

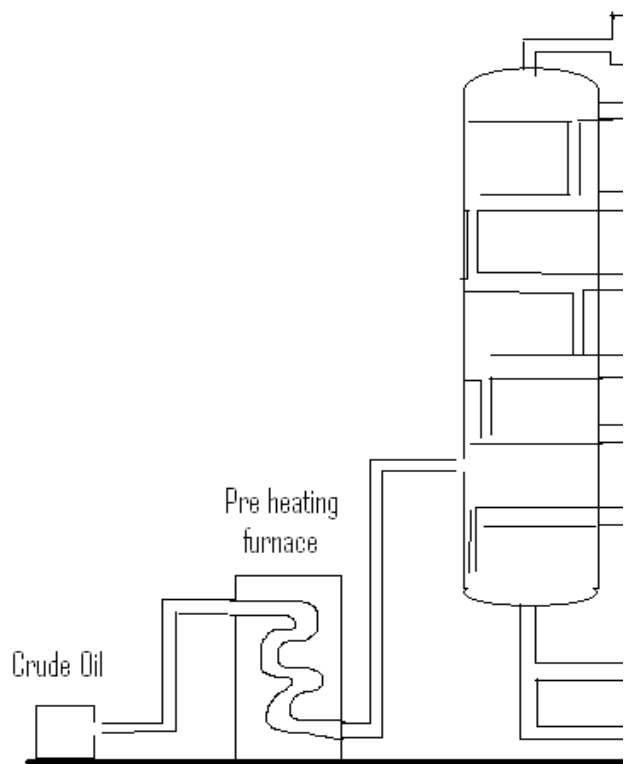
SYLLABUS BASED MALAWI SCHOOL CERTIFICATE OF EDUCATION (MSCE) HUMAN GEOGRAPHY

SUMMARY NOTES

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TOPICS

1. World Agriculture
2. Hydrosphere
3. Natural Resources
4. Settlements
5. Population
6. Statistical methods in Geography
7. Industry
8. Transport and Trade



REFINING PROCESS

TOPIC 1: WORLD AGRICULTURE

MEANING OF THE TERM AGRICULTURE

This is the harvesting of crops and animal products for human and /or animal consumption and for industrial production.

FARMING AS A SYSTEM

INPUTS

- a. Physical environment (natural) inputs: Sunlight, relief, soil type and drainage and rainfall
- b. Human and economic inputs such as labour, rent, transport costs, machinery, fertilizers and pesticides, government aid and marketing
- c. Expenditure: Purchase of machinery, in inputs e.g. fertilizers, pesticides and labour payments

PROCESSES

Patterns and methods of farming e.g. cultivation, rearing and storage.

OUTPUTS

Methods used to obtain outputs:

- Arable, pastoral, mixed, irrigation, plantation agriculture
- Shifting cultivation
- Livestock ranching
- a. Crops: barley, potatoes, rice, etc
- b. Animal: chickens, pigs, cattle etc
- c. Animal products: eggs, manure, milk etc
- d. Profits: Profit and loss can be experienced on the farm

FACTORS THAT CAN BRING CHANGES TO FARMING AS A SYSTEM

- a. **Flooding:** Damaging crops and eventually poor yields
- b. **Drought:** Crops dry out and wilt leading to poor yields finally famine
- c. **Diseases and pests:** When they attack crops, they affect the yielding
- d. **Changes in demand, Market price and subsidy:** Fluctuation of prices.
- e. **Improved technology:** Resulting in good output and farmers profiting

FACTORS THAT INFLUENCE AGRICULTURE

The factors are classified into four categories namely:

- **Physical Factors**
 - Climate i.e. temperature and rainfall
 - Topography i.e. Nature of the land – flat land making the best land for farming
 - Biotic i.e. Plants grow well where there are no weeds, fungi, insect pests etc
 - Soil i.e. fertile alluvial soils are good for agriculture
- **Human factors**
 - Ownership and inheritance of land i.e. you own land and start cultivation
 - Government policies i.e. the government can control use of land in a country
 - Religion and culture i.e. some religions ignore their members to cultivate certain crops
 - Culture
- **Economic factors**
 - Capital influences agriculture in order to buy inputs e.g. fertilizer
 - Market i.e. after production farmers need to sell their produce
- **Technological**
 - Farming becomes easy with the use of machines e.g. tractors
 - Chemical fertilizers also boost agriculture

TYPES OF AGRICULTURAL FARMING

- a. **Subsistence Farming** i.e. growing of food crops and rearing of animals only for themselves and their families. i.e. consumption
- b. **Commercial Farming** i.e. growing of crops and rearing of animals for sale. Mostly practiced in sparsely populated areas in the world.

SUBSISTENCE FARMING

CHARACTERISTICS

- a. Simple techniques of cultivation used
- b. Family labour employment
- c. Low standards of living
- d. Practised by farmers living in economically backward areas.
- e. Sometimes it becomes intensive that some crops are sold

TYPES OF SUBSISTENCE FARMING

A. ANIMAL FARMING (SUBSISTENCE)

MEANING

This is the system of rearing animals whereby the animals are moved from place to place in search of pastures.

AREAS OF NOMADIC PASTORALISM

PASTORAL FARMERS	AREA OF THE WORLD
Fulani	Sahel in West Africa
Masai	East Africa
Nubians	Ethiopia and Sudan
Tuaregs	North Africa
Bedouins	Saudi Arabia
Kirghiz, Kazaks and Kalmucks	Central Asia
Lapps	Scandinavia

IDENTIFICATION OF NOMADIC HERDERS

- Each family in a group rears the same type of animal e.g. Lapps rearing reindeer
- They move from place to place in search of pasture
- They live in portable tents and depend on their animals for food, clothes, transport and fuel
- They keep too many animals as they take them as their wealth
- Poor quality animals are kept due to scarcity of pastures and water

CLASSIFICATION OF NOMADISM

Classified according to how the animals and the herders move in search of pasture.

- Total nomadism**
 - Herders have no permanent residences.
 - No crop cultivation since they are always on the move
- Semi nomadism**
 - Herders have a permanent residence and they cultivate crops
 - They sometimes travel to far areas to graze their animals
- Partial nomadism**
 - The herders are permanently settled
 - Their herds remain near by
- Transhumance Pastoralism**

- Herders have permanent settlements
 - They send their herds for long periods of time to far away grazing areas
- Sedentary animal husbandry**
 - Animals remain on the holding throughout the year
 - Nomadic pastoralism**
 - A system of rearing animals where they move from one place to another in search of pasture.
 - Households also move since they depend on the herds for their products e.g. milk.
 - It is an extensive form of animal grazing on the natural pasture
 - It is a permanent migration with no regular crop production

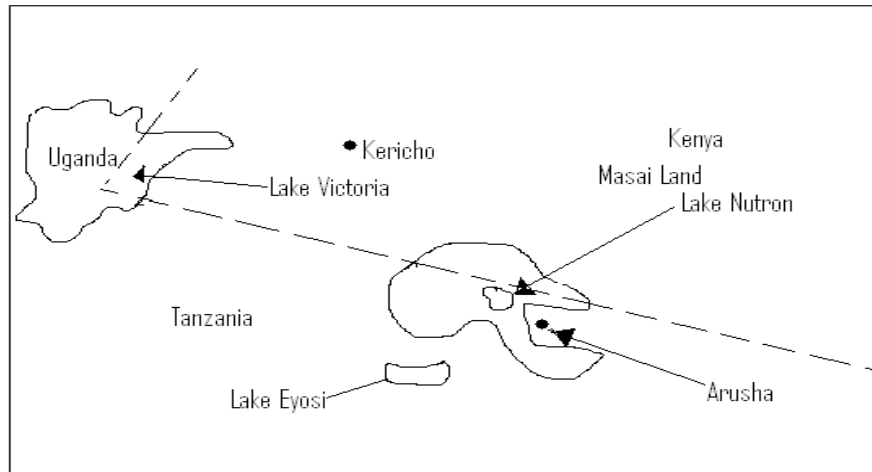
TYPES OF MIGRATIONS

- Horizontal Migration** i.e. the herders trek their animals to where rain falls and pasture grows
- Vertical Migration** i.e. herders and their animals migrate to various altitudes that temporarily carry pastures – hence – Vertical.

