate water supply from Limpopo and Vaal River used for mining, industrial and domestic use in the city.

**FUNCTIONS OF JOHANNESBURG CITY.**

- Is an **industrial center** with many industries like; mining equipment, automobile parts, electrical and communication equipment, chemicals, etc.
- Is a **commercial center** with large international trade businessmen, shopping arcades, CBD, etc.
- **Residential center** with housing estates for industrial workers, White residential quarters created during apartheid government, etc.
- Is a **transport node/ center** with a biggest international Airport, focal point of the Railway network and roads.
- **Recreational center** with developed facilities to handle games to the level of world cup, etc.
- **Educational center** with various universities here both international private and public universities.
- An administrative center handling offices for political organizations, trade like SADC grouping and mineralogical ministry. Etc.
- **Tourist center**, with national museums, apartheid history, mining and industries, developed railway network, culture of dance and musicians, five star hotels, etc. are attractions.

**PROBLEMS FACED BY JOHANNESBURG CITY.**

- Congestion led to shortage of space for expansion of the city infrastructure.
- Inadequate water supply because the Vaal river is overwhelmed as the only river used by many industries, mines and other cities.
- Limited cheap labour to employ in various industries established in the city because much of the labour required is provided by Black Africans mainly Bantustans and migrant workers from neighboring countries.
- Racial discrimination has tended to increase urban violence and high crime rates.
- Traffic jams during rush hours for work lead to delay.
- Fluctuation of power due to over loaded power lines by many industries affects industries and cause loses.
- Unemployment is gradually increasing among the black Africans in the Bantustans around Johannesburg.
- Easy spread of communicable diseases and HIV/AIDS among the Suburbs.
- High rates of environmental pollution by industries and mining around the city.
- Easy accessibility to information is enhanced for fast development.
- Generation of revenue to government through taxation increased incomes of urban for development of social services.
- It has facilitated development of infrastructure like roads and railways, schools and hospitals.

**Explain the effects of urbanization on environment in Johannesburg.**

*Urbanization effects are both positive and Negative.*

**Positive effects**

- Creation of large market for goods and services from industrial, agricultural and service sectors.
- Generation of employment opportunities in various sectors to improve the standard of living.

**Negative effects of Urbanization.**

- Pollution of the environment i.e., water, air and land due to many industries, vehicles and people in the urban centers.
- Congestion of settlements, people and traffic which causes accidents and delayed movements within the city.
- Loss of productive land for agriculture as the city expands has led to reduced food production in the country.
- Development of slums and their associated evils like poor sanitation, high crime rates, etc.
- Loss of vegetation cover and encroachment of wetlands negatively affect the local climate.
- Easy spread of diseases due to overcrowding in the city caused by increasing population and industries.
- Unemployment and underemployment due to over population in the city.
- High crime rates like murder, theft, etc. Social problems like moral decay like prostitution are widespread in the city.