

### URBANISATION IN UGANDA.

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. In Uganda there are basically four types of urban centers and these include the following;

- Cities with Kampala capital city. Others include Jinja, Mbarara, Fortportal , Hoima, Lira, Gulu, Masaka, Soroti, Arua, Mbale etc.
- Municipalities e.g., kabale,Tororo, Arua, Mukono,Masindi,Iganga, Kisoro etc.
- Town councils e.g. Katakwi, Napak, Lukaya, Buwenge. Kyenjojo, Buwama,Kajjansi, Wobulenzi, kaliro etc.
- Town boards/ Trading centres e.g.Bulopa, kasenyi, Namulesa etc.

Characteristics of urban centre.

- 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.

### FACTORS THAT HAVE FAVOURED UBARNISATION IN UGANDA.

Climate, the central region is more urbanised than any other part of the country partly due to its favourable 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 e.g. Kampala city, Mukono municipality ,Masaka city and many others.

The generally flat and gentle slope landscape have also favoured development of urban centers. This is because this kind of landscape makes it easy and relatively cheaper for the establishment of the necessary infrastructures like residential buildinga, roads that consequently encourage urbanization e.g. Jinja and Masaka municipalities.

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 e.g.Kyenjojo and municipalities like Fort portal.

Areas that are covered by relatively light or scanty vegetation cover especially grasslands are easy to clear for establishment of the necessary infrastructure like roads, residential settlements such areas

have attracted relatively high population making such areas to develop into urban centres examples of such areas include Gulu municipality, Lira municipality, Katakwi town and many others.

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 e.g. Kampala city, Mukono municipality partly developed because people depended on the food from the alluvial fertile soils around the lake Victoria shores e.g. Kayunga, Mpigi, Wakiso etc. Mbale city depends on food from the fertile volcanic soils around Mt. Elgon in Sironko, Manafwa etc.

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 urbanisation even more. E.g. people move from Ibanda to Mbarara municipality, from Sironko to Mbale city.

The government policy of gazettement of 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. This in turn has boosted the process of urbanisation in areas like Kisoro municipality, Gulu municipality etc. Industrialisation has also favoured urbanisation.

Areas that have industrial establishments and services attract many people who seek for employment opportunities and other related activities. This partly explains why areas like Jinja, Tororo, Kasere municipalities developed into major urban centres.

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 e.g. Busia municipality, Arua city and Kampala city.

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. Such areas begin like small trading centres then later into town councils and finally into municipalities e.g. Jinja municipality, Kabale municipality etc.

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 like Jinja municipality, Entebbe municipality, Kampala city that are near Lake Victoria that provides water have become major 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 e.g. Tororo and Kasere municipalities due to limestone mining, Kajjansi town council due to clay mining, Hoima municipality due to oil exploration and mining etc.

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 e.g. Iganga municipality, Kinyara trading centre due to sugar cane plantations.

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. Such areas include Kasese municipality near Queen Elizabeth national park and mt.Rwenzori, Jinja municipality near the source of the Nile etc.

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 for instance Mbale municipality, Masaka municipality, Gulu municipality etc. 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.e.g. Mukono municipality, Nansana municipality, Nsangi trading centre due to the existence of Kampala city.

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 e.g. Busia, Tororo, Malaba along Uganda – Kenya border.

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 tend 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 e.g. Kasenye trading centre, Bukakata trading centre around Lake Victoria and many others.

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 and this partly explains why Kampala city, Jinja municipality, Iganga municipality have developed into major urban centres.

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. This is evident in Kampala city, Mbarara municipality and many others.

The influence of improved technology. Areas where there is relatively improved technology are associated with better mechanisms of production thus facilitating things like industrialisation together with innovativeness and these attract many people who come with different skills thus encouraging urbanisation e.g. Kampala city, Jinja municipality etc.

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.e.g. Mbarara municipality, Mbale municipality etc.

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 e.g. Iganga municipality, Mbale municipality, Jinja municipality etc.

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 e.g. kabale municipality, Masaka municipality etc.

**Assignment. Draw a sketch map of Uganda showing categories of Urban centres.**

### **FUNCTIONS OF URBAN CENTRES IN UGANDA**

- Urban centres have administrative functions where by many of them have administrative centres like district head quarters, county and sub county head quarters while others like Kampala city have ministry head quarters and the parliament.
- They have commercial functions with collection, selling and distribution centres of goods.e.g. Nakasero and Owino market in Kampala city, Jinja Central market in Jinja municipality etc.
- Many urban centres have industrial functions. Many towns have industrial establishments e.g. Kampala city with Mukwano industries, Jinja municipality with textile industries, Mbale Municipality.
- Residential functions. Towns provide accommodation and residential facilities where by many people settle and reside in the urban centres e.g. Kampala city with residential areas like Bugolobi, Muyenga, Naguru etc. Mbale with senior quarters etc.
- Resort and recreation functions. Urban areas in Uganda have such facilities like cinema halls, theatres, stadiums, golf course and many others. These are evident in Kampala city, mbale municipality etc.
- Social functions where by many urban centres have Educational institutions e.g. Kampala city with Makerere university, health services like mulago hospital in Kampala, churches and many other social facilities.
- Transport and communication functions. Many urban centres in Uganda also serve as transport and communication terminals e.g. Entebbe municipality with the international airport, Kampala city with taxi and bus terminals.
- Tourism functions where by many towns in Uganda are tourism destinations with various tourist attractions and hotels e.g. Kasese near queen Elizabeth, Jinja near the source of the Nile etc.
- Some towns provide mining functions especially those near mining centres e.g. Hoima municipality because oil mining, Tororo and Kasese municipalities sue limestone mining.
- Security functions where by many towns house various security organs and agencies e.g. police head quarters in Naguru, UPDF head quarters at Mbuya all those in Kampala city.

### **PROBLEMS ASSOCIATED WITH URBANISATION**

- ✓ High rates of unemployment which is basically caused by the high increase in population in the urban areas which does not much with the rate of job creation thus rendering many urban dwellers unemployed. This is evident in Kampala city, Arua municipality and many others.
- ✓ High rates of crimes for instance pick pocketing, theft, drug sale and abuse etc. These are mainly caused by the problem of unemployment where by people don't have sources of income yet they have to meet the costs of living therefore they try to look for alternative means of survival in the urban centres. This is evident in Gulu municipality, Lira municipality etc.
- ✓ There is also a problem of inadequate provision of social services like health care, supply of electricity and water, collection of garbage. This is because of the high pressure mounted by the high population concentrations in these urban centres yet the government can not meet the demands due to limited resources. e.g. Masaka municipality, Kamuli municipality etc.
- ✓ Shortage of accommodation facilities which is as a result of high population and people remaining poor due to unemployment. Therefore they can not afford to build or buy houses for better accommodation thus resorting to crowded slum areas that are associated with many social and health problems e.g. Katanga and Kasenyi areas in Kampala city. Kasokoso in Iganga municipality.
- ✓ There is also a problem of traffic congestion especially during the rush hours when people are either going to their work places in the morning or when they are returning home in the evenings. This causes delays in transportation and delivery of goods and services e.g. in Kampala city, Mukono municipality etc.
- ✓ Pollution of air, water and land. This is basically caused by the poor disposal and emission of industrial wastes since urban centres tend to have high concentrations of industries but also the pollution is caused by poor disposal of garbage by the high population. This has posed health risks but also environmental degradation e.g. Jinja and Mbarara municipalities.
- ✓ High costs of living in urban centres and this is caused by the expensive costs of goods and services like food stuffs, clothes, health and education due to high demand by the big urban population but the poor people in these areas can not afford such costs. This is evident in Kampala city, Mbarara municipality etc.
- ✓ Shortage of land for expansion. As towns grow geographically, there has been limited land for further expansion and as a result the nearby marginal lands like wetlands and forests have been encroached upon for settlement, infrastructural development and industrial establishment however this has resulted into environmental degradation. e.g. Bwaise, Bugolobi areas in Kampala city where wetlands have been reclaimed.
- ✓ High government expenditure due to the fact that the government has to provide the essential social services and facilities to the urban population in form of health care, supply of water and electricity, roads etc. e.g. in Mityana municipality, Fort Portal municipality etc.
- ✓ There is also a problem of poor urban management associated with corruption yet many people come to towns from different places with different backgrounds and behaviours therefore controlling them

becomes difficult. This has been worsened by the political differences, tribal and cultural differences plus income inequalities emanating into urban violence in urban centres like Kampala city, Jinja and Gulu municipalities.

✓ There is also a problem of shortage of food stuffs in urban centres and thus is because of the high population in these areas yet most them are not involved in in food production yet they have to feed. This is worsened also worsened by the high cost of living rendering many poor urban dwellers go hungry.

✓ The growth and development of urban centres has resulted into displacement of people. People are always displaced to give way for the establishment urban developments inform of building roads, industrial parks, recreations grounds and many people. This in turn has caused loss of property and inconveniences e.g. in Mbale municipality, Kampala city etc.

✓ Poor sanitation in the urban areas and this is basically due to poor management of industrial and human wastes. Many urban centres have failed to manage the disposal of wastes leading to poor sanitation and hygiene posing health risks to the people staying in those areas. This common in Kampala city, Gulu municipality, Mbale municipality were people get diseases like cholera, dysentery due to poor hygiene.

✓ There is also a problem of rapid spread of diseases especially air and water borne diseases in the urban areas. This is mainly caused by human congestions due to high population concentrations in these areas and also contamination of water sources due to poor disposal of wastes. This has resulted into loss of lives in towns like Kampala city, Masaka municipality etc.

✓ There is also a problem of poverty to many urban dwellers and this is because many people especially the youths migrate to urban centres in anticipation of getting better paying jobs but because of the high number of people looking for the same jobs, many remain jobless with no source of income and together with the high costs of living they become even poorer. This seen in the slum areas of Bwaise, kisenyi in Kampala city. END.

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## FISHING

The term fishing refers to the extraction of aquatic animals from the seas/ oceans and inland water bodies. The aquatic animals include fish, whales, seals, pearls, crabs, shrimps etc. Fishing is one the oldest occupations of man.

Due to advancements in technology and increased demand for proteins, fishing is increasingly becoming an important occupation.

A well developed fishing industry can provide cheap proteins and essential minerals (like calcium, iodine, phosphorus), fish liver oils; employment, industrial development (e.g. making animal feeds, glue, soap, margarine, paints, ink, medicine, perfumes and cosmetics). Today there is protection of international waters to check on the impact of the fishing industry, in order to ensure sustainable exploitation of aquatic life.

### **Distribution of Major fishing grounds in the world**

The world's major fishing grounds (fisheries) are located in the cool waters of the northern hemisphere, although there is also fishing in the southern hemisphere. The fishing grounds include:

1. North West Pacific fishing grounds
2. North East Pacific fishing grounds
3. North West Atlantic fishing grounds
4. North East Atlantic fishing grounds

Other important fishing grounds are:

- a) The Caribbean region
- b) The Peruvian-Chilean coastlines
- c) Maghreb region (North West Africa)
- d) South African coast upto Angola

### **World fish types**

#### **1. Salt –water fish**

These spend their entire lives in oceans and seas, and they are categorized as:

##### **(a) Pelagic fish**

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Fish stay at or near the water surface of seas/ oceans. Examples are herrings, mackerel, sardines, pilchards, brisling, anchovies/anchoveta, menhaden, tuna, swordfish, marlin, mahi-mahi, shell fish

### **(b) Demersal fish**

This lives at the bottom of the seas/ oceans or in deep waters. Fish species include cod, haddock, halibut, hake, plaice, Pollock, flounders, sole, cusk, and Rose fish.

### **2. Fresh water fish**

This is found in inland streams, rivers and lakes. Also in ponds, paddy fields etc the fish species include: Sturgeon, Carp, Roach, Tilapia Nilotica, Nile perch etc

### **3. Anadromous fish**

These stay in both salt and fresh waters. The best example is salmon (*which is extensively fished in North America, particularly from Alaska to Oregon on the pacific coast*). The young salmon live in the sea but after 2 to 5 years, they return to stream where they were born to lay their own eggs or die. (They move in large shoals and find their original breeding / spawning ground. Their migration routes and spawning ground. Their migration routes and spawning grounds are readily spotted and they are easily caught by traps or nets).

## **Modern/commercial fishing methods**

### **1. Gill netting ( drifting)**

This is a method used to catch pelagic fish. A net is suspended in water with floats at the top and weights at the bottom. The net hangs vertically in water and the fish are caught by their gills as they try to pass through the net. Once trapped they can move neither forward or backward. When the fish has been caught the net is removed onto the drifter/ ship for processing.

***Illustration of drifting method***



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### 2. Purse seining

This method is also used to catch pelagic fish living near the water surface. A purse seine net is laid out in a circular form below the water to trap a shoal of fish. The fish shoals are located using an eco-sounder. At the bottom of the net a ring exists through which a rope attached to a small boat passes. The small boat is used to lay the net, which net is suspended by floats at the top and weights at the bottom. The net has a close mesh where fish are caught by gills.

After the circle has been made, the rope is pulled to close the bottom of the net thereby engulfing/ trapping the fish. The net is lifted onto the boat/ seiner.

***Illustration of purse seining***

### 3. Long lining

This method is used to catch demersal fish found in deep water. It involves the use of a long main line with attached drop lines which have hooks with baits. The main line / main rope can stretch for several kilometers with about 200 drop lines. The fish are caught as they try to eat the baits. When enough fish has been caught, the line is pulled out of water onto the ship and fish removed for processing.

***Illustration of the long lining method***

### 4. Trawling

This method is used to catch demersal fish living in deep waters. A cone-shaped net is dragged behind a ship/ boat called a trawler. A trawl net is a bag-shaped net whose mouth is kept open by otter boards (either wooden or metal) and has weights at the bottom and a slim cod end. Any fish that enters the net is trapped at the cod end and after the trawl net is pulled out of water and emptied onto the ship for processing. The process is repeated.

***Illustration of trawling method***

Other methods include whaling and sealing. Whaling involves catching of whales. They are located by spotter planes or an eco-sounder and catcher boats with explosives are later used for killing the whales and floated in ships to the processing factories. Sealing involves catching of amphibians called seals that live both in marine and inland water. Seal herds are chased from the sea/ ocean where they are easily killed using game guns and later processed.

The above modern methods are more advantageous than traditional methods which are common in developing countries. The traditional methods include basket method, spear method, hooking, bows and arrows, beach seining, fish poisoning etc in still some countries electricity is used ( *fish paralyzed by electric shocks but this is dangerous*).

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## NORTH WEST PACIFIC FISHING GROUNDS

The North West Pacific fishing ground is the area from the Bering Sea to the East China Sea and it is the world's greatest fishing region. Japan is the greatest contributor to the total annual fish yields in the North West Pacific fishing grounds. The rest is shared by China, North and South Korea, and the eastern former Soviet republics.

Within the enclosed sea –the Sea of Okhotsk, Sea of Japan, Yellow Sea, East China Sea are intensive for both inshore and deep sea fishing.

## FISHING IN JAPAN

In the north Pacific, Japan has an outstanding fishing industry and today it is the world's leading fishing nation in all activities of fishing. Japan accounts for about 15% of the world's output. Japan exports majorly fish products in addition to industrial items. The major fish species are: sardines, herrings, mackerel, salmon, yellow tail, cuttlefish, tuna, shell fish, cod, bonito, crab, shrimp, Pollock etc. In addition whales and pearls are caught.

Almost 3 million (*a large number of*) Japanese are directly dependent upon fishing for a living. Every Japanese village fronting the sea is engaged in fishing. There is coastal fishing by small boats, offshore fishing by medium-sized boats, and deep-sea fishing by large vessels.

## Factors that have favoured the development of fishing in Japan

### Physical factors

1. ***Presence of a broad continental shelf with shallow waters*** especially off northern Kyushu and southwest Honshu and this allows sunlight to easily reach the seabed providing ideal conditions for the growth of planktons which fish feed on, hence survival of large populations of fish. Besides the concentration of planktons along the coast attracts pelagic fish like mackerel and sardines to be easily caught. This in turn leads to large quantities of fish caught.
2. ***The meeting of the warm Kuroshio (Kuro siwo) and the cold Oyashio (Oya siwo) currents*** which also creates ideal conditions for plankton growth and as a result pelagic and demersal fish is abundant in the area. The Japanese islands are located in the zone of convergence /mixing between the two great water masses. The large fish stocks lead to increased quantities of fish caught.  
The warm Kuroshio Current also provides warm conditions which prevent the freezing of water, thereby allowing fishing to go on throughout the year.
3. ***Presence of a long and highly indented coastline*** which has promoted the development of coastal fish landing ports in the numerous bays and sheltered inlets. The ports include

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Tokyo, Yokohama, Nagoya, Osaka, Kobe, Toyama, Kagoshima, and Hakodate which increase accessibility to many fishing villages and handling of fish exports. Besides the indented coastline provides good breeding grounds for fish since the strong water waves that would carry the eggs are sheltered off; leads to increased multiplication of fish.

4. ***Japan is made up of islands*** and these include Honshu (the largest), Hokkaido, Kyushu and Shikoku. In addition to these huge islands, there are over 3000 islands which has increased the fishing villages and in turn increasing the quantity of fish caught and distributed. This also made the Japanese traditionally sea ferring people and hence many have become fishermen.
5. ***The mountainous nature of Japan's landscape with limited lowland***. Much of the available agricultural land is used in the production of staple food crops like rice and therefore less left for dairy and ranching. This has emphasized fishing as a major source of animal protein supplying about 60% of animal protein in the Japanese diet.  
Still the mountainous nature of the landscape has made the population to be concentrated on/near the coast, which releases labour to the fishing industry as well as ready market. This increases production in the fishing sector.
6. ***Existence of large forests to support fishing*** since originally many islands of Japan were forested. This plus the forested former Soviet Republics provided the required timber for ship building for carrying out fish extraction, construction of ports for landing fish and handling fish exports and even making packaging boxes for fish. This increases production in the fishing industry.
7. ***Presence of a variety of valuable fish species*** fished during various seasons both pelagic and demersal; and which exist in large quantities. These include sardines, mackerel, yellow tail, cuttlefish, herrings, salmon, lobsters, cod, shellfish, tuna, and Pollock. These have a variety of uses such as making drugs, cosmetics and glue—hence commanding a large market. This encourages large-scale investment in the fishing industry.
8. ***Northly location of Japan in the cool waters of the northern hemisphere*** and this points to the natural productivity of the cool waters surrounding Japan, in terms of planktons, fish species and yet the cool climate makes fish preservation easy.
9. ***Presence of many rivers and streams*** which bring in mineral salts from inland dissolved in water and this facilitates plankton growth and in turn existence of large stocks of marine fish. The streams/ rivers also provide good breeding grounds for certain fish species like salmon, hence favouring the multiplication of fish, and thus sustainable exploitation. The rivers include: Shinano (the longest) in central Honshu flowing to the Sea of Japan; Tone River and Ishikari River.
10. ***Presence of large fishing grounds/ large water bodies***. Japan is bordered by the large pacific ocean which is the major fishing ground containing many fish species like tuna, and mackerel. There are also rivers flowing from the interior which act as fishing grounds like

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Shinano River. These large fishing zones promote large scale fishing investment due to large quantities of fish caught.

11. ***Presence of a smooth ocean floor*** which promotes the use of modern fishing methods like trawling, and long lining in the Japanese fishing zones and this results into large quantities of fish caught and marketed. A large part ocean floor is free from rock outcrops that could affect the landing of fishing vessels and destroy the fishing nets.

### ***Human factors***

12. ***Availability of large sums of capital to invest in the fishing industry*** accumulated from the strong industrial sector and provided by investors. The capital is used to purchase of modern machinery for catching fish and the construction of ports for landing fish. There are large corporations carrying out fishing in Japan and these possess big and sophisticated fleets/equipment, processing and canning facilities. These corporations are managed and corporate worldwide. There is high quality and quantity production.
13. ***Large supply of highly skilled labour employed in the sector*** since most settlements are near the coast and fishing being a major sector in the Japanese economy. Many people have been trained in fish extraction, fish processing, transportation and marketing. The coastal settlement has also given the Japanese a long experience in fishing activities. This has led to long-term and large scale fishing investment.
14. ***Presence of a large market both domestic and foreign.*** Japan has a generally large population (*over 130 million*) and yet it is concentrated along the coast, hence providing a ready home market. Fish also provides about 60% of proteins to the Japanese diet. Besides Japan is located to the proximity of mainland Asia, which countries have large populations to support the Japanese fishing industry (countries like North Korea, South Korea, and china). There is large scale fisheries investment to support the ready market.
15. ***Advancement in technology employed in the sector*** (Japan leads the world in the invention of modern fishing technology). Modern fishing methods are employed such as trawling leads large quantities of fish catch; refrigeration plants, floating cannaries and other processing facilities for the preservation of the fish caught for a long period. For example tuna and salmon are caught and processed on spot. This technology has increased efficiency in the fishing industry.
16. ***Adequate/continuous research in the fishing industry*** which has led to many innovations to improve fishing activities. There is research in the breeding habits, feeding and maturation of various fish species. There are also hatching/ breeding techniques used such as for shellfish; which are then released into the waters. This in turn promotes the multiplication of fish and thus sustainable fishing in Japan.
17. ***Efficient transport system*** such as a well-developed sea transport with over 2000 fishing ports (*like Nagasaki, Otaru, Tokyo, Yawata,*) and modern vessels; which facilitates fishing

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operations/ extraction, distribution and marketing of fish. There is also a modern electrified railway network connecting various fishing ports and urban centres. This increases the supply of fish in the processing factories and the large market.

18. **Political stability of Japan** for long period since the Second World War, which increases the confidence of investors and workers in the fishing industry. This factor has enabled long-term and large-scale investment in the fishing industry such as construction of modern fishing ports and modern fishing vessels.
19. **Ability of the Japanese to put fish to many uses**, which has kept the demand for fish high. Through technology many industries using fish as an input have come up such as making fish meal, fish oils, cosmetics, perfumes, glue, drugs, fish manure ; and thus increase in the fish products on the market. This has prompted further investment in the fishing industry.
20. **Supportive / positive government policy towards the fishing industry** such as spearheading research in fishing such as fish spotting, breeding habits of certain species ; leading to increased multiplication of fish. It has also encouraged fisheries investment by large corporations and undertakes fisheries controls. This results into sustainable exploitation of fisheries resources.

### **21. International cooperation**

#### **Problems facing the fishing industry in Japan**

1. **Restrictions in the fishing grounds** and this has come from excessive efficiency of Japanese fishing fleets. Reductions in fish stocks resulting from over fishing have forced many countries to protect their fishing waters from foreign interference and as such Japan falls a victim.
  - a) South Korea imposed the Rehee—line in the Korean straits as the limit beyond which the Japanese fleets should not go.
  - b) Salmon fishing is limited by a convention with former USSR that sets 48°N as the Japanese fishing limit in north pacific waters ; where as that of USA and Canada is 170°West.
  - c) There are problems with Australia over the use of the Australian coastline water for pearl fishing.
2. **Over fishing** and important species are getting extinct especially the herrings and tuna due efficient fishing methods. Whales are really extinct in the region. Accordingly today there is an international ban on whaling. This reduces the quantity of fish production and more so threatens future production.
3. **The US tests her atomic and hydrogen bombs in the pacific**, which interferes with the fishermen's schedules and increases the rate of water pollution. This reduces the quality of fish.

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4. **Water pollution problems** due to discharge of toxic substances into the water especially where industries are along the coast and this negatively affects fish survival. This reduces the quantity of fish caught.
5. **Competition from other major fishing nations** such as Norway, Canada, Peru especially in the control of foreign markets. This limits the foreign market available for fish and fish products.
6. **Competition from other sectors of the economy** such as industry, which attract labour away from the fishing sector. This limits the quantity and quality of production.
7. **Accidents** occur due to strong winds that develop due to pressure difference between the sea and the land—leading to strong water waves. This interferes with fishing schedules and limits the volume of fish production.
8. **Indiscriminate fishing in some areas** involving the use of some methods which scoop large quantities of fish of all sizes and age; and this is leading to the extinction of some valuable species like halibut and cod.
9. **Freezing of some rivers during winter** also limits fishing sector. For example it limits the movement of some fish species which breed in fresh waters to the spawning grounds.

### Assignment (write essay)

Qn. Examine the impact of the fishing industry on the economy of Japan.

## NORTH EAST PACIFIC FISHING GROUNDS

This occurs in the sea waters off the western coast of North America extending from Alaska in the north to California in the south. The coastline is about 11200km and is highly fiorded /indented. In the middle belt British Columbia is the most important region.

A variety of fish species occur which include: salmon, hake, herrings, tuna, sardines, sole, halibut, mackerel, flounders and a variety of shell fish. There are also marine sea animals such as whales, oysters, shrimps, and small crabs. Drifting and trawling are the most important methods employed. To a small scale seining and lining are also used. The major fishing and processing ports are: Prince Rupert, Vancouver, Seattle, San Francisco, and San Diego.

***A sketch map showing the North East Pacific fishing grounds***

### Factors for the development of fishing in the north east pacific

#### Physical factors

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1. **Presence of a wide and shallow continental shelf** (for the whole coast of western North America from Alaska to California) and this allows sunlight to easily reach the seabed providing ideal conditions for the growth of abundant planktons which act as fish food, hence survival of large populations of fish. Besides the concentration of planktons along the coast attracts pelagic fish like mackerel herrings and tuna to be easily caught.
2. **The meeting/mixing of the warm and cold ocean currents**, that is, the warm North Pacific current and the cold California current in the North East Pacific waters. This also creates ideal conditions for plankton growth and as a result pelagic and demersal fish is abundant in the area. The warm north pacific Current also provides warm conditions which prevent the freezing of water, thereby allowing fishing to go on throughout the year, and thus large quantity of production per year.
3. **Presence of a highly indented/fiorded coastline** which has promoted the development of coastal fish landing ports (*in the numerous bays and sheltered inlets*). The ports include: Prince Rupert, Vancouver, Seattle, San Francisco, San Jose, anchorage, San Diego; and these increase accessibility to many fishing villages as well as handling fish exports. Besides the indented coastline provides good breeding/spawning grounds for fish since the strong water waves that would carry the eggs are sheltered off, hence the multiplication of fish.
4. **Presence of off-shore islands** and these include Vancouver, Queen Charlotte Islands; which have increased the fishing villages/ fishing area; hence large quantities of fish caught and distributed.
5. **Limited agricultural resources on the mainland** partly due to the thin infertile soils which characterize much of the adjacent mainland especially to the north of the fishing ground due to past Glaciation. More so, the rugged mountainous terrain (such as the Rocky Mountains, Sierra Nevada ranges) has made mechanized farming more difficult and this in turn has driven many people to the coast to engage in fishing as investors and as workers. This leads to large-scale investment in the fishing sector.
6. **Presence of large stretches of forests to support fishing** for example the temperate forests of British Columbia (*with species like firs, pines, hemlock*) provided the required timber for construction of fishing vessels to help in catching fish, construction of ports to support the landing of fish and even making packaging boxes for fish. This increase the quality and quantity of fish.
7. **Presence of a variety of valuable fish species** and in large quantities fished during various seasons both pelagic and demersal. These include salmon, hake, sardines, mackerel, sole, halibut, cuttlefish, herrings, lobsters, cod, shellfish, and tuna, which have a variety of uses (*such as making drugs, cosmetics and edible oil*). Salmon is the most important because it is both a fresh water and marine species and commands a large market in America and Europe. There are also marine animals caught like whales, shrimps, oysters and small crabs. This leads to increase in production.



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8. ***The cool temperate climate in the region***, which ensures cool waters for the growth of abundant planktons and survival of various fish species; hence encouraging large scale fish exploitation. Still the cool temperate climate helps in fish preservation and transportation of fish to distant markets while still fresh; which encourages further fisheries investment.
9. ***Presence of many rivers and streams*** running from the Rockies to the Pacific coast such as Colorado River, Columbia River, Fraser River, and Sacramento River. These rivers bring in mineral salts from inland dissolved in water and this facilitates plankton growth and in turn existence of large quantities of fish. The streams/ rivers also provide good breeding grounds for certain fish species which breed in fresh waters like salmon. Columbia River is the main salmon stream in the region.
10. ***Presence of large fishing grounds/ large water bodies*** particularly the Pacific Ocean, which is the major fishing ground containing many fish species like tuna, salmon, sole, and mackerel. There are also rivers flowing from the interior which act as fishing grounds like Columbia River. These large fishing zones lead to large quantities of fish catch and thus promote large scale fishing investment.
11. ***Presence of a smooth ocean floor*** which promotes the use of modern fishing methods like trawling, and long lining in the North East Pacific fishing zones; leading to large quantities of fish caught. A large part of the ocean floor is free from rock outcrops that could affect the landing of fishing vessels or destroy the fishing nets.

### ***Human factors***

12. ***Availability of large sums of capital to invest in the fishing industry*** since Canada and USA are developed and highly industrialized countries. The capital is provided by the governments and private investors. This has been used in the purchase of modern vessels and equipment used in the extraction of fish, the construction of ports for landing of fish, and carrying out fisheries research to develop large quantities of fish. This increases the quality and quantity of fish.
13. ***Large supply of skilled and unskilled labour employed in the sector***. Most settlements are near the coast since the interior is forested or rugged—hence releasing the necessary labour for fishing activities such as fish extraction, fish processing, transportation and marketing. The coastal settlement has also given the people a long experience in fishing activities. This has made fishing a long term investment sector in the North East Pacific.
14. ***Presence of a large market for fish and fish products both domestic and foreign***. USA has a generally large population (over 300 million) and yet many people are concentrated along the coast, hence providing a ready market. There is a large market in the major urban centres of Canada and most especially USA (*such as Los Angeles, San Francisco, Seattle, Salt Lake City, and Las Vegas*). Still the fish species especially salmon are highly demanded in European markets, which has encouraged fish extraction and marketing.

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- 15. High level of technology employed in fishing** that is, use of modern fishing methods such as trawling and drifting which enable catching of large quantities of fish. There are also modern preservation involving refrigeration, floating cannaries and other processing facilities, which add value to fish and enable it to be marketed in distant markets. This in turn increases efficiency in the fishing industry.
- 16. Continuous research in the fishing industry** which leads to many innovations to improve fishing activities. There is research in the breeding habits, feeding and maturation of various fish species. There are also hatching/ breeding techniques used and the fish species are then released into the waters to mature. This in turn promotes the multiplication of fish and thus sustainable fishing in Japan.
- 17. Efficient/developed transport system** involving sea transport with many fishing ports (*like Anchorage, San Diego, Seattle, Vancouver,*) and modern vessels; which facilitates fishing operations, distribution and marketing of fish. There is also a modern road and electrified railway networks connecting various fishing ports to market centres in the interior.
- 18. Political stability of the region.** North America has been politically stable for a long time which increases the confidence of investors and workers in the fishing sector. This in turn has enabled long-term and large-scale investment in the fishing industry such as construction of modern fishing ports and modern fishing vessels.
- 19. Supportive / positive government policy towards the fishing industry.** The governments of Canada and USA control fishing activities to limit over fishing, and encroachment on the fishing grounds by foreign vessels. USA and Canada put up 170°W against fishing by Japanese vessels. The governments have also encouraged fisheries investment by large companies and spearheaded fisheries research, resulting into sustainable fishing.

### Problems facing the fishing industry in North East Pacific

- 1. International restrictions in the fishing grounds.** Fishing is not allowed beyond 200 miles from the coast due to conventions with other countries like Japan, Australia. The reductions in fish stocks resulting from over fishing have forced many countries to protect their fishing waters from foreign interference.
- 2. Over fishing** due to advanced methods of catching fish. Therefore there is great danger of wiping out some of the species for example salmon fish which is often trapped on its way back to the ocean water after breeding in the fresh waters. The fish stocks are rapidly decreasing. Accordingly today there is an international ban on whaling.
- 3. The US tests her atomic and hydrogen bombs in the pacific,** which interferes with the fishermen's schedules and increases the rate of water pollution.
- 4. Water pollution problems** due to discharge of toxic substances/industrial wastes into the water especially where industries are along the coast. These contain poisonous chemicals which affect fish survival. Still the barks of logs are poisonous to the fish in the rivers.

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5. **Competition from other major fishing nations** such as Japan, Norway, Peru, china, especially in the control of foreign markets and thus causing price fluctuations and fluctuations in incomes.
6. **Shortage of labour for fishing sector** due to the small population especially for Canada and due to the fact that many people are employed in other sectors such as forestry, mining and industry. This in turn limits fisheries production.
7. **Accidents** which occur due to strong winds that develop due to pressure difference between the sea and the land—leading to strong water waves that at times lead to capsizing of boats and hence limiting production.
8. **Indiscriminate fishing in some areas** involving the use of methods that scoop fish of all sizes including young ones. Accordingly some valuable species are threatening extinction like halibut and salmon; and thus threatening future production.
9. **Freezing of some rivers during winter** and this negatively affects fishing activities especially in the higher latitudes such as by limiting the movement of fish to the breeding grounds.
10. **Construction of dams on rivers / damming of rivers from the Rockies** due to great demand for power in the US and Canada. This has adversely affected fish spawning / breeding of especially salmon fish which is prevented from reaching the breeding area and hence decline in fish stocks.