PROBLEMS OF PASTORAL NOMADISM

- ❖ Destruction of grass cover which leads to soil erosion due to overstocking
- ❖ Herds are affected by many diseases and insect pests
- ❖ Poor quality of native breeds i.e. slow to mature, low production of milk etc
- ❖ Poor quality pastures due to unreliable and seasonal rainfall.
- ❖ Diminishing of grazing areas due to increased crop cultivation in grazing zones
- ❖ Loss of income due to the use of motor vehicles than animals
- ❖ Loss of political control i.e. the pastoral nomadists were able to take control of the regions where they settle
- ❖ Burning of dead grass during the dry season leaves the soil bare hence erosion

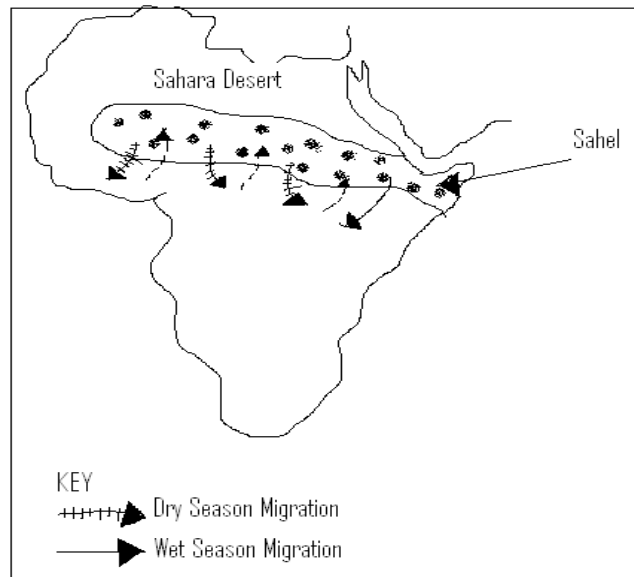
EXAMPLES OF NOMADIC HERDERS - THE MASAI OF EAST AFRICA



MASAI LAND OF EAST AFRICA

- Rainfall is unreliable i.e. 755 mm
- The area has two wet seasons i.e. November to December and March to May
- There are two dry seasons i.e. January to February and June to October
- The Masai are transhumance i.e. seasonal migration
- The transhumance is done in the wedge of Masai land stretching from Nairobi southwards into Tanzania.
- The Masai rear cattle

THE FULANI



- The Sahel in West Africa extends from Senegal to Lake Chad.
- It experiences wet season from May to October and dry season from November to April
- In dry season temperature is high i.e. 25° Celsius
- They are cattle herders and they practice transhumance.

THEY MOVE NORTH WARDS THE SAHEL REGION DUE TO THE FOLLOWING

- Rising of water table and water masses i.e. more water in Sahel.
- Grass becomes evergreen and abundant
- Running away from hyenas and tsetse flies

During dry season they move south wards because the water masses dry up and grass wilts.

Sahel has got two seasons namely:

- Wet Season: May to October
- Dry Season: November to April

PROBLEMS FACED MASAI AND FULANI

- Tsetse flies and diseases attacking animals
- Loss of soil fertility due to overstocking
- Poverty is on the increase because they opting for other transport sources apart from animal transport.
- Inadequate production of milk and meat.
- Dying of animals during the dry season
- Inadequate land for grazing because of rapid population growth

REASONS FOR THE DECLINE IN TOTAL NOMADISM

- Conflict with local authorities
- Birth of alternative forms of transport e.g. cars than animals
- Increased pressure on land use for arable cultivation and industrial development
- Pastoral nomads have lost their traditional authorities

B. SUBSISTENCE CROP FARMING

This is a primitive form of farming practiced by primitive people in many parts of the underdeveloped regions of Africa, South America and South East Asia.

SHIFTING CULTIVATION NAMES

COUNTRY	NAME
Zimbabwe	Milpa
Malaysia	Ladang
Thailand	Tamrai
Burma	Taungya
Brazil	Roca
Philippines	Caityring
India	Poda or Bewar
Zambia	Chitemene
Malawi	Visoso
Zaire	Masole
Sri Lanka	Chena

TYPES OF SHIFTING CULTIVATION

- Migration systems (The continuous movement of cropping results in slow migration of population). The direction of migration involves the following:
 - Random shifts
 - Linear shifts i.e. newly cleared pots are adjacent to previous plots
 - Cyclic shifts i.e. within a given area
- Clearance systems also called the slash and burn (Depending on vegetation to be cleared, crops to be grown and available tools. The main forms are:
 - Burn and plant:** Dry thick vegetation is burnt and crops grown
 - Burn, hoe and cut, plant**
 - Cut, burn and plant:** Towards the end of dry season vegetation is cut, allowed to dry then burnt as wet season approaches
 - Cut, plant, burn:** Plantains and bananas are grown.
 - Cut, add extra wood, burn, plant, hoe:** Called Chitemene in Zambia

MAIN CHARACTERISTICS OF SHIFTING CULTIVATION

- Simple tools are used by farmers e.g. hoes, pangas e.t.c.
- It is customary to abandon a plot once it loses fertility to the soil
- Clearance of forests is done by fire so that the ashes add fertility to the soil
- Crops such as hill rice, millet, sweet potatoes, tapioca and maize are grown.
- Practiced in sparsely populated areas and where vegetation is abundant.
- They don't use manure because ashes add fertility
- Plots are usually small
- The abandoned land is left for two to four years to revert to forest

PROBLEMS OF SHIFTING CULTIVATION

- Clearance of vegetation lead into loss of soil fertility through erosion
- Natural disasters e.g. flooding are also at large
- Inclination to primitive trends and failure to accommodate new technological changes
- Creation of food insecurity at households levels as production declines due to loss of soil fertility

FUTURE OF NOMADIC PASTORALISM AND SHIFTING CULTIVATION

- Both are declining forms of agriculture
- They are only possible in areas of sparse population

INTENSIVE FARMING

Practiced in densely populated areas such as Monsoon lands of Asia covering China, Japan, India e.t.c.

CHARACTERISTICS

- Labour and capital to small farms
- Yield per unit area are usually high.
- Use of irrigation to supplement rain.
- Single or double cultivation possible
- Manure and fertilizer used intensively to obtain high yields

ADVANTAGES OF INTENSIVE FARMING

- Farmers can harvest twice a year and have sufficient food
- With irrigation it is possible to harvest crops even during drought

DISADVANTAGES INTENSIVE FARMING

- Difficult to do it on commercial purposes because plots are small
- Since machines can not be used it negatively affected with insufficient labour.
- A lot of capital required which may not be recovered.

DAIRY FARMING

MEANING

An agricultural system meant to produce milk for sale.

FAVOURABLE CONDITIONS FOR DAIRY FARMING

- Presence of transport routes:** To access markets easily since milk is highly perishable i.e. vehicles need to be available at any time
- Availability of green and quality pastures:** such as silage, alfalfa etc
- Easily accessed markets:** Dairy farms located near urban areas.
- Mild and damp climate with cool summers and mild winters:** for pasture growth.

BREEDS OF DAIRY CATTLE

- Ayrshire
- Holstein
- Guernsey
- Jersey
- Fresian
- Aldernary
- Brown Swiss

CROPS GROWN FOR DAIRY FARMING

- Oats
- Barley
- Grass

RELATIONSHIP BETWEEN FARMING ACTIVITIES TO CYCLE OF ACTIVITIES

- Ploughing in October and seeds sown in rows
- Clearing of land immediately after the harvest of root crops
- Stall feeding intensified in November and January due poor weather
- Reploughing in March and April and seeds are sown.
- Removal of weeds done in May and July
- Cereal crops harvested in August
- Root crops are lifted in September

MAIN PRODUCTS OF DAIRY FARMING

- Shangko
- Settle
- Cue – mate
- Minitude
- Bioniche animal health
- Cheese.

MANAGEMENT OF DAIRY FARMS (COOPERATIVES)

MEANING

- Dairy farms owned, operated and controlled by dairy farmers who benefit from its services.
- Members finance the cooperative by putting their resources and share the profits proportionally

IMPORTANCE OF THE COOPERATIVES

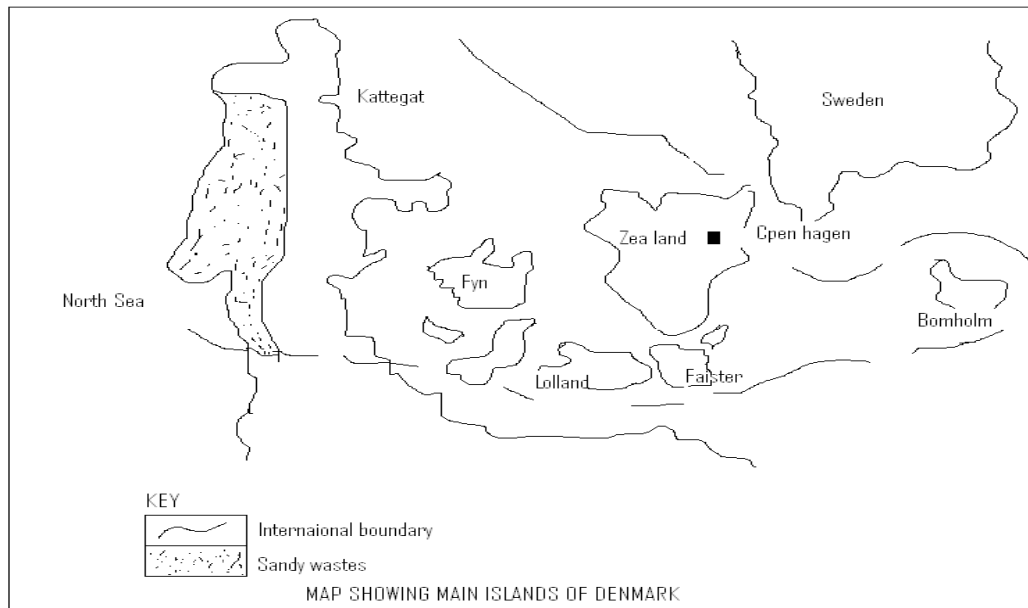
- Loan provision to farmers recovered through the sale of farm produce
- Advising farmers on how to improve efficiency of dairy farms
- Buying farm input on behalf of dairy farmers in order to realize more profits since they are provided at lower prices
- Selling the produce on behalf of farmers.

IMPORTANCE OF FOLK HIGH SCHOOLS IN DENMARK

- Established due to the existence of the dairy industry in Denmark
- The aim is to assist farmers to have knowledge on dairy management
- They normally target adult men and women who are taught agriculture and economics respectively

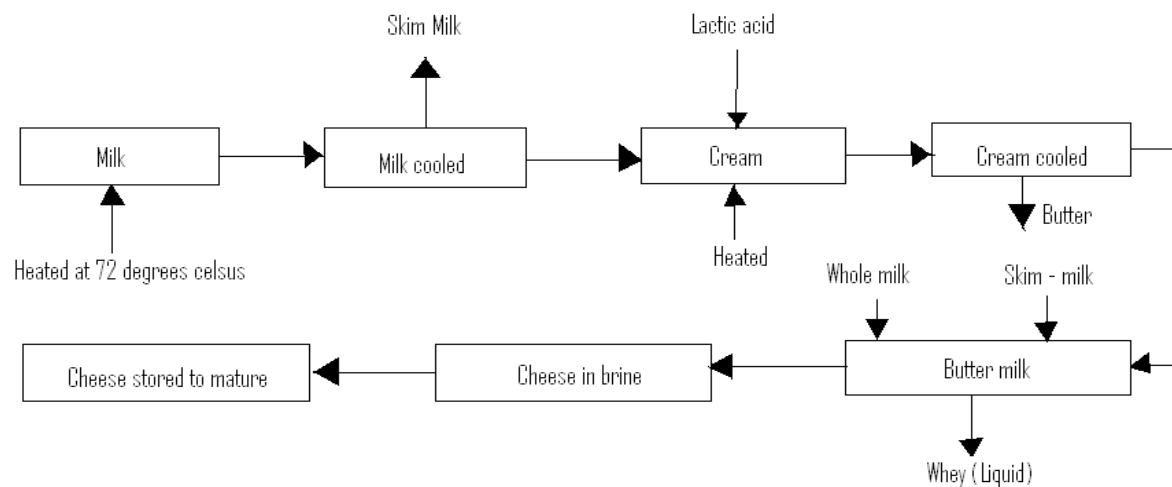
- Young people are taught good farming methods to contribute positively to dairy farming management

MAIN ISLANDS OF DENMARK AND THE JUTLAND PENINSULA



- There are four major islands in Denmark namely: Zealand, Fyn, Falster and Holland and the main land (Jutland).
- Western Jutland has infertile and sandy soils which are treated so that they are fruitful.
- Zealand, Fyn, Falster and eastern mainland (Jutland) are very fertile and heavily cultivated.

PROCESSING OF MILK



WORLD DAIRY FARMING AREAS

- New Zealand
- Australia
- Holland
- South Africa
- North East USA

IMPORTANCE OF DAIRY INDUSTRY TO DENMARK

- Employment of many people.
- Foreign Exchange (Forex): Butter, cheese, milk, eggs and bacon are some of the products that provide income to Denmark through exports.