### Steps being taken to solve the above problems

1. Controlling of fishing activities by government in order to reduce over fishing and indiscriminate fishing. There are stringent regulations/ laws on fishing in particular seasons of the year such as when the salmon fish is moving down to marine waters after breeding.
2. Treating and proper disposal of industrial wastes in order to control pollution of waters.
3. Exporting fish and fish products to other countries to solve the problem of small domestic market. This is coupled with carrying out market research.
4. Setting up more factories that use fish as a raw material such as those producing animal feeds, glue, fertilizers, oil to increase the market for fish.
5. Diversifying fish sources such as by introducing fish farming to supplement the natural sources of fish.
6. Increasing mechanization to minimize the problem of shortage of labour.
7. Signing international fishing agreements to solve conflicts over territorial waters. These agreements recognize fishing rights and grounds for each country.
8. Constructing of ladders for fish to move across the dams. These ladders assist salmon fish to overcome areas where dams have been constructed so that they can reach their spawning / breeding areas upstream.
9. Diversifying the economy to avoid over dependence on fish exports.

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## NORTH WEST ATLANTIC FISHING GROUNDS

This region is located along the eastern shores of Canada and USA. It extends from eastern Canada coastal lands downwards to the Georgia bank. The North West Atlantic fishing grounds has along coastline of about 8000km, with a fishing area of about 520,000km<sup>2</sup>. The fishing region is categorized as follows:

### Canadian fisheries

- a) **Newfoundland and Labrador**—the eastern most province of Canada. Newfoundland is an island and Labrador is on the mainland of Canada. Here fishing provides employment to the vast majority of the population. The region was formerly the world's richest cod fishing area, although catches have declined due to over fishing.

This region also includes the Labrador coast on the mainland of Canada.

- b) **Maritime Provinces, including lower st.lawrence.** The maritime provinces of Canada include: Prince Edward, New Brunswick and Nova Scotia.

In the Canadian fisheries today the main species are: flounder, turbot, halibut, crabs, lobsters, shrimps, herrings, plaice, haddock, oyster, cod, and salmon among others.

### USA fisheries

- a) New England. The species are similar to those in Canadian fisheries. Larger vessels are based on larger ports like Boston, Gloucester, Portland, and New Haven.
- b) Central and south coast of USA. Among the variety of fish caught (*similar to Canadian fisheries*), there is also oyster fishing based at Delaware and Chesapeake bays, crab fishing.

### ***A sketch map showing the North West Atlantic fishing grounds***

**Note:** In the North West Atlantic fishing grounds more workers are employed in fish processing than catching. However increased mechanization is making the process capital intensive. The largest percentage of Canada's catch (**about 2/3**) is exported to USA given its large population (high demand) despite having large-scale fishing.

## **Factors which have favoured the development of fishing in the northwest Atlantic**

### **Physical factors**

1. ***Presence of a wide/ broad an shallow continental shelf*** extending from southern New England to Newfoundland area which provides an excellent breeding ground for fish. It also allows the penetration of sunlight to the ocean floor/ sea bed and this facilitates the growth

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of planktons-which act as fish food and thus multiplication of large quantities of fish. Besides the concentration of planktons along the coast attracts pelagic fish like sardines, mackerel to be easily fished.

2. ***The convergence of the cold Labrador Current and the warm gulf stream.*** This occurs off Newfoundland at about latitude  $45^{\circ}$ — $55^{\circ}$ N which condition favours the existence of abundant planktons and hence large stocks of fish. Based on the tides and the general small storms, there is increased supply of oxygen required for life. Still the ice bergs which come south with the Labrador Current bring in minerals from the land important for plankton growth.

Besides the warm gulfstream which washes the Northeast coastline of North America results into the melting of ice which enables fishing activities to go on throughout the year.

3. ***The cool temperate climate*** which ensures cool waters which favour the growth of abundant planktons and the survival of various marine fish species, hence large-scale commercial fishing. It also favours the preservation and storage of fish which has promoted export trade in fish. However modern canning and refrigeration facilities have also been put up.
4. ***Presence of a variety of valuable fish species and which exist in large quantities*** which include: flounders, turbot, halibut, herrings, lobsters, plaice, haddock, mackerel, salmon, sardines, cod, shell fish, menhaden in the Canadian and US fisheries. The fish species command a large market since many products are got from them such as oil, fish meal, fertilizers, glue, cosmetics. There are also marine animals like oysters, crabs, and shrimps. This leads to increase in the quantity of fish caught.
5. ***The highly indented coastline*** which has encouraged fish breeding since it shelters off the strong water waves that would carry away the eggs of the fish. It has also favoured the development of modern fishing ports which include: St. John's, Stephenville, Saint John, Boston, Portland, Providence, Bridgeport, New Haven, and Halifax which support fish landing, processing and exportation.
6. ***Presence of many offshore islands*** which include Newfoundland (the main island), Anticosti island in the gulf of st. Lawrence, Prince Edward island, Cape Breton island, Sable island among others. These have increased the fishing villages and hence increased fish catch, processing and marketing.
7. ***Presence of large stretches of temperate forests*** which were used by the early settlers (*like the Dutch*) to make fishing vessels/crafts to extract fish. Still many other Europeans crossed the Atlantic ocean and settled at various points like Boston, Halifax and st. john; and used the timber to make vessels, packaging boxes for fish and also in the construction of ports to handle fish landing, processing and exportation.

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8. **Limited productive natural resources in many parts of the mainland.** There are very few minerals on the mainland of New England, yet the soils are poor, thin, rocky, and infertile – implying limited agricultural opportunities. The area also has a short growing season. The Appalachian Mountains deep inland also limit the agricultural opportunities further especially mechanization. All this has driven many people to the sea to seek a livelihood, hence large supply of labour for fishing and therefore large-scale fisheries investment.
9. **Presence of many rivers and streams** which include St. John River, St. Croix River and Restigouche River in Brunswick; Jupiter River on Anticosti Island, Churchill River in Labrador; Exploits River and Gander River on Newfoundland. These rivers bring in mineral salts from the land that facilitate plankton growth and in turn the existence of large stocks of fish. The rivers/streams also act as breeding grounds for certain fish species, hence the multiplication of fish.
10. **Presence of large fishing grounds/ large water bodies.**
11. **Presence of a smooth ocean floor.**

### **Others factors/ human factors**

12. **Availability of large sums of capital invested in the fishing industry** provided by the US federal governments (of Massachusetts, New Hampshire, Maine, Delaware etc) and the Canadian federal governments (of Newfoundland, New Brunswick, Nova Scotia etc). There are also private fishing companies. The capital is used to purchase modern vessels for fish extraction, construction of modern processing factories and paying fisheries workers. This leads to increased fisheries production.
13. **Presence of a large market, both local and foreign.** The local market is especially provided by the urbanized north east of USA (including towns like Boston, St. John, New Haven, New York etc). For example St. John is a large settlement zone with about ¼ of Newfoundland's population. There is also market in the eastern cities of Canada. However there is also exportation to other countries especially of processed fish products. This encourages further fisheries production.
14. **Availability of skilled labour to work in the fishing sector.**
15. **Advancement in technology.**
16. **The developed transport system.**
17. **Political stability of the region.**
18. **Supportive/ favourable government policy towards fishing.**
19. **Continuous research in the fishing industry.**

### **Problems facing the fishing industry in NW Atlantic**

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1. **Overfishing leading to depletion of fish stocks.** This is due to large-scale operation and modern technology. Some fish species are being threatened by extinction most notable being cod fish which used to be the dominant species in the region.
2. **Water pollution problems,** since the fishing ground is located along the coastline of one of the most industrialized regions of the world. There is heavy discharge of waste material/substances into the water which endanger fish survival and in turn humans who consume fish.
3. **Poor visibility due to the dense fog.** Therefore, the fishing vessels often run into one another causing accidents. However today vessels are equipped with a radar system which can be used to detect approaching vessels/ships.
4. **Indiscriminate fishing in some coastal areas** and this involves catching of even young fish and the endangered species; and this limits sustainable fishing.
5. **International conflicts over territorial boundaries.** The demarcation of legal fishing grounds per country has often created conflicts over boundaries (which are in most cases imaginary) between USA and Canada; and with European countries.
6. **Competition from other major fishing nations** such as Japan, Norway, Peru, china, especially in the control of foreign markets. This causes price fluctuations and fluctuations in incomes.
7. **Shortage of labour for fishing sector** due to the small population especially for Canada and the fact that many people are employed in other sectors such as forestry, mining and industry. This limits production in the fishing sector.
8. **Freezing of some rivers during winter** and this negatively affects fishing activities especially in the higher latitudes. For example limits the movement of fishing vessels.

### Evaluation question

To what extent have physical factors favoured the development of the fishing industry in either Canada or USA?

**Note:** In this question consider both the North East Pacific fishing grounds and the North West Atlantic fishing grounds.

### NORTH EAST ATLANTIC FISHING GROUNDS

This region extends from Iceland to Mediterranean shores. Fishing is highly organized by the European countries especially Norway, Denmark, Spain, Iceland, and United Kingdom. Fishing is carried out all round the year in the shallow waters of the North Sea, although spring is the busiest fishing season (but also the most hazardous due to the stormy weather). The major fish



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species are: herring, cod and mackerel. Others are haddock, turbot, halibut, hake, plaice, sole, anchovies, pilchards, sardines, skate etc

Fishing is generally best developed where there are least opportunities for alternative gainful employment on land. For example commercial fishing is less important in countries like Sweden, Holland, Belgium where agriculture and forestry are crucial for the livelihood of the citizens.

### NORWEGIAN FISHERIES

Norway is the greatest fishing country in Europe accounting for almost 3% of the world's total catch. The main fish species in the Norwegian fisheries include: herring (*which contributes 65% of the total fish catch*), cod, tuna, brisling, and mackerel. The main fishing ports include: Haugesund, Stavanger, Bergen, Tromsø, Oslo, and Hammerfest.

The leading Norwegian fishing port is Haugesund and it exports mainly herrings to many parts of the world. Stavanger specializes in canning of brisling fish and sardines, and has one of the most advanced canning industries of Europe. The major fishing methods are: drifting, trawling, and lining.

***A sketch map showing the fishing grounds in Norway***

### Factors for the development of the Norwegian fishing industry

#### ***Physical factors***

1. ***Presence of large fishing grounds/ large water bodies.*** Norway is bordered by the large Atlantic ocean (*which includes the Norwegian sea and the North sea*) which are the major fishing grounds containing many commercial fish species. There are also rivers flowing from the interior which act as fishing grounds. These large fishing zones lead to large quantities of fish caught and thus promote large scale fishing investment.
2. ***Presence of a smooth ocean floor*** free from rock outcrops that could affect the landing of fishing vessels and also destroy the fishing nets. The smooth ocean floor therefore promotes the use of modern fishing methods like trawling and lining in the Norwegian fishing zones, and thus large quantities of fish caught.
3. ***Extensive/wide and Shallow continental shelf*** which allows the penetration of sunlight to the seabed and this promotes the growth of phyto-planktons. The planktons act as fish food that helps in the multiplication and maturing of fish such as herrings, cod, and brisling. Besides the wide and shallow continental shelf from Stavanger to Hammerfest promotes easy catching of pelagic fish like herrings.



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4. ***Favourable conditions at the continental shelf such as cool waters***, which also contain a variety of mineral salts resulting in the abundance of planktons which attracts fish. The Northly position and cool temperate climate makes the preservation of fish relatively easy- as fish cannot easily be spoilt, and thus enabling the marketing of fish in distant markets.
5. ***The effect of the warm north Atlantic drift*** which enables fishing to be carried out all year round, by keeping the waters open through the winters. It enables ice to melt but water remains cool enough for fish survival. This leads to large quantities of fish caught per year.
6. ***Presence of many rivers and streams*** that provide good breeding grounds for various fish species, which breed especially in fresh waters. The rivers also bring in mineral salts from inland dissolved in water and this facilitates plankton growth and in turn existence of large stocks of fish. The rivers include: River Glama (Glomma) in the east, River Tana in the north and several other small streams.
7. ***Presence of a highly fiorded/ indented coastline*** which has promoted the development of fishing ports such as Stavanger, Trondheim, Bergen, and Oslo in the sheltered areas, which enable fish landing and exportation. The fiords also provide suitable grounds for fish breeding, since it shelters off the strong water waves that would carry away eggs of fish; and thus enabling the multiplication of fish. The long fiorded coast between Stavanger and Hammerfest is noted for cod fishing.
8. ***Presence of off—shore islands*** which increase on the fishing villages, right from Tromso to Kristiansand. The Lofoten islands form the greatest cod fishing area. Other smaller islands are Vesteralen islands, Vega Island, Andoya and Shetland islands. This results into increase in the fishing areas and thus increased fish caught and this attracts more investment in the fishing industry
9. ***The poor agricultural resources such as rugged terrain / mountainous landscape and infertile soils*** which has driven people to seek a livelihood at the sea and more labour supply. This has led to increased investment in the fishing industry. Approximately 75% of Norway is of high altitude rugged terrain with steep slopes of unproductive land. This in turn increases fisheries investment.
10. ***Existence of many valuable/ commercial fish species*** such as herrings, cod, tuna, brisling, mackerel, halibut, pilchards, haddock, dogfish, and capelin. These species are of high commercial value and in large quantities which has attracted large scale investment in the fishing industry.
11. ***Presence of extensive forests (Norwegian forests)*** with species like spruce, firs, pines favouring the building of ships and boats at Bergen, Stavanger, and Tromso. These ships are used in hauling fishnets and transportation of fish to processing centres/ports. The timber is also used in the construction of modern ports for fish landing and making packaging boxes for fish.

### ***Human factors***

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12. **Norwegians have a long Sea ferring tradition** and this dates back from the times of the Vikings and Norsemen (kings). These encouraged quite often people to become sailors and fishermen. As such, fishing is rooted in culture. This has led to large scale and long-term investment in the fishing industry.
13. **The cooperative movement/** highly organized and developed cooperatives engaged in all fishing activities such as fish extraction, processing, preservation and marketing of fish. The cooperatives also enable fishermen to raise adequate capital to invest in all those activities. This leads to increased quantity and quality of production.
14. **Presence of adequate capital to invest in the fishing industry.**
15. **Most settlements are at or near the coast/ availability of labour, both skilled and unskilled.**
16. **Presence of a large market, both internal and external.**
17. **Well developed fishing technology**
18. **Continuous research in the fishing industry.**
19. **Efficient transport system**
20. **Political stability of the country.**
21. **Supportive / favourable government policy towards fishing.**
22. **International cooperation**

### Contribution of the fishing industry to the Norwegian economy

1. **Fishing has promoted industrial development** by providing raw materials. Many industries are now engaged in processing of fish products such as cod liver oil, fish meal, fertilizer, glue. There are various industries at Stavanger specializing in modern canning of brisling fish. Inferior and undersized fish are converted into fishmeal for animal feeding or used in making of fish manure. There are also industries making fishing inputs like ship building and making of nets.
2. **Generation of employment opportunities in Norway** both direct and indirect employment in the fishing industry such as fish extraction, processing, transportation and marketing. These employees earn incomes which help them to improve their standards of living. They also pay tax to the government to raise revenue.
3. **Generation of foreign exchange** through the exportation of fish and fish products to various countries like France, Portugal, Italy, Belgium, Sweden, and Spain. Fish is exported in various forms like frozen, dried, pickled(*preserved in salt water*) and canned. The foreign currency earned is used in the importation of foreign technology and consumer goods not available domestically.
4. **Fishing has promoted urbanization and port development.** The port of Haugesund is the greatest Norwegian port handling herrings and exports cured/preserved fish to various countries. Other important ports are Stavanger, Bergen, Tromso, Oslo, Hammerfest and

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Trondheim. These ports have trade links with many parts of the world and they are developed urban centres due to increased population and thus the concentration of associated activities like trading, banking, and recreation.

5. ***Fishing has promoted technological advancement and research*** due to the necessity to improve fishing technology, preservation and processing in order to keep pace with other fishing countries (like Japan, Canada). Fishing has also led to research into various fish species such as cod, tuna, and sardines—in breeding habits, fish feeding habits, which has increased efficiency in fishing.
6. ***Development of other sectors especially agriculture***. Fishing provides fertilizers which improve crop farming like wheat, corns and sugarcane. It also provides animal feeds for dairy farming at Stavanger and Trondheim. This also helps to improve the standard of living of the people and government revenue.
7. ***Provision of government revenue*** through taxation of the fishing companies, fish exporting companies, and individuals' incomes. This is in turn used to develop many sectors such as health, recreation, education among others.
8. ***Promotes international relations between Norway and other countries***, which import the fish and fish products such as Sweden, Portugal, Denmark, Holland, Finland, Spain, France, Belgium, and some African countries. It also relates with other major fishing countries like Japan, Canada, and Peru due to sharing ideas regarding the fishing industry. This in turn promotes economic contacts and increases the rate of capital inflow in Norway.
9. ***Development of transport infrastructure in Norway*** that is, the construction of roads and rail networks along the coast to access the fishing grounds such as Oslo-Stavanger road and railway. Besides the revenue from fish exports has been used in the rehabilitation and opening up of new feeder roads.
10. ***Development of tourism*** because many tourists are attracted by large-scale fishing by use of modern technology such as trawler boats, and factory ships. The various fish species like cod, sardines, and brisling also attract many tourists. This also generates foreign currency and creates market for the local goods.
11. ***Promoted diversification of the economy*** by acting as an alternative source of income for Norway instead of depending on industry or forestry. This makes the economy to remain stable and more so it widens the export base of the country. Besides the fishing industry has minimized the problem of population pressure on land, which land is of poor quality.

### Shortcomings/ negative effects

1. ***Over fishing and hence reduction in fish stocks*** due to the use of efficient fishing methods like trawling and drifting which in turn leads to lowering of fish output.
2. ***Indiscriminate fishing which also reduces fish stocks***. This involves catching young fish and endangered species and this leads to inadequate production.

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3. ***It is a source of international conflicts over boundaries*** (which are in most cases imaginary) between Norway and its neighbours such as Denmark, Iceland, Sweden, Finland, and USA. These conflicts are a barrier to beneficial diplomatic relations.
4. ***Fishing is associated with accidents*** leading to loss of life and property. This interferes with fishing schedules.
5. ***Depletion of forest resources*** due to the high demand for temperate forest species (like firs, pines) for boat making and shipbuilding at Bergen, Tromsø has led to depletion of forest resources.
6. ***Industrial-related problems*** for example pollution due to discharge of toxic gases and other substances which impacts negatively on the environment such as by contaminating water.
7. ***Urban-related problems***. Fishing has led to growth of urban centres (such as Bergen, Oslo, and Tromsø) but these are associated with many problems such as slum growth, poor sanitation, and hooliganism. The fighting of such social evils is costly to the government.
8. It ***has caused regional imbalance in development***. The coastal areas are more developed than the vast interior areas in terms of infrastructure such as recreation, education, and health facilities.
9. ***The fishing sector has attracted labour away from other sectors*** like agriculture, and industry; hence undermining their development.
10. ***Straining the government budget*** when financing various fishing—related activities such as research, quality control. This undermines investment in other sectors of the economy.

### Problems facing the Norwegian fishing industry

1. ***Over fishing leading to reduction in fish stocks***. There are many fishing countries in the North East Atlantic which all use sophisticated weapons. As a result this has reduced fish stocks. For example Norway about half of the world's whaling vessels, a factor that has led to the almost extinction of whales in the North Sea.
2. ***Water pollution problems*** since industrialized countries border the North Sea where the Norwegian fishing industry is confined. The toxic waste disposals into the water cause death of fish and endanger plankton survival, also humans who consume the fish.
3. ***Competition from other fishing countries on the world market*** such as Japan, USA, which all flood the markets with the best fish types with or compared to Norway. This leads to fluctuations in the prices and incomes.
4. ***Competition from other countries in the North Atlantic fishing grounds***. There are interferences from international fishing lanes because some of the fishing grounds are located in the waters internationally used for fishing purposes. The competitors include Iceland, Denmark, Sweden, and USA. This limits fish production.
5. ***Restrictions in the fishing grounds***. Fishing by foreign vessels is often restricted over a variable distance from the land. This has been prompted by rapidly improving technology in

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fishing vessels and equipment, and if not restricted this would mean depleted grounds. For example the Norwegian were refused to fish in their reserved fishing grounds.

6. **Accidents** occur especially during the spring season –which is the busiest fishing season and the most hazardous. During this time, the North Sea is characterized by big waves due to pressure difference between the sea and the land. This interferes with the fishing schedules.
7. **Seasonal variation in fish availability.** There is migration of fish from the north to the south and fish stays in waters off the coast from summer until the end of autumn. This has limited fishing activities.
8. **Alternative employment opportunities offered especially in industry** has also attracted the labourforce away from the fishing industry of recent. This also tends to limit fishing activities.

### SOUTH PACIFIC FISHING GROUNDS

#### FISHING IN PERU

Peru is located in South America bordering the Pacific Ocean and is an important fishing nation, although fishing is a recent development. By 1970, Peru was the world's leading fishing nation and at that time it accounted for almost 30% of the world's total catch. However today catches have declined mainly due to indiscriminate fishing.

The main species of fish caught include anchovy, pilchards, tuna, haddock, sole, mackerel, smelt, flounder, lobster, sardines, and shrimp, among other marine species. Anchovy is the most important and is used for making fish meal, a product in which Peru leads the world. Fish meal is used in animal feed and fertilizer. There are over 50 important fishing ports on the coast of Peru, but Chimbote and Callao are the most important.

Modern fishing is employed and government controls processing with a corporation called Pesca-Peru. The corporation monopolizes the processing of fish meal and fish oils. It also engages in the canning and freezing of especially tuna fish.

Today there are over 100 fish processing factories and the fish and fish products presently account for over 40% of Peru's export earnings. Much of the products are exported to USA, USSR, china, and the European Union.

***A sketch map showing the Peruvian fishing ground***

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### Factors for the growth and development of the Peruvian fishing industry

#### *Physical factors*

1. ***Presence of along coastline of over 2000km*** and this ensures a large fishing area and commercial deep-sea fishing off the Peruvian coast, which leads to large quantities of fish caught. It is not surprising that there are over 50 fishing ports along the coast, and thus increased fish landing and exportation.
2. ***Presence of a relatively indented coastline*** which has provided good sites for construction of fishing ports such as Chimbote, Callao, Trujillo, Piura, Pisco, and Chiclayo for fish landing and exportation. The indented coastline also provide suitable grounds for fish breeding, since it shelters off the strong water waves that would carry away eggs of fish—hence increased multiplication of fish.
3. ***Extensive and Shallow continental shelf*** which allows the penetration of sunlight to the seabed, which promotes the growth of phyto-planktons. The planktons act as fish food that helps in the multiplication and maturing of fish such as anchovy, tuna, and sardines—hence favouring fisheries development.
4. ***Existence of many valuable/ commercial fish species*** such as anchovies, tuna, mackerel, bonito, sardines, pilchard, haddock, sole, smelt, flounder, lobster, shrimps. There are more than 50 species caught commercially and anchovies are particularly found in large quantities—which has attracted large scale investment in the fishing industry.
5. ***The influence of the cold Humboldt Current (Peruvian current)*** which creates cool conditions for large quantities of phyto-planktons and in turn large populations of fish survive for example anchovy. This leads to increased fish catches.
6. ***Presence of some small off—shore islands*** which increase on the fishing villages for example San Lorenzo Island and other smaller islands. This results into increased quantities of fish caught and thus large scale investment in the fishing industry.
7. ***The limited productive natural resources on the mainland*** such as due to presence of the Atacama Desert stretching from Peru to the south of Chile and the Andes mountains, and this limits settlement and agricultural production. The minerals which exist such as silver and iron ore occur in small quantities hence cannot support the export economy. This has led to increased investment in the fishing industry as the alternative source of livelihood.
8. ***Presence of large fishing grounds/ large water bodies.***
9. ***Presence of a smooth ocean floor***

#### *Human factors*

10. ***Presence of adequate capital to invest in the fishing industry.*** This was provided by the government which looked for the alternative to the economy and the vision set to fishing.
11. ***The development of many processing plants at the coast*** such as Chimbote, Callao, and Lima. These process fish into fish meal, fish oil, and animal feeds.

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12. **Supportive / favourable government policy towards fishing.** The government has spearheaded research and also extended monopoly over the fishing grounds in the south pacific from 22km to 370km from the coast to avoid competition from foreign vessels. It also restricts on the local fishing seasons.
13. **Presence of a large and ready market, both internal and external.**
14. **Improved fishing technology**
15. **Continuous research in the fishing industry.**
16. **Improved transport system**
17. **Relative political stability of the country.**

### Problems facing the fishing industry in Peru

1. **Over fishing** which has drastically reduced the fisheries potential. This has been brought about by improved technology used and the invasion by the US and Japanese fishing fleets to the Peruvian waters. Over fishing partly accounts for the decline of the anchovy fish in Peruvian waters.
2. **Reduction in guano.** The establishment of a fertilizer plant using guano as a raw material has greatly reduced the guano available as fertilizer to the ocean water planktons and hence a decrease in fish stocks. This is because guano is very rich in phosphorous, nitrogen and potassium which is very essential in fertilizer manufacture.
3. **Stiff competition from other fish exporting countries on the world market since 1970s** such as Japan, china, USA, Norway, and Canada. To her disadvantage, Peru only exports fish meal and fish oil from one fish species (anchovy) compared to other countries exporting a variety of fish species—hence outcompeting Peru.
4. **Competition from other sectors of the economy for government funding.** Although fishing in early 1970s received great government funding but over time it has come under stiff competition from other sectors such as tourism and industry. This has been worsened by the declining fish species due to over fishing.
5. **Limited valuable fish species.** Peru unlike other countries has been noted for one valuable species in abundance –anchovy, which has limited the growth of Peruvian fisheries. However there is in unedible fish species on the Peruvian coast, which hinder fisheries development due to limited uses of such species.
9. **Water pollution problems** due industries along the coast. The toxic waste disposals into the water cause death of fish and endanger plankton survival, also humans who consume the fish.
6. **Inadequate capital to develop the fishing industry** such as improving port facilities and funding research. More so there is limited industrial development. Apart from the fertilizer industry , fish meal and fish oil, Peruvian industries have not explored other fish processing factories like cosmetic , glue etc partly attributed to limited capital.



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7. ***The El Niño weather phenomenon.*** Towards the end and beginning of every year (between December and March) strong winds cross the equator and bring warm water south wards along the Peruvian coast which spread over the cool waters of the Peruvian current. This is mostly a problem during the abnormal years when the north wind is very strong. This causes fish to migrate southwards into Chilean fishing grounds. It also creates unfavourable conditions for plankton growth and hence affecting fish survival.
8. ***Political problems.*** After the military coup in 1970 that overthrew president Allende, it led to a decline in the fishing industry given the fact that it scared off the potential investors.
9. ***Low levels of technology used in some regions*** evidenced by people using poor fishing nets that catch even young fish. Some people even use poor fishing gears , hence limiting production.
10. ***Poorly developed transport facilities in some regions,*** since Peru is a developing country; yet fish requires efficient transport to the market and processing centres.
11. ***Shortage of labor to work in the fishing industry.*** This is because Peru's coastal lands are arid and therefore poorly settled, yet even most of the labour is unskilled; hence resulting into under production.
12. ***Accidents occur during fishing*** for example the capsizing of fishing vessels leading to loss of life and the fish caught.

### Steps taken to develop the fishing industry in Peru

1. Conservation measures have been taken to ensure constant fish stocks and to increase fish stocks such as restrictions on the fishing seasons to avoid over fishing.
2. The government has extended the territorial waters from 22km to 370km away from the coastline. This is designed to keep off the invading American and Japanese fishing fleets, making monopoly of fishing in this region to Peru.
3. Fisheries research has been adopted for example at Chimbote in the available fish stocks, its behavior and fluctuations. The intention is better conservation for sustainable fishing.
4. Control of processing by a government corporation called Pesca-Peru, to ensure that all profits that accrue are ploughed back in the fishing industry.
5. Encouraging local people to consume fish in order to increase the home market for fish.
6. Stocking inland waters with improved species to improve on the fish catch.
7. Continuous improvement on the techniques of fishing, freezing, packing and canning.
8. Improvement in transport and communication facilities.
9. Continuous training of manpower to acquire the necessary skills for the fishing sector.

## FISHING IN AFRICA



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It should be noted that the fishing industry in Africa is not well developed. A few countries can afford big ships and other fishing equipment; although the situation is gradually changing.

In Africa the countries with a developed marine fishing industry include: **South Africa, Namibia**, Angola, Nigeria, Ghana, **Morocco**, Mauritania, and Senegal. These are countries that export fish and fish products (with regard to marine fishing).

The species of marine fish from African coastal waters include: sardines, stock fish, hake, anchovy, barracuda, sole, pilchards, mackerel, lobsters etc. Africa only contributes about 6% of the world total catch and unfortunately many African countries import fish.

### Reasons for the low level of development of marine fishing in Africa

1. ***African coasts are generally straight with few indentations***, unlike the coasts of the North Sea or Europe. As such it is not easy to develop ports and does not allow breeding of fish since even young fish require less turbulent water where they cannot easily be carried away by waves. The young fish also do not require open water where they may be eaten by large fish or marine animals.
2. ***Small continental shelf*** for most of the African coastline rarely extending for many kilometers from the coast. This doesn't allow easy penetration of sunlight for photosynthesis in phyto-planktons. It also limits the use of profitable methods like trawling (*for the fish sunk to the bottom*). The east African continental shelf is extremely limited to only 15km from the mainland and the operation is very small.
3. ***Influence of warm ocean currents*** such as the Mozambique current, which do not favour the growth of planktons and therefore low fish populations. Still some ocean currents are strong and interfere with plankton distribution and movement of vessels, many of which are actually non-motorized.
4. ***Large areas of Africa are located within the tropics, where temperatures are hot making waters generally warm***. This discourages the growth of planktons, encourages poor fish species and limited fish stocks. The fish that mostly develop in this warm water are always oily and not of good taste. The hot temperatures also make fish spoilt easily; and this limiting fisheries production.
5. ***Ideal climate for agriculture***. A reasonable area of Africa receives heavy rainfall which can sustain farming. Many people therefore look at farming as the main source of livelihood and backbone for development. It is only in areas like Namibia, Angola and Morocco with poor agricultural resources where fishing is developed.
6. ***Africa has few offshore islands***; which otherwise would have been used to increase the fishing villages. (*The few islands include Canary Islands, East African islands of mafia and Pemba*). This limits the fishing area and thus limited fish production.

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7. **Existence of coral reefs particularly along the East African coast.** These coral reefs interfere with fishing and movement of vessels, fishing nets especially trawl to be used in deep waters. This discourages many investors and this limiting production.
8. **Scattered fish species** that is, there are few species moving in shoals due to the scattered nature of planktons, such that even the fish scatter in search for them. This fish occur very far from the shoreline and have a peculiar characteristic of moving very fast. It is therefore uneconomical to apply modern methods like trawling and seining.
9. **Limited capital in many African countries** and this limits the use of modern fishing vessels resulting into low fish catch. Still many countries cannot finance research on fish stock available which limits fisheries development further (*to only a few countries like South Africa, Morocco*). Many countries use poor crafts like canoes and boats.
10. **Low levels of technology employed in many areas**, resulting into low fish yields. Methods like basket trapping, beach seining, simple hooks are still noticed in several areas. Marine fishermen operate from small canoes and their activities limited to a few miles off the shoreline. More so poor preservation methods such as smoking, salting and sun drying are common. This also limits the marketing of fish in distant markets.
11. **Limited market for fish.** Africa's population is still small and hence a small demand for fish and fish products. More so traditional customs/cultures prevent fish consumption; some African societies take eating fish as a taboo, hence limiting demand. Most areas along the coast are sparsely populated and people relatively poor.
12. Export of marine fish is difficult because of **stiff competition from the developed countries**, some of which already faced with the problem of over production of fish. This also discourages further investment in the fishing sector.
13. **Political instability experienced in several areas** such as Mozambique, Angola, Namibia, Liberia, Ivory Coast. This limits the investment in fishing industry by diverting funds to wars. It also limits the labourforce in the fishing sector.
14. **Unfavourable government policies towards fishing.** Many African governments have weak policies to control fisheries such as over fishing, indiscriminate fishing among other activities. Where the policies exist, there is weak or no enforcement. This for example results into depletion of fish stocks.
15. **Invasion by foreign vessels** which catch much of the fish in Africa's coastal waters for example Japanese and Korean vessels which have in recent years been catching fish off the coast of West Africa. This reduces the fish stocks.
16. **Poorly developed infrastructure** connecting the coast and the interior for example poor roads and this negatively affects the marketing of fish and fish products. This discourages further investment in the fishing sector.