DAIRY FARMING IN MALAWI

AREAS OF DAIRY FARMING IN MALAWI

- Katete Farm
- Mzuzu Dairy Plant
- Blantyre Dairy Plant
- Lilongwe Dairy Plant
- Ndaka Farm
- Capital City

IMPORTANCE OF DAIRY FARMING IN MALAWI

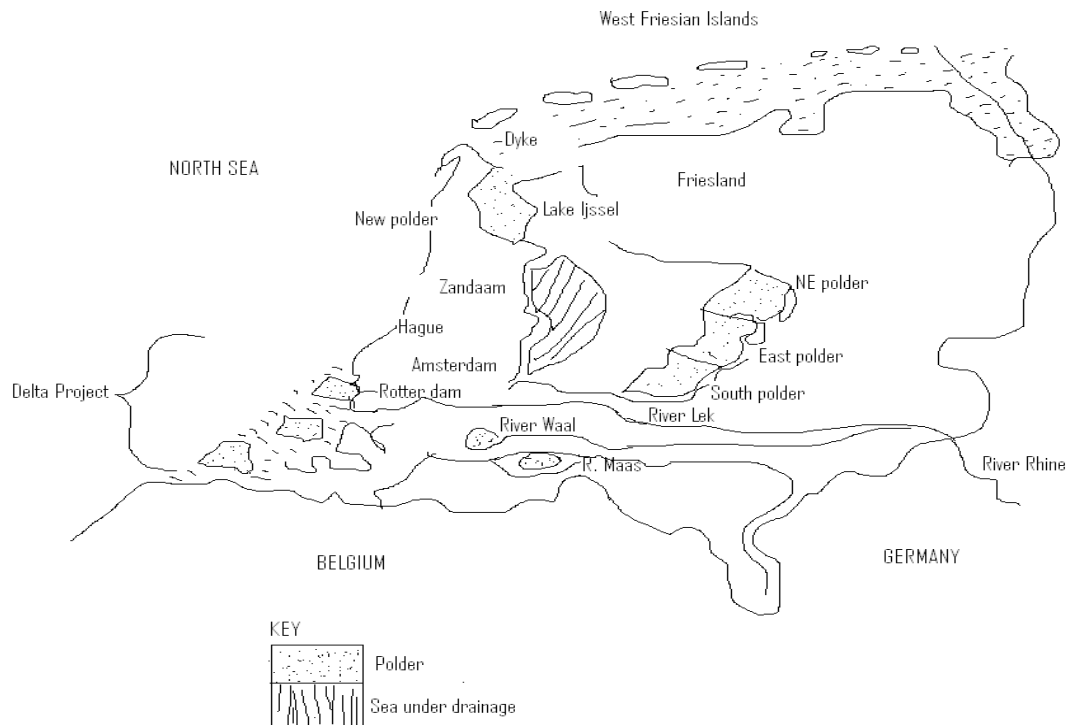
- Source of nutrients such as vitamins, fats and proteins for proper growth of people
- Source of income to dairy farmers
- Provision of manure that improves soil fertility

- Source of meat after the life's span of the milking cow's life
- It has led to the reduction of the importation of dairy products from outside

PROBLEMS FACED DAIRY FARMERS IN MALAWI

- Lack of capital to buy dairy breeds
- Loans are difficult to obtain to acquire the dairy breeds
- Native breeds produce insufficient milk
- Lack of scientific techniques in most areas
- Feed is expensive
- Lack of proper storage facilities because milk is highly perishable
- Poor road infrastructure.

THE NETHERLANDS: LAND RECLAMATION AND POLDER CULTIVATION



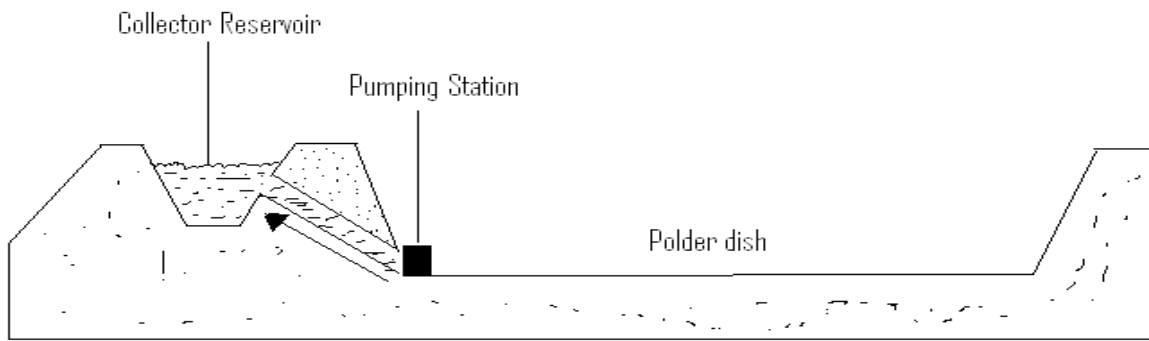
TERMINOLOGIES

a. LAND RECLAMATION

The turning of water logged areas of shallow sea or lake into dry land.

b. POLDER

- It is a reclaimed land from swamps, lakes and shallow seas.
- 14% of the present surface area of Netherlands is reclaimed land



CROSS SECTION OF A POLDER

EXAMPLES OF POLDERS IN NETHERLANDS

- a. Noordoost polder
- c. Haarlemmermeer, container schipged airport
- d. Beernster, a world heritage site
- e. Alblasterwaard containing windmills of kinderdijk, a world of heritage site.

b. Wieringermeer

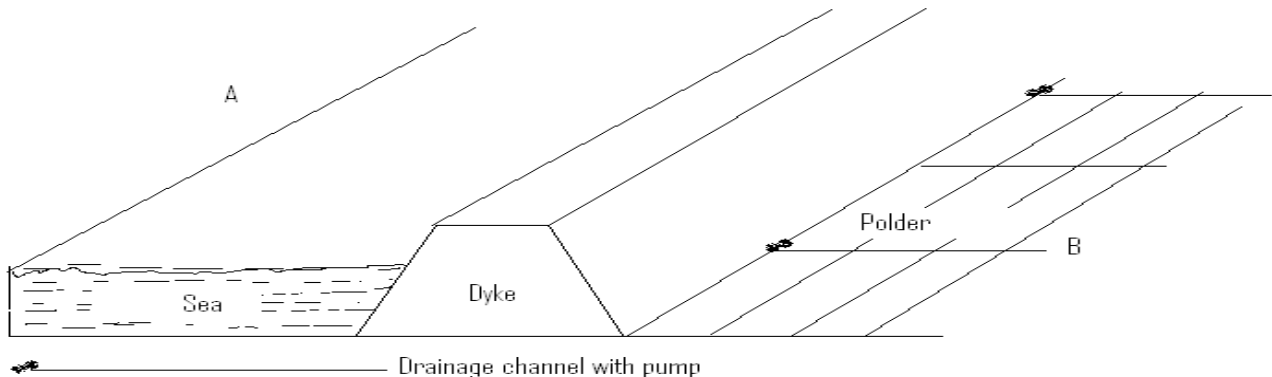
- b. Sandy and infertile soils in some areas of Netherlands
- c. The improvement of technology i.e. production of wind mills etc

REASONS FOR LAND RECLAMATION

- a. Dense population in Netherlands

NOTE: The west called Holland is quite fertile with loamy clay soils and 60% of the Dutch live there.

THE PROCESS OF LAND RECLAMATION



- The area to be reclaimed is encircled with a dyke or dam wall called the ring dyke which divides the sea.
- Water is pumped from one side of the sea B or the enclosed side to open sea A.
- The pumping by pumps until most of the water is drained
- The drainage ditches are dug within the area to drain the remaining water
- The main ditches (Central channels direct water to pumping station)

LANDSCAPE OF POLDERS

- Dykes are common
- The ground is flat

- After draining the soils are at first too salty for cultivation and reclamation is not really complete until special grass (reeds) are planted and allowed to grow for a few years.
- Roots help to bind the soil together
- The dead leaves rot and form humus
- The rain washes out the salts

NOTE: Drainage does not stop with the formation of a polder because polders are low lying and are liable to flooding. Constant has to be carried out on the dykes to ensure they are in good order.

- The polders are below sea level
- The land is geometrically planned to maximize land use

TYPES OF POLDERS

1. **Land reclaimed polders:** From a body of water such as lakes or the sea bed
2. **Flood plains:** Separated from the sea or river dyke
3. **Marshes:** Separated from surrounding water by dykes and consequently drained.

PROBLEMS ASSOCIATED WITH LAND RECLAMATION

- **Flooding:** Dykes are built to protect this from happening
- **Salination:** Due to evaporation and affects crops
- **Cost:** Construction and maintenance of dykes and drainage canals, the purchase of pumps, reservoir collectors and construction of drainage canals is very expensive.
- **Land subsidence:** As the ground level dries

CROPS GROWN ON THE POLDERS

- a. Vegetables
- b. Oats
- c. Rye

EXTENSIVE FARMING

MEANING

This is the type of commercial farming which is done on a very large scale on extensive farms found mostly in sparsely populated areas.

POPULATION DENSITY AND EXTENSIVE FARMING

- ✓ Practiced in areas of low population density
- ✓ It requires enough land covering so many square kilometers

AREAS WHERE EXTENSIVE FARMING IS PRACTISED

- a. Prairies in Canada
- b. Pampas in Argentina
- c. Downs in Australia
- d. Steppes in Commonwealth Independent States (CIS), Denmark and Netherlands.
- e. High Veldt of Natal and Botswana

CHARACTERISTICS OF EXTENSIVE FARMING

- Involvement of small labour force

- d. Flour
- e. Barley

FARMING TYPES ON POLDERS

- a. Dairy farming**
 - Production of milk for sale in liquid forms or butter and cheese or condensed or powdered.
 - The dairy farms are small, intensively managed and highly mechanized
- b. Arable farming**
 - Wheat, rye, oats and barley are grown.
 - Mixed farming is done on other polders i.e. crops and animals
- c. Horticulture**
 - Flower and vegetable growing is also intensively done

POTENTIAL RECLAMATION AREAS IN MALAWI

- Shallow lakes: Chilwa, Chiuta and Kazuni
- Wetlands: Elephant, Ndindi, Vwaza and Lake Chilwa marsh

- Mechanization is done on large scale because of the nature of the system.
- Low yields per unit area but overall high
- It involves cultivation of only one type of crop
- Use of extensive farms.

ACTIVITIES ASSOCIATED WITH EXTENSIVE FARMING

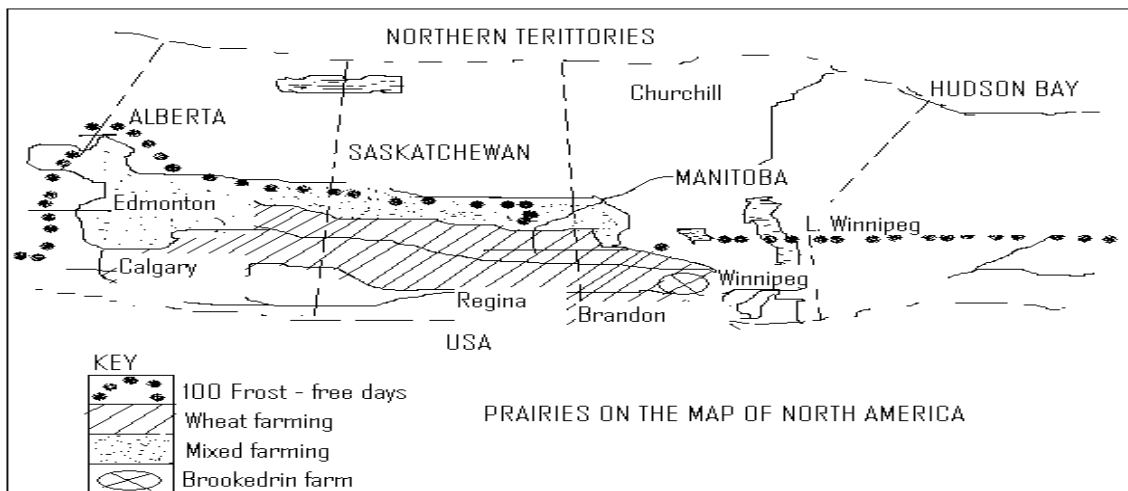
CROPS GROWN AND ANIMALS REARED

- Wheat is a very good example of crops grown under extensive farming.
- Cattle, sheep and horses are reared on very large farms called Ranches

PROBLEMS ASSOCIATED WITH EXTENSIVE FARMING

- ❖ International price depressions can have devastating effects due to monocropping.
- ❖ Droughts because irrigation is not used.
- ❖ Pest multiplication and loss of fertility due to the production of same crop on the same land
- ❖ Sparsely populated areas and flat land are required for mechanization

EXTENSIVE WHEAT FARMING IN PRAIRIES



MAIN WHEAT GROWING AREAS

- Saskatchewan
- Alberta
- Manitoba

FACTORS FOR EXTENSIVE WHEAT FARMING

- Temperature:** Between 15°C and 21°C, a warm dry sunny period for wheat ripening.
- Rainfall:** About 900 mm. and where it is below 200 mm irrigation takes its course.
- Soil:** Well drained loam soils which can retain moisture
- Gently undulating land:** To allow use of machines
- Growing season:** Not less than 3 months. Planting is done in April to May, maturing is between 11th and 22nd August i.e. the growing period is for about 100 to 120 days

REASONS FOR WHEAT GROWING ON THE CANADIAN PRAIRIES

- Good communication:** Roads and railways to markets
- Flat land:** Enabling mechanization to take place quite easily
- Climate:** It is conducive to the growing of wheat.
- Soil:** Rich and fertile loam soils which have good drainage
- Market:** Wheat can be sold locally or internationally due to demand
- Land:** Very large land with low value i.e. Alberta, Saskatchewan and Manitoba.

LAND USE ON THE PRAIRIES

- Clearing, ploughing and treatment of land with appropriate fertilizers is done in October.
- No cultivation is done between November and March due to snow instead maintenance and repairing of machinery is done.
- Sowing of wheat and growing of potatoes is done in spring from April to May due to high temperatures that melt the snow providing moisture.
- Chemicals are sprayed from June to July to prevent wheat from pests and diseases and weeding is done
- Harvesting is done in August and September respectively.
- After harvest wheat is either sold locally (over 90%) or exported to Europe, Japan, Indonesia, Korea etc (Over 5%)

ECONOMIC IMPORTANCE OF WHEAT GROWING

- Source of foreign exchange:** Through exports
- Source of income:** To local farmers through local sales
- Raw material:** In bakery industry
- Source of revenue:** Through taxation of the industry i.e. Govt.
- Source of employment:** To local people.