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## TRANSPORT A LEVEL GEOG P2

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### TRANSPORT

Transport is the physical movement of people or commodities from one place to another. The level of development of transport and communication network is usually a reflection of the level of economic development in any given region.

Accessibility is the ease of reaching a desired destination. Mobility in the transport context is the ability of individuals to move about.

#### Role of transport in economic development

1. **Transport opens up new markets for produce** such as highways, feeder roads. This promotes agricultural development by lowering costs, saving time, extending extension services, and opening up the formerly unproductive areas. In order to develop economically, countries must be able to export their produce.
2. **Promotion of industrialization** by encouraging investors and therefore increases capital inflow, influences industrial location and distribution. This is due to easy movement of raw materials to the industries and movement of finished goods to markets.
3. **Allows regions to specialize in the production of commodities** where they have comparative advantage. This creates effective demand and supply relationships. The goods are easily transferred from areas of production to areas of market.
4. **Joining areas of surplus and deficit.** The export and distribution of commodities leads to sustainable development of economies and minimizing scarcity of commodities. This in turn controls the rate of inflation.
5. **Promoting local, regional, and international trade** and this leads to interstate cooperation and unity. This is because the agricultural products, industrial products are easily transferred from areas of production to marketing centres. This in turn increases national income.
6. **Encouraging spread of ideas leading to cultural, economic, social, and political transformations.** Transport enables diffusion of ideas such as on science and technology leading to innovation and invention in the countryside. This in turn supports various economic activities like agriculture, and trade.
7. **Promotion of tourism development** such as in Republic of South Africa, Switzerland, Mexico, Kenya, and USA. This makes the tourist areas easily accessible/ facilitates easy movement of tourists to various tourist potentials. This eventually increases foreign currency which is invested in various sectors like education, and health.
8. **Generation of many employment opportunities**, associated with all transport systems and networks. Many people are employed as engineers, pilots/ drivers, cargo managers, and accountants. These earn salaries and wages which they use to improve their standards of living in areas of health, housing, and recreation.
9. **Enhancing political control, national unity and efficient administration.** This is because the government bodies like ministerial head quarters and police are easily set up in various parts of the country. It also promotes political stability due to easy monitoring of various parts of the country and this is associated with balanced regional development.
10. **Promoting urbanization/ growth of urban centres.** There is a relationship between transport and settlement especially urban and coastal areas, depending on the trend it takes. Therefore

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transport increases population concentration in many areas such as towns and this results into expansion of urban activities like trade and commerce, banking, insurance, ware housing, and entertainment.

11. **Generation of government revenue** through taxation of the sectors using the transport systems such as agriculture, tourism, banking, and industry. The government revenue is to meet the government budget, hence financing more infrastructural development.
12. **Promotion of economic diversification** because of the diversified forms of transport such as road, railway, water and air. The transport systems uplift various economic sectors like tourism, mining and industry. This in turn widens the gross domestic product (GDP) and the export base of the country.

### Negative effects/short comings

1. **Transport is associated with accidents** which are disastrous to lives of people and property. This is noted with railway, road, water and air transport such as crashing of planes, capsizing of vessels, collusion of vehicles.
2. **It is associated with traffic congestion** causing unwanted delays in the delivery of goods and services, and thus undermining the development process.
3. **Results in high rates of environmental pollution**, that is, air, water and noise pollution. The emitted fumes from automobiles are dangerous to the life forms of the environment like it causes respiratory diseases.
4. **Results into destruction of vegetation** such to construct roads, railways, and airports. This results into soil erosion and land degradation due to reduced soil stability on the road/ railway sides.
5. **Transport is associated with increased crime rates, wherever they occur.** For example there is highway robbery on the Trans-African highway in particular sections like valley areas, and forested zones; railway station theft and of recent world terrorism evident in air transport.
6. **High costs of construction and maintenance of the networks** such as port facilities, railway lines, roads etc. In turn, there is increased government expenditure on the maintenance of such networks, hence straining the government budget.
7. **Over exploitation of environmental / natural resources leading to quick depletion.** This is through increased accessibility to various resources such as mineral resources, forest resources- working against the future generations.
8. **Results urban-related problems** such as congestion/ overcrowding, and slum growth. The eradication of such problems is very costly to the government.
9. **Leads to regional imbalance in development.** Easily accessible areas are more developed in terms of infrastructure than other areas, leading to income inequalities.
10. **Results in rural-urban migration** which has disastrous impacts on both the source areas (rural) and receiving areas (urban). For example decline in crop cultivation in the rural areas yet there are urban problems created (like slums).
11. **Displacement of many people during transport development.** As transport routes are being constructed or expanded, many people are displaced from their settlement and production areas with little or no compensation. There is also a problem of resettlement of the displaced people.

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### Guiding questions

- 1) Explain the role of railway transport in the development of either Switzerland or the republic of South Africa.
- 2) Examine the contribution the transport sector to the development of either USA or Egypt.

### FACTORS LIMITING THE EFFECTIVE UTILIZATION INLAND WATER TRANSPORT IN AFRICA

Inland water transport in Africa involves the use of rivers and lakes. Rivers include: Congo River, Niger River, Nile River, Volta River, Zambezi River, Senegal River, among others. The lakes include: Victoria, Tanganyika, Malawi, Kyoga, Chad etc. The factors/problems limiting the effective utilization of inland water transport in Africa include:

1. **Presence of waterfalls, rapids and gorges along the courses of rivers** and therefore a few rivers are navigable throughout their length. For example the Nile River has 5 major waterfalls and several rapids. The Congo River is navigable up to 140km, but the course is broken by rapids and falls up to Stanley Pool.
2. **Presence of floating islands and vegetation/Sudd** along the courses of rivers such as along the Nile papyrus beds close in and navigation is not possible up to Juba. This also makes the rivers unnavigable throughout their length. Also the existence of swamps and swamp vegetation on lake shores such as Kyoga limits the use of such lakes for transport.
3. **Presence of rock outcrops along rivers and shores of lakes** such as Nile and Lake Victoria. These prevent the movement of water vessels in such areas. The rivers are also fast flowing in the highland areas, and hence a higher risk of accidents.
4. **Fluctuation in volume seasonally/river regime.** Water levels fluctuate between wet and dry seasons. At low water the rivers may not be navigable yet at flood it may be too dangerous. For example the 4200 km long Niger River is subject to marked seasonal fluctuation. Others include: Vaal, Zambezi, and Limpopo.
5. **Shallowness and narrowness of rivers.** Many rivers are too short and too shallow for navigation especially the rivers flowing in mountainous regions like Ethiopia highland areas. There are sandbars at the mouth of rivers which make water shallow making it hard for ocean-going vessels. Also many lakes have shallow waters which limit navigation such as Lake Kyoga, Lake Chad.
6. **Remoteness of rivers/** many rivers which would be capable of carrying much trade flow through sparsely populated areas and thus water transport there would be uneconomical. A case in point is river Congo.
7. **Rivers tend to meander in their flood plains** making the distance covered by the river much longer than a similar journey on land. Some people chose to use land transport instead of water transport.
8. **Presence of steep-sided valleys** such rift valley lakes –Lake Tanganyika, Lake Albert, and Lake Malawi, rendering water transport on such lakes less attractive.
9. **Low level of economic development in the immediate hinterland.** Some rivers flow across empty and unused land, thereby being uneconomical to use, since the areas lack cargo like river Congo. Yet also some areas lack major water bodies to be utilized for water transport.

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10. **Silting of many large rivers** especially at their mouths. This increases the shallowness of channels such as Nile River and Nile delta, and Niger River and Niger delta. There is also siltation of lake shores due to deposition.
11. **Strong winds on lakes and some rivers causing accidents**, in certain times of the year. This limits the use of the lakes and rivers for water transport for fear of losing life and property.
12. **Presence of predators such as crocodiles, and hippos**. These at times over turn boats and threaten the lives of the travelers on water, and hence limit the effective use of water transport.
13. **Limited capital to develop the inland water ways**. Canal construction and the streamlining of rivers (e.g. by blasting rocks) requires a lot of capital. Also establishing ports requires high capital engineering. More so the volume of traffic is too small to warrant development of inland water ways.
14. **Low levels of technology and limited skilled labour** to modernize the inland waterways such as to develop ports and related facilities. This also limits the volume of cargo handled by inland waterways.
15. **Political differences between countries through which the rivers pass**. African countries in some cases do not cooperate yet the rivers cut across many countries. For example political differences between Senegal and Gambia have prevented development of the Gambia River, yet it is one of the most navigable rivers on the continent. Other cases are Uganda and Sudan (the Nile River).
16. **Political instability / lake pirates** such as on Lake Victoria, along river Congo. This puts the lives and property of the water travelers at risk all the time especially in the isolated parts where the rivers pass. Eventually the number of people using the inland water transport reduces.
17. **Competition with faster means of transport such as by road and railway**. These are more convenient and quicker means of transport than water transport. These limit the number of people using water transport.

### PROBLEMS FACED IN THE UTILIZATION OF INLAND WATER TRANSPORT IN NORTH AMERICA AND WESTERN EUROPE

Inland water transport in Europe and North America involves the use of rivers and lakes. The major rivers in Europe include: Volga, Danube, Rhine, Rhone, Po, Inn, and Elbe. The lakes include Lodoga (N.W Russia), Geneva, Maggiore, Lugano, Lucerne, Constance etc.

The major rivers in north America include: St. Lawrence, Mississippi—Missouri river system, Tennessee, Columbia, San Joaquin, Sacramento, Colorado, Fraser, Yukon, Mackenzie (Canada). The lakes include Great Lakes (Superior, Michigan, Huron, Erie, Ontario)

The problems limiting the utilization of inland water transport include:

1. **Freezing of the water ways during winter** which limits their use during this season. For example the St. Lawrence sea way is frozen 3 to 4 months (December to March)



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2. **Flooding of rivers** especially during spring to summer. For example in spring when the winter snow begins to melt and in early summer when the glacial melt water comes down from the Alps.
3. **The rivers meander in their lower courses** which makes navigation difficult. For example, the Mississippi river meanders through the flood plains for about 1600km.
4. **Shallowness and narrowness of river valleys.** The materials eroded upstream is deposited on the river's bed in the lower section making it shallow and therefore limiting the size of the vessels it can handle. There are also narrow valleys and fast flowing rivers in the highland regions, making navigation very difficult.
5. **Presence of rapids and waterfalls** along river channels .For example Niagara Falls and rapids along the St. Lawrence River. The Rhine River is only navigable up to Basel and beyond this point; there are many waterfalls and rapids especially in the rapids.
6. **Some rivers flow through unproductive and under populated regions**, which also limits their use.
7. **Foggy conditions** cause poor visibility and accidents. For example at the mouth of the St. Lawrence, and this affects shipping.
8. **High costs of maintenance of the waterways** such as costs of constant dredging, construction of canals and locks.
9. **Delays in shipping of cargo.** For example St. Lawrence seaway has many locks used to adjust water levels for navigation( both single and double)
10. **Limitation in the size of ships/vessels especially the canal sections.** Due to ever growing technology, the bigger ships cannot sail through these sections; which affects the delivery of goods. This is a case with St. Lawrence Seaway and Rhine waterway.
11. Water faces **competition from other forms of transport** such as road network and railway.
12. **Flooding during the rainy seasons** also limits the use of the waterways.

### Steps taken to solve the above problems

1. Construction of locks in areas where the water levels are different, some single locks and other double locks. For example Beauharnais locks and St. Lambert locks along the St. Lawrence Seaway.
2. Construction of canals to bypass some rapids and waterfalls such as Welland canal which bypasses the Niagara Falls.
3. Constant dredging to maintain the depth of the water channels /rivers by removing the silt to allow large cargo-liners to sail.
4. Construction of dams or barrages which hold back water and give greater depth thus overcoming the problem of shallow channels.
5. Use of ice-breakers during the winter season to enable navigation.
6. Use of alternative routes such as roads and railway in winter when the waterways are frozen. This enables continuous distribution of goods.
7. Blasting using explosives to shatter rocks into small pieces, which can easily be removed. This makes the rivers deep and wide for navigation.

### **Guiding questions**

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1. Examine the problems encountered in the utilization of inland water transport in either USA or Africa and suggest the steps that can be taken to improve water transport in the chosen area.
2. Examine the influence of inland water transport on urban development in either North America or Europe.

### THE RHINE WATERWAY

The Rhine is the most important waterway in Europe and is the world's most efficient waterway system. It is the principle route from Basel in Switzerland to Rotterdam in Netherlands. It is linked with a system of canals which improves its transportation capacity; such as Rhine-Rhone canal, Main-Danube canal, the Mosel-Rhine canal, Dortmund Ems.

The Rhine passes through the most industrialized part of the continent-the Ruhr region) and enters the busiest sea in the world –the North Sea. From the source (Swiss Alps) to the mouth (Rotterdam) it serves 6 Western Europe countries –Switzerland, Germany, France, Netherlands, and Belgium. Its tributaries include: Mainz, Lippe, Mosel, and Ruhr.

#### *A sketch map showing the Rhine waterway*

#### **Factors which have favoured the development of the Rhine waterway**

1. ***The availability and exploitation of various mineral resources*** such as iron ore from the Ruhr, coal from the Ruhr and from the Saar coalfields of Germany; limestone from Swiss Jura. These needed to be shipped to industries such as in the Ruhr Westphalia region, Zurich and Berlin in Germany. This has increased the importance of Rhine waterway-hence its development.
2. ***The Rhine waterway is linked with a system of canals*** which improves its transportation capacity. These canals include: Dortmund Ems, Lippeseite canal, Main-Danube canal, Mosel-Rhine canal (connecting to the Lorraine coal fields of France); Rhine-Rhone canal to Basel. This has enabled the Rhine to be a transit waterway for bulky goods from Germany, Switzerland, Austria, and France.
3. ***Strategic location of the Rhine in the centre of Europe.*** Still its mouth is on the North Sea which is the busiest sea in Europe. This made the Rhine usable by many vessels in countries such as Belgium, France, Germany, Switzerland, and The Netherlands.
4. ***High level of industrial development.*** The Rhine passes through one of the most industrialized parts of the world—the Ruhr industrial complex of Germany and enters the North Sea (the busiest sea). Rapid industry has enabled the Rhine to trans-ship cargo to and from the Ruhr region. The cargo to the interior includes iron ore, cotton, tropical timber, coffee and today the most important is oil. The seaboard goods include automobiles, engineering machinery, chemicals, and general merchandise.
5. ***The rapid development of Rotterdam port.*** The Rhine enters the North Sea at Rotterdam which also owes its growth to the rich hinterland. Rotterdam is an entreport to Europe, has a



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New Waterway and major industrial establishments. This has also increased the importance of the Rhine waterway.

Apart from Rotterdam, other important ports along the Rhine include Bonn, Koblenz, Mainz, and Basel. This has made the waterway to handle thousands of deep sailing ships handling over 220 metric tons per year.

6. ***The desire to link the Rhine countries*** such as Switzerland, Germany and Netherlands. The Rhine has a position as a unifying factor in Europe. It upon this that the governments have made the Rhine developed such as modernizing Rotterdam port at the mouth, development of canals, New waterway. Political unity among the countries increases the volume of traffic handled by the waterway.
7. ***Ice free conditions of the waterway***. In the lower part of the Rhine, there are ice-free conditions throughout the year due to the effect of the north Atlantic drift ocean current. This enables usage of the Rhine for a greater part of the year.
8. ***The Rhine is navigable for a large part from Rotterdam up to Basel***. For this part it is not interrupted by waterfalls/rapids in its channel this increases its use and the volume of cargo handled by the waterway.
9. ***Presence of adequate capital*** provided by the Swiss, Germany and Dutch governments. This helped to streamline the river for navigation, establishing ports for shipping and purchasing technology used for dredging, straightening and construction of various canals.
10. ***High level of technology***/ Advanced technology is used for dredging, straightening and the vessel construction technology. This in turn increases the number of vessels using the Rhine waterway.
11. ***Presence of highly skilled labour force*** such as engineers, geologists who helped the waterway such as dredging of the waterway to deepen it for use, vessel construction for shipping, port construction, and canal construction. This has increased the importance of the waterway.
12. ***Relative political stability in the area*** where the Rhine waterway flows. This has increased the confidence of investors in developing the waterway and also increasing the volume of cargo transported along the waterway.
13. ***The rapid urbanization in parts of Europe*** where the Rhine passes, hence capable of handling much trade. It flows through the densely populated Ruhr conurbation, Basel area of Switzerland, port Rotterdam area. This makes the use of the Rhine waterway more economical.

### **Importance of the Rhine waterway**

1. ***Facilitates trade and commerce through importing and exporting large quantities of commodities*** for countries like Germany, France, Belgium, Netherlands and Germany. The upstream cargo(imported goods) comprises of iron ore, coal, crude oil, cotton wool, food stuffs( like wheat, dairy products); and tropical hard wood timber. The downstream cargo (exported goods) comprises of chemicals, vehicles, machinery, diesel engines, newsprint, textiles, optical instruments (like cameras, binoculars from Switzerland), and automobiles especially from Switzerland –Germany. This leads to the expansion of productive activities such as industry.

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2. **Promotion of industrial development** along the length of the Rhine River, the most spectacular being the Ruhr industrial complex attributed to the cheap water transport for imports and exports. Duisburg is known for smelting, metal works, and chemical industries. Other industrial regions are Rotterdam in the Netherlands, Cologne in Germany, and Basel in Switzerland. The waterway provides cheap and easy transport for bulky industrial raw materials such as coal, petroleum, limestone, steel, iron, agricultural products as well as accessibility to the overseas markets.
3. **Promotion of port and urban development**, the most spectacular being Rotterdam port at the mouth of the Rhine River acting as the entreport for Western Europe with modern facilities such as containerization use of cranes. Other important towns include Basel, Strasburg, Mainz, Bonn, Essen, Dusseldorf, Leverkusen, and Koblenz. These are developed industrial towns, trade, recreational, and financial centres, and with high population concentration.
4. **Promotion of mineral exploitation** for example coal mining from the Ruhr and Saar fields of Germany, limestone from the Jura region of Switzerland. The waterway helps to transport bulky ore from the fields to the processing and smelting centres and to various industries where they are needed as raw materials. This in turn increases the income levels.
5. **Facilitation of agricultural development** by opening up agricultural regions such as the alluvial plains of Germany for growing of sugar beet, maize, tobacco, vines and market gardening in Germany; horticulture and cattle rearing in Netherlands. The waterway provides cheap and easy transport to the industries and markets to be processed and consumed respectively.
6. **Promotion of tourism development in the Rhine lands** especially in Switzerland apart from the waterway being a tourist potential itself. It provides cheap transport for tourists from Germany, Holland, Belgium, Luxembourg, to the tour resorts. Most of these resorts are linked to the Rhine by road and rail. The resorts in Switzerland include Kloster, Arosa, Davos, Murren, and Kandersteg. This in turn increases the inflow of foreign exchange which is used to import foreign technology and consumer goods.
7. **Provision of employment opportunities to many people** such as engineers who carry out dredging, straightening of the waterway, hydrologists who monitor the water levels. There is employment in shipping companies as pilots, cargo handling, and hostesses in passenger liners. They earn income for improving their social and economic welfare /standard of living.
8. **Generating of government revenue** by taxing the shipping companies /cargo handling companies pay and workers' incomes. The revenue is used to develop various sectors such health, education, recreation, and agriculture.
9. **Facilitation of international relationship between the Rhineland countries** that is, Netherlands, Germany, Switzerland. The countries ensure diplomatic relationship for the joint and smooth operations on the Rhine. This forms a basis of economic contacts/trade relations and economic integration (such as in the European Union).
10. **Diversification of the economy in the Rhineland countries**. It has diversified transport in Western Europe but also the economy by providing an alternative source of income /revenue which can be used to develop various activities such as mining, agriculture, service sectors.
11. **\*Stimulation of forestry development** by enhancing the exploitation of forests such as the black forests of south Germany, and Haardt forests of central Germany. The Rhine opened up

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these forests by providing cheap transport means for logs to be floated to the saw mills, furniture workshops and ship building workshops at Cologne, Mainz and Basel.

### Negative Effects/Shortcomings of the Rhine Waterway

1. **Congestion of vessels on the waterway** due to increasing use of the waterway by many vessels, it limits its size causing delays.
2. **The waterway limits the size of vessels used on the route.** Due to the ever growing technology the bigger ships cannot sail easily along some sections of the waterway especially the canal sections.
3. **Silting of some sections of the Rhine River** and this calls for continuous dredging which is costly yet the period of dredging limits the use of the waterway.
4. **The upper course of the waterway has rugged relief** that is, from Basel towards the Alps. This makes the upper part less or not navigable and thus foregone economic opportunities.
5. **Freezing of the Rhine River during winter season** especially in the upper course, which limits its use as a waterway.
6. **The waterway is associated with urbanization and related problems** such as traffic congestion, slum growth, drug trafficking, unemployment, and high crime rate.
7. **Pollution problems are associated with the waterway** such as air and water pollution due to moving water vessels, growth of industries due to the discharge of toxic wastes and other urban activities. This is disastrous to the environment (flora, fauna and aquatic life).
8. **The Rhine waterway results into regional imbalance in development** since it has attracted most economic activities along its course from Basel to Rotterdam in Netherlands such as agriculture, tourism, industry, social services at the expense of other areas in the interior.

### Guiding questions

1. Account for the development of the Rhine waterway as an important waterway in Europe in the area where it is located.
2. For either the St. Lawrence Seaway or the Rhine waterway, assess its contributions to the development of the region where it occurs.

### St. Lawrence Seaway

The St. Lawrence Seaway is the most important waterway in North America shared by Canada and USA. It connects the Great Lakes region and the Atlantic Ocean on the eastern part of North America.

It stretches for over 3760km (2350miles) from Duluth on Lake Superior to the estuary of the St. Lawrence below Quebec.

The major construction activities along the Seaway included:

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- Construction of locks in areas where the water levels were different, some are single locks and others are double locks. Examples are: Beauharnois locks, St. Lawrence lock, St. Lambert lock, Iroquois lock
- Construction of dams in some sections to raise the water levels and submerge the rapids such as the Moses Saunders dam
- Construction of canals to by-pass some rapids and waterfalls such as the Welland canal which by-passes Niagara falls a distance of 40km (Niagara falls is about 99m high (326ft). the drop of 6m (20ft) by a rapid at Sault Ste. Marie is avoided by the Soo canal between Lake and lake Huron. There are also canals that link the seaway to major production areas such as the 320 km Superior canal from Lake Erie at Buffalo via the Mohawk gap and Hudson River to New York. Also the Carillon and Greville canals from Montreal to Ottawa, Rideau Canal to Kingston.
- Constant dredging to maintain a depth of over 7.5m (25ft) to allow large cargo-liners into the Greatlakes (to widen the waterway by removing silt).
- Blasting using explosives to shatter rocks into small pieces which could easily be removed (remove the islands), hence making the river deep for navigation.

### Note:

- ◆ The US and Canadian governments constructed the St. Lawrence sea way which was completed in 1954.
- ◆ The main traffic on the water way includes iron ore, coal, grains, (especially wheat), timber, furs, dairy products, metallic ores (nickel, copper, gold) and a whole range of manufactured goods.

### *A sketch map of the St. Lawrence sea way*

### Factors that favoured the development of the St. Lawrence sea way

1. **Availability of large deposits/ a variety of minerals** which include iron ore, uranium, gold, copper, and coal at the great lakes fields. The sea way was to provide cheap transport for these mineral resources to the major industrial centres such as Montreal, Detroit, Pittsburgh, Chicago, and Toronto. This increases the volume of cargo handled by the seaway.
2. **High level of industrial development in the great lakes region** and along the sea way such as in Chicago, Detroit, Quebec, Montreal, Pittsburgh which manufacture bulky products such as automobile, machinery which required cheap means of transport especially to overseas markets. This also increases the volume of goods transported along the seaway.
3. **Availability of adequate capital provided by both the US and Canadian governments** shared equally (the project spent over one billion US dollars). This capital was invested in the purchase of modern technology, construction of canals, building of locks in case of different water levels, dredging of the riverbed to deepen it for vessels, and straightening the sea way.

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4. ***The high level of technology*** which involved the use of earth movers, excavators for dredging , construction of modern canals and locks, dam construction, which also explains the development of the waterway to navigable level.
5. ***Availability of highly skilled labor provided by the US and Canada*** in form of engineers , hydrologists, surveyors, who carried the feasibility study and construction activities like construction of dams, locks and canals to make the sea way more navigable.
6. ***Political stability in the continent*** of North America for a long period of time which has enabled establishment and maintenance of the seaway. It also increases the confidence of people to transport their goods via the seaway.
7. ***The rapid development of ports making the seaway to handle much trade.*** The inland ports include Duluth, Chicago, Detroit, Cleveland, buffalo, Toronto, Montreal, Quebec with major industrial establishments. The sea way can now handle thousands of ocean-going vessels.
8. ***The large scale agricultural production in the region*** such as wheat from the prairies , cotton from north and south Carolina, maize/ corns from Illinois, and Ohio, dairy production in Michigan and Iowa, etc the St. Lawrence sea way was constructed to provide cheap transport for the bulky agricultural products to the major industrial centres and urban markets as well as overseas markets.
9. ***The St. Lawrence Sea way is linked with a system of canals,*** which increases its transportation capacity. The canals include the 320mk canal from Lake Erie at buffalo via the Mohawk gap and Hudson River to New York, the Carillion canal and Grenville canal from Montreal to Ottawa, Rideau Canal to Kingston; and these link the sea way to the major production areas, making it a transit waterway for bulky goods to and from the interior.
10. ***Positive / favourable government policy towards the construction and maintenance*** of the seaway. For example by providing the required capital and purchasing modern machinery for construction of the seaway, hiring labour to maintain the seaway. This in turn increases the use of the seaway.
11. ***Strategic geographical location of the seaway in the centre of North America and linking to the Atlantic Ocean.*** This enables it to handle large volume of cargo from both Canada and USA. It also transports large quantities of goods (imports) from Europe.

### Economic significance of the St. Lawrence sea way

- ◆ ***The sea way has promoted trade and commerce in the region*** for example Importing large quantities of commodities like iron ore, coal, crude oil, cotton wool, food stuff; tropical hard wood timber. Transporting large amounts of exports from North America such as chemicals, vehicles, machinery, diesel engines, newsprint, textiles, and automobiles. This in turn increases national income.
- ◆ ***Promotion of industrial development*** along the length of the St. Lawrence seaway attributed to the cheap water transport for imports and exports. Today the great lakes region is known for smelting, metal works, chemical industries, textiles, automobiles, agro-based industries in Detroit, Quebec, Toronto and Chicago. The waterway provides cheap and easy transport for bulky industrial raw materials such as coal, petroleum, limestone, steel, iron, agricultural products as well as accessibility to the overseas markets.

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- ◆ **Promotion of port and urban development** with modern facilities such as containerization, use of cranes. These include Buffalo, Chicago, Duluth, Montreal, Cleveland, Thunder Bay, and Toronto. These are developed industrial towns, trade centres, and recreational centres, financial centres with high population concentration. This also increases national income.
- ◆ **The sea way has facilitated mineral exploitation** for example coal mining from Pittsburgh, and Appalachian coalfields, iron ore from Labrador and Mesabi ranges. The waterway helps to transport bulky ore from the fields to the processing and smelting centres and to various industries where they are needed as raw materials.
- ◆ **Facilitation of agricultural development** by opening up agricultural regions such as dairy farming at Michigan, wheat growing in the prairies, horticulture and market gardening, maize production, agro-based industries. The waterway provides cheap and easy transport to the industries and markets to be processed and consumed respectively.
- ◆ **The sea way promotes of tourism development in the region**, apart from the waterway being a tourist potential itself. It provides cheap transport for tourists from Europe, Africa and other parts of the world, to the tour resorts. Most of these resorts are linked to the seaway by road, rail and canals. The tourist attractions are the waterfalls and rapids, industries, mining centres of Appalachians, canals, dams and locks. This also in turn increases the foreign exchange and re-investment in the economy.
- ◆ **Provision of more employment opportunities to the people of Canada and USA** such as engineers who carry out dredging, straightening of the waterway, hydrologists who monitor the water levels. There is also employment in shipping companies as pilots, cargo handling, and hostesses in passenger liners. They earn income for improving their social and economic welfare /standard of living.
- ◆ **Generating of government revenue** through taxing the shipping companies /cargo handling companies and workers' incomes. The revenue is used to develop various sectors such health, education, recreation, and agriculture.
- ◆ **The sea way has promoted political harmony/ relationship between the USA and Canada.** The countries ensure diplomatic relationship for the joint and smooth operations on the seaway. This forms a basis of economic contacts/trade relations and economic integration (such as in the European Union).
- ◆ **Diversification of the economy** because it has diversified transport in North America and by providing an alternative source of income /revenue which can be used to develop various activities such as mining, agriculture, service sectors. This in turn widens the national income and the export base of the two countries.
- ◆ **Promotes the development of other infrastructure** such as road and railway network in the Great lakes region, education facilities, canals linked to other areas such as the Hudson-Mohawk canal. This has increased the volume of trade and other economic activities.

### Negative Effects/Short Comings of the Seaway

- ◆ **Congestion of vessels on the waterway** due to increasing use of the waterway by many vessels, it limits its size causing delays.
- ◆ **The sea way has limitation in the size of vessels used on the route.** Due to the ever-growing technology, the bigger ships (super tankers) cannot sail easily along some sections of the



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seaway especially the canal sections. This limits direct delivery of goods into the Great lakes region.

- ◆ ***Silting of some sections of the river*** and this calls for continuous dredging which is costly yet the period of dredging limits the use of the waterway.
- ◆ ***Freezing of the river during winter season*** which limits its use as a waterway. The sea way is frozen (bound by ice) for 340 4 months in a year (December to march), which limits its use greatly during these months and navigation comes from a standstill.
- ◆ ***The sea way has many locks used to adjust water levels*** and ease navigation. These various locks lead to delays in the shipment of cargo.
- ◆ ***The Seaway is associated with urbanization and related problems*** such as traffic congestion, slum growth, drug trafficking, unemployment, high crime rate. Fighting such evils is very costly to the government.
- ◆ ***Pollution problems are associated with the waterway*** such air and water pollution due to moving water vessels, growth of industries due to the discharge of toxic wastes and from other urban activities. This is disastrous to the environment ( flora, fauna and aquatic life)
- ◆ ***The seaway results into regional imbalance in development*** since it has attracted most economic activities along its course such as agriculture, tourism, industry, social services due to easy accessibility at the expense of other areas in the interior.

### Railway transport

### URBANIZATION

Urbanization is the process whereby an increasing proportion of the population becomes concentrated in towns. There is a continuous shift of the population from rural areas to towns and cities, and the resultant growth of urban areas.

The criteria of classification /identification of urban areas is based on: population size, population density, administrative and legal status, social and economic functions. But the most common determinant of whether an area is a town or not is the population size.

#### Basic concepts

- **Urban morphology**

This refers to the internal structure and arrangement of the town. The morphology of towns differs from place to place due to differences in site, functions, history of development and the age of the town.

- **Urban fields**

This is the area around a town which it serves and from which it draws customers for its goods and services. The town itself is called the central place and the area around it is the field of influence (urban field). The urban field depends upon the size of the town and kind of services it offers.

- **Urban hierarchy**

This is the ranking of towns according to the services they provide and the size of their fields.

- **Urban sprawl**

This is the outward spread of built-up areas caused by their expansion. Or it is the areal expansion of rapidly growing cities (as a result of urbanization)

Towns are continuously growing and in some areas the suburbs of a number of neighboring towns may be so close together as to form an almost continuous urban development called a conurbation

- **Hinterland**

This is the area which serves and is in turn served by a port. Or It is the area from which supplies are drawn for export and to which imports are distributed. For example the hinterland of Rotterdam covers countries like Netherlands, Germany, Belgium, and Switzerland.

### FUNCTIONS OF URBAN AREAS/TOWNS

Towns are multifunctional and the major functions include:

- 1) Commercial function. The major function is business /trade and commerce.
- 2) Manufacturing/industrial function
- 3) Administrative function
- 4) Residential function
- 5) Cultural function
- 6) Entertainment function
- 7) Defensive function
- 8) Recreation function/resorts



## CONSEQUENCES /EFFECTS OF URBANIZATION

### Positive effects

1. The increased population **widens the market potential for goods and services** produced. It also provides market for agricultural output –hence linking rural and urban areas.
2. The increased population **increases the labour potential** due to a large number of people who can be employed in various sectors like trade, banking and industry.
3. Results into cultural integration and unity .There is also transmission and diffusion of ideas/information, which in the long run leads to balanced regional development.
4. People **acquire skills which can be used for rural transformation**. Labour is trained in urban areas, which may in turn, establish small scale industries/projects in the rural areas.
5. **Creation of employment opportunities** in the urban areas than the countryside. The job opportunities in the industrial, business and service sectors lead to increased standards of living for the urban dwellers such as in Lagos, Tokyo, and London.
6. Leads to **industrial development** due to increased investment.
7. Expands the tax base for collection of government revenue. Many urban activities are taxed by the government in order to develop various sectors like transport, tourism.
8. Stimulates production due to competition. This leads to increased investment and innovativeness, and hence increase in national income.
9. Results improvement in social services such as education, health services etc. urbanization awakens the government to provide social services to support the large numbers of people.
10. Results into technological transfer and development since urban areas attract many economic activities such as trade, and banking.

### Negative effects

1. Urbanization **results into unemployment** which in turn leads to high crime rate. In many cases the people who are flocking to the towns in developing countries are unemployed .the increased movements of people to towns does not match with the available job opportunities. Many young men and women seeking employment in cities, unfortunately fail to find the jobs.
2. Leads to **strain on the social economic infrastructure** such as roads, medical facilities, piped water, electricity-due to increasing demand by the increasing population. This strains the government budget especial with the case of urban sprawl (such as in Cairo-Egypt and Lagos-Nigeria).
3. Leads to **the growth of slums due to inadequate housing**. The squatters cleared from one area may settle in another unless housing can be found for them. Therefore the town dwellers inevitably outnumber the housing facilities provided. Slums are characterized by poor conditions especially poor /inadequate housing such as the blacks who have squatted in and around Johannesburg in South Africa. Slums are also characterized robbers, drug abuse, and easy spread of diseases.
4. **Results into traffic congestion in the urban areas** leading to unnecessary delays. The larger the town and the more important its functions become, the need for vehicle s increases for the town dwellers and outsiders. Increased trade leads to increased demand for commercial vehicles, which

add to the traffic .the greatest traffic congestion occurs in the central business districts (CBDs) of towns are concentrated.

5. **Results into high crime rate** since due to unemployment and overcrowding especially in the outskirts of the busy urban areas. There is increase in robbery, prostitution, and gambling.
6. **Pollution of the environment leading to environmental deterioration.** There is increased air pollution from car fumes, smoke from factories and houses, water pollution from factories and rubbish. There is also noise pollution from factories and traffic. Japan has one of the worst pollution problems in the world due to its rapid industrialization. Pollution from towns also affects the surrounding areas.
7. **Expansion of towns results in deforestation** and general vegetation destruction this is due to expanding built-up areas for settlement, industrial sites and other business activities. For example, the expansion of towns in the Rand is affecting the vegetation in the surrounding zones. There is also increased swamp reclamation and high rate of flooding in some areas of the expanding towns.
8. **Encroachment on the adjacent land reduces the land for other activities** and leads to the displacement of people who lose their settlement land and sometimes they are not fairly compensated.
9. **Dereliction/destruction of the landscape** for example due to exploitation of minerals –mining pits left behind. There is also garbage heaps created in some corners of urban areas.
10. **Overexploitation of natural resources** in the surrounding areas such as forest resources ,fisheries resources, mineral resources, due to increased demand in the urbanized areas.
11. **Leads to break down of social norms and values** because most urban inhabitants tend to ignore the traditional values and adopt western culture/values. More so urban areas are collections of various cultures from all areas –which influence erodes traditional values of a particular culture.
12. **Threat of terrorism and tension** in the urban areas. The terrorists are mostly interested in areas of large population and thus a potential destruction of life and property.
13. Results into **regional imbalance in development.** The urban areas are more developed in terms of infrastructure than other areas of the country. This in turn increases rural urban migration.

### SOLUTIONS TO URBAN PROBLEMS

1. Developing a good transport system to reduce traffic congestion in the urbanities for example constructing subways, flyovers. There is also restricting the movement of certain vehicles into the central business districts.
2. Strengthening patrols and police in the urban centers to control the high crime rate.
3. Recycling, treating and proper disposal of waste material to reduce pollution and contribute to a clean environment.
4. Reclamation of swampy grounds to create more room for urban expansion.
5. Setting up /creating more public facilities to such as medical centers, education centers, recreation centers, to match with the rising population.
6. Politicization to reduce racial discrimination.
7. Construction of skyscrapers to solve the problem land shortage. These buildings usually have all the facilities such as shopping, and cinema.

8. etc

### Case studies—ports and towns

- Rotterdam
- Newyork
- Lagos
- Tema
- Mombasa
- Calcutta
- Hongkong

### ROTTERDAM

Rotterdam is an international port and it is situated at the mouth of the Rhine River as the river enters the North sea .it derives its name from a stream called **Rotte** and it has existed for over 600years .

Rotterdam is the most important port in the world and its greatest growth began with the construction of a new waterway through the polders. It was after the construction of this giant canal that the port got access to the North Sea usable by large vessels. This made it possible for Rotterdam's expansion such that today it is the world's largest port with the capacity of handling many vessels at a time.

*A sketch map showing the location of Rotterdam and Europort*

### Factors responsible for the growth and development of Rotterdam as an international port and urban center

1. **Presence of a well sheltered natural harbor** at the sheltered estuary of the New Maas. This deep natural harbor makes Rotterdam to handle all types of ocean-going vessels (barges and ships) and has therefore developed a modern port due to handling large cargo.
2. **The low tidal range** which allows easy shipping/anchoring of vessels to the coastline of the North Sea. Therefore, ships easily come and go at any time.
3. **Ice-free conditions throughout the year** due to the effect of the warm north Atlantic drift (ocean current). This allows continued use of the port throughout the year and hence its modernization.
4. **The topography of the area is relatively flat** and this allows easy construction of port facilities and accommodation facilities for the large population.
5. **The Presence of a large and productive hinterland.** Rotterdam is situated at the mouth of river Rhine serving countries like Switzerland, Germany, Belgium, Luxembourg and The Netherlands itself. Rapid industrialization especially in the Ruhr region of Germany leads to increasing cargo handled at Rotterdam port because it was the easiest port to trans-ship cargo to and from the Ruhr. The cargo

to the interior includes iron ore, cotton, tropical rubber, coffee, and oil. The cargo from the interior (seaboard goods) include general merchandise, automobiles, chemicals, machinery.

6. **The strategic location of Rotterdam port-** near the North Sea and on the mouth of river Rhine. The port is also located in the center of Europe. This made Rotterdam to develop into an Entreport to the interior and hence development onto an international port. The location also made Rotterdam to have an extensive hinterland.
7. **Navigability of the Rhine River/ *the Rhine is navigable for a large part from Rotterdam up to Basel.*** For this part, it is not interrupted by waterfalls/rapids in its channel. This increases the volume of goods handled at Rotterdam port.
8. **The construction of a deep water channel called the New water way,** linking port to the North Sea. This giant canal was completed in 1872 and it made the port usable by very large vessels since they could sail through. It enabled Rotterdam to become more of a transit port for bulky goods to the interior. More so major developments have taken place on the banks of the waterway, most important being the construction of Europort (5000 hectares large).
9. **The reconstruction of the port after the devastation of the Second World War.** This enabled new plans to be drawn up for the expansion of the port in 1947, and an industrial complex was set up at Botlek to the south bank of the New waterway.
10. **The development of many industries at Rotterdam** which include oil refineries, shipbuilding, general engineering, brewing, and food processing. This has attracted many people to the port to look for employment and also increased the cargo handled by the port.
11. **High level of technology** which led to improvement in modern port handling facilities .there construction of the new waterway, construction of Europort, dredging and reclamation of land from the sea. There is also increased containerization at the port.
12. **Presence of adequate capital to develop the port and city.** The Dutch government and other countries of Western Europe provided the necessary capital for port rehabilitation and development. This was important in designing Europort, the new water way and the implementation of the expansion programme.
13. **Political stability of the region,** which has enabled the port to expand without any ravages of war. The area has been stable since the Second World War and therefore many modern port handling facilities have been put up.
14. **Improvement in transport systems linking the port to the large hinterland.** For example roads and railways linking to the interior of The Netherlands and the Ruhr complex of Germany. This also increases the volume of cargo handled by Rotterdam port.
15. **Supportive government policy** for example the need to open up the Rhine basin as a whole—by easily accessing markets for the manufactured goods such as chemicals and sources of imported raw materials such as iron ore, topical rubber. This explains why the governments have heavily financed the modernization of the port.
16. **Presence of skilled labour in the area—to** carry out modern construction and development of the port. The large population of the region supplied the required labour.

### Problems facing Rotterdam port and city

1. There is congestion of vessels and people. Due to this maintenance of the city is extremely expensive such as water supply, sewage disposal, law and order.
2. Pollution of the environment especially oil/petroleum related industries such as oil refineries, petro-chemical industries, automobile industries.
3. Silting of the new Maas River and the new waterway .this necessitates constant dredging which costly.
4. Some sections of the port experience winter freezing which at times interferes with port activities such inconveniencing shipping schedules.
5. Narrowness and shallowness. There is still work to be done to expand the port and to deepen it in order to accommodate even larger ocean-going vessels.
6. Risks of fire hazards due to presence of oil tanks all over the port.
7. Unemployment problems. This is attributed to high levels of rural urban migrations and settlements due to port attraction facilities.
8. High crime rate due to overcrowding.

### **Solution to the above problems**

1. Reclamation of land from the sea to create more room for expansion.
2. Vertical expansion of the port to minimize the problems of limited space (use of skyscrapers).
3. Containerization to ensure fast handling and dispatch of cargo.
4. Industrialists have advised to build elsewhere away from the concentrated area of Rotterdam.
5. Treating industrial wastes before disposal into water to reduce pollution.
6. Industrial fumes have been exposed high up in the atmosphere by very long chimneys.
7. Regular dredging to reduce the effects of silting.
8. Greenbelts have been created in the city to reduce CO<sub>2</sub> from the atmosphere and in turn produce O<sub>2</sub> which is in short supply.
9. Police has been strengthened to be more alert against crime among citizens, although it is still a challenge.

### **NEW YORK PORT /CITY**

New York is located on the eastern coast of USA to the Atlantic Ocean on the Manhattan Island. It is the principal city of United States of America and the most developed port in North America.

Its growth and expansion started with the arrival of foreign settlers –the Dutch who bought Manhattan Island from the local Indians (Red Indians) in 1624 who had settled in the area earlier. At that time, New York was called New Amsterdam.

Later in 1664 the British conquered the island and re-named it New York from then many Europeans settled in New York port and it over powered all other cities to become the leading commercial centre of North America.

New York port is located/sited on many islands such as Manhattan( the major), Staten island, Long Island, Bronx island, Brooklyn island, Queens island.

*A sketch map showing the location/ site of New York port/ city*

### **Factors for the growth and development of New York port/city**

1. **Presence of a well sheltered natural harbor**, with a deep and broad channel directly leading to the Atlantic Ocean. The harbor is well protected from strong water waves which favoured the construction of the port. This deep natural harbor makes New York to handle all types of ocean-going vessels (barges and ships) and has therefore developed a modern port due to handling large cargo.
2. **The low tidal range** of less than 2 metres which allows easy shipping or anchoring of vessels to the Atlantic coastline. Therefore ships easily enter and leave the port at any time.
3. **Ice-free conditions throughout the year** due to the conducive sub-tropical climate. This allows continued use of the port throughout the year and hence its modernization.
4. **The topography of the area is relatively flat** which allows easy construction of port facilities and accommodation facilities for the large population.
5. **The Presence of a large and productive hinterland** which covers the New York city, Great lakes region, the agricultural and interior plain of the south, the Appalachian region, Pittsburgh industrial area and New England. Rapid industrialization especially in the Great lakes region and New York City led to increasing cargo handled at New York port. This was because New York is one of the easiest ports to trans-ship cargo to and from the region. The imports/ cargo to the interior are agricultural products such as cotton, tea, coffee, cocoa, sugar mainly from Africa. Minerals are also imported such as oil, copper, gold, diamonds, uranium, and iron ore. The exports/ cargo from the interior include: general merchandise, automobiles, chemicals, machinery, electronics, wheat, and timber products.
6. **The strategic location of New York port** along the Atlantic Ocean and on the mouth of navigable Hudson River. This made New York accessible to major markets especially in Europe. Therefore the coastal location made the port to handle large volumes of cargo to and from the interior and hence development into an international port.
7. **The construction of the Hudson –Mohawk canal**, which connected New York to the Greatlakes region through Lake Erie. This gave New York port an advantage to handle large volumes of exports and imports, leading to the rapid development of New York port.
8. **Presence of many water bodies** such as rivers (Hudson, east), upper and lower bays. These provide a large area for anchoring of ships. The water bodies also favoured the setting up of landing sites upon which the modern port originated.
9. **Relatively flat landscape of New York** which facilitated the construction of port facilities. This in turn increases the volume of cargo handled at the port.
10. **Presence of a hard rock** which provided a firm foundation for the construction of port facilities and the construction of tall buildings.

11. **The absence of strong Chinook hurricane winds on the eastern seaboard of north America** also favoured the location of the port on that side of USA. The winds would otherwise make the landing of vessels difficult.
12. **Historical factor—its position as the original capital city of USA** made the government to develop Newyork into a port before shifting to Washington DC. New York was also the first state to be settled by foreigners such as the Dutch and the British. This led to a high population that favoured many activities like industry and trade, hence development into major urban centre and port.
13. **Presence of adequate capital to develop the port and city.** The initial capital was provided by early settlers such as the Dutch and British; and later the US government. This favoured the construction and development of port facilities.
14. **High level of technology** which led to improvement in modern port handling facilities, construction of the waterways, and reclamation of land to expand port facilities. There is also increased containerization at the port to save space and time of loading and unloading of cargo.
15. **The development of many industries at New York** which include oil refineries, iron and steel works, ship building, general engineering, textiles, paper and printing, brewing, food processing. This has attracted many people to the port to look for employment and also increased the volume cargo handled by the port.
16. **Political stability of the region** which has enabled the port to expand without any ravages of war. The area has been stable for a long period of time and therefore many modern port handling facilities have been put up.
17. **Improvement in transport systems linking the port to the large hinterland.** For example roads and railways linking to the interior of USA such as New England, Appalachian region and Pittsburgh region. This also increases the volume of cargo handled by New York port.
18. **Supportive government policy** for example the need to open up the interior —by easily accessing markets for the manufactured goods such as chemicals and sources of imported raw materials such as iron ore, tea, and cotton. This explains why the government has heavily financed the modernization of the port.
19. **Presence of skilled labour in the area** to carry out modern construction and development of the port. The large population of the region supplied the required labour.

### **Problems facing New York port**

1. There is congestion of vessels and this leads to delays in loading and unloading of ships. Also due to this congestion, the maintenance of the port is extremely expensive.
2. Pollution of the environment/ port area such as water pollution from oil spills and air pollution from industries such as oil refineries, petro-chemical industries, automobile industries.
3. Limited land for expansion which has made the port to develop vertically especially on Manhattan island.
4. Inadequate accommodation which has led to growth of slums and associated problems such as poor hygiene, moral decay and easy spread of diseases.
9. Unemployment problems, attributed to high levels of rural urban migrations and settlements attracted by port facilities. The unemployment leads to high crime rate due to overcrowding



10. Narrowness and shallowness. There is still work to be done to expand the port and to deepen it in order to accommodate even larger ocean-going vessels.
11. Risks of fire hazards due to presence of oil tanks all over the port.
12. Thick fog due to mixing of cold Labrador and the warm gulf stream. This leads to great risk of accidents due to poor visibility.

### **Solution to the above problems**

1. Vertical expansion of the port to minimize the problems of limited space (use of skyscrapers).
2. Reclamation of land from the sea to create more room for expansion.
3. Containerization to ensure fast handling and dispatch of cargo.
4. Industrialists have advised to build elsewhere away from the concentrated area of New York.
5. Treating industrial wastes before disposal into water to reduce pollution.
6. Industrial fumes have been exposed high up in the atmosphere by very long chimneys.
7. Use of radars to solve the problem of fog.
8. Police has been strengthened to be more alert against crime among citizens, although it is still a challenge.
9. Construction of more industries to create more jobs.

### **Guiding questions**

- 1) To what extent have physical factors contributed to the growth of either Rotterdam or Mombasa port?
- 2) Account for the growth and development of Rotterdam or Lagos into a modern port and urban centre.
- 3) Account for the development of either Port Tema or New York as a port and urban centre.
- 4) Examine the significance of New York as a port and an urban centre in North America
- 5) (a) Examine the factors which have favoured the development of Rotterdam as an international port  
(b) Explain the problems faced by the Rotterdam as a port.

## **CONURBATIONS**

A conurbation is a large continuous built-up area formed by the joining of several towns/urban settlements. OR It is a single urban complex formed by the merging of two or more neighboring urban centers.

The towns grow and merge such that there is no clear distinction between them, and conurbations are often formed due to urban sprawl.

Examples of conurbations in the world include:

- The Rand industrial complex in south Africa
- The Great lakes region of USA



- The Ruhr industrial complex of Germany
- New York / Northeast of USA
- Los Angeles –san Francisco in USA
- West Holland conurbation –consisting of Amsterdam, Rotterdam, Utrecht, and The Hague
- London, Manchester, Liverpool, Sheffield and Bristol in Britain.
- Tokyo, Nagoya, and Osaka in Japan are centers of large conurbations.

### THE RAND OF SOUTH AFRICA

The Rand (Witwatersrand) is the only true industrial conurbation in Africa, and it extends for approximately 100km from Randfontein to springs on the veld.

The major towns in this conurbation include Johannesburg, Germiston, Krugersdorp, Pretoria, springs, Klerksdorp, Witbank. Others include Kimberley, Bultfontein, Vereeniging, Vanderbijl Park, Benoni, Middleburg, and Waterburg.

The Rand has about 35% of all South African industrial establishments.

### Factors for the location and growth of the Rand Conurbation

1. ***Presence of a wide range of valuable minerals*** for example gold in Johannesburg, springs, Krugersdorp, Klerksdorp; diamonds in Pretoria, Kimberley, Bultfontein; coal in Middleburg, Vereeniging, and Witbank. Many people have been attracted to provide labour in the mining companies.
2. ***Availability of large quantities of power such as in form of coal and hydro electric power.*** Coal has for long been the main source of power for industries in South Africa. Power has also supported various urban activities such as trade and commerce, banking, insurance, recreation, in urban areas like Witbank, Pretoria, and Germiston.
3. ***The development of many industries in the region*** by both local and foreign investors for example iron and steel industries in Pretoria, Vereeniging, and Johannesburg; chemical industries in Pretoria and Germiston. These industries have attracted a large population to provide labour and enjoy other industrial –related opportunities.
4. ***Internal competition among the industrial establishments*** leading to increased productivity, efficiency and development. This competition leads to the expansion of industries and related activities like transport, trade, and therefore the eventual expansion of the towns into a large conurbation.
5. ***Presence of large/abundant water supply for domestic and industrial use*** for example from the Vaal River supporting the iron and steel industries at Vereeniging (for cooling machines). Water is also used as a raw material in some industries such as soft drinks industries in springs and Vanderbijl Park. It is still used in many urban activities recreation, food preparation among others.
6. ***Well developed transport and communication network*** by road, railway, and air. The net works were easy to set up since the area is relatively flat. The railway network is directly comparable with those in Europe and North America for example by being electrified. The transport networks link various towns in the Rand –moving people and produce.

7. ***Abundant supply of skilled and unskilled labour*** who work in the industries, mining sector, and the service sector in the Rand. The unskilled labour is mainly provided by the black population originating from various parts of South Africa and migrants from the neighboring countries like Lesotho, Swaziland, Botswana, and Namibia. This has led to the expansion of urban facilities like banking, insurance and entertainment.
8. ***Presence of adequate capital to invest in various activities*** especially mining operations, industry, and trade, provided by white settlers from countries like USA, Britain, Holland. Still the government has invested in many urban facilities such as health centers, education, and power transmission.
9. ***Well developed social and commercial facilities*** such as educational facilities, recreation, health facilities, banking, insurance, and ware housing. These have also attracted a large proportion of the population to concentrate in the urbanized Rand region.
10. ***Geographical/industrial inertia***—where industries /investments fail to change location even when the existing/present location is no longer the most advantageous. The investments are attracted by the developed facilities such as transport and this has resulted into increased population concentration in the Rand region.
11. ***Political stability of the region*** which has attracted many people and investments to the Rand. Since the end of apartheid many urban activities and facilities have been initiated and consolidated, hence the expansion of several towns like Germiston, Witbank, and Middleburg.
12. ***Positive government policy*** which promotes local production by restricting importation of similar goods. The governments also finances basic industries such generation of power. It has also spearheaded and encouraged industrial research, and still encouraged local and foreign investors in various urban development activities through enabling policies.

### THE GREATLAKES REGION OF USA

The Greatlakes region is an example of a conurbation in USA with many towns /cities which have grown and merged. These include Pittsburgh-Cleveland, Detroit-Dearborn-Windsor, Chicago-Cicero-Milwaukee, Port Arthur and Fort William, Duluth and superior. Other towns include Buffalo city, Wheeling, Young's town, Greenbay, Gary, Thunderbay, Toledo, and Sudbury.

#### Factors for the growth and development of the Greatlakes region as a conurbation

1. ***Presence of valuable mineral resources such as iron ore and coal*** for example iron ore exists in the Lake Superior region (Mesabi Range, vermilion range). Coal is got from Pittsburgh region. This has led to increased population concentration in the region, since many people provide labour in the mining activities such as mineral extraction, processing, transportation.
2. ***Availability of reliable power supply in form of coal, oil, and hydro electric power.*** Coal and natural gas are got from the Pittsburgh region; hydro electricity from various dams along river St. Lawrence (such from Niagara Falls).the power has supported domestic work, industries and various urban activities like banking.

3. **Well developed transport and communication network** such as the St. Lawrence Sea way provides a cheap means of transport for bulky and heavy raw materials and finished goods, and opens up the great lakes region to the Atlantic sea board. The Greatlakes region is also connected with road and railway to the other parts of the continent. Easy accessibility has increased the number of activities in the region, hence increased population concentration.
4. **Presence of a large and very productive hinterland** which provides raw materials for industrial goods including agricultural raw materials (cotton, wheat, maize, dairy products). Cotton particularly comes from the Mississippi lowland yet wheat and livestock products come from the Prairie Provinces. There are also mineral resources such as limestone, coal, and iron ore. This has led to the concentration of activities in the Greatlakes region especially industry and trade—hence urbanization.
5. **Availability of adequate capital to support various activities** especially industry, mining, trade. This capital is generated from international trade, local and foreign investors and it is used to construct industries, construction of locks and canals, banking facilities, road net work—leading to the expansion of various urban centers like Cleveland, Duluth, and Chicago.
6. **The dense population in the area**, which is a source of labour to work in the established industries and other sectors. The large population also provides market for the manufactured and traded goods, hence leading to the concentration of activities in the region.
7. **The development of many industries in the region**, by both local and foreign investors. These include the automobile industries in the Detroit region and the Lake Michigan region, mechanical engineering and chemical industries in Chicago and Buffalo cities. The expansion and growth of industries has also led to the expansion of the urban centers forming a conurbation.
8. **Availability of ready / reliable water supply for both domestic and industrial use.** The water is provided by the Greatlakes —superior, Michigan, Huron, Erie, and Ontario. This supports industries like food processing and house hold activities , leading to increase in the urban population and accompanying activities like banking ,education and medical facilities.
9. **Availability of a large/ extensive land for expansion** of urban activities to the surrounding areas like industry, trade and commerce, recreation; hence forming a large/ continuous urban complex.
10. **Well developed social and economic facilities** which include health facilities, entertainment facilities, banking among others. These have attracted large population concentrations in the urban centers like Detroit, Windsor, Port Arthur, Superior, and Milwaukee; leading to their expansion.
11. **Geographical inertia**—where by old industries fail to change location even when the existing location is no longer the most advantageous. Accordingly, more new industries are attracted to the already existing investment/ industrial centers to take advantage of existing infrastructure. This has led to increased proportion of population being concentrated in such established urban /industrial centers —hence expansion.
12. **Political stability of the region** which has also enabled the expansion of the towns/cities. More modern facilities have also been set up like banking, insurance, recreation, and education facilities- which in turn have attracted large population concentrations in such towns like Cleveland, Milwaukee, and Duluth; leading to their expansion.
13. **Initiative of a number of businessmen.** Detroit became the first automobile centre because of the pioneers of industry happened to be located there. For example Henry Ford who made mass

production possible so that automobiles became affordable to many people. Many people were attracted into the towns to get employment opportunities, leading to the expansion of the towns.

14. **Favourable/positive government policy** for example encouraging export promotion industries – which was a driving force in the setting up of large manufacturing industries. The government has also set up the necessary infrastructure like power supply as well as encouraging local and foreign investors in various urban activities like banking. This in turn leads to expansion of the urban centres into a conurbation.

### THE RUHR INDUSTRIAL CONURBATION

The Ruhr region in Germany is the largest industrial complex in Europe. It has developed in the last 100 years into Europe's biggest iron and steel producer, coal producer, chemical centre and engineering centre. The region is enclosed by rivers Lippe, Rhine and Wupper.

The major towns within the Ruhr conurbation include:

Duisburg, Essen, Dortmund, Bochum, Dusseldorf, Bottrop, Hagen, Dinslaken, Solingen, Wuppertal, Oberhausen, Herne, Recklinghausen, Gelsenkirchen, Witten, Remscheid, Rheinhausen, Leverkusen, Krefeld, Elberfeld.

### Factors for the growth of the Ruhr region as a conurbation

1. **The industrial revolution** which started in Britain in the 18<sup>th</sup> century and later it spread to Germany. It involved changes that transformed agricultural economies into industrial ones. It led to widespread replacement of manual labour by machines. Large groups of business enterprises were located within a limited area including the setting up of many industries such as engineering, chemical, and textile industries. This in turn led to the growth and expansion of cities in the Ruhr region as people moved from rural areas into the urban areas in search of work.
2. **Presence of valuable mineral resources such as coal, limestone, and iron ore.** There was high-grade coal (containing a high percentage of carbon that burns with great heat) providing a major source of energy for various industries. Besides the coal was of various types such as bituminous coal, and anthracite coal. The mining activities attracted many people to provide labour, and therefore the expansion of small mining centers that grew into bigger towns.
3. **Availability of large quantities of power in form of coal, natural gas and hydro electricity.** Coal was for long the main source of power for industrial development in the region. However, its use declined due to development of other sources of energy such as hydro electricity, natural gas, imported oil, and nuclear power. This has supported many urban activities such trade, banking, education, advertisement, and industry—hence the expansion of the towns.
4. **Well developed transport and communication networks** by road, railway, water and air. Water transport takes place on rivers such as Rhine, Ruhr, Lippe, Emscher; and water transport has been improved by the construction of canals such as Lippesee, Dortmund-Ems, and Rhine-Herne. These have facilitated the movement of inputs and finished goods, hence supporting industrial growth and related activities—leading to increased population concentration in the Ruhr region.

5. **Availability of large water supply for industrial and domestic use** provided by rivers like R.Rhine, R.Ruhr, and R.Lippe. This has supported industrial development by acting as a raw material and for cooling machines. Water also supports many urban activities such as recreation, entertainment, and food preparation. This increases population concentration in the Ruhr region leading to urban expansion.
6. **Existence of a large and extensive hinterland** which provides raw materials for the Ruhr industries such as agricultural, mineral and forest resources. These include iron ore, fruits, vegetables, sugar beet, maize, vines from the Rhine rift valley, timber from the Black forests and Vosges. In turn, industrial development and trade has enabled the growth/expansion of cities like Essen, Dusseldorf and Bochum.
7. **Presence of adequate capital to invest in general development of the region** provided by government, local and private investors. The developed banking sector has for long provided capital for industrial development. More so the Marshall Aid plan of 1945 after the Second World War provided the necessary capital for reconstruction and rehabilitation of industrial plants and other infrastructure. This in turn increased urban activities and thus expansion of towns.
8. **The dense population of the region** which has provided labour for industries and the service sector. It also provides market for the industrial and other sectors. The big population in the area favoured the development of better social and economic facilities such as entertainment, medical and banking facilities. This in turn led to the expansion of the Ruhr conurbation.
9. **Availability of large land for expansion** of urban activities to the surrounding areas like industry, trade and commerce. This leads to expansion of the conurbation.
10. **Well developed social and economic facilities** which include health facilities, educational facilities, banking, insurance, recreation among others. This has led to increased population concentration in the urban centres like Solingen, Bottrop, Duisburg, and Bochum; hence expansion into a large urban complex.
11. **Geographical inertia**—where new investments are attracted to the already existing industrial centres to take advantage of the existing infrastructure such as power supply, advertising media, transport network, and insurance. This eventually encourages population concentration in the urban area, hence growth of the Ruhr conurbation.
12. **Political stability of the region** for a long period of time since world war, hence encouraging developments without ravages of war. This has led to the growth of many urban activities such as industry, trade and commerce; attracting more people for employment opportunities and thus expansion of the conurbation.
13. **Influence of early investors and** these include Krupp at Essen, Mayer at Bochum. In the automobile industry, the invention by Gottlieb Daimler of the gasoline motor and power carriage which was completed by Rudolf Christian Karl. This increased the number of job opportunities offered and thus increased population concentration.
14. **Favourable /Positive government policy** as promoting trade and attracting investments from large companies from all over the world especially from developed countries like USA, Britain. The government has also improved waterways, railways, and road networks. This has increased the concentration of urban activities in the area such as trade and insurance; leading to the growth of the conurbation.

**Guiding questions**

- 1) (a) Account for the growth of conurbations in either Western Europe or United States of America.  
(b) Examine the effects of conurbations on the environment in the region chosen above.
- 2) Account for the development of either New York or Beijing into a large urban centre.
- 3) Examine the causes and effects of urbanization in either Germany or republic of South Africa.
- 4) Examine the causes and effects of the development of conurbations in either the eastern seaboard of North America or China.

# NATURAL RESOURCES A LEVEL GEOG P1&2

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## UTILIZATION AND CONSERVATION OF NATURAL RESOURCES

### Basic concepts

- Reserves

These are resources which are known to exist but not used today.

- Bio-diversity

This means the variety of genetically distinct populations and species of plants, animals and micro-organisms co-existing with man and the variety of eco-systems of which they are functioning parts.

- Environment

This is an aggregate of complex sub-systems within which natural resources respond to human activity. In general the environment is categorized as the natural environment and artificial environment. The components of the (*natural*) environment include: lithosphere (solids-soils and rocks), hydrosphere (liquids-water resources), biosphere (plants and animals) ,and the atmosphere(gases) .

## NATURAL RESOURCES

A resource is anything that is beneficial or essentially beneficial to satisfy human needs. Resources expand and contract in response to human wants and actions. An object is originally neutral staff but when human value is attached to it, it becomes a resource.

Natural resources refer to anything provided by nature /gift of the nature capable of satisfying human needs. Examples include: vegetation, soils, rocks, air, water resources, animals, insects, human beings etc

## CLASSIFICATION OF NATURAL RESOURCES

### Renewable natural resources

These are resources capable of self-reproduction. They are resources that can be regenerated once deteriorated and put back to use. If used with care, these resources are inexhaustible. Examples include: soils, climate, water resources, scenic beauty, natural vegetation, animals.

### Non-renewable resources

## NATURAL RESOURCES A LEVEL GEOG P1&2

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These are resources which lack the capacity to regenerate themselves after deterioration. They diminish and get exhausted when used. They form slowly and from the human perspective their supply tends to be fixed especially mineral resources.

NB: Renewable natural resources should always be organized and sustainably utilized in a way that humans can yield the greatest for the longest possible time. Non-renewable resources need to be sustainably utilized emphasizing conservation through optimal use.

### SOILS

Soil constitutes the upper most layer of the earth's crust. It is composed of minerals, organic matter, water, and air. The soil supports plants with nutrients. Soil degradation arises from the removal of natural vegetation by man and his animals, which produces non-productive soils (impoverished soils).

This is attributed to the activities of man like bush burning, deforestation, and pastoralism. Other activities leading to reduced soil productivity include use of fertilizers which, pollute the soil, cultivation along steep slopes carelessly, dumping of polythene papers which take years to decompose, monoculture etc

#### **Possible remedies of soil degradation:**

- Use of crop rotation
- Improving the use of organic matter
- Proper use of fertilizers
- Proper disposal of polythene material
- Sensitization of the masses
- Restricting settlement and agricultural practices in fragile zones such as along steep slopes.
- Use of soil erosion control measures such terracing, contour, strip bands of grass, control of livestock.
- Proper land use planning.

### CLIMATE

Climate is a resource that growth of crops and rearing of livestock. It supports vegetation growth, wind to produce wind energy etc. Many activities have been responsible for the deterioration or changes in climatic conditions such as deforestation, swamp reclamation, pollution, and increased industrialization. Many areas are increasingly characterized by low and unreliable rainfall, and the dry season is long, yet the occurrence drought is frequent.

### WATER RESOURCES



## NATURAL RESOURCES A LEVEL GEOG P1&2

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This combines the surface and ground water resources i.e., the lakes, rivers, streams, oceans, and swamps /wetlands. These sources are important for domestic and industrial use, irrigation, fisheries, H. E. P generation, transport etc. the water-related environmental problems include: water shortage, and deterioration of water quality through pollution and contamination. Whereas some areas receive enormous amounts of water, other areas receive hardly any or very little.

Regarding the quality, there is evident pollution of fresh water sources. Rivers and lakes have been polluted by agricultural chemicals, sewage and industrial waste disposals-which affects aquatic life makes the water unsafe for consumption. There is also overfishing and indiscriminate fishing leading to depletion of fish stocks, construction of many bore holes, which affects underground water sources. For oceans /seas, the international dumping of toxic chemicals and nuclear substances by industrialized countries is a problem of major concern.

### **Principles of management of water resources:**

- Encouraging afforestation and reforestation
- Legislation of waste discharge
- Careful licensing of fishermen to minimize over fishing.
- Setting standard net sizes
- Restocking the overfished waters
- Encouraging fish farming
- Protection of catchment areas
- Emphasizing community participation such in conserving wetlands
- Treatment of industrial wastes before dumping water bodies
- Carrying out environmental impact assessment(EIA) for all projects

### **NATURAL VEGETATION**

This includes forests, grasslands, scrub, thickets, and woodlands. For example the forests are useful for timber, rubber; protect water resources, wildlife conservation, recreation, soil erosion control etc. it is noted that much of tropical vegetation is being lost especially in west Africa, DRC, etc the savanna vegetation is continuously threatened by the ever growing population requiring land for settlement and farming . Other activities for vegetation are: lumbering, charcoal, political etc

### **Possible solutions to vegetation degradation:**

- Encourage afforestation and reforestation
- Control of lumbering activities by government
- Encourage the use of alternative sources of energy

## NATURAL RESOURCES A LEVEL GEOG P1&2

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- Use of energy saving stoves
- Prohibiting bush burning
- Creation of forest reserves
- Education/sensitization of the masses about vegetation conservation
- Enforce the laws involving of agricultural encroachers.
- Train more environmental management manpower
- Emphasize population control measures

### **WILDLIFE**

This comprises of a combination of undomesticated plants and animals (flora and fauna) found in their natural habitat and forming part of natural resources. Wildlife is basically restricted to national parks, sanctuaries, wildlife research centres among others. Wildlife is more crucial as a tourist attraction and hence generates foreign exchange.

Wildlife is threatened by increased population settlement, poaching, uncontrolled cropping, bushfires etc a number measures can be taken to conserve wildlife such as controlling agricultural encroachment, massive education about the value of the environment among others.

### **SCENIC BEAUTY**

This includes the general natural features of an area such as mountains, valleys, drainage features (e.g. waterfalls, rapids), vegetation etc. the scenic beauty is degraded /destroyed through mining and quarrying, construction, deforestation, garbage, and waste disposal etc.

#### ***Guiding Questions***

1. (a) Differentiate between renewable and non-renewable resources.  
  
(b) With specific examples from either a developed or a developing country, examine the measures being taken to conserve renewable natural resources.
2. (a) Giving specific examples, assess the extent to which the renewable natural resources of Africa have been deteriorated.  
  
(b) Discuss the steps being taken to ensure sustainable utilization of natural resources.
3. Account for the deteriorating of renewable resources in Africa and suggest ways how the concerned government can combat these problems.

# NATURAL RESOURCES A LEVEL GEOG P1&2

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## ENVIRONMENTAL DEGRADATION

This refers to fall in the biological productivity of environmental resources. Or It is the decline productive value of the components of the environment.

Environmental degradation/deterioration is characterized by desertification, pollution and global warming, deforestation, soil erosion, landslides and mass wasting, leaching, and loss of biodiversity.

### Causes of environmental degradation in Africa

Recent studies in Africa have all found progressive environmental deterioration over the last decades, and this can be explained by both natural and man-made causes.

1. **Rapid population growth** which has over strained the natural resources and environmental systems such as the hydrological cycle. It has created imbalance between people and natural resources due to exceeding the carrying capacity. This has increased the clearing of natural vegetation for settlement, land fragmentation and reduced soil productivity.
2. **Poor farming methods /unsound agricultural practices** which include overgrazing, bush burning, monoculture, over cropping, cultivation along steep slopes, and river banks among others.
  - a) Overgrazing resulting from over stocking mainly in the pastoral communities such as the Fulani in the Sahel region (northern Nigeria), the Maasai of Kenya and Tanzania among others. The soils are left bare and hence exposed to severe soil erosion. This in turn reduces soil productivity /crop yields and also contributes to increased drought.
  - b) Bush burning mainly done by shifting cultivators, other peasant farmers and nomadic pastoralists, for example when clearing farming land, preparing for fresh pastures at the beginning of the wet season among other reasons. This also exposes the soils to the agents of erosion, destroys the useful living organisms and humus that contribute to soil formation. It also leads to the development of resistant grasses-not good for livestock.
  - c) Monoculture due to growing of especially perennial crops year after year and this also leads to deterioration of soil productivity.
  - d) Over cropping—continuous cultivation of land without giving it ample time regenerate, also makes the land to lose fertility and consequently reduced yields.
3. **Poor lumbering methods and increased deforestation** without selective cutting and failure to replace the cut down trees. Much of the tropical forests are being lost especially in West Africa (such as southeast guinea, Cameroon, Ghana, southern Nigeria). In Southern Nigeria there has been rapid deforestation in the Yoruba and Ibo states. Deforestation leads to increased soil erosion, loss of soil fertility, reduced evapotranspiration /reduced rainfall, and unreliable water supply—hence general environmental degradation.

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4. **Reclamation of swamps /wetlands** caused by land shortage and the desire to grow certain crops that require a lot of water (such as rice). Many swamps have been drained for crop farming coupled with industrialization and bricklaying. This leads to insufficient water for both livestock and man. It also affects the water table and the drained areas soon become arid and unproductive. More so the habitat of birds and animals is lost which negatively affects the tourism industry.
5. **Increased infrastructural development** which leads to destruction of vegetation such as clearing the forests to set up roads, railways, schools, health centres. There is destruction of the soil structure such as by leveling the ground to set up various infrastructures. This leads to soil erosion, mass wasting, and reduced evapo-transpiration.
6. **Over fishing** due to the growing demand for fish year after year and the increased use of modern fishing targets leads to over fishing and depletion of fisheries resources such as the disappearance of certain fish species.
7. **Poaching** and this involves illegal hunting of wild animals especially in game parks and game reserves. Poaching leads to the reduction in the wild game, hence negatively affecting the tourism industry.
8. **Mining and quarrying activities** which leads to gradual depletion /exhaustion of deposits, leads to pollution of the environment (both air and water pollution),destroying of scenic beauty/ disfiguring of the landscape by leaving large quantities of waste rock and abandoned mining pits. There is also increased noise pollution through blasting of rocks. In fact many environmental problems in the Niger delta of Nigeria are associated with the oil mining industry such as oil spills due to leaking oil pipes ,and fires due to sabotage by certain groups. Oil spillage leads to contamination of underground water, affects aquatic life, and people in the surrounding areas.
9. **Increased industrialization in many parts of Africa** and this increases the exploitation of various resources such as minerals, forest resources, and water resources. Industrialization also leads to the destruction of grasslands, forests, wetlands, to provide room for industrial sites. It is still associated with pollution through the release of toxic substances and industrial fumes, which affect the ozone layer gradually leading to global warming. Industrial wastes are also disposed into water sources which affect urban water supplies and endanger aquatic life –hence increased environmental degradation.
10. **Rampant political instabilities in Africa** such as the West African countries (Liberia, Ivory Coast), DRC, Somalia, and Rwanda. These conflicts accelerate the cutting down of trees, burning of bushes and bombing of forests by rebel and government forces. This leads to reduced evapo-transpiration, increased soil erosion and resource degradation. The weapons used also increase the rate of environmental pollution.
11. **Insufficient technical knowledge about the environment/ Limited knowledge about the value of environmental resource.** Most people do not know much about ecosystems and

## NATURAL RESOURCES A LEVEL GEOG P1&2

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other life support systems. This explains the increased overstocking and over grazing, over fishing and indiscriminate fishing, charcoal burning, cultivation along riverbanks etc. The effects of human activities cannot be predicted with reasonable certainty. There is much gambling with survival than caring for life support systems or environmental resources.

12. **Increasing poverty and failure to understand the wealth of nature.** This leads to over using of natural resources such as fishing, forest cutting, illegal hunting of wildlife etc in attempt to look for survival/livelihood.
13. **Poor patterns of resource tenure and control** since in many cases the user rights are not specified which escalates degradation. For example the communal ownership of land among the pastoral communities (Maasai, kikuyu, Fulani) and shifting cultivators (such as Bemba of northern Zambia). This leads to over stocking, careless bush burning, and cutting down of trees—resulting into soil erosion, loss of soil fertility, reduced evapo-transpiration.
14. **Weak and conflicting government policies on environmental protection.** More effort is put on industrialization and agriculture at the expense of sustainable utilization of resources. For example there are policies targeting the conserving of wetlands yet at the same time other policies focus on modernizing of agriculture by draining wetlands such as rice schemes. Still many laws fail to focus on the causes of environmental mismanagement for example laws against poaching of wild animals.

### Natural causes

#### 1. Climatic hazards:

- **Influence of prevailing dry winds and cold ocean currents** for example the North East trades from the Arabian Desert are causing arid conditions over areas of northern Kenya and northeastern Uganda. The dry Harmattan winds affect northern Mali and Senegal negatively leading to desertification. The cold Benguela current has affected the coastal areas of south west Africa by creating aridity due to pre-mature condensation. This also explains the desertification effect such as the Kalahari and Namib Desert.
- **There is also flooding due to excessively heavy rainfall** in many parts of Africa such as Malawi, Mozambique, Ethiopia, and Sudan. Flooding leads to the destruction of agricultural land, loss of property, loss of life, contaminating drinking water.
- **Leeward /rain shadow effect.** This leeward side of a mountain has dry descending winds and lies in a rain shadow characterized by limited rainfall, limited/stunted vegetation growth, and it is here that arid conditions start.

2. **Absence of large water bodies** which would otherwise be recharging sources for winds, but their absence makes the areas dry lands, with reduced rainfall.
3. **Presence of thin infertile soils/ sandy soils** not capable of sustaining plant growth. It is noted that desertification starts in such areas, leading to resource degradation. The

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absence of moisture conservation techniques in such areas to manage dry soil agriculture forces people to degrade even other areas/resources such as woodland and forest lands.

4. **The occurrence of locusts and other pests.** Locusts have greatly affected the irrigated fields of dry lands such as in Senegal, northern Nigeria, and Mali. Locusts have also destroyed large areas of vegetation in West Africa, north and north eastern Africa. This affects evapo-transpiration, leading to reduced rainfall totals and vegetation destruction further accelerates soil erosion. Other plant pests include: aphids, caterpillars, also coupled with livestock pests.
5. **Other natural disasters/hazards** such as volcanic eruptions, earth quakes, and landslides. These also affect slope stability; soil structure and in turn affect vegetation growth. Earth quakes also increase the incidence of landslides especially in highland areas, which degrade the environment further.

### ***Research question***

- a) Account for the occurrence of environmental deterioration in Nigeria
- b) What steps are being taken to solve the above problem in Nigeria?

### **ENVIRONMENTAL CONSERVATION**

This involves management of human use of environmental resources so that they may yield the greatest sustainable benefit to the present generations while maintaining their potential to meet the needs and aspirations of future generations.

The environmental conservation strategies include the following:

- 1) **Adopting population control measures** such as family planning; since population pressure is both a cause and symptom of environmental crisis. This should be coupled with resettlement of excessive populations.
- 2) **Using forest resource management programmes** such as afforestation and reforestation programmes. It should also involve planting of fast growing trees as well as agro forestry.
- 3) **Emphasizing alternative energy sources** to reduce the careless cutting down of trees. There should be a wide range of choices such as natural gas, HEP, biogas, use of coffee husks, and use of energy saving stoves.
- 4) **Improving the farming systems** for example encouraging agro forestry, crop rotation, mixed farming, intensive farming, ranching etc
- 5) **Establishment of irrigation projects** in specific areas and the use of moisture conservation techniques.

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- 6) **Enforcing strict laws on environmental resource management** such as wetland protection/protection of forest reserves. This also calls for laws reforms coupled with their assessed impact on the environment.
- 7) **Reforming resource ownership /tenure rights** to return responsibility for management of natural resources such as the local forest reserves, bush lands.
- 8) **Improving solid waste management** such as by burning, burying, land filling, recycling, and re-use of solid wastes to reduce environmental degradation.
- 9) **Soil management strategies** such as terracing, planting cover crops, use of ridges, contour ploughing. There is also need for land consolidation.
- 10) **Strengthening education and awareness campaigns** about environmental management. This includes use of the media, local community, NGOs, wildlife clubs among others.
- 11) **Encouraging community participation in environmental management** and this empowers the local people to mobilize their own capacities to be social actors rather than passive subjects. It also involves sharing of social and economic benefits with the local populations.
- 12) **Campaigns for political stability in various parts to reduce insecurity** such as through peace talks, enhancing political and economic democracy.
- 13) **Effective coordination of natural resources management agencies** such as game departments, wildlife authorities, ministry of natural resources to avoid conflicting interests. There should be good policy formulation and implementation.
- 14) **Avoiding wastage at the industrial level**, that is, ensure total use of resources. For example parts not suitable for pulp can give paper boards, fiber, and the remaining for fuel. In addition, the re-use of waste paper for news print among others.
- 15) **Environmental impact assessment (EIA)**—this is a systematic examination conducted to determine whether or not a project will have any adverse impacts on the environment.

### **Guiding questions:**

1. Man is responsible for environmental degradation in Africa. Justify the statement.
2. 'Environmental degradation is not only man-made but also natural' explain using specific example from Africa.
3. To what extent is environmental degradation a consequence of man's misuse of the environment?
4. (a) What do you understand by the term environmental degradation?  
  
(b) To what extent have human activities contributed to environmental degradation in the Sahel region of Africa?

### **Desertification**



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### Qn. (a) Account for the extensive desertification in Africa

- define desertification
- Identify the characteristics/ indicators of desertification and identify areas experiencing desertification in Africa.
- Explain with specific examples the causes of extensive desertification in Africa

Desertification refers to the extension of the desert conditions to areas where it has not been experienced.

Desertification involves reduction of the biological productivity of land to low levels. The land becomes unproductive, and incapable of supporting livestock and crops.

**The characteristics/ indicators of desertification include:** desert-like conditions (such as low and unreliable rainfall, very hot temperatures, low humidity ,high evaporation rates); reduction in rainfall amounts and frequent occurrence of drought; reduced vegetation cover, reduced diversity of plants and animals; reduced resource productivity; increased areas of bare land; reduced water level in water bodies; reduced surface water( *lakes, rivers, streams, swamps*) reduced soil moisture , rising levels of salination in irrigated fields among others.

In Africa it is noted that the Sahara desert and Kalahari Desert are extending into the nearby marginal lands, thereby there destroying the productivity of the land. The Sahel region (margins of the Sahara desert) has been the most seriously affected area. Areas experiencing desertification therefore include the Sahel (northern Nigeria, Somalia, Sudan, Ethiopia, Chad, Mali, Senegal, etc); Botswana, southern Zimbabwe, northeastern Uganda, northern Kenya, central Tanzania among others.

The reasons for extensive desertification in Africa

- 1) **Lack/absence of large water bodies**, which otherwise would be recharging sources for winds .this results into dry conditions and reduced rainfall totals. More so water bodies are reducing in size due to high rates of evaporation and this adversely affects the climate of the surrounding areas.
- 2) **Poor sandy soils in the fragile zones** which are not capable of sustaining plant growth since they do not retain moisture. This leads to poor vegetation growth and hence reduced evapo-transpiration.
- 3) **The influence of dry winds** such as the North East trade winds from the Arabian desert which causes continuous dryness in northern Kenya and Somalia, the dry Harmattan winds which contribute to the dry conditions of north west Africa.

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- 4) ***Influence of cold ocean currents*** such as cold Benguela current and the cold Canary current which induce aridity over the nearby coastal areas. This is because their coldness induces pre-mature condensation in the on-shore winds near the cold currents, reducing the rainfall totals such as the Kalahari desert extended into the interior partly explained by the cold Benguela current which blows along the western coast of southern Africa.
- 5) ***Lee ward/rain shadow effect***. Some areas are located on the leeward sides of mountains such as Northern Kenya and North Eastern Uganda situated on the leeward side of the Ethiopian highlands, the Maasai lands found on the leeward side of the Kilimanjaro mountain. Such areas are dry for most parts of the year due to dry descending winds.
- 1) ***Influence of pests such as Locusts*** which have particularly invaded the Sahel region destroying the green vegetation, resulting into reduced evapo-transpiration, and hence low rainfall totals.
- 6) ***Rampant deforestation*** by man, especially in Central Tanzania, West Africa, Namibia, Malawi. This has mainly affected the savanna woodlands and savanna grasslands due to increased demand for fuel wood, charcoal, building materials, and cultivation land. The removal of vegetation results into reduced rainfall and increased temperatures.
- 7) ***Poor farming methods*** such as nomadic pastoralism characterized by over grazing and destruction of pastures; cultivation on steep slopes, monoculture, shifting cultivation, over cultivation, bush burning, and careless clearing for cultivation like in the Sahel (Mali, Somalia, northern Nigeria, northern Kenya) and Kalahari Desert margins, thus extension of dry conditions such as severe soil erosion, hard grasses and reduced rainfall totals.  
*(Over stocking and overgrazing such as in northern Nigeria by the Fulani cattle keepers, northern Kenya by the Turkana, Maasai land of Kenya and Tanzania. This leads to increased soil erosion since the soils are left bare).*
- 8) ***Reclamation of swamps / draining of wetlands*** for cultivation reduces the water table and supply of water vapour into the atmosphere hence desert conditions—increased temperatures and reduced rainfall totals. This is one of the major causes of desertification in Senegal.
- 9) ***Increased sinking/ drilling of bore holes and construction of valley dams***, which also lowers the water table and results into loss of soil moisture which could sustain vegetation growth—hence leading to natural drying of vegetation.
- 10) ***Rapid population growth/population pressure*** hence increased need for land for cultivation and settlement leading over use of the land, clearing of vegetation, swamp reclamation, land fragmentation and soils deterioration. This in turn lowers the water table leading to dry conditions since the carrying capacity of land is exceeded.
- 11) ***Increased industrialization and urbanization***, which explains the destruction of the ozone layer by emitting carbons, methane and other pollutants into the atmosphere resulting into global warming. The ozone layer is gradually losing its natural ability to absorb the

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ultraviolet B radiation from the sun. Hence, the amount of heat reaching the earth's surface is higher than the expected normal amount.

12) Inadequate environmental awareness among the population.

13) Weak government policy implementation, regarding environmental resources such as laws against deforestation and swamp reclamation.

### **(b) Explain the effects of desertification in Africa**

1. Famine results due to reduced rainfall totals and increased temperatures plus prolonged drought. There is scarcity of food since the land becomes too dry to support crop cultivation and livestock farming. There are changes in the planting seasons due to climatic changes.
2. Results into shortage of surface and underground water, which limits the survival of man and livestock. For example, Lake Chad has greatly reduced in the water level, almost drying out in the last three decades.
3. It accelerates the rate of soil erosion by both wind and running water. This reduces land productivity and also destroys the nature of the land by creating depressions and gullies.
4. Results into shortage of pastures and hence reduction in the livestock especially cattle. This is common in the Sahel region of Africa where the Fulani have lost large numbers of cattle. The same experience is in Somalia due to prolonged drought.
5. Results into further encroachment on marginal lands such as mountain slopes, wetlands for cultivation, hence further environmental degradation.
6. Worsens poverty and standard of living due to loss of wild life, loss of domestic livestock, reduced soil productivity, and reduced fisheries among others.
7. Results into loss of biodiversity—animal, bird and plant species which are not adapted to the arid conditions. It is only the drought resistant plant species that remain yet many animal species either die or migrate to other areas.
8. Results into shortage of fuel wood and other wood products since many forests and woodlands are destroyed.
9. Limits human settlement to only a few areas where surface water can be got, and this increases population pressure in such areas and thus further environmental degradation.

### **(c) Outline the steps being taken to control (combat) desertification in the Sahel region.**

Examples should be cited from the Sahel region (such as northern Nigeria, Senegal, Algeria, Mali, Chad, southern Sudan etc).

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1. ***Adopting population control measures*** since population pressure is both a cause and symptom of environmental crisis. This is coupled with resettlement of excessive populations.
2. ***Using forest resource management programmes*** such as afforestation and reforestation programmes.
3. ***Emphasizing alternative energy sources*** to reduce the careless cutting down of trees such as natural gas, Hydro electricity, biogas, use of coffee husks, and use of energy saving stoves.
4. ***Improving the farming systems*** for example encouraging agro forestry, crop rotation, mixed farming, intensive farming, ranching etc
5. ***Establishment of irrigation projects*** in specific areas and the use of moisture conservation techniques.
6. ***Enforcing strict laws on environmental resource management*** such as wetland protection/protection of forest reserves. There also law reforms coupled with their assessed impact on the environment.
7. ***Reforming resource ownership /tenure rights*** to promote responsibility for management of natural resources such as the local forest reserves, bush lands.
8. ***Improving solid waste management*** such as by burning, burying, land filling, recycling, and re-use of solid wastes to reduce environmental degradation.
9. ***Emphasis on Soil management strategies*** such as terracing, planting cover crops, use of ridges, contour ploughing.
10. ***Strengthening education and awareness campaigns*** about environmental management. This includes use of the media, local community, NGOs, wildlife clubs among others.
11. ***Encouraging community participation in environmental management***, which empowers the local people to mobilize their own capacities to be social actors rather than passive subjects. It also involves sharing of social and economic benefits with the local populations.
12. ***Campaigns for political stability in various parts to reduce insecurity*** and this also involves the use of peace talks, enhancing political and economic democracy.
13. ***Effective coordination of natural resources management agencies*** such as game departments, wildlife authorities, ministry of natural resources to avoid conflicting interests. There is improvement in policy formulation and implementation.
14. ***Avoiding wastage at the industrial level***, that is, ensure total use of resources. For example tree parts not suitable for pulp can give paper boards, fiber and the remaining for fuel. Also the re-use / recycling of waste material.
15. ***Environmental impact assessment (EIA)***. This is a systematic examination conducted to determine whether or not a project will have any adverse/ negative impacts on the environment.

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### Other guiding questions:

- 1(a) Examine the causes of desertification in east Africa.
- (b) What steps are being taken to combat the spread of the desert?
2. Examine the causes and effects of desertification the Sahel region of Africa.
3. "The increasing desertification in Africa is mainly a consequence of man's activities." Discuss

### Famine

**Question (a) "The famine problem in Africa is primarily a result of human factors". Discuss.**

**(b) Suggest possible solutions to the above problem.**

#### **Solution (a)**

- Define famine
- Identify the countries in affected by famine in Africa /locate the areas.
- Explain using specific examples how human factors have caused famine in Africa
- Explain how other factors (natural factors) are also responsible for famine in Africa

Famine is the state of extreme food scarcity characterized by extreme hunger and starvation for a relatively long period of time. OR Famine is the acute food shortages leading hunger, starvation and death.

The counties in Africa greatly affected by famine include: Ethiopia, Somalia, Sudan, Eritrea, Zimbabwe, Malawi, Chad, Burkina Faso, Senegal, Mali, Mauritania, Niger, northern Kenya, north eastern Uganda, and Tanzania. Some areas suffer from periodic famine, yet other areas are experiencing persistent famine. Famine results into starvation, malnutrition, epidemics, fall in standard of living and even death.

Human factors to a bigger/greater extent:

- 1) ***Political instabilities and conflicts in many parts of Africa*** which disrupt settlement, cultivation and food distribution such as prolonged wars in southern Sudan, Somalia, Ethiopia, Chad, Rwanda, Angola, northern Uganda, and Liberia. Wars are associated with attacks on land, burning of farmlands and also preventing people from settling down to grow food crops and rearing of livestock-hence leading to famine.
- 2) ***Rural-urban migration (in search for white collar jobs)***. Many people move into the rapidly growing towns like Lagos, Kampala, Nairobi, Cairo, and Yaoundé, Dakar; which also leads to

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movement of energetic labour away from rural areas, leaving agriculture for the old folk, women, and children who are less/not very productive, leading to acute food shortage.

**Poor attitude towards agriculture as an occupation when compared to other occupations.**

Many people leave the rural areas to look for better paying employment in urban areas yet they continue depending on the farming community for food supplies.

- 3) **Cultural ways of life (conservatism in many areas)** such as nomadic pastoralists who do not practice food crop production like the Fulani of West Africa, Tuaregs of the Sahara desert, Maasai of Kenya and Tanzania. Other practices are extended funerals, traditional taboos and other cultural beliefs which limit food crop production as more time is spent on such activities instead of farming, causing famine. *(Some ethnic groups have long-honoured staple foods and consumption habits, hence reluctant to change to new foods).*
- 4) **Poor land tenure system** such as absentee landlordism-denies many people access to land *(land is in the hands of few people who do not use the land for sufficient food production)*, communal ownership of land-which denies exclusive rights over land and leads to irresponsible use of land and, limits the initiative to introduce modern methods of farming – all of which limit food crop production. Also the inheritance of land leads to land fragmentation since land is divided among sons and daughters-hence reducing yields due to over use of land.
- 5) **Poor farming methods** such as bush burning, over grazing, monoculture—which lead to soil exhaustion-loss of soil fertility and consequently reduced food production. Many farmers produce for subsistence /home consumption and thus producing less food—with no surplus for other people. Many farmers cultivate small pieces of land which cannot produce enough food to meet the requirements of the population.
- 6) **Poor post-harvest management of foods /poor storage facilities** which leads to loss of the produced food such as in Senegal, Nigeria, Mali, and Rwanda. During the peak harvests there is a lot of food wastage. There are storage pests which affect some cereals such as beans, maize; that could help during periods of disaster *(such as prolonged drought)* .Also the perishable foods are not properly handled/ preserved such as fruits, milk, and meat.
- 7) **Extreme poverty in many African countries /limited capital.** This also reinforces the production of cash crops and therefore inability to produce more food crops. It limits accessibility to modern technology and loans since they lack the required security. Limited capital has also forced farmers to cultivate small pieces of land and hence cannot produce enough food crops to meet the requirements of their families and other people.
- 8) **Low level of technology** used in many countries of Africa (such as Sudan, Eritrea, Sudan) involving poor like hand hoes, panga, sickles,shovels,; which lead to low food production. There is a little day's work per person and of course small harvests. More so, farming is highly dependent on nature and hence limited use of irrigation facilities.

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- 9) **Over reliance on food aid** such as from World Food Program (WFP) and other countries. This has also promoted laziness among the people of Africa-with limited engagement in productive farming and thus causing famine. They always expect assistance from outside sources.
- 10) **Emphasis on cash crop production** for export in many countries and the crops include coffee, cotton, rubber, tea among others at the expense of food crops. This implies that more land has been used for cash crops and thus less land available for production of food crops, leading to food shortages. Some countries even export large quantities of their staple food crops.
- 11) **Poor transport systems ,with many remote areas inaccessible.** Most production areas do not have good feeder roads linking them to markets/ consumption areas. The roads become impassable during the wet season which affects food distribution and thus surplus output cannot easily be marketed. This limits the transportation of food from areas of plenty to areas of food scarcity.
- 12) **Unfavourable government policy /poor government planning for the agricultural sector;** which otherwise would ensure food security. The governments inject less money in farming, yet commercial farmland is offered for forestry, industry, or even putting more effort put on cash crops. The government in Zimbabwe has undertaken a controversial land re-distribution program.
- 13) **Limited research and education of the farmers,** hence limited innovation in the agricultural sector leading to low yields and continued growth of traditional crops. Agriculture is dominated by traditional varieties which are slow growing, prone to pests and diseases and yielding low output. Farming is mainly carried out by peasant farmers who are used to traditional methods of farming; leading to low output and acute food shortages.
- 14) **High/rapid population growth rates in Africa,** generally over 3% per annum. This exceeds food production leading to food shortages. There is also over use of land leading to the decline in crops yields. More so the population structure is characterized by very many young ones who are not agriculturally productive.

However look at other factors (physical factors) causing famine:

### 2) **Adverse climatic conditions:**

- **Heavy rainfall, floods and hailstorms.** Heavy torrential rainfall leads to the destruction of food crops. Some areas often receive bad and destructive rains characterized by hailstones and floods. People living within the river valleys such as Niger, and Senegal have occasionally been disturbed by floods. Large areas of farmland have often been submerged—hence low food production, leading to food shortages.



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- **Unreliable rainfall.** Low and unreliable rainfall also greatly limits food crop production. There are many cases of late rains, rain failure or limited amounts of rainfall far below the normal. This is common in many areas of the Sahel.
  - **Prolonged drought**—there is abnormal shortage of rainfall below that required for food crop production. The countries greatly affected by drought include; Somalia, Sudan, Ethiopia, Kenya, Tanzania, Zimbabwe, Niger, Zambia, Chad, Mali, Mauritania, and Botswana. This discourages cultivation and also results into low crop yields.
- 3) **Pests and diseases** also limit food production. Locusts have particularly invaded the Sahel region destroying the green vegetation including the planted food crops. There are also other crop pests and diseases such as cassava mosaic, maize rust, groundnut rosette, banana wilt, bean anthracnose, halo blight (affecting tomatoes). This leads to low quality and quantity of output from farmlands leading to famine.
  - 4) **Poor soil conditions** such as infertile, sandy or skeletal soils. This also limits food crop production, for example some parts have rocky, skeletal soils especially in the deserts of Sahara and Namibia, semi-desert areas.
  - 5) **Rugged relief of some areas**, where farming cannot easily taken place. This also influences the rain shadow effect in northern Kenya, Ethiopia—where low rainfall is received leading to low farm output. Rugged relief also limits mechanization and thus limiting food crop production.
  - 6) **Other natural calamities** which include: volcanic eruptions displacing many people like in eastern DRC (Nyirangongo), earthquakes along the fault zones, landslides
  - 7) **Effect of natural vegetation** for example the thick forests of the Congo basin (DRC), Gabon; swamp vegetation which cannot easily be cleared to allow crop farming.

### (b) Possible solutions to the above problem

1. Ensure political stability in all parts of the country such as through regional cooperation and peace talks.
2. Adopt /emphasize population control measures
3. Emphasize / intensify research in agricultural sector such as control of pests and diseases, soil improvement.
4. Development of technology used in agriculture
5. Establishment of irrigation projects/schemes
6. Land reform policies such as land consolidation and removal of unfair land tenure systems.
7. Development of transport infrastructure
8. Education to the farmers be encouraged such as about soils, fertilizer use, new breeds, new varieties.
9. Provision of agricultural extension services
10. Encourage production of food crops rather than cash crops.

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11. Encourage large-scale farming in food crops / increase land under food crop production.
12. Encourage cooperative farming and other farming groups.
13. Improving storage and preservation facilities
14. Set up a national food policy and effective regional agricultural planning.
15. Seeking aid from relief organizations as a temporary solution.

# POPULATION A LEVEL GEOG P2

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## POPULATION

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.

To achieve development, proper national / international planning is seriously based on proper population statistics. The world population today is over 7 billion people.

### Population concepts

#### 1. 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 and death rate
- age structure
- migrations

#### 2. Birth rate

Refers to the total number of children born alive per year per 1000 of the total population in a country / region.

$$\text{Birth rate} = \frac{\text{Total number of live births}}{\text{Total population}} \times 1000$$

#### 3. Death rate

Refers to the number of people who die per year per 1000 of the total population.

$$\text{Death rate} = \frac{\text{Number of deaths}}{\text{Total population}} \times 1000$$

#### 4. 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.

$$\text{Population growth rate} = \frac{\text{Birth rate} - \text{Death rate}}{1000} \times 100$$

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Examples: Kenya (2.9%), Uganda (3.5%), Somalia (3.0%), Nigeria (2.8%), Sweden (0.16%), USA (0.9%), Switzerland (0.4%).

### 5. 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.

### 6. 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.

$$\text{IMR} = \frac{\text{Number of deaths of children under 1 year}}{\text{Total number of live births}} \times 1000$$

### 7. Dependency ratio

Refers to the proportion of economically unproductive population (0-14 yrs) and (65+ yrs) to the economically productive population (15-64 yrs).

$$\text{Dependence ratio} = \frac{\text{Children (0-14 yrs) and Elderly (over 65 yrs)}}{\text{Economically productive (15-64 yrs)}}$$

### 8. 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.

### 9. Population census

Refers to the actual counting of the number of people living in the country at a given time.

### 10. 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.

### 11. 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).

Examples: Uganda -52 years, Malawi 43 years, Zimbabwe—40 years, Sweden—80 years, Japan—81 years, Germany—79 years, Switzerland—81 years, USA—78 years, Canada—80 years.

### 12. Population density

Refers to the average measure of the total number of people per unit area of land.

$$\text{Population density} = \frac{\text{Total Population}}{\text{Total Land Area}}$$

## POPULATION A LEVEL GEOG P2

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### **13. 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.

### **14. Emigration**

Refers to the movement of people out of a country. The people involved are called emigrants.

### **15. Immigrations**

Refers to the movement of people into a country. The people involved are called immigrants.

### **16. Net migration**

Refers to the difference between emigration and immigration.

### **17. 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).

### **18. 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).

### **Optimum population**

Optimum population refers to the population size that provides labour force that is sufficient to combine with the existing co-operant factors of production leading to maximum output per worker/highest income per capita.

It is the population size that is just enough to fully exploit the available resources, resulting into highest aggregate demand and standard of living. Below this population size there is under utilization of resources while above it there is over utilization of resources.

### **Under population**

This refers to the population size that provides insufficient labour force to combine with the existing co-operant factors/resources, resulting into under utilization of resources and low per capita income/low average output.

A situation where a country's population is less than enough required to fully exploit the available resources, leading to low average product and low standards of living. (This is noticed in countries like DRC, Gabon, Sudan, Venezuela, and Australia)

To increase output per capita, there is need to increase the size of the population.

## POPULATION A LEVEL GEOG P2

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### Effects of under population

#### Positive

1. Resources are not over exploited.
2. There is a high potential for employment opportunities.
3. Reduced government expenditure especially on social services due to limited number of people.
4. The standards of living are easily increased by increasing resource exploitation.
5. Inflationary tendencies due to excess demand do not occur.
6. There are less social costs such as pollution.
7. Political and social instabilities are minimized.

#### Negative

1. Results into wastage/underutilization of resources such as mineral, forest, water due to the small population. DRC has rich deposits of gold and diamond , extensive tropical rain forests etc all of which remaining underutilized.
2. Results into limited market size for goods and services due to small population. This undermines agricultural and industrial development.
3. Leads to labour shortages due to the small population, hence low level of a development and industrial development.
4. High/increased social over head costs per head. It is very expensive for the government to develop infrastructure and other social facilities.
5. Results into low tax revenue due to the low tax base/ small population. This undermines the development of social and economic facilities.
6. Encourages rural-urban migration leading to under development of rural areas. Many people leave the remote countryside attracted to the few urban areas.
7. Leads to regional imbalance in development due to uneven population distribution. People tend to stay in the most favoured areas and hence infrastructure is also concentrated in those areas.
8. Results into dependence on other countries, in terms of labour supply, market, capital, and the supply of essential goods.

### Possible solutions to the problems of under population

1. Providing incentives for large families such as free housing, free education.
2. Encourage people to settle in less populated areas such as by developing the necessary infrastructure.
3. Encourage foreign investors to finance development projects in various regions.
4. Gazette under populated areas into national parks and reserves as an alternative landuse.
5. etc

### Over population

## POPULATION A LEVEL GEOG P2

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Over population refers to the population size that provides more than sufficient labour force to combine with the existing co-operant factors, leading to low out/income per capita/worker and therefore low standards of living.

A situation where the country's population is more than enough required to fully utilize the available resources, leading to low average product and low standards of living. (This is seen in countries like India, Bangladesh, Indonesia, China, Rwanda, and Burundi)

The output per worker can be increased by reducing the size of the population.

### **Effects of over population**

*(Refer to rapid population growth)*

### **Possible solutions to the problems of over population**

1. Birth control practices to cut down the rate of population growth.
2. Development of more natural resources such as soils, power, forests to support the bigger numbers of people.
3. Ensure higher foods supplies /yields from the existing farmland such as through agricultural research, farm technology, swamp reclamation , desert irrigation etc
4. Encourage out-migration to relieve population pressure. However today fewer governments are prepared to accept immigrants.
5. Strengthen education to change traditional attitudes to reduce birthrates.
6. Exportation of labour force such as expatriates to other countries (export skilled labour which is unemployed).
7. Addressing poverty so as to improve income and general standards of living. This involves encouraging organizations with anti-poverty programmes.
8. Population control policies / legislations should be undertaken such as one child per family policy, marriage age legislation.
9. Women empowerment programmes should be undertaken such as enhancing their education, political and economic opportunities.

### **Population structure/ composition**

Emphasis is placed on the age and sex structure. The population structure helps to show the effects of migration, age and sex of migrants , impacts of large scale wars, and major disease epidemics.

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) charactritic stages:



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### 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 few 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

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### 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)

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### **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.

### **Implications of the population structure in developing countries**

#### **Positive**

1. Creates a big market potential for industrial and agricultural output, a large percentage of the population is below 60 years.
2. Increases the potential labour force since many people engage in productive activities.
3. Leads to optimal utilization of social and economic infrastructure in the country such as roads, railway, schools, hospitals, due to the rapidly increasing population.
4. Encourages hard work in order to sustain the predominantly dependant population. This implies that many young people become innovative leading to increased enterprise.
5. Leads to increase in tax potential, and thus increase in government revenue. This results from the increasing number of people and taxable activities in the country.
6. The government is awakened to its responsibility of providing necessary infrastructure and other social services. This leads to increased output in the long run.
7. Increases occupational and geographical mobility of the working population caused by the challenges facing them since they have to support a large number of dependants. Labour in turn becomes more productive.
8. Facilitates the utilization of natural resources such as water resources and minerals in order to support the rapidly growing population.

#### **Negative**

1. Leads to increase in dependence burden on the working population. This is due to a big percentage of dependants and this results into low savings and low investment.
2. Results into a high level of unemployment and under employment. This is due to increased number of people looking for jobs as the population grows rapidly yet the jobs are limited.

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3. Leads to external resource dependence such as on foreign man power and other forms of aid. This is because the population is dominated by the semi-skilled and unskilled people.
4. The available infrastructure is overstrained such as roads, schools, hospitals. This results into depreciation of such infrastructure and lowers the quality of service delivery.
5. Results into increase in social costs in form of pollution, congestion especially in the urban areas. This has negative health implications such as diseases.
6. Limits effective government planning to support the population, because of the rapidly increasing number of people against inadequate resources.
7. There is increase in government expenditure on provision of social services such as education, medical services.
8. Leads to high rates of rural-urban migration and its negative implications such as congestion, unemployment. This is because the young and the youth tend to move to urban areas in big numbers.
9. Results into brain drain i.e skilled/professional manpower leaving the country to look for better opportunities in other countries, and this limits domestic production.
10. Leads to low taxable capacity and low tax base resulting into low tax revenue due to small working population.
11. Over exploitation of natural resources such as through over fishing, deforestation to sustain the rapidly increasing population leading to quick depletion.
12. Increases income inequality, since many people cannot access resources to engage in economically productive activity.
13. etc

### **Implications of the population structure in developed countries**

#### **Positive**

1. There is a large population of old people who act as a store of wisdom and advice on political , social and economic issues due to a high life expectancy
2. A large working population which facilitates industrial and agricultural development.
3. leads to geographical and occupational mobility of labour due to a high population in the productive age group
4. high spirit of enterprise and innovation due to a high population above 15 years
5. leads to high effective demand for goods and services since a large population is within the working age bracket.
6. Low government expenditure on social services due to a low rate of natural population increase.
7. Reduced dependence ratio and thus increase in savings due a small number of young dependants
8. Increases labour supply for economic development due to a large number in the productive/ working age group.

#### **Negative**

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1. There is some dependence burden on the working population, due to a large number of ageing people who are unable to work.
2. As the population continues to be ageing, many people get out of the taxable age bracket.
3. Leads to a shift in the consumption patterns, since the old people create demand for different commodities which are not greatly demanded by the young or middle age.
4. Under utilization of social and economic infrastructure such as schools, hospitals.
5. Increase in government expenditure on pensions and health services plus homes of the elderly due to high life expectancy.
6. With small families and better opportunities in urban areas, the young are being attracted to urban areas, hence making rural areas depopulated.

### **Population pyramid**

*(Refer to statistics)*

### **GENERAL CAUSES OF RAPID POPULATION GROWTH**

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:

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.

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6. 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.
7. 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.
8. Strong influence/effect of religion. Some religions work against population control measures like family planning using contraceptives. This position is in line with the holy books. Still some religions encourage polygamy.
9. 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.
10. 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.

### IMPACT OF RAPID POPULATION GROWTH

#### Population as an asset / positive effects

1. Results into increase in market potential/demand for goods and services. The size of the market increases as the population increases.
2. Increases/ widens the labour force of the country. As the population increases more people enter the productive age bracket to enhance the production process.
3. 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.
4. 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 or occupation to another since they have to support many dependants, hence increased exposure and labour supply.
5. 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.
6. 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 –hence more innovations and inventions such as through agricultural modernization—intensive farming methods
7. Results into increase in resource utilization especially natural resources such as minerals, water resources, forest resources in order to sustain the increasing population.
8. 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

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9. Increases the tax potential and thus increasing government revenue for development purposes such as providing health and education services. Due to population increase many people are engaged in productive activities which government taxes.
10. Encourages urbanization / development of towns as population increases. There is population concentration in some areas leading to the setting up of transport networks, medical facilities, banking facilities, recreation centres etc ; hence growth of towns.

### **Population as a liability/ Negative effects**

1. It increases the dependence burden. Increase in population results into increased proportion of unproductive people to the small productive labour force hence straining them. There is increased expenditure on education, food, housing, medical care, clothing etc
2. Rapid population growth limits the rate of investment. As population increases the rate of savings also reduces and this reduces capital accumulation –hence reduced investment.
3. Strains the government budget due to increasing expenditure to cater for the growing population. There is increasing demand for social services such as education , medical care ;as the population is increasing, and this results into dependence on external donations and loans.
4. Increases income inequality/ disparities. Increasing population enlarges the economic gap between the rich and the poor. People with resources become richer while those without become poorer; which causes social, political and economic discontent.
5. Increases unemployment and under employment; because the rate at which the population increases is higher than the rate of job creation/rate of investment. This leads to increased poverty and represents a wastage of human resources.
6. Results into over exploitation of natural resources especially the non-renewable resources like minerals. This leads to quick exhaustion and reduces the potential benefits of the future generations from the resources.
7. Reducing the per capita income. Increasing population reduces the average income per person and hence low standards of living.
8. It increases rural-urban migration of the landless people. Surplus labourforce moves to the urban areas in search for jobs and hence associated problems like increased crime, social unrest among others. This also reduces the importance of agriculture leading to food shortages.
9. Results into inflation due to excessive demand. Increasing population results into shortage of goods and services due to increasing demand causing persistent increase in the general price level. This leads to increase in cost of living.
10. Worsens the balance of payment problems of the country because the internally produced goods and services become insufficient to meet the growing demand. This increases the demand for imports, hence increasing foreign exchange expenditure.
11. Leads to excessive reliance on foreign aid/ assistance in form of food, medical services, grants, loans in order to support the rapidly growing population. This aid comes with many strings attached which increases external dependence.



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12. Leads to increase in brain drain since many qualified professionals /highly skilled workers continue leaving the country to look for better opportunities in other countries. This causes a skilled manpower gap and negatively affects the development process.
13. Rapid population growth increases pressure on land and reduces land productivity. A growing population reduces available land for various activities such as agriculture in rural areas. This leads to land conflicts and land fragmentation. (Or which leads to slow economic growth and unbalanced development). There is also over-use of land for cultivation leading to a decline in its productive value and thus lower yields realized.
14. Facilitates the growth of slums associated with immorality and increased crime rate, low standards of living in form of inadequate and poor housing, poor health facilities, poor hygiene among others. There is robbery, alcoholism, drug abuse in the slum areas due to growing population.
15. Leads to overcrowding which results into easy spread of diseases. There is crowding of social public services such as schools, health centres, piped water among others. This leads to quick depreciation of the service facilities.

### **Measures to control population growth**

1. The government is encouraging education of children especially girls. For example through universal primary education to allow children to spend more years in school to reduce early marriages.
2. Sensitization of the public about the dangers of large families.
3. Promoting the status of women/women emancipation. This is through recognizing their rights including rights to decide on when to produce children, providing them with public obligations/responsibilities.
4. Encouraging the use of contraceptives and other methods of family planning. This is intended to reduce unnecessary pregnancies.
5. Setting/enforcing laws regarding child care and responsibility over children. For example every parent must educate his/her children and provide essentials of life as provided by the constitution—such that parents produce children they are able to look after.
6. Marriage age legislation. The age limit in Uganda is 18 years for both boys and girls which is trying to reduce early marriages (raising the age of consent / fight early marriages).
7. Sex education is being emphasized in schools, though with mixed feelings. This is intended to reduce teenage pregnancies and improve the quality of life among school-going children.
8. Encouraging investment /income—generating activities.
9. Controlling immigration rate using laws and a clearing system

### **WORLD POPULATION DISTRIBUTION**

Population distribution refers to the way people are spread out in a given area on the earth's surface. The world population is unevenly distributed . Asia alone has more people than other continents combined yet it is 1/3 of the world's total area.

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Within the continents the population is still unevenly distributed for example in Asia, China alone has a population of more than 1.4 billion accounting for almost  $\frac{1}{2}$  of the population on the continent. In Africa and Latin America which are sparsely populated, there are fewer people in areas like Sahara desert and Amazon basin.

The world's population distribution is categorized as follows:

### 1. **Densely populated areas**

- Western and central Europe especially Britain, France, Germany
- East –central North America including the St. Lawrence –Great lakes region and the Atlantic seaboard.
- Indian sub-continent –India, Pakistan, Bangladesh etc
- Eastern Asia including China, Japan, Korea.
- The Nile valley and the delta region.

### 2. **Moderately populated areas**

- South and eastern Europe –including the Mediterranean Europe, Balkan peninsula, southern Scandinavia, alpine Europe and European Asia.
- Foot hills of mountains, plateaus and grasslands for example the Rockies, Andes, Asia Minor, Mexico, Ethiopian highlands, some tropical and Mediterranean grasslands such as New Zealand.

### 3. **Sparsely populated areas**

- Hot deserts like Sahara, Atacama, Kalahari and the Australian desert.
- Cold deserts –Tundra and ice cap regions of Antarctica, Greenland, Siberia, northern Canada.
- High mountain ranges such as Himalayas, high alps
- Hot-wet forests i.e. the dense equatorial jungles of Congo, Amazon among others.

## **POPULATION DISTRIBUTION IN AFRICA**

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, Gabon)

### **Factors influencing population distribution in Africa**

#### **Physical factors**

1. Climate. Areas which receive heavy and reliable rainfall, and hot temperatures favour 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

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per annum and very hot temperatures discourage crop farming leading to sparse population such as Kalahari desert areas.

2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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

8. Economic activities such as industry, trade and commerce. Presence of many economic activities such as industrialized centres 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

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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.

9. 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, Freetown 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.
10. 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.
11. 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 nomadic pastoralism is dominant until today, 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.
12. 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. Up to today these areas are sparsely populated.
  - (b) Duration of settlement. Areas of ancient kingdoms / with long history of settlement and with strong kingdoms attract more opportunities up to 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.
13. 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.
14. 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.

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## Population distribution in Kenya

The population of Kenya is unevenly distributed. Since most of the country is arid or semi-arid, over 70% of the population is concentrated in a belt of about 10% of the total land area (*which has high agricultural potential from the Ugandan border to Nairobi*)

The densely populated areas include: the lake Victoria region ( Nyanza , Kericho, Trans-Nzoia,, and Nandi region); Kenya highlands ( Kikuyu land, Embu, Nyeri, Kiambu); the coastal plain ( stretching from Mombasa to Malindi). The highly populated towns are: Nairobi, Kisumu and Nakuru.

The moderately populated areas include: Mt.Elgon region, Kitale, Nyahururu, Naivasha, higher areas of Machakos, Kwale district, Taita hills and higher areas of central Kitui district.

The lowly populated areas include: parts of the Rift valley, Maasai land, Nyika plateau, North and North Eastern Kenya( Lodwar, wajir, Marsabit, and Moyale).

### *A sketch map showing population distribution in Kenya*

## Factors influencing population distribution in Kenya

### Physical factors

1. **Climate.** Areas which receive heavy and reliable rainfall which is over 1500 mm per year and hot temperatures favour crop growing hence attracting dense population such as lake Victoria region, 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 North and North Eastern Kenya.
2. **Soil types/ Edaphic factor.** Areas with fertile soils promote crop growing hence attracting dense population such as the fertile volcanic soils of the Kenya highlands which support coffee, pyrethrum and wheat growing. However areas with infertile soils such as Northern Kenya with sandy, thin and stony soils limit crop growing since they retain very little moisture, hence leading to low population density.
3. **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. Kenya, Aberdares, and Mt. Elgon. However, areas of low altitude have warm conditions which attract dense settlement such as the coastal regions of Kenya.
4. **Relief.** In the high mountain areas such as Mt. Kenya, 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.
5. **Vegetation.** The dense forest vegetation such as tropical rain forests of the Eldoret, Kisii, Mt.Kenya and coastal mangrove forests hinder the construction of transport routes/ are not easy to clear, and

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thus have low population settlement. These areas also favour the breeding of mosquitoes that cause malaria. The desert vegetation also discourages settlement. However savanna grasslands of Kenya are easy to clear for various activities such as farming and thus have dense settlement.

6. **Biotic factors/ pests and diseases.** Areas infested with tsetse flies—like the Lambwe valley in western Kenya scare away people leading to sparse population. The mosquitoes have also limited settlement in areas of hot temperatures and low-lying areas with stagnant water and river valleys. However areas free from disease causing vectors attract more people to settle and carry out various activities leading to dense settlement.
7. **Drainage.** Water logged areas/ areas with periodic flooding have low population density due to problems in cultivation and construction such as the swampy areas. However well-drained areas encourage growing of various crops and construction leading to a moderate to dense population such as plateau areas of Kenya.

**Presence of water bodies such as rivers and lakes.** Areas with water bodies such as the Lake Victoria region favour various water-related activities like farming, industry, fishing. Rivers like Tana, Athi, and Turkwel flow through large arid areas and have settlement along them to utilize the rivers for small-scale irrigation and domestic use. Areas without large water bodies such as Northern Kenya are sparsely populated due to limited water supply.

### **Human factors**

8. **Economic activities such as industry, trade and commerce.** Presence of many economic activities such as industrialized centres provide more employment opportunities to the people and hence attract dense population such as in Nairobi (general engineering, printing, brewing), Mombasa (oil refining, ship building, food processing), and Nakuru. However areas with limited economic activities such as northern Kenya have less chances of employment, hence have low population density.
9. **Level of urbanization.** The major urban centers such as Nairobi, Nakuru, Mombasa and Malindi attract a large population to enjoy the urban facilities such as banking facilities, insurance, entertainment, education, port facilities which offer more opportunities to the people. However, areas without developed urban centers such as Northern Kenya offer less opportunities to the people and hence are sparsely populated.
10. **Level of development of transport infrastructure.** Areas with developed transport system such as Nairobi and Nakuru urban areas, along main roads, railways, and coastal areas are easily accessible and thus promote economic activities like trade, farming hence attracting dense population. However, areas which are remote / far from main roads such as the northern interior are less accessible / limit economic activities leading to sparse population settlement.
11. **Culture.** In areas where people depend on primitive cultural activities such as nomadic pastoralism, there is sparse population since the system requires large land area for grazing such as the Turkana areas of north west Kenya and Maasai regions of Southern Kenya. However in areas where there are cultural changes and activities like modern dairy farming, trade and commerce—(like central Kenya) have developed there is a moderate to dense population.

### **12. Historical factor**

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**(a)Slave trade.** There was compulsory transfer of people from some areas in the past. Slave trade depopulated some parts of interior Kenya and Up to today these areas sparsely populated although slave trade ended many years ago.

**(b) Coastal settlement and governance.** The British colonial government divided Kenya into 'white lands' and 'African lands'. The African lands became densely populated due to limited land for expanding population (such as the districts of the central province). Also the setting up of irrigation schemes such as Ahero and Mwea attracted settlement.

**13. Government policy.** Government policy of setting and expansion of national parks, and reserves such as Tsavo national park, Nairobi national park, Aberdare national park which are 'no settlement zones' by law has limited settlement. Government policy of infrastructural development such as roads, piped water, power supply in particular areas of central Kenya attracts settlement leading to moderate to dense population.

**14. Political situation.** Areas which are politically stable such as Nairobi and Nakuru encourage productive activities such as trade, farming leading to dense population. However areas which are insecure / unstable such as northern areas bordering Somalia discourage productive activities like trade, farming leading to sparse population.

### Population distribution in Nigeria

Nigeria is located in West Africa and it is the most populated country in Africa with a population of over 140 million.

The densely populated areas include the southern parts along the coast, urban centres and the extreme north. High population is in the delta states , ibo land and in north Kaduna. Cities which have more than 3 million people are lagos, Benin, Port Harcourt.

The moderately populated areas include: located in the northern part of the country particularly around Sokoto, Kano, and Katsina. Also the margins of the densely populated areas.

The lowly populated areas include the middle belt, desert margins of the north and the forested areas of the south.

***A sketch map showing population distribution in Nigeria***

### Factors influencing population distribution in Nigeria

#### Physical factors

**1. Climate.** Areas which receive heavy and well distributed rainfall which is over 1500 mm per year and hot temperatures favour crop growing hence attracting dense population such as south east and south west Nigeria where oil palm , cocoa, maize and other crops are grown. However, areas which



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receive low and unreliable rainfall of less than 500mm per annum and very hot temperatures discourage crop farming leading to sparse population such as the middle belt region of Nigeria.

2. **Soil types/ Edaphic factor.** Areas with fertile soils promote crop growing hence attracting dense population such as the Southeast and South West Nigeria where a wide variety of food and cash crops are grown such as cocoa, rubber, maize. However, areas with infertile soils such as the middle belt with sandy, thin and stony soils limit crop growing since they retain very little moisture, hence leading to sparse population.
3. **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 2000m above sea level. However areas of low altitude have warm conditions which attract dense settlement such as the coastal regions of Nigeria (delta states).
4. **Relief.** Rugged relief/ steep slopes limit construction of transport routes , housing structures and mechanization of farming such as in the Yoruba highlands bordering Cameroon leading to low population settlement. However relatively flat landscape of South East and South West Nigeria encourage construction of structures and mechanization of farming hence leading to dense settlement.
5. **Vegetation.** The dense forest vegetation such as tropical rain forests and mangrove forests of the South hinder the construction of transport routes/ are not easy to clear, and thus have low population settlement. These areas also favour the breeding of mosquitoes that cause malaria. More so the government has put up restrictions on settlement in such areas by gazeting some of them as reserves. However savanna grasslands are easy to clear for various activities such as farming and thus have dense settlement.
6. **Biotic factors/ pests and diseases.** Areas infested with tsetse flies—like the Fulani areas of Nigeria scare away people leading to sparse population settlement. The mosquitoes have also limited settlement in areas of hot temperatures and low-lying areas with stagnant water and river valleys. However areas free from disease causing vectors attract more people to settle and carry out various activities leading to dense settlement.
7. **Drainage.** Water logged areas/ areas with periodic flooding have low population density due to problems in cultivation and construction such as the mangrove swamps along the coast. However well-drained areas encourage growing of various crops and construction leading to a moderate to dense population such as South East Nigeria .

**Presence of water bodies such as rivers and lakes.** Areas with water bodies such as the Niger river and the Atlantic ocean favour various water-related activities like farming, industry, fishing, transport; and thus they have moderate to dense population. Areas without large water bodies such as the middle belt and the northeastern part of Nigeria are sparsely populated due to limited water supply.

### **Human factors**

8. **Economic activities such as industry, trade and commerce.** Presence of many economic activities such as industrialization provide more employment opportunities to the people and hence attract dense population such as port Harcourt with oil refinery, machinery , automobile assembly and food

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processing, Benin city and Ibadan . However areas with limited economic activities such as the North Eastern region have less chances of employment, hence have low population density.

9. **Level of urbanization/ the growth of major urban centers** such as port Harcourt , Lagos, Ibadan, Abuja ( capital) attracts a large population to enjoy the urban facilities such as banking facilities, insurance, entertainment, education, recreation facilities which offer more opportunities to the people. However, areas without developed urban centers such as North Western Nigeria offer less opportunities to the people and hence are sparsely populated.
10. **Level of development of transport infrastructure.** Areas with developed transport system such as Lagos, Ibadan, Enugu, along main roads, railways, and coastal areas are easily accessible and thus promote economic activities like trade, farming , mining hence attracting dense population. However, areas which are remote / far from main roads such as the northern interior are less accessible / limit economic activities leading to sparse population settlement.
11. **Culture.** In areas where people depend on primitive cultural activities such as nomadic pastoralism, there is sparse population since the system requires large land area for grazing such as the Fulani areas of northern Nigeria. Still many moderately settled areas on the margins of the densely settled areas could also support far more people but people have not moved into them due to traditional social attitudes and the need to stay near friends and existing cultural centres.
12. **Historical factor**
  - (a) **Historical background.** Each of the three main centres of population is the chief area of settlement of one of the three main ethnic groups in Nigeria. The ***Ibo are concentrated in the South East, the Yoruba are in the South West, and the Muslim Hausa in the north.*** These are the most successful and powerful groups and their populations have grown rapidly than the smaller groups that were for long subjected to wars , slave raiding.
  - (b)**Slave trade.** There was compulsory transfer of people from some areas in the past. Slave trade by the more powerful tribes depopulated the middle belt and the western parts of Kwara state of S.W. Nigeria and upto today these areas sparsely populated although slave trade ended many years ago.
13. **Government policy.** Government policy of setting and expansion of national parks, and reserves which are 'no settlement zones' by law has limited settlement. Government has also encouraged a wider spread settlement by developing transport routes , mineral resources, power supplies and agriculture in the regions which are capable of supporting a larger population.
14. **Political situation.** Areas which are politically stable such as Kano region and most urban areas (like Lagos, Abuja) encourage productive activities such as trade, farming leading to dense population. However, areas which are insecure / unstable due to religious and ethnic groups discourage productive activities like trade, farming leading to sparse population.

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## Population distribution in china

China is located in Asia and is the most populated country in the world with over 1.4 billion people. About 1/5 of the world's population live in china. About 26% of the population lives in the urban areas and 74% live in rural areas.

The most densely populated areas include the north china plain, Yangtze basin (Chiang Jiang basin), the Sichuan basin and Xi-Jiang (Si-Kiang) basin. The densely populated states are in the East including Shanghai, Zhejiang, Jilin, Hunan, and Guangdong. The highly populated towns are Shanghai, Beijing, Tianjin, Shenyang, Hongkong, Guangzhou, Wuhan etc

The moderately populated areas are found on the margins/ fringes of the densely populated regions.

The sparsely populated regions are in the interior provinces of the west such as Xin Jiang (sin kiang), Gansu, Qinghai (Tsinghai), Tibet, Inner Mongolia. The population density is generally less than 10 people per km<sup>2</sup>.

Generally over 90% of the population occupies the land in the East while the remaining 10% occupy the Western states.

## *A sketch map of china showing population distribution*

## Factors influencing population distribution in china

### Physical factors

1. **Climate.** Areas which receive heavy and well distributed rainfall which is over 1500 mm per year and hot temperatures( average 24<sup>0</sup>c) and this favours crop growing hence attracting dense population such as tropical south china , sub-tropical east-central china and temperate north east where crops like rice ( most important), wheat, maize and tea are grown. However, areas which receive low and unreliable rainfall of less than 500mm per annum and very cold temperatures discourage crop farming leading to sparse population such as most western states. The Gobi desert ranks as one of the coldest deserts in the world and this discourages population settlement.
2. **Soil types influencing farming.** Areas with fertile alluvial soils promote crop growing hence attracting dense population such as river valleys and coastal areas (Yangtze valley, Sin Kiang delta) where a wide variety of food and cash crops are grown such as rice, maize, soybean, cotton, and tea. However areas with infertile soils/ dry , rocky and sandy soils of western china limit crop growing since they retain very little moisture, hence leading to sparse population.
3. **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 in upper slopes of the Himalayas in the west. However areas of low altitude have warm conditions which attract dense settlement such as the coastal regions of Eastern China.

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4. **Relief.** Rugged relief/ steep slopes limit construction of transport routes, housing structures and mechanization of farming such as in western china characterized by the Tibet ranges and Himalayas leading to low population settlement. However relatively flat landscape of encourage construction of structures and mechanization of farming hence leading to dense settlement especially the plateaus, plains and basins of Eastern China.
5. **Drainage.** Water logged areas/ areas with periodic flooding have low population density due to problems in cultivation and construction such as the swamps along the coast. However well-drained areas encourage growing of various crops and construction leading to a moderate to dense population such as the plateaus and plains of Eastern China like North China plain and Sichuan.  
**Presence of water bodies such as rivers and lakes.** Areas with large water bodies such as Yangtze river, Huang He river, the Yellow sea and East China sea favour various water-related activities like farming, industry, fishing, transport; and thus they have a dense population. Areas without large water bodies are sparsely populated due to limited water supply especially in western china.
6. **Natural calamities /hazards.** Areas which are prone to natural calamities discourage population settlement such as the highland areas of the west ( e.g Gansu) which are at times affected by landslides that destroy property and lead to loss of life. Also some valley areas of Yangtze and Huang He rivers are prone to flooding that destroys crops , life and other property. However areas which are safer like the gentle slopes attract dense settlement like large areas of Shanghai and Beijing.  
**Human factors**
7. **Presence of economic activities for employment such as mining and industry.** The states industrialized states of china like shanghai, Beijing, and Manchuria provide more employment opportunities to the people as industrial workers and into other associated activities and hence attract dense population. Beijing industries include iron and steel, motor vehicle, machinery, petro-chemical etc However areas with limited economic activities such as the western states of Qinghai and Inner Mongolia have less chances of employment, hence have low population density.
8. **Level of urbanization/ the growth of major urban centers** such as shanghai (china's largest port and industrial centre), Beijing ( capital ), Tianjin, Shenyang, Guangzhou, and Tongtu attracts a large population to enjoy the urban facilities such as banking facilities, insurance, entertainment, education, recreation facilities which offer more opportunities to the people. However, the western areas without developed urban centers such offer less opportunities to the people and hence are sparsely populated.
9. **Level of development of transport infrastructure.** Areas with developed transport system such as Guangzhou-Beijing-Shanghai, along main roads, railways, and coastal areas are easily accessible and thus promote economic activities like mining, industry, trade, farming, tourism hence attracting dense population. The region also has developed canals such as the Grand canal—which is the world's longest artificial waterway. However, areas which are remote / far from main roads such as the western provinces of Gansu, Tibet and Inner Mongolia are less accessible / limit economic activities leading to sparse population.
10. **Historical factor.** The development of the early dynasties such as Qing dynasty of Manchus (1644-1912) in East China which organized china into a large society with developed social and economic

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and political organization created a high population in the east and central china. However western china lacked such organized dynasties explaining the sparse population there.

- 11. Cultural factor.** The physical conditions of the west have limited intensive crop growing and the best form of land use is some form of nomadic herding practiced by the Tibetans, Kazaks, Mongols and Kirgiz who stay in the area, rearing goats, sheep, horses and camels etc. this partly explains the sparse population in such areas.

**Ethnic differences.** Most Chinese are very reluctant to move to the western territories (which are not 'china proper'). The people of china proper are the true Chinese ( especially the Han race) while the outer territories are populated by the smaller ethnic groups such as the Mongols , Zhuang , Miao, Yi among others.

- 12. Government policy.** Government has influenced population distribution by developing transport routes, encouraging investors, importation of advanced technology, creating special investment zones, development of the required transport routes and power supplies in Eastern China. However, a large western part of china has received less government attention and hence less opportunities which explains the sparse population.

- 13. Political situation.** Areas which have been politically stable for a long period and most urban areas encourage productive activities such as trade, farming leading to dense population since the security of property and life is assured. However, areas which have some unrest discourage productive activities like trade, farming leading to sparse population such as the north western areas bordering Mongolia and Kazakhstan.

### POPULATION MIGRATIONS

*(There is no agreed definition of migration).* However generally **migration** refers to the movement of people from one place (origin) to another (destination). Population migration takes a longer span than population mobility or tourism although they are interrelated. Migration may be short term, long term or seasonally.

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

Population migrations affect growth by either decreasing population of the source area (origin) or increasing the population of the receiving area.

### Classification of migrations

The meaning of migration is best understood based on the different types / forms of migration. Migration involves changing location and involves some degree of permanence. The classification id based on three (3) aspects namely; distance, time, and origin.

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### According to time

1. **Permanent migrations.** This involves the movement of people who leave their homes having no intentions of returning home. Permanent migrations should be the movement from one place to another place which lasts for at least more than one year.
2. **Temporary migrations.** This involves movement of people who leave their homes for a short period of time.

### According to distance

1. **Internal migrations.** This involves movement of people from one part of the country to another part of the same country without crossing international borders. People who move out of an area are called **out-migrants** where as those people who move into an area are called **in-migrants**.

Internal migration is further subdivided into the following forms:

- (a) Rural-urban migration
- (b) Urban-rural migration
- (c) Rural-rural migration
- (d) Urban-urban migration
- (e) Intra-rural and intra-urban migration

**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).

### Urban-rural migration

This is not very common in the developing world and takes place on small scale. People migrate from towns to the countryside and in the developed world, it takes place as a result of overcrowding, pollution etc in towns. People probably move outside the towns to enjoy bigger space where they can have bigger compounds and clean environment.

**Rural-rural migration** is the migration from one rural area to another. It mainly occurs when they have anticipated opportunities in the new location. It is a result of push-pull factors where there is population pressure on land such as people in Kigezi migrating to other areas.

**Urban-urban migration** is the movement of people from one town to another mainly because people are seeking for better opportunities in business, social and economic facilities. It has got to do with perceived opportunities.

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**Stepwise migration** is the movement of people in stages i.e. step by step. For example in 1950s people in kabala were advised to move to other areas for enough land such as Kabale-Rukungiri-Bushenyi etc

2. **International migrations/ external migrations.** This involves the migration from one country to another .i.e. crossing international borders/ boundaries. This type of migration is today facing a lot of restrictions via controlled permission in form of visa.

International migration has two major forms:

- (a) Emigrations
- (b) Immigrations

**Emigration** refers to the movement of people out of a country. The people involved are called emigrants.

While

**Immigrations** refers to the movement of people into a country. The people involved are called immigrants.

The difference between emigration and immigration is called net migration. Depending on the source or destination the main source of emigration and immigration is the search for better employment opportunities.

### Factors that influence population migrations

The factors for migration can be grouped as pull factors and push factors. The factors are usually categorized as political, social, economic and ecological factors.

**Pull factors** are the favourable factors which attract people to migrate to an area such as better social services or these are the advantages /opportunities at a destination that attract to that area.

**Push factors** are the unfavourable factors which force people out of a given area and therefore migrate to other areas such as high level of unemployment, poor infrastructures or these are the disadvantages at the source area that make people to move to other areas.

#### 1. Political factors

- Difference in political belief/ party. People are sometimes forced to migrate because of being threatened since they belong to a particular party /system or political thinking.
- Political insecurity in some areas / war or civil strife which make people vacate the insecure areas such as people in Rwanda during the 1994 genocide , people in DRC due to rebel activities , people in southern Sudan during the struggle for power in 2013-2014, northern Uganda due to Kony rebel activities, etc. such people migrate as refugees or internally displaced people.



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- The attaining of independence in some countries, which caused many migrations such as in India 1947 and people were forced to move especially non-Moslems to Pakistan. The same applied to many African countries on attaining independence—when many whites went back to Europe in the mid-20<sup>th</sup> century.
- Shift in ideology (capitalism versus socialism). For example, Germany after the Second World War, East Germany became a socialist state while West Germany remained capitalistic in ideology. Thus, people who were capitalistic in ideology migrated from east to West Germany and vice versa.
- The effect of slave trade. During slave trade era people were forced to migrate i.e. were captured and carried away against their will. Slave trade affected especially African countries such as west Africa, Rhodesia (Zimbabwe) , east Africa etc. Today people may be abducted, kidnapped, and taken to other areas or countries to work as 'slaves'.
- Government schemes lead to forced migration of people such as settlement schemes, gazetting of national parks and wildlife reserves to displace people. Many people are displaced from the gazetted areas by law and they are taken to resettlement schemes prepared by the government or forced to go elsewhere.

### 2. Economic factors

- Economic factors are often taken as the major reasons for migration, with the search for employment being the major reason for this type of motive. Labour migration is selective in nature and may be long or short term. The major destinations of labour migrants since 1945 are Western Europe and the Gulf States. Most migrants come from the Mediterranean countries and the ex-colonial territories among others.
- Search for employment opportunities. South Africa is known for its reliance on migrant labour for the exploitation of its natural resources such as mineral resources. These migrants come from Britain, USA and Japan. Many workers also migrate from the neighbouring countries such as Lesotho, Swaziland, Botswana, Mozambique, and Namibia.
- Shortage of land. Land in some rural areas is in short supply. The rural community heavily depends on land for production of food for home consumption and for sale. However, the available land in many areas is inadequate to produce sufficient food for the population. This causes migration to buy land from other areas and increase food supply.
- The declining productivity of land in some areas which makes people to migrate to other more productive zones agriculturally. Use of soils in some areas for long leads to exhaustion and forces farmers to look for fertile lands elsewhere.
- Uneven distribution of economic opportunities between areas especially industrial concentration in the urban areas, meaning that meaningful employment is mainly found in urban areas. Hence, the major cause of migration is the search for employment which is better paid, in a bid to improve the standards of living.

### 3. Social factors

- Social pressures also force people to migrate such as evidenced by refugees (according to the UNHCR-United Nations High Commission for Refugees). These are related to social oppression,

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political control, housing, health and education facilities. Today the greatest concentration of refugees are in the developing countries.

- The presence of better social services in some areas like medical facilities, schools of better standards. For example, much of the quality education can be attained in the urban areas where most of the cities always want to stay. Other social facilities include health facilities, recreation facilities, entertainment facilities which generally missing in the rural areas.
- Cultural practices also force many people to run away from the rural areas such as rituals, compulsory circumcision by some societies. They migrate and take advantage of the urban areas. There are also social obligations of marriage especially in the rural areas which may not fit in people's priorities in life.
- Population pressure in some areas causes migrations to other areas which are less populated. For example some parts of Kigezi, Kabale are highly populated, leading to shortage of land and land fragmentation. This limits settlement and cultivation land, forcing many people to migrate other areas.
- Religious factors especially religious discrimination in particular areas. For example in Northern Nigeria, the Muslims discriminate against Christians, in Sudan the Muslims also do not want to stay in the same areas with Christians. Many times, there is conflict/ fighting between the different religious groups and this forces many people to migrate to other safer areas.
- Racial discrimination is also common in particular areas, resulting into social conflicts and at times loss of life. This forces some people to migrate to other accommodative areas.
- Migration for leisure such as pilgrimages—journeys to certain places under religious devotion. For example, pilgrimage to Mecca and Madina by Muslims. Many people do not come back to their home countries, but find new places in other areas. In addition, tourism involves traveling of people abroad for holidays, which may be short term or long term. However many tourists end up becoming migrants.
- Love for adventure and prestige
- The desire for change and a better life

#### 4. Ecological factors/ environmental factors

- Many people move because of environmental pressures such as drought, desertification, floods, landslides, volcanic eruptions, pests and diseases, earthquakes.
- For example, many people move to areas which receive heavy and reliable rainfall, which ensures increased food production for consumption and for sale. They migrate away from areas which experience frequent drought or desertification.
- Landslides and earthquakes lead to great loss of life and property. Therefore, many people move away from vulnerable areas to safer zones.
- Many people move away from areas infested by pests and diseases such as tsetse flies, and epidemics outbreak. For example, the outbreak of Ebola in the West African countries in 2014 forced many people to migrate.
- Fertile soils induce people to migrate and settle in such areas especially near river valleys with alluvial soils yet the infertile soils in the semi-arid areas push people to migrate away.

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- Drainage. Most people migrate and settle near water bodies especially coastal areas to access water supply, water transport and other advantages.

### 5. Behavioural factors

- Migration also has a basis on individual perception. This explains why certain categories of people choose to migrate to new areas while other people facing the same pressures do not migrate.
- Minor issues like criminal tendencies—where criminals run away from their regions to go to other areas where their life may be a bit safe. Also misunderstandings such as between family members, law and order maintenance by authorities, AIDS scourge especially if patients are stigmatized.

## CONSEQUENCES / IMPACT OF MIGRATIONS

### A. The impact of migration on the source areas

- The migrants remit money to their home country and this increases the national income of the respective country. In addition they also remit money/ property to their relatives which improves the standards of living.
- Decline in labour supply because the able-bodied men move to the urban areas or other countries and this reduces economic prosperity in the place of origin such as retarded agricultural production since only the old and very young children remain in the rural areas.
- Accelerates poverty and insecurity especially in the countryside since the able bodied men are moving to urbanities.
- Results into social disintegration of cultural settings. This is because the indigenous people adopt the values of the migrants such in Africa many people have taken on norms and values of Arabs, British, and Indians.
- Permanent migration reduces the total population and slows down the population growth rate in the source area. This relieves the problem of unemployment in the formerly over crowded areas. It also relieves pressure on land in the origin / source areas.
- Creates imbalance in the age-sex structure in the source area. This is because the migrants are usually young adults and mainly the male sex, leaving majorly the old folk and females.

### B. Impact of migration on the receiving areas/ destinations

- Causes strain on the existing services and facilities in the receiving areas especially urban areas which may have been meant for a smaller community. For example road network are congested, education facilities are over strained. Many times there is less expansion of the facilities.
- Permanent and temporary migration increases the population of the receiving areas. This leads to rapid urbanization with associated problems such as unemployment, prostitution, high crime rate, and political strife. The growth of slums characterized by congestion, poor sanitation, poor housing , stagnant water etc
- External migration brings together people of different origins, races, language, and religion. This integrates them into a new dynamic society; but may also lead to plural societies associated with continuous underground conflicts which eventually may become violent.
- Migration leads to easy spread of diseases in the destination areas such as Ebola, SARS, Cholera, AIDS scourge, airborne diseases due to mixing of people from

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- Population migration also changes the age-sex structure of the destination areas. The number of young adults is raised and men may outnumber the women. This affects the birth rate and increases the incidence of prostitution and rape cases.
- Migrants often face prejudice and even violence in the destination area. This in the longrun sparks off return migrations back to the areas of origin or migration to other areas to seek a better life.
- Loss of social morals and cultural values due to mixing up of different groups of people.

### **Positives**

- Adventure through tourism and movement to new areas by the migrants.
- There is increased industrial growth due to the increase in the market size in the destination area and availability of land for expansion in the source area.
- Increase in labour supply and expansion of the tax base in the destination area.
- Increases human relations both economic and social influence. Leads to the spread of new ideas.
- Restrains people from the vulnerable / risky areas such as war-torn areas, landslide areas, dry areas.
- Migrants acquire improved standards of living and chances of employment.
- Eradicates violence when the misunderstanding people separate to different areas/ locations.
- Migrations also avail government with land for national parks, wildlife reserves, and other projects.
- Improvement in infrastructure in the destination area.
- Reduces pressure on land in the rural areas
- Environmental protection as forests and bushes grow freely with less disturbance.
- Land consolidation is encouraged in the source areas which favours extensive farming.

### **Negatives**

- It is a source of brain drain and repatriation of resources.
- Shortage of land in the destination areas such as urban areas leading to conflicts and death.
- Resettlement problems on part of government.
- Refugee problems. Refugees are people who are forced to leave their homes due to several reasons such as wars, drought, floods and political persecution. Therefore refugees usually leave their homes in a desperate condition. In Africa many refugees in Somalia, Ethiopia, south Sudan, DRC, where people have been displaced by wars. This strains the economy of the receiving country as well as misery on the refugees themselves.
- Regional imbalances in development
- Increase in government expenditure in the urban areas
- Environmental degradation
- Etc

### **Case study: Africa**

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Arabs and Semites entered North Africa in great numbers in the 7<sup>th</sup> and 8<sup>th</sup> centuries. Such people spread their religion, language and culture as well as intermarriage with the Berbers. About ¼ of Africa's population is of Arab blood.

From the 16<sup>th</sup> century, many Europeans entered Africa from all directions starting with the Dutch at cape region of South Africa. Today Africa has about 4 million whites. The 19<sup>th</sup> century so the French occupation of Algeria, Tunisia, and Morocco. The major initial reasons were colonialism and the exploitation of minerals. Lastly the Asians also came to east and south Africa initially working on sugar plantations in natal and the East African railways.

In general, migration inn Africa can be analyzed in terms of pre-colonial era, colonial era and post-colonial eras. At the beginning of the 16<sup>th</sup> slave trade started to depopulate Africa. Many African slaves were shipped /moved to America, the Middle East and India. West Africa was the most affected by slave trade since it lost about 20 million people. Still many examples of internal migrations can be cited in Africa –with more emphasis on rural-urban migration.

### **Guiding questions:**

1. Discuss the advantages and disadvantages of population migrations in Africa.
2. Using specific examples from Africa, explain the economic and environmental effects of migration.
3. Discuss the push and pull factors responsible for population migrations in sub-Saharan Africa
4. Discuss the causes and effects of rural urban migration in either DRC or India.
5. Examine the impact of migrations on the source areas and destination areas using specific examples in Africa
6. Assess the causes and effects of international migrations in tropical Africa.

# TOURISM A LEVEL GEOGRAPHY PAPER 2

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## TOURISM

Tourism refers to an invisible trade where people move in search of pleasure, curiosity and study. The movement can be categorized into as:

- a) *Domestic tourism*—which involves movement in search of curiosity, pleasure, and study within the boundaries of a country. This mainly includes holidaymakers, students and others.
- b) *Foreign (international) tourism*—which involves foreigners from different countries of origin moving to another country in search of pleasure, study and curiosity.

**Tourism potentials:** These things attract tourists to a specific place or country. These are both physical and man-made. Physical tourism potentials unique natural phenomena that tend to attract tourists like relief features, water bodies, vegetation, and wild animals, climate etc

Man-made tourist potentials include cultures (dressing, marriage, dances), historical sites, traditional burial sites, archeological sites, industrialization, mining, farmlands etc

### General role of tourism in economic development

1. Tourism generates foreign exchange to the economy because it is an invisible export. The tourists bring in foreign currency when they spend on travel, hotel resort accommodation, entertainment, shopping local items and crafts. The foreign currency is used to purchase foreign technology, payment of expatriates, which helps in the development process.
2. Tourism leads to international recognition and respect of the country. For example, today Switzerland is recognized worldwide based on the developed tourism industry. It is for this reason that many head quarters of international organizations are located in Switzerland such as FIFA, Red cross etc  
More so tourism promotes international relationship / cooperation, which can be expanded economically. This arises from free movement and interaction of the foreign visitors and the host population, which acts as a basis of economic contacts and trade between the respective countries. It also encourages the inflow of investors.
3. Conservation of natural beauty/ the environment of the country. Tourism helps in the conservation and preservation of the natural environment for future generations such as the temperate forest species, tropical vegetation, animals (fauna) etc
4. Facilitates the development of other sectors such as the service sector. Increased flow of tourists increases the demand for institutions to convert currency such as banks, forex bureaux, shopping services, transport services which are always upgraded to international standards to cater for tourists needs. More so tourism stimulates the construction industry due to hotels, resorts etc. The tourists provide market for local goods such as food items for tourists, art and craft; hence improving the general standard of living.

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5. The tourism sector generates employment opportunities to the people such as tour guides, hotel operators, tour and travel agencies, game rangers, instructors etc. This is because tourism has a range of interconnected activities, in which direct and indirect employment is created. The people earn wages and salaries which they use to improve their standards of living.
6. Tourism leads to innovation and invention of technology due to the need to increase the standards such as accessibility. Facilities like electrified railway systems, cable cars, ski-lifts, satellite telephone, aerial photographing, remote sensing which are continuously upgraded.
7. Facilitates the development of transport infrastructure such as electrified railway in Switzerland, South Africa, and USA. It also facilitates the development of runways and airports to cater for tourist arrivals and departures. These transport networks are also used to develop other economic activities such as trade and commerce, agriculture.
8. Tourism promotes urbanization in the country, that is , the development of urban centres. These develop as tour resorts but have attracted population concentration as the tourist activities increase. These urban centres develop with accompanying services such as health, accommodation, education, shopping facilities etc
9. Promotes diversification of the economy since tourism acts as an alternative income earner to the respective countries instead of over depending on a few sectors like agriculture, mining. More so tourism leads to the development of many related activities such as trade and commerce; which helps to stabilize incomes and the general economy.
10. Tourism generates government revenue though taxing the tour operators and the workers' incomes. the revenue generated is used to develop the social services like health, education, power supply, recreation services etc
11. Promotes cultural exchange and diffusion of ideas. The tourists bring their cultures and traditions such as way of construction, language, and way of dressing, which are incorporated into the host country. This enhances transformation of society.

### **Shortcomings / negative effects of tourism**

1. Pollution of the environment such as air and water pollution. Tourism reduces the quality of air and water through sewage disposal from hotels, restaurants, lodges, camping sites. Also the powered boats used or boat racing cause water pollution through fuel spillage. Much of this damage is caused by increased number of tourist arrivals at particular destinations.
2. Destruction of vegetation cover due to increased tourism activities. Natural vegetation is destroyed in order to set up accommodation facilities and recreation facilities for the tourists. This also leads to environmental degradation.
3. Displacement of other activities /occupies land that would be used for other economic activities such as agriculture, industry, etc. the conservationist and preservationist theory of tourism conflicts with economic development.
4. Displacement of people which normally occurs when the local community is shifted to provide room for national parks, game reserves and sanctuaries or any form of protection. Many people lose their settlement areas and sometimes they are not compensated.

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5. Results into urban-related problems such as increased crime, congestion, alcoholism, prostitution, high cost of living and other social evils. Tourism accelerates criminal tendencies since the tourists are normally associated with wealth/ money of which the idlers take advantage such through highway robbery.
6. Results into cultural degeneration due to the commercialization of tourism. It leads to the removal of charity with tourism becoming a business. There is total distortion of culture to encourage tourism audience for example by turning the traditional mud and grass-thatched huts into brick huts. More so it leads to the adoption of foreign cultural and evil activities such as poor dress code, drug trafficking, distorted language—hence eroding the cultural heritage.
7. Results into spread of diseases due to the influx of foreigners into the host country such as STDs; which eventually reduce labor productivity and life expectancy in the country.
8. Political –related problems because some people disguise as tourists but are political spies or terrorists who are likely to carry deadly bombs and even plotting coups. This explains why today there is a limit on international travels and tourism in some developed countries.

### TOURISM IN KENYA

In Kenya tourism is the second most important foreign exchange earner after the agricultural sector and it is a fast growing sector. Tourist arrivals are mainly from Europe and North America.

#### Major attraction centres and potentials

1. **Nairobi.** Nairobi itself is an attraction and a focal point of many tourists. It has a higher altitude giving it pleasant weather and it is the largest city in East Africa. Many tourists spend their holidays here and equip themselves ready for safari to the other areas such as interior Kenya, Uganda, and Tanzania.
2. **Nairobi National Park**—in the heart of the city enables residents and business tourist who lack enough time to make a quick tour through it. It has animals like gazelles, lions, zebras, giraffes, buffalos, cheetahs, leopards, rhinos.
3. **Tsavo Park (West Tsavo and East Tsavo).** It is the largest park in Kenya and divided into two by the main road to Mombasa. It is famous for big games like lions, elephants (red elephants), giraffe, and rhinos.
4. **Aberdare Park.** This is famous for its treetops hotel—which view point enables the tourists to watch hundreds of elephants, buffalos, and rhinos which visit the rift valley floor that the hotel overlooks.
5. **Lake Nakuru Park.** This is famous for millions of flamingos which provide an exciting unique attraction and other attractions.
6. **Other National Parks and Reserves of importance include:** Amboseli NP, Malindi and Watamu marine NP, Sibiloi NP, Meru NP, Fort Jesus park, Marsabit park, Masai Mara national Park, Mt. Kenya NP, Simba hills reserve, Amboseli reserve, and Rahole reserve
7. **Relief features.** There are many mountain ranges which include: Mt. Kenya (with glacial features)—the second highest mountain in Africa (*after Kilimanjaro*), Mt. Elgon on the western border. In addition, the eastern arm of the Great Rift Valley appears in Kenya.



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8. **Drainage features.** These include: the warm beautiful beaches at Mombasa for sun bathing, coastal features (like caves, stacks, arches, cliffs at Mombasa and Malindi). The famous beaches include: Nyali, Kikambala, and Shanzu. Lakes include: Lake Turkana—Kenya's largest lake, Lake Victoria (Victoria Nyanza), Lake Baringo, Lake Nakuru, Lake Magadi, Lake Bogoria among others. Rivers include: Tana, Athi, and Nyando. These lakes and rivers have creatures like fish, crocodiles, hippopotamus—which attract tourists.
9. **Vegetation.** Kenya has diverse plant life. This includes savanna vegetation consisting of grassland and tree species like Baobab, Euphorbia and Acacia; Tropical rainforests, Mangrove forests and palm trees along the coast; some temperate forests on the higher levels of highlands (above 3000m); Desert and Semi-desert vegetation. All these attract tourists.
10. **Historical and cultural attractions.** Historical sites include: Fort Jesus at Mombasa (built by the Portuguese in the 1590s), Fort Gedi near Malindi, the national museum of Nairobi, Kariandus, Olorgesailie (showing conditions of early Stone Age).  
One culture is that of the Maasai—which centres on their cattle for food, prestige and wealth. They believe that they own all cattle in the world. Other groups / tribes include Kikuyu, Luhya, Luo, Kalenjins, and Nandi.

### **Factors responsible for the development of the tourism industry in Kenya**

The tourism industry of Kenya is more developed than other east African countries. This is explained by the following factors:

1. **Availability of various fauna potentials in the country** for example Kenya is endowed with the largest and richest animal species in the world such as giraffes, antelopes, lions, elephants, zebras, buffalos, leopards; plus ostriches, flamingo birds and vultures conserved in various national parks and wildlife reserves such as Nairobi NP, Tsavo NP, Lake Nakuru NP, and Maasai-Mara. This promotes sport hunting and animal/bird viewing. Kenya's major parks are also near Nairobi and Mombasa which minimizes inconveniences to tourists and encourages more return visits.
2. **Varied vegetation types** which include savanna vegetation consisting of grasslands and tree species like baobab, acacia and euphorbia; tropical rain forests, mangrove forests (along the coast), desert and semi-desert vegetation. Therefore, many people who live in the large urban centres/conurbations of Europe and North America where nature has been destroyed are attracted to the large stretches of natural vegetation in Kenya for study, relaxation and adventure.
3. **The magnificent / beautiful landform scenery that attracts tourists** including Mt. Kenya with glacial features (like arêtes, cirques, and pyramidal peaks), Mt. Elgon, Mt. Longonot, Machakos Ranges, Mathew range. There is also the Great Rift Valley and associated features (such as escarpments). This encourages mountaineering, rift valley viewing and thus attracting many tourists for pleasure and study.
4. **Presence of many attractive drainage features/Water bodies** such as L. Turkana, L. Nakuru, L. Natron, L. Naivasha, Nyando River, Galana River, Tana River, Athi River, and the Indian Ocean. These water bodies do promote swimming, boat racing, rafting which activities attract tourists. More so coastal ports and beaches have developed such as on Malindi island, Pate and Lamu islands; important for tourism such as for sun bathing. This attracts a large number of tourists.

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5. **Presence of varied climatic types for tourism.** Kenya's climate contrasts with other parts of the world and varies within Kenya itself. For example the cool to cold Kenya highlands and the warm to hot Mombasa coast. The tourists in need of cool conditions go to the Kenya highlands. The Mombasa coast attracts tourists from the cold regions at the time of winter in countries like USA, European countries and Asia to enjoy the warm tropical sunny conditions at the coast for sunbathing. The northern part has a semi-arid climate which also attracts many tourists for study and adventure.
6. **Geographical location near the coast (proximity to the coast)** which promotes easy movement and accessibility of visitors into the country (unlike the big Tanzania and landlocked Uganda). Therefore, Kenya experiences more tourist arrivals and return visits since inconvenience to tourists is minimized. This also explains why Kenya's tourist industry is more developed in the region.
7. **Availability of large sums of capital to invest in the tourist industry** provided by foreigners from Europe and Asia, prosperous Kenyans as well as government. This has been invested in developing and maintaining parks and reserves, developing accommodation facilities, tours and agencies to the required standards. This in turn increases the number of tourist arrivals.
8. **Improved transport network** including road and railway networks, and a more efficient air transport responding to the required tourism standards. The Air ports include Jomo Kenyatta international air port which is linked to many international airlines, and hence Kenya is an entry point for tourists from far origins into the region. Others are Moi and Nairobi international Air ports. There are also smaller but improved Airports/ Air strips in strategic locations such as Kisumu and Malindi – transporting many tourists each year.
9. **Rapidly developing accommodation facilities** for example Kenya has the best hotels in the region, more in number and on international standards. These include: *Hilton hotel, Serevo Stanley hotel, Hotel Diplomat, Intercontinental hotel, Ambassadors hotel, Fairview hotel, and Tiwi travelers beach hotel*. These provide good accommodation, local and western foods, entertainment to tourists. It is impossible to view the skyline of Nairobi without being impressed by the number of hotels, symbolic of modern developments in tourism.
10. **Presence of skilled and semi-skilled labour** recruited by the tourism agencies as Tour guides, game rangers, receptionists in hotels and lodges, hotel managers, chefs/professional cooks, supervisors among others. These have been trained to cope with international tourism standards—hence attracting more tourists.
11. **Relatively stable political atmosphere for a long period of time.** Remember that tourists are easily discouraged by an atmosphere of unrest/insecurity. But since independence Kenya has been relatively stable which has boosted the confidence of tourists and also promoted the development of the required infrastructure such as modern roads in Nairobi. This in turn has encouraged tourist arrivals in the country.
12. **Efficient tourism management** and this was spearheaded by the Kenya Tourist Development Corporation established in 1965. Today there is the Kenya Wildlife Authority controlling/ managing the wildlife attraction areas, many Tours and Travel agencies which are linked to many international companies which offer attractive tour packages to tourists. This also leads to increase in the number of tourists.

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13. **Effective and increasing publicity/ advertising, both locally and internationally** such use of local and international newspapers, magazines, DSTV, internet, brochures, and stickers. Such informative and persuasive adverts have opened Kenya's tourist potentials to the outside world, hence its development.
14. **Hospitality of the Kenyans/ long presence of foreigners in Kenya.** The Kenyan coast was earlier settled by the Arabs and the Portuguese who influenced the early developments. Kenya was also a British colony and many Europeans settled especially on the Kenya highlands. The European presence has continued to create an impression that Kenya is a friendly country, hence boosting the confidence of many tourists visiting Kenya, implying more tourist arrivals.
15. **The cultural diversity of the country** with various ethnic sites and cultures attracting many tourists such as the **Maasai** with their pastoral culture and the way of housing, the **Kikuyu**—the largest tribal group in Kenya, **Luhya, Luo, Kalenjins, Kamba, Kisii**. This relates to the way of living, homesteads, dressing, food eaten, and cultural dances. Besides, there are many historical sites especially related to the Portuguese and the Arab settlement on the coast like Fort Jesus mosques. This increases the inflow of tourists especially adventurers and education-oriented tourists.
16. **Favourable government policy for tourism** for example encouraging economic diversification to reduce over reliance on the agricultural sector. The government also supports tourism through maintaining good international relations with many western countries; carrying out publicity campaigns abroad. It has also established tourist promotion offices in all the major tourist markets such as Paris, Newyork, London, and Tokyo. This has motivated the tourists and thus increased tourist arrivals.
17. **Increasing research in the tourist industry** for example the department of zoology—University of Nairobi, Tsavo ecological research centre—conducting research in eco-systems to maintain natural settings, improve wild life ecology. This has controlled the destruction of tourist potentials and continuous attraction of tourists from various parts of the world for study, pleasure and adventure.
18. **Development / growth of package tour flights in Europe and North America** –from which Kenya has benefited. Many people are given the opportunity to visit various parts of the world especially during winter when there are very few activities going on. This explains the increased number of tourists during this time of the year in countries like Kenya.

### PROBLEMS FACING THE TOURISM INDUSTRY IN EAST AFRICA

1. **Poaching** which is the illegal hunting and killing of animals in national parks and game reserves –for meat, hides etc. The white rhinos are now almost extinct. Other threatened animals are elephants, buffalo, and chimpanzee. This reduces the tourist potentials in East Africa.
2. **Population pressure/ rapidly** Increasing population leads to increased demand for land for both settlement and farming such as in Tsavo Park in Kenya, and Kibale Park in Uganda –hence reducing the biodiversity and hence reducing the number of tourist arrivals.
3. **Political instability/ insecurity in some areas** which makes tourism both difficult and expensive such as in parts of northern Uganda (like Gulu district) and western Uganda (in Bundibugyo and Kasese) which have experienced insurgency for a long time. In the past rebels also attacked tourists in

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Bwindi impenetrable national park and of recent there has been terrorist attacks in some parts of Kenya. This is discouraging tourists and thus reduced income from the tourism sector.

4. **Poorly developed transport net work/ remoteness of some tourist attractions** far from the main cities of Mombasa, Nairobi, Dar es Salaam, and Kampala. For example Marsabit wildlife reserve in northern Kenya, Sibiloi national park in northern Kenya, Serengeti national park in northern Tanzania, Katavi plain reserve in Western Tanzania, Kidepo national park in north eastern Uganda. Poor road net work, lack of railway facilities and airstrips in many tourist attraction areas limit tourist visits. In East Africa, many roads are not up to standard which increases the costs and inconvenience to tourists and hence discourages return visits.
5. **Less developed accommodation facilities** for example very few hotels, lodges, camping sites and resorts to accommodate tourists; and many of these existing facilities do not much to international standards and hence limiting on the number of foreign tourists. There are limited /no hotel facilities in some areas with tourist attractions such as Northern Kenya, North eastern Uganda and South western Uganda. This also limits the number of tourist arrivals.
6. **Limited skilled man power**/professional labour to manage the tourism industry such as managers and guides in hotels, tours and travel agency workers who can perform to international standards. This explains the poor management standards in many cases /areas in East Africa. This leads to a bad image and discourages many tourists.
7. **Limited capital to invest in tourism** which limits the setting up of tourist facilities such better hotels because it requires large capital investment. The alternative source of funds is borrowing, and yet tourists may not come in large numbers to cover costs and pay debts. This limits the growth of the tourism sector.
8. **Low level of advertisement**/ Inadequate publicity which limits awareness about the existence of some attractions and hence limiting the number of tourists visiting the areas. In East Africa it is Kenya which has performed better in international advertisement of the tourism potentials.
9. **Competition from other countries** such as South Africa, Egypt, morocco, Switzerland, Mexico — which countries have even better facilities. There is also competition among the East African countries due to the general similarity of tourist attractions such as wild animals and wild birds. This limits the benefits from the tourism sector as some areas receive a small number of tourists per year.
10. **Presence of hostile tribes** to foreigners in their land who they at times suspect to have intentions of stealing their property especially grabbing land and animals. Such tribes include Karamajong of northeastern Uganda, the Turkana of northern Kenya, and the Maasai of Kenya rift valley. This also discourages the coming of many tourists and thus low tourism income.
11. **Negative attitude/lack of a strong tourism spirit among local people in East Africa.** Most people do not treasure wild life and other tourist attractions. And thus few local people tour within the region even when the charges are lower for local tourists. Therefore, the over reliance on foreign tourists undermines the development of the tourism industry in East Africa.
12. **Low income levels among the local people** and the majority spend their limited incomes on basic necessities such as food, clothing and shelter; instead of spending on travels for tourism. This factor also discourages local tourism and limits tourism revenue.

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13. **Language barrier between local people and foreign tourists** due to limited use of international languages in many parts of East Africa, but a multiplicity of local languages. This limits communication with the tourists and hence few tourist arrivals. The main international languages are English and to some extent Kiswahili.
14. **Geographical location** far from areas where international tourists come from such as USA, Europe and parts of Asia. This has meant increased costs to foreign tourists and therefore many of them choose to visit neighboring countries such as the tourists from USA visiting more the Caribbean countries and parts of West Africa instead of visiting distanced countries of East Africa.
15. **Seasonality of tourism activities**/International tourists are seasonal and tend to come during the harsh winters in their homelands (that is, North America, Europe and Asia). This implies that East Africa doesn't receive large numbers of tourists throughout the year; and this undermines the development of the tourism industry.
16. **Tropical pests and diseases** which include tsetse flies causing sleeping sickness, mosquitoes causing malaria. This scares away many international tourists from visiting countries in the tropics including East Africa.
17. **Pollution** is becoming a major threat in some areas. For example Lake Nakuru and Lake Victoria is threatened by pollution from the various chemicals and oils from industries, vessels and farmlands. This makes such places less attractive to tourists and thus reduces the tourist arrivals.
18. **Seasonal migration of wild animals** to neighboring countries due to weather changes and other reasons. This implies seasonal reduction /lack of the attractions in certain tourism centres. This discourages return visits.
19. **Poor management of some tourist attractions/tourism facilities** for example uncontrolled tourism which has resulted into damaging of the environment. In some cases the tourists congest in specific areas, and in other cases the wild animals congest in particular areas—hence over straining the natural habitat.
20. **Fires** have destroyed some parts of parks, wild life reserves and forest reserves. The fires are either intentional or accidental caused by cultivators, hunters or careless smokers near or in the wild life conservation areas. This undermines the tourism potential in East Africa.
21. **Unfavourable government policy towards tourism sector** for example the government has given out some potential attraction areas to investors to carry out plantation farming such as parts of Ssese islands given out for oil palm growing. Many swampy areas/wetlands have been turned into industrial sites —hence limiting the tourist potentials and thus reduced number of tourists. The government also imposes high taxes on hoteliers and tours agencies which discourages some of them.

### Steps being taken to solve the above problems

1. Regular patrols and setting up anti-poaching units to minimize poaching of wild animals, hence maintaining tourist potentials.
2. Eviction of encroachers and reduction of the human population within the surroundings of national parks, forest and wild life reserves.

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3. New national parks have been opened up in various parts of East Africa purposely to protect the rare species such as gorillas, baboons, Chimpanzee, and Impala. This also increases the tourist potentials.
4. Diversifying the tourist products. This involves providing various tourist attractions apart from the traditional wild life attractions such as cultural, historical attractions and entertainment parks, in turn increasing the tourist arrivals.
5. Using population control measures to reduce population pressure on conservation areas.
6. Resettling of people to avoid encroachment on the tourist attraction areas.
7. Restoration of political stability through peace talks and democratic governance, to raise the confidence of tourists.
8. Improving accessibility to the tourist attraction centres by rehabilitating roads and constructing airstrips.
9. Building more hotels and other accommodation facilities and also renovating the existing facilities to the required standards.
10. Educating and sensitization of the local people about the values of wild life conservation through the media, wild life clubs, and educational centres. There is also massive sensitization aimed at increasing the number of local tourists. Community participation is being encouraged to reduce poaching and encroachment on conservation areas.
11. Training manpower both locally and abroad to carry out work in the tourist industry such as tour guides, travel agents, and managers.
12. Attraction of local and foreign investors to invest in the tourist industry such as by constructing hotels, lodges, camps, travel agencies. Currently private investors have been allowed to construct hotels and develop other attractions such as amusement parks.
13. Increasing the advertisement of the tourist attractions / potentials through the media, stickers, and brochures, to raise awareness both locally and abroad; and hence increase the number of tourists.
14. Hostile tribes are being disarmed such as the Karamajong, and they are also being sensitized about the value of tourism.
15. Discouraging the burning and clearing of vegetation in areas surrounding parks and game reserves.

### Guiding questions

- 1) Account for the growth and development of the tourist industry in Kenya.
- 2) The development of the tourist industry in Kenya is mainly attributed to physical factors. Discuss.
- 3) Examine the factors that have hindered the development of tourism in Sub-Saharan Africa.
- 4) (a) Identify the major tourist potentials of East Africa.  
  
(b) Discuss the problems facing the tourist industry in East Africa.

© What steps are being undertaken to develop the tourist industry in the East African region?

### Tourism in South Africa



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South Africa is located in the southern part of the African continent. Tourism has expanded greatly in South Africa providing a great potential for job opportunities and foreign exchange.

During the apartheid years, the tourism potential could not be realized because of the country's negative image and perceived political instability. However, since 1994 the industry has expanded dramatically, with the number of overseas visitors greatly increased. Generally, the country receives over 3 million tourists per annum).

### **Tourist attractions**

#### **1) Relief landforms.**

The scenic beauty of the cape mountain ranges region, the Drakensburg, Mpumalanga Mountains and the Highveld plateau mountain Aux sources near Lesotho is a major tourist mountain.

#### **2) Drainage features**

The rivers include Orange River, Vaal River and Limpopo River. Other shorter rivers include Great fish, Tugela, Umfolosi, Umgeni, UMzimkhulu and Umkuse. South Africa's notable lakes are artificial and include those created by Vaal dam and Gariep dam on the Orange River. Other attractions are the Atlantic and Indian Ocean beaches. Notable coastal beaches are at Cape Town, East London, Durban, Port Shepstone, Mosselbaai, Cape Agulhas, and Cape of Good Hope.

#### **3) Vegetation types**

Grassland covering most plateau areas, resembling a prairie on the nearly treeless Highveld. The Bushveld is characterized with scattered trees like baobab in the Limpopo province. There are coarse desert grasses in the semi-desert Northern Cape. The extreme southwest has Mediterranean vegetation. There are also flowers of Cape Town.

#### **4) National parks and national reserves.**

The national parks include Kruger national park (the largest and oldest reserve) with nearly every species of indigenous wildlife such as impala, small black rhinos, elephant, baboons, lions, leopards, zebras, giraffe, and antelopes. Other parks are Kgalagadi Transformer Park (shared with Botswana) in the northwest, Addo Elephant national park near Port Elizabeth, Mountain Zebra national park, Tanka-Karoo national park, west coast national park, Bontebok national park, Zuurberg national park, St.Lucia park.

The game reserves include Maputo elephant reserve, Giant Castle reserve, Umfolosi reserve, Mala Mala reserve, Mkambati reserve.

#### **5) Historical sites, libraries and cultural attractions.**

There are many large museums and the most notable include National Museum in Bloemfontein, Museum Africa in Johannesburg, South African National Gallery in Cape Town, and South African Cultural History Museum in Cape Town. These have ancient collections like archaeology, paleontology and anthropology collections; as well as the history of South Africa. The libraries include Johannesburg public library, South African library in Cape Town, state library in Pretoria, and university libraries.

There are also historical monuments such as Blood River monument in the east, Voortrekker fort north of Pretoria. Rock paintings and caves such as east of Mt. Aux sources, Kango caves near Bontebok national park are also attractions to tourists.



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There are cultural attractions in Zulu land such as Zulu wood carvings, basket work and stone carvings.

6) **Recreation attractions.**

Sports are a major activity in South Africa. South Africa's rugby and cricket teams are among the world's best. Rugby is most popular among Afrikaners and cricket among the English speakers. Rugby and cricket taught in many schools and hence other groups of people are taking up the games. Swimming and water sports, tennis and golf are also popular in the white community.

7) **Mineral resources and associated industry.**

Gold fields on the Witwatersrand, diamond fields in Pretoria, Bultfontein and other areas. Other minerals are coal, tin and iron ore. There are many industries set up on the rand such as in Kimberley, Pretoria, Johannesburg, and Witbank.

8) **Major fishing ports**

These include: Port Cape Town, port Nolloth, Saldanha port—all on the western coast.

9) **Farming systems/areas.**

This includes Sugar cane growing in Natal region, Vine growing in Cape region, sheep rearing and cattle rearing especially ranching.

10) **Climate**

### **Factors which have favoured the development of the tourism industry in South Africa**

1. ***Varied climatic types.*** South Africa enjoys a generally warm temperate climate. Most of the country experiences light rainfall and long hours of sunshine. There is semi-desert climate in the north west of the country with desert features which attract tourists. The extreme southwest has a Mediterranean climate. There is a striking difference between temperatures on the east coast and west coast. The east coast has higher temperatures due to the warm Mozambique /Agulhas current while the west coast is cooler due to the cold Benguela current. This therefore attracts tourists of different interests.
2. ***Varied vegetation types*** which includes grasslands covering most of the plateau areas of the Highveld, savanna vegetation with scattered trees like baobab in the Limpopo province, coarse desert grasses in the semi-desert Northern Cape, and Mediterranean vegetation in the extreme southwest. There are also planted coniferous pines from Europe and North America –to provide timber and wood pulp. All these attract many tourists interested in study and adventure.
3. ***Presence of many/ a variety of fauna potentials*** which include large mammals like Lions, Elephants, Zebras, Leopards, cheetah, Baboons, Hippopotamuses, Rhinos, and Antelopes. These are conserved in the national parks and reserves like Kruger national park, Kgalagadi Transformer Park, Addo Elephant Park, Mountain Zebra national park. The various birds like Ostrich, Francolin, Quail, Guinea fowl, Grouse, and Cape sugarbird. This also attracts tourists for study, adventure and leisure.
4. ***Beautiful landform scenery*** which includes mountains like Cape Ranges, Drakensburg, and Mpumalanga Mountains. These attract many tourists for mountain climbing and mountain viewing. There are also many coastal beaches such as at Port Elizabeth, East London, Saldanha bay, Durban, and Cape Town which attract many tourists to the sea activities like sun bathing, and boat racing.

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5. ***Presence of attractive drainage features/water bodies*** which include the Atlantic and Indian Ocean, rivers (like Vaal, Orange and Limpopo). These water bodies help in transporting tourists to various tourist destinations, and in other tourist activities like sport fishing, and boat racing. Besides the oceans offer beautiful beaches which attract more tourists for leisure activities.
6. ***Developed economic activities*** such as mining, industry, farming, trade and commerce. The mining of gold on the Rand, iron ore, coal, diamonds, and platinum attracts many tourists. South Africa is the most industrialized country on the continent with many industries concentrated on the Rand. Many people are attracted to these economic activities especially the scale of operation and the technologies involved—hence increasing the number of tourist arrivals.
7. ***Variety of heritage sites, monuments and historical sites in the country*** such as large museums—National Museum in Bloemfontein, Museum Africa in Johannesburg. Another unique museum is the Kimberley Mine Museum (to see the world famous diamonds). The historical monuments include Blood River monument in the east, Voortrekker fort north of Pretoria, rock paintings and caves. These attract many tourists who are interested in study and adventure in South Africa.
8. ***Presence of diverse cultures*** due to various ethnic groups in South Africa with different lifestyles such as dressing, dances, music, and cultural events. Each ethnic group has its own eating customs and etiquette. The groups include the whites, Afrikaners, the Zulu, Swazi, Xhosa, Sotho, and Tswana. Whereas the urban people tend to adopt western patterns, the rural people tend to preserve the traditional cultures. All these cultures offer interesting attractions to the tourists.
9. ***Strategic coastal location of South Africa*** which enables South Africa to receive tourists from all parts of the world such as North America, South America, Europe, Asia and Australia. This location makes it easily accessible by tourists since transport costs are reduced, and this increases the number of tourist arrivals.
10. ***Presence of developed accommodation facilities*** catering for all needs and classes of tourists such as Hotels, Rest houses, camping sites; coupled with entertainment facilities and dishes in various parts of the country. The national parks have lodges such as Kruger National Park with African-style huts. This increases the number of tourist arrivals. Examples of hotels in South Africa include: Cape Town Bloubaai Beach Hotel, Hanga Hanga Hotel in East London, Trans—Karoo Hotel south of Kimberley, Mountain Peak Hotel and Holiday resort in KwaZulu Natal and Cathedral Peak Hotel in KwaZulu Natal.
11. ***Presence of modern/developed transport facilities*** with railways, roads and air lines comparable to Western Europe and North America. As such the tourists travel to and from South Africa quickly, easily and relatively inexpensive, and more so comfortably. More so the transport facilities themselves provide another attraction such as the electrified railway. This increases the number of tourists.
12. ***Hospitality of the South Africans***/they are welcoming people given the long presence of whites in the country. More so, the end of apartheid changed the attitudes of many people of South Africa towards foreigners, hence accommodating all sorts of people from different parts of the world. This has increased the number of tourists in the country per year.
13. ***The diversity of languages spoken*** which adds to their ability to handle various categories of tourists regardless of social and political consideration. The languages include Afrikaans, English, Kiswahili,

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Dutch, Zulu, Tswana, and Xhosa. Many tourists have therefore been encouraged to visit South Africa due to easy and comfortable communication.

14. ***Presence of skilled labour to manage tourism*** such as game rangers, receptionists, chefs, tour guides, managers, supervisors in hotels, tours and travel agencies, tour resorts in various parts of South Africa. These have been trained to cope with the world tourism standards, and hence attracting more tourist arrivals from different parts of the world.
15. ***Efficient tourism management standards*** such as by developed Tours and Travel Agencies with experienced management and many of them are linked to international companies which offer attractive tour packages. South Africa has some of the best beach hotels on the continent such as Cape Town to Durban with developed beach tourism that measures to world standards-hence attracting many tourists.
16. ***Availability of adequate capital to develop the tourism sector*** provided by the government, local and foreign investors. More capital is also generated from mining, industry and farming. This has enabled the modernization of accommodation facilities, developing of more tourist attractions, payment of labour and doing more research in the tourism industry. this attracts more tourist arrivals.
17. ***Improved communication and advertisement*** (developed local and international publicity), with increased use of local and international news papers , magazines , journals; use of the internet , use of DSTV system. This has increased the number of local and international tourists, since more information is given about the tourist potentials that South Africa has to offer.
18. ***Relative political stability of the country*** unlike other African countries, which has enabled tourism investment. More so, since the end of apartheid the tourism industry has greatly expanded with the number of overseas visitors increasing by a large percentage. This is because of the improved international image and increased confidence of tourists of South Africa.
19. ***Supportive government policy towards tourism development*** such as by gazetted national parks and wild life reserves such as Kruger National park, Maputo Elephant reserve; encouraging local and foreign investors in the tourist industry to develop accommodation facilities and in the tours and travel companies. It has also developed road and railway net work. This has modernized the tourism sector.
20. ***Good international relationship between South Africa and other countries*** due to developed import and export trade such as the Rest of Africa, Asia, North America, and South America. There are also many foreign investors in South Africa. Therefore, many people have links with the country and encourage their colleagues to do business, study and adventure in South African tourism.
21. ***Participation in international organizations***. With the end of apartheid, South Africa resumed participation in international organizations from which it was excluded for many years for example the United Nations in 1994 and it also became a member of the Common Wealth in the same year. South Africa is also a member of the African Union and the Southern African Development Community. The delegates pass on information about tourist potentials, hence increasing the inflow of many tourists.
22. ***High level of technology employed***
23. ***Developed research in the tourism sector***

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### 24. Historical factor.

Note: **rafting**—an outdoor leisure pursuit of floating on a lake or river in a raft.

### Tourism in Switzerland

Switzerland has one of the most developed tourist sector in the world and tourism is the leading source of foreign exchange and a dominant employer. Switzerland's tourism started way back in the 18<sup>th</sup> century when Europeans admired and described the diversity of scenery and beauty of the Alps. The first were the British who discovered Switzerland as a holiday resort, followed by German visitors. In the last 80 years, the Swiss tourist industry has witnessed a complete revolution to the extent that today it commands a global image.

### Tourist attractions and tourist resorts

- 1) **The Alps**—a magnificent mountain scenery which is also snow-capped with many glacial features such as hanging valleys, U-shaped valleys, pyramidal peaks, arêtes, corries/cirques, cirque lakes/tarns.
- 2) **Water bodies.** The Alps are dissected by rivers such as the Rhine River (one of Europe's major rivers), Rhone River, Ticino River, and River Inn. Lakes include Lucerne, Geneva, Constance (Bodensee), Lugano, Maggiore, Neuchatel and Lake Zurich.
- 3) **Wild life** including plant and animal life. In the cooler more northerly parts, there is a mix of deciduous trees and coniferous trees—which are carefully managed to prevent any net loss of woodlands, preserving water quality and scenic beauty. The forests contain animal species such as the deer, fox, graceful chamois, ibex (wild goat); and many bird species such as wood pecker, peregrine falcons, golden eagles, and jay.
- 4) **Industrial centres and urban centres.** Due to the traditional policy of neutrality, many Swiss cities retain their good image such as Zurich, Basel, Bern, Geneva, Blenna, Vevey, Interlaken, St.Moritz, Le Locle, and St.Gallen among others. The main industries are: engineering, watch making, textiles, and chemical industries.
- 5) **Culture and traditions.** Swiss culture especially paintings, music and architecture are of great interest to tourists. There are many roman monuments in the towns of Martigny and Windisch; numerous cathedrals. The Swiss museums found in most towns contain thousands of old and rare works that date from the 8<sup>th</sup> century. The national museum in Zurich houses many historical collections.

**Note: A Tourist resort** is a place which attracts large numbers of holiday makers and having special facilities to look after them. In summer, the greatest activity is in the towns of the Swiss plateau such as Lausanne, Geneva, Bern, Zurich and the shores of Lake Lucerne. In winter the well known resorts are Grindelwald, Kandersteg, Murren, and St.Moritz. St.Moritz has the second largest number of hotels to Geneva.

### Factors favouring the development of the Swiss tourist industry

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### Physical

1. **Magnificent landform scenery** which includes the Alps Mountain ranges dissected by many rivers and also glaciated with snow capped peaks and features like U-shaped valleys (*e.g. Brunnen valley*), hanging valleys, cirques and pyramidal peaks. The Swiss Jura is also a lower mountain found in the north west of the country and the ranges are separated by valleys and having limestone features. Many people are attracted to mountaineering and mountain viewing.
2. **Varied drainage features** for example Switzerland is the source of four major rivers of Europe, which have their sources from the heavy water precipitation and glacial melt waters of the Alps. **Rhine River** is the biggest river covering the central—northern part. Other rivers are **Rhone** flowing into Lake Geneva, **Ticino** flowing into Lake Maggiore, Inn flowing north east to join Danube River into the Black sea. Lakes include Geneva, Constance, Zurich, and Neuchâtel; which water bodies promote tourism activities like swimming, sun bathing, boat racing, blue water viewing, and sport fishing.
3. **Varied vegetation types** such as a mix of deciduous and coniferous trees which dominate in the cooler northerly parts. The most common deciduous trees include oak, beech, maple, and chestnut. Coniferous trees include spruce, pines and firs. There are also alpine flowers which attract tourists. The vegetation promotes forest walk, flower viewing, and hence a holiday resort for adventurers and study tourists.
4. **Presence of many fauna potentials** such as Chamois, marmot and ibex inhabit the Alpine region as well as the golden eagle and vulture. The forests contain animal species like the deer, fox; and many species of birds like the wood pecker, pheasant, peregrine falcons, and jay. All these promote animal and bird viewing and study tours, hence attracting large numbers of tourist arrivals.
5. **Ideal climate for tourism** and this has given Switzerland an opportunity throughout the year. In summer, the warm sunny days enable tourists to view the magnificent scenery of the snow capped peaks, clear blue lakes, and cascading waterfalls. In addition there is swimming, sun bathing, and boat racing among other activities. During winter, the big attraction is the abundance of snow on mountain slopes enabling ice skiing and ice skating.
6. **Limited viable natural resources** such as due to the rugged relief of the Jura and Alpine regions discouraging other economic activities such as crop growing due to the rocky soils and problems of mechanization. The Swiss Jura is also composed of limestone soils, which are highly permeable and thus not good for farming. Switzerland has limited viable mineral resources. All this has meant that tourism is the best alternative economic activity alongside industry.
7. **Strategic geographical location in the centre of Europe and the link to the Rhine River** which has enabled Switzerland to have a wide market of the rich nations with many people capable of making holiday tours from all directions. About 70% of the tourists approximately come from European countries like Germany, France, Britain, Austria, Belgium, and USA. The remaining 30% are Swiss guests. This implies that the country receives very many tourists per year.

### Human factors/ other factors

8. **Presence of large sums of capital to invest in tourism sector** provided by the developed banking sector (*with a network of over 4400 bank offices covering the whole country*). Many nations and wealth personalities have accounts in Swiss banks. This has facilitated easy converting of currency

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and provision of the required capital to develop various tourist facilities in form of loans. Many of the bank customers are also tourism investors.

9. **Developed accommodation facilities** such as hotels which are built to keep pace with the tourist demands. Originally, these were small inns and taverns to cater for travelers. Also chalets and camping sites to keep pace with the demand of holiday accommodation have been set up. These accommodation facilities occupy areas like Geneva, Montreux, Martigny, Zurich and St. Moritz. St. Moritz has the second largest number of hotels to Geneva.
10. **Modernization of transport facilities** such as the electrification of the railway system with modern tracks and locomotives to transport millions of visitors each year to various destinations in the country. About 99% of the Swiss railway is electrified. There are also cable cars and ski-lifts to ferry tourists to the higher grounds. The improved accessibility has meant lowered transport costs and saving time since the means are relatively quick, safe and comfortable.
11. **High level of technology used in tourism** which has enabled the development of cable cars, ski-lifts, and electrified trains. There are hundreds of finely engineered tunnels and bridges across the country's rugged terrain (Trans-Alpine tunnels that permit travel through the Alps). This increases efficiency in the tourism and encourages more tourist arrivals.
12. **Hospitality of the Swiss people**/ the Swiss are very welcoming people, whose culture of hospitality results from the fact that Switzerland is composed of diverse people in language, religion and culture; yet they have stayed together for over 7 centuries. The Swiss are very friendly and always willing to serve the tourists regardless of political and social consideration.
13. **The diversity of international languages spoken by the Swiss people** such as German, Italian, Spanish, English, French, Rhaeto-Romania; and this has helped the natives to comfortably communicate with the tourists regardless of origin. In fact many people are bilingual and with English being the first language to be taught in school, many people become trilingual which has positively influenced service delivery in the tourism industry.
14. **Efficient publicity and advertisement of the tourism sector** such as using internet (*a computer-based global information system*) via which millions of tourists can access information about the Swiss tourist industry. The tourist industry is also well advertised worldwide through newspapers, magazines, televisions, brochures and this has greatly widened the market for the Swiss tourism sector, hence more tourist arrivals.
15. **Highly skilled labour to manage the tourist industry** since tourism has been a tradition for long. This tradition dates back in the 18<sup>th</sup> century when the Europeans admired and described the diversity of scenery and beauty of the Alps. Many people have been trained as hotel managers, supervisors, accountants, tour guides, chefs, and drivers. This has increased the quality of service delivery and encouraged more tourist arrivals.
16. **Efficient tourism management standards** catering for the particular needs of tourists like entertainment and food in relation to modern standards. The Swiss have a genuine art in hotel management with a classic worldwide example. There are many tours and travel agencies which organize tour packages on a very large scale such as air, coach travel, train travel, and arrange accommodation for the tourists in various attraction areas.



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17. **Switzerland's policy of neutrality** which dates back since the 16<sup>th</sup> century with the Swiss confederation not being involved in any war. This has made the country politically stable so as to save the resources available for promotion of tourism, unlike other countries which spend their resources on military warfare. A stable political history has also made Switzerland a holiday resort for many people from various parts of the globe.
18. **Switzerland is the headquarters of many international organizations** such as the International Labour Organization (ILO) in Geneva, World Health Organization (WHO) based in Geneva, International Committee of Red Cross (ICRC), and Federation of International Football Association (FIFA) in Zurich. This attracts many delegates who are either tourists or even tourism investors.
19. **The developed industrial sector of Switzerland** for example it is the world's leading watch making country based in the Swiss Jura region. The country exports over 97% of her watches and satisfies a large percentage of the world demand. Other major industries include engineering, textiles, chemical and precision instrument industries. Many tourists are attracted to see the advancements in technology in the industrial sector.
20. **Supportive / positive government policy towards tourism** such as large capital investment in the sector, regulated tourism standards through policy, spearheaded and encouraged tourism research to modernize the attractions as well as private investment in the tourist industry. This is due to the need to protect the global image of Switzerland.

### Problems facing the tourism industry in Switzerland

- **Competition from other tourist countries which reduces the number of tourist arrivals.** The countries include USA, Italy, South Africa, and Mexico—which countries have many facilities. Some countries like Italy have some similar tourist attractions such as glaciers, wild animals and wild birds. This limits the benefits from the tourism sector by limiting the number of tourists per year.
- **Seasonal nature of tourism which leads to fluctuation in incomes from tourism.** There is a variation in the number of tourists depending on seasons of winter, spring, summer and autumn because the tourists have different interests. For example, some tourists do not want to visit the country during harsh winters. Therefore, the country doesn't receive large numbers of tourists throughout the year; and this undermines the development of the tourism industry.
- Harsh winters which limits the movement of tourists, hence limiting tourist arrivals.
- **Rugged / mountainous landscape in some areas making them less accessible to tourist.** For example, some parts of the Alps are not easily accessible by tourists due to rugged landscape. This limits the tourist from fully experience the tourist potentials. The use of cable cars increases the costs to the tourists.
- **Language barrier in some cases which limits the number of tourist arrivals .** There is a Language barrier between local people and foreign tourists due to some tourists are not familiar with the international languages in many parts, which limits communication with the tourists and hence few tourist arrivals.
- **The threat of deadly diseases today in some parts of the world** such as *ebola*, which limits the number of tourists visiting the country. Deadly diseases break out in various parts of the world such



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as *ebola* which broke out in many parts of West Africa in 2014. Accordingly, the various countries including Switzerland restricted on the number of people coming from Africa to control the spread of the disease, hence limiting on the number of tourists and hence reduced tourist incomes. Still some tourists just fear to move around the world to reduce risks of interacting with infected people.

- ***Poaching of wild animals which reduces the tourist potentials in the country.*** Poaching is the illegal hunting and killing of animals in national parks and wildlife reserves –for meat, hides etc. Some of the animals and birds are threatening extinction and this reduces the tourist potentials.
- ***Wild fires such as in the coniferous forests which also reduces the tourist potentials.*** Fires sometimes destroy some parts of national parks and forest reserves in some areas. The fires are either intentional or accidental caused by hunters or careless smokers near or in the wild life conservation / tourism potential areas. This undermines the tourism potential and thus limiting the incomes from the sector.
- ***Pollution of the environment such as water and air pollution*** due to disposal of wastes and emission of dangerous gases which destroys tourism potentials. Pollution is becoming a major threat in some areas with many industries such as the Swiss Plateau. This makes such places less attractive to tourists and thus limiting incomes from tourism.
- ***Shortage of labour*** to manage the tourism industry. This is because some people prefer to work in other sectors with better payment, and this limits efficiency.
- ***Population pressure in some areas*** which leads to increased demand for land for both settlement and other activities, hence reducing the biodiversity and hence reducing the number of tourist arrivals.
- Restrictions in the giving of visas, deportation of some people, which limits the number of tourist arrivals.
- World economic recession which has reduced world incomes and therefore reducing the numbers of tourists.
- Terrorism threat in the world today which limits the number of tourist arrivals/ which scares away tourists.
- Accidents due to avalanches, and melting ice which leads to the death of tourists, hence scares some other potential tourists.

### Tourism in USA

USA is part of North America and the country has a well developed tourism industry which plays an important role in the development of the country.

### Major tourist attractions

#### a) Drainage features

These include the St. Lawrence Seaway which connects the Greatlakes region to the Atlantic seaboard. It has several locks, canals and dams. The Greatlakes (lake superior, lake Michigan, lake Huron, lake Erie, and Lake Ontario). Rivers such as Mississippi river, Tennessee river, river Ohio, river

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Colorado , river san Joaquin and river Sacramento. Waterfalls such as Niagara Falls (known as a natural wonder)

**b) Relief features**

These include the Appalachian Mountains in the east (states of North Carolina, West Virginia and Virginia). The Appalachian mountain system is nearly parallel with the Atlantic coast extends up to 2400 long. The Rocky mountain system in the west, the Sierra Nevada Mountains in California.

**c) Varied climatic types**

This ranges from cool temperate, warm temperate to arid climate. The arid climate of southern California with plenty of sunshine is a major tourist attraction. In winter season (Nov—Feb.) the tourists engage in skiing and ice skating while in summer the tourists enjoy sun bathing , boat racing and swimming.

**d) Wild life**

The varied vegetation types include coniferous forests, Mediterranean vegetation, desert vegetation, sub-tropical forests. Most tropical vegetation and animals exist in the southern sunny states of USA. Also yellow stone national park is famous for geysers and cascading waterfalls.

**e) Historical sites and cultural attractions**

USA has several museums such as Newyork international museum; Croker Art Museum in Sacramento, the Oakland Museum of California. The Statue of liberty in Newyork city, the famous Golden Gate Bridge in San Francisco. Mt.Rushmore National Memorial (in the Black hills of Dokota) with magnificent carvings of America's past presidents (like Washington, Jefferson, Lincoln and Roosevelt).

USA has many cultures ranging from blacks, Red Indians, Spanish, Italians, Dutch and mixed races; with varying ways of life including dressing, dances etc

f) **Industrial establishments** such as in the Greatlakes region, Newyork, Boston, Pittsburgh, San Francisco, Los Angeles. The industries include: iron and steel, chemical, motor vehicle, food processing, and the unique film industry in California State.

g) **Water management schemes** which include Tennessee valley project, the delta Mendota scheme in California, Shasta dam and Friant dam in California.

h) **Mineral resource areas.** These include the Rocky mountain region, Appalachian region, and the Greatlakes region. The minerals include iron ore, gold, coal, copper, petroleum, and natural gas.

### Factors favouring the development of tourism in USA

1. **The varied climate types** from region to region. The winter season occurs between November and February; spring follows between February and April; summer (April to August) and autumn (September to November). In summer the tourists enjoy sun-bathing, boat racing and swimming while in winter they engage in skiing and ice skating. Newyork area has an attractive sub-tropical (warm temperate) climate. California is an example of a semi-arid especially the southern part (with associated desert features). This leads to large numbers of tourists with varying interests.
2. **The magnificent landform scenery** for example the western highlands (Rocky Mountains) running from Mexico to Alaska for 4800km parallel to the coast. The eastern highlands (Appalachian Mountains) running from the end of the St.Lawrence river to the Gulf of Mexico and parallel to the

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coast. USA also has beautiful beaches on both the eastern and western coasts conducive to accommodate tourists such as Newyork, Boston, and Santa Monica beach on the coast of California. Many people are attracted to mountaineering and coastal activities.

3. ***Presence of varied drainage features*** like Niagara falls, St. Lawrence, the Greatlakes, Mississippi River, Tennessee, Colorado, San Joaquin. Such water bodies are tourist attractions and also help in transporting tourists and other tourist activities like boat racing.
4. ***Presence of varied vegetation types*** which include coniferous forests, warm temperate vegetation and desert vegetation. For example the temperate grassland on the interior plateau towards the prairies attracts many study tourists. There are also a variety of flowers and infact Georgia and Carolinas are famous to be 'homes of flowers'. These attract many tourists for pleasure, curiosity and study tours.
5. ***The varied fauna potentials*** for example most tropical animals and birds exist in the sunny southern states of USA. The conservation of wildlife is done in national parks, reserves and research centres. The national parks include Rocky Mountains national park, Zion national park and Bryce canyon national park, Grand Teton national park in Salt Lake City, Yellow stone national park. The western states boast of having the most spectacular national parks in North America. USA has bird species like California condor, bald eagle, parrots. All these attract many tourists for curiosity, adventure and educational tours.
6. ***Availability of large sums of capital to invest in the tourism sector*** provided by the banking sector, wealthy local businessmen, and government and foreign investors.
7. ***Well developed accommodation facilities such as hotels, lodges, holiday apartments, and camping sites.*** The luxurious hotels attract high-class and middle class tourists especially on the coastal seaboard (Newyork, Boston, Halifax, Los Angeles, San Francisco). Hotels include Hilton in Newyork, California Holister beach hotels, and Miami Beach hotels in Florida.
8. ***Efficient transport and communication system*** with the most dense railway and road network in the world. USA also has the greatest air traffic in the world and world standard airports such as new ark airport and john f Kennedy airport in Newyork, Los Angeles international airport and San Francisco airport. Other transport systems include the St. Lawrence Seaway, pacific and Atlantic Ocean transport. This facilitates easy movement of tourists to various attraction centres and yet they are attractions themselves.
9. ***Efficient publicity and advertisement for the tourist industry.***
10. ***USA'sposition as the head quarters of many international organizations*** which include United Nations Organization (UNO) in New York, IBRD (World Bank), international monetary fund (IMF).
11. ***USA has been politically stable*** for a long time and not been directly affected by major wars since even the world wars were fought off the continent of North America. The peace and stability has enabled the continuous improvement of the tourism attractions, and also gives confidence to the tourists.
12. ***Presence of many people in the affluent class (many rich people)*** and the country has a high per capita income. This factor avails more local tourists in USA and the development of package tours. The high population of USA further enhances tourism development.

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13. **Historical factor and cultural heritage** for example USA is made up of people of various origins such as blacks, Spanish, red Indians, Chinese, and Dutch with diverse cultures. There are also many historical centres/sites.
14. **Presence of skilled manpower to manage tourism.**
15. **The hospitality of the Americans**
16. **The diversity of international languages used**, which include Arabic, Jewish, Spanish, Afrikaner, English, German, Latin, French, etc
17. **Presence of a developed economic activities such as mining, industrial sector, trade, farming etc**
18. **Advancement in technology in the tourism sector.**
19. **Rapidly growing research to promote the tourism sector.**
20. **Favourable government policy towards the tourism sector. The federal governments fund tourism development.**
21. **Strategic geographical location of USA** bordered by the Atlantic and Pacific oceans.

*[Note: The tourist activities include: picnics, educational and scientific research, forest viewing, forest walk, animal viewing, flower viewing, sun bathing, boat racing, rafting, mountaineering / mountain climbing, ice skiing, ice skating, etc*

*Tourism industry involves development and conservation of tourist potentials like conservation of nature; transportation of tourists, tour guides and operators, hotel management etc]*

### **Guiding questions:**

- 1) Assess the contribution of the tourist industry to the economic development of either developed or a developing country.
- 2) To what extent are physical factors responsible for the development of tourism in either Switzerland or Egypt?
- 3) Examine the factors that have contributed to the development of tourism in Switzerland.
- 4) Account for the growth and development of the tourist industry in either republic of South Africa or USA.