USES OF WHEAT

- Semolina from which spaghetti, macaroni and vermicelli are made
- Bread, cake, breakfast cereals, biscuits, pie crust and ice cream cones

THE MAIN WHEAT PRODUCING AREAS

- Commonwealth of independent states (CIS)
- USA
- China

- Canada
- France

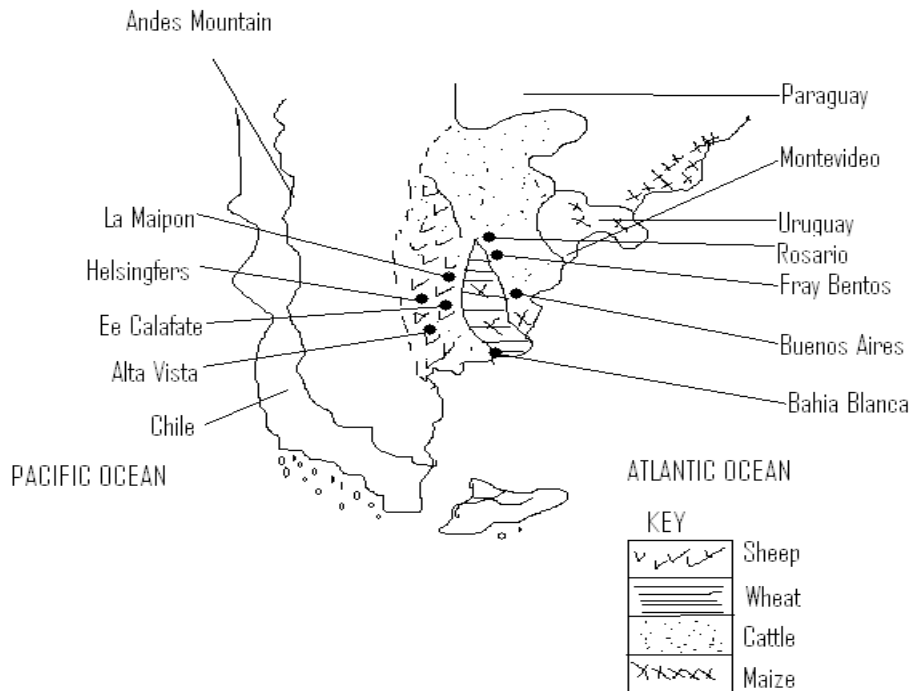
CLIMATE OF SASKATOON IN SASKATCHEWAN

	J	F	M	A	M	J	J	A	S	O	N	D
Temp(°C)	-18	-15	0	3	10	14	16	15	11	3	-7	-12
Rainfall	18	18	20	21	38	60	60	44	36	20	18	17

PROBLEMS

- Fluctuation of export market due to unregulated wheat production
- Drought, hail, wind and frost
- Gophers, mice and grasshoppers damage crops if not eliminated on time.
- Rust disease attacking and ruining the ears of the grain.

RANCHING IN ARGENTINA



TERMS ASSOCIATED WITH RANCHING

- Estancia:** An extensive farm in South America where cattle is kept on large for sale.
- Frigorificos:** Places where animals are slaughtered and meat is frozen
- Ranches:** Large pieces of land where animals are kept
- Ranching:** All activities that take place on a ranch.
- Chacras:** Small cattle estates as compared to estancias
- Saladeros:** Butcheries that process corned and salted meat.

PLACES WHERE RANCHING IS PRACTICED

- Argentina (Pampas)
- Natal and Botswana (High veldt)
- Australia and New Zealand (Downs)
- Commonwealth of Independent States (CIS), Denmark and Netherlands (Steppes)
- North America (Prairies)

CONDITIONS FOR RANCHING IN ARGENTINA

- Topography: Flat land enabling animal rearing.
- Favourable grass: Supporting the ranching industry.
- Good climate: Temperature – above the freezing point and water related. Rainfall – about 900 mm for grass to grow
- Access to markets: Local and international markets
- Good Transport Network: Railways to fattening camps and frigorificos
- Sparse Population: Creating enough land for grazing

ACTIVITIES ON THE RANCH OR ESTANCIA

MONTH	ESTANCIA ACTIVITIES
Jan - Feb	Ranch fences are repaired
Mar - May	Cattle
May - Jun	Sheep dipping and branding
Jul - Aug	Lambing and lamb making
Sep - Oct	Sheep rearing
Oct - Dec	Hay making and fence repairing

WHY THE ACTIVITIES BELOW

- Sheep rearing:** To easily identify the sheep.
- Lamb marking:** To ease identification.
- Branding:** Stating the age of the sheep.

CATTLE BREEDS ON THE RANCH

- Hereford
- Shorthorn
- Aberdeen
- Angus
- Brahm

COMPARISON OF BEEF INDUSTRY IN MALAWI WITH CATTLE RANCHING IN ARGENTINA

ARGENTINA	MALAWI
Hybrids (Hereford, shorthorn etc) produce high quality meat in high quantities	Native breeds e.g. Zebu producing insufficient meat and milk
Animals are raised on large estates called estancias or ranches	Most animals are raised on customary land and not on ranches
Animals are scientifically managed	Lack of scientific management in most cases
Good quality pastures are available e.g. alfalfa and folder crops	Poor quality pastures that make Zebu lose its weight and produce low quality meat and milk
Animals are raised sole for commercial purposes	Animals are kept both for commercial and subsistence purposes. A symbol of wealth

ANIMAL PRODUCTS FROM THE ESTANCIA

- Meat
- Leather
- Cooking oil
- Fertilizer
- Glue (from horns and hoofs)
- Fat

CROPS GROWN ON AN ESTANCIA

- Maize
- Oats
- Alfalfa
- Wheat
- Vegetables

IMPORTANCE OF RANCHING TO ARGENTINA ECONOMY

- Source of employment
- Source of foreign exchange earnings
- Source of raw materials
- Source of income to farmers
- Revenue collection by government

PROBLEMS OF RANCHING IN ARGENTINA

- High incidences of pests i.e. cattle ticks.
- Cattle diseases like trypanosomiasis
- Local such as the Zonda and Pampero also kill cattle in summer i.e. November to February.
- Unreliable rainfall bringing about insufficient pastures

COUNTRIES THAT IMPORT MEAT FROM ARGENTINA

- Arab States
- United Kingdom
- Germany
- Canada
- Israel
- France
- United States of America

PROBLEMS OF RANCHING IN MALAWI

- a. Pastures are not readily available throughout the year
- b. Native breeds of cattle (Zebu) which yield low quality and quantity of meat

IRRIGATION

DEFINITION: The putting of water on the land to crop to grow.

AREAS THAT DEPEND ON IRRIGATION

- a. Nile valley
- b. Gezira Scheme in Sudan
- c. Israel
- d. China Projects
- e. Indus Valley
- f. Murray – Snowy River Scheme
- g. Nchalo in Malawi

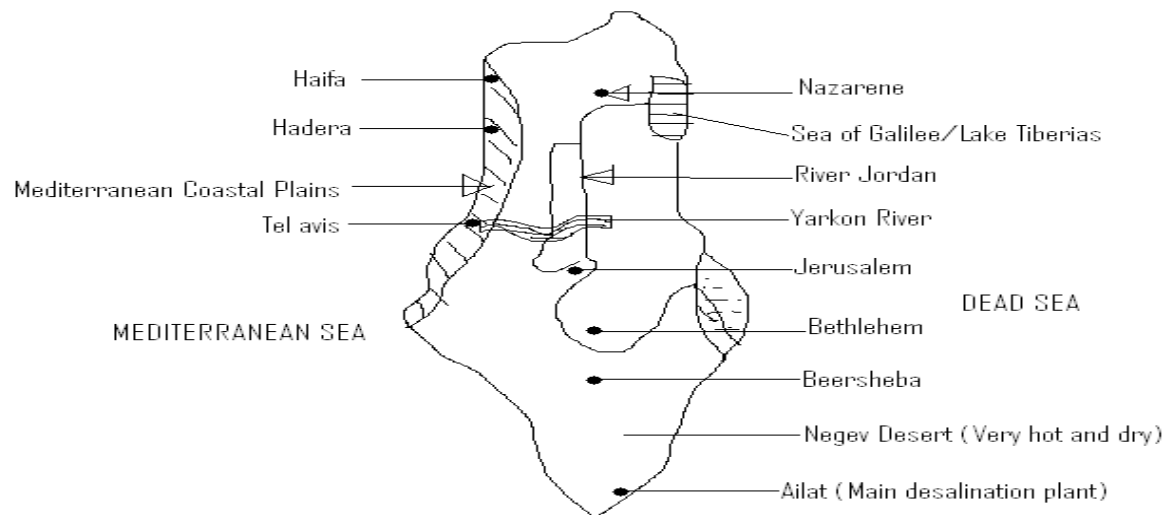
CONDITIONS FOR IRRIGATION

- a. **Topography:** Gentle and flat land
- b. **Presence of water:** Vital for irrigation as plants need moisture
- c. **Occurrence of drought and hot dry climate:** Due to little rainfall
- d. **Water retentive soils:** Able to hold water soils are necessary
- e. **Land scarcity and population growth:** Due to reduction of land i.e. high population

PROBLEMS OF IRRIGATION FARMING

- a. Very expensive to transport water from sources to target areas.
- b. Siltation in water masses due to sediments carried by moving water.
- c. Washing away of nutrients by the water infiltrates the soil.
- d. Salinity of the soil
- e. Spread of water borne diseases.

MAP OF ISRAEL



RELIEF, SOIL AND CLIMATE OF ISRAEL

- a. **Soil:** It has got fertile soils i.e. Mediterranean Coastal Plains and infertile soils i.e. Negev desert
- b. **Relief:** The Negev desert, Jordan River valley are flat for irrigation and around Judea Hill the altitude is high not favourable for irrigation
- c. **Climate:** Hot and dry because of the Negev desert, high temperatures, and low rainfall while other areas receive good amount of rainfall.

HOW RELIEF, SOIL, CLIMATE AND SALINITY HAVE DISCOURAGED IRRIGATION FARMING IN ISRAEL

1. **SOILS:** Poor sandy soils in the Negev Desert discourage irrigation because they lose water at a fast rate.

SOLUTIONS

- a. Manure and fertilizer application to improve soil fertility.
 - b. A forestation and reforestation to reduce run-off and hence prevent soil erosion
2. **SALINITY:** Dead Sea has salts which need to be purified by desalination process

SOLUTIONS

- a. Proper management of saline water before being brought to land through desalination
 - b. Constant draining away of salts from water which percolates downwards
 - c. Application of lime to allow neutralization process to take place.
3. **RELIEF:** The hilly country is at high altitude which encourages orographic rainfall and erosion leading to loss of fertility and no irrigation can take place.
 4. **CLIMATE:** High temperatures in the Negev Desert encourage a lot of evaporation deeming it necessary to undertake irrigation frequently

SOLUTIONS

- a. Designation of the Israel National Water Carrier (INWC) to carry water from Dead Sea of Galilee in the North.
- b. Climate control: Technology developed in Israel allows cooling of the greenhouse by day and heating by night with minimal investment of energy.

THE COMPUTERISED GREENHOUSE

- Computer hardware and software have been developed in Israel to automatically control the flow of the greenhouse water, fertilizer and climate systems.
- Software developer maintain close contact with growers in order to keep abreast of the latest developments in agricultural systems and provide the most effective and advanced solutions

SOURCE OF WATER

- a. Sea of Galilee
- b. Yarkon River

DISTRIBUTION OF WATER TO TARGET AREAS IN THE CENTRE AND THE NEGEV DESERT IN THE SOUTH

a. DRIP IRRIGATION

- It is unique because it spreads moisture throughout the entire land uniformly reducing amount of run off.
- Irrigation drippers are used which allow controlled water distribution and are not easily blocked by waste matter.
- Filter traps installed inside the irrigation lines consist of serrated plastic unit that sets up a whirling flow in the water passing through it, sweeping away dirty particles.
- This presents blockages in the narrow water outlets of the drippers.
- This method is designed for use in green houses

- It can supply from 1 Litre to 20 Litres per hour and is good for intensive cultivation

b. BURIED IRRIGATION

- Drip irrigation laterals are buried at a depth of 50 cm.
- The buried system is protected against infiltration by tiny roots around the area of the dripper.
- External dirt is prevented from being sucked into the dripper by air valves that open when the water is turned off and allow air into the pipe
- Different drippers namely line drippers, regulated and unregulated fixed drippers and integrated drippers are fixed onto the walls of the irrigated lines

c. SPRAY IRRIGATION

- Through this method, each plant is irrigated individually by its own water sprayer.
- A series of spray accessories have been developed which is intended mainly for Orchards and greenhouses
- Very efficient.

d. SPRINKLER IRRIGATION

- This system of irrigation uses sprinklers which are designed for crops that require irrigation of an entire area or field.

NOTE

- All methods of irrigation can be operated by computers allowing real time operation, precision, reliability, savings in manpower and monitoring continued operation for many hours a day
- Computerization can also allow the operator to preprogram irrigation intervals.
- When there is a deviation, the system shuts down automatically
- Systems including sensors also help to determine desired intervals
- Moisture sensors are buried and provide information regarding moisture levels of the soil
- Another type is a plant sensor that determines irrigation intervals by checking changes in the diameter of the stem and fruit.
- The sensor is connected directly to the computer, allowing for automatic operation of the irrigation systems when needed

KIBBUTZIM

- It is a cooperative settlement devoted to farming and governed by its members, Kibbutzim (plural of Kibbutz) attracts both Christians and Jewish volunteers from around the world.

- A Kibbutz can have as few as 100 members or as many as 2000.
- The Zionist settlers founded the original Kibbutzim.
- To abandon the Old World Pressure for material success and to "return to the land" and live a simple life was the Zionist ideal
- The Zionists believed in socialism and the self – governing Kibbutz became the cornerstone of the Zionists hopes for Israel

HOW TO IDENTIFY KIBBUTZNIKS (THE PEOPLE WHO LIVE ON THE KIBBUTZ)

- Funds, land, equipment, stock and buildings are owned by all Kibbutzniks
- Committees and officers are elected to decide how Kibbutz's income will be distributed
- Kibbutzniks work at several different jobs in one year because jobs are rotated
- Kibbutzniks receive salary, but they are provided with food, lodging, clothing (usually dark blue shirts and shorts for pants) and other necessities.
- They eat together in a communal dining hall that is much like a school cafeteria
- Married Kibbutzniks live in small houses while single people and volunteers share small cottages
- In some Kibbutzim, mothers and fathers tend to care to their own children, whereas others, children are cared for by many adult Kibbutzniks.
- Children eat, sleep and study in their own rooms, separated from the adults.

NOTE: Responsibilities come at an early stage as children attend Kibbutz School.

FACTORS WHICH INFLUENCED THE DEVELOPMENT OF THE KIBBUTZ

- Hostile environment**
 - Jews joined hands to reclaim land for use which meant that the land belongs to all
- Need for self – sufficiency**
 - It was necessary for Jews to work hard together to achieve economic independence as they could not depend on their hostile Arab neighbours
- Defence consideration**
 - The incoming of Jews was met with hostile reception by Arabs which frequently raided the new settlers
 - It was imperative for Jews to coordinate effectively in the defence system.
- Religion**
 - Jews belonged to the same religion Judaism which involves the strict observance of rite, regulations, feast, sacrifices which were supervised by priests.

- It imperative for Jews to settle in the same community for easy monitoring and supervision.
- Furthermore, the common religion united them as them as the special children of God.

5. The Socialist Ideology

- Some Jews came from countries where socialism had taken root.
- The Jews sought to put into practice socialist ideas in their new homeland
- Hence ideas of equality and joint ownership of property.

THE SUCCESS OF THE KIBBUTZ SYSTEM

- Unity and cooperation among the Jews.
- Moral and material support from Jews outside and donor countries
- The determination to succeed or the zeal to achieve certain goals
- Technology transfers from developed countries to Israel.
- It was proved that the Jews were really agriculturalists despite being immigrants

CRITISMS/PROBLEMS FACED BY THE KIBBUDZIM

- Reduction of competition between people.
- Some individual needs are ignored
- Division of labour introduces differences in status, authority and influence among members
- Lack of privacy i.e. use of hostels and communal baths.
- Use of communal facilities facilitates the spread of diseases in case of an outbreak
- It does not promote individual creativity and initiative

CROPS GROWN UNDER IRRIGATION FARMING

- Beans
- Cotton
- Sunflower
- Chick peas
- Corn
- Groundnuts
- Green peas
- Watermelon for seeds

CHARACTERISTIC FEATURES WHICH MAKE IRRIGATION INTENSIVE

- Yield fluctuation from year to year is reduced
- Continuous cultivation becomes possible
- In most cases the land holdings are small
- Double or treble cropping may be achieved
- Higher yields per hectare

PROBLEMS ASSOCIATED WITH IRRIGATION IN ISRAEL

- Insufficient sources of water
- Hostile Arabs who would not like to see Israel use Jordan river
- Expensive to pump water from Lake Tiberius (210m below sea level)
- Evaporation rates in Negev region are very high.

- ✓ Sea water is cooled and then introduced into a freezing chamber where the water forms a thin mixture of liquid water and ice particles
- ✓ The mixture is separated and the ice crystals are washed to remove brine.
- ✓ Finally, the ice particles are melted down to give freshwater.

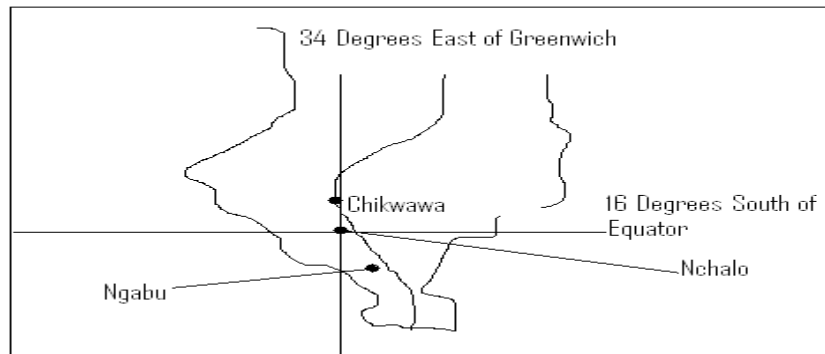
WATER DESALINATION WORKS

- There are water desalination plants at Haifa and Eliat due to scarcity of water.
- Vacuum freezing is used at Haifa as a desalination process which is cheaper. The process is as follows:

NCHALO SUGAR IRRIGATION SCHEME

LOCATION

Located at latitude 16°10'S of equator and longitude 34°53' east of the Greenwich Meridian



NCHALO IRRIGATION SCHEME

RELIEF, SOILS AND CLIMATE

1. **RELIEF/TOPOGRAPHY:** The area is gentle or flat which enables mechanization and irrigation to take place easily.
2. **LABOUR:** High population provides labour e.g. planting, weeding etc.
3. **CLIMATE:**
 - a. Temperature: 20°C to 32°C because it is at low altitude.
 - b. Rainfall: 500 mm to 800 mm per year than the required amount of 2000 mm supplemented by irrigation
4. **SOILS:** The soils are rich, well drained alluvial and clay soils.

METHODS OF IRRIGATION

- a. **Sprinkler Irrigation:** This method uses specially designed sprinklers to supply water to the entire field.
- b. **Canal Irrigation:** Irrigation or drainage canals are dug to direct water from the Shire River to the fields

HARVESTING OF SUGARCANES

- Workers use panga knives to cut off the canes a few metres above the ground level.
- Fire is set before cutting simply to:
 - Scare away animals such as snakes, rats etc.
 - Increase sugar concentration in the canes
- The canes are transported by tractors or railways to the factory for processing

SOURCES OF WATER

The Shire River is the only source of water for irrigation at Nchalo Sugar Irrigation Scheme.

HOW SUGAR IS PROCESSED FROM THE CANES

STAGE ONE

The canes are chopped or cut into smaller pieces

STAGE TWO

The short and chopped canes are put between machines called rollers which squeeze the cane to extract sugar juice.

STAGE THREE

The extracted juice is boiled and later mixed with lime whose function is to prevent fermentation process.

During boiling, evaporation of the water also takes place.

STAGE FOUR

If the target is brown sugar, the boiled liquid is left to cool and solidify forming crystals whose size depends on the rate of cooling.

Brown also called *raw sugar* is produced as a product.

Mollases (thick syrup) is produced as a by product which is a raw material for alcohol, spirit rum and treacle as well as animals food after being mixed with other substances.

STAGE FIVE

It aims at producing white sugar

The boiled liquid is poured into cylinders after being filtered.

The cylinders absorb the brown colour leaving behind a residue called *bagasse* which is manufactured into paper, fibre board or can be used as manure, animal feed or a fuel in sugar factories

PROBLEMS FACED BY THE NCHALO SUGAR IRRIGATION SCHEME

1. **High costs of Investment and Production:** Expensive to purchase and maintain machinery to be used on the farm

SOLUTION

- Growing sugarcane of high quality and high quantities to produce a lot of sugar for export and local sale.
 - The money realized can help to upset the imbalance between income and expenditure.
2. **Theft:** Disgruntled people stealing irrigation pipes

SOLUTION

Improving security by employing more guards or tightening community policing around the scheme.

3. **Poor waste disposal:** Most of the waste is disposed into the shire river thereby polluting the water destroying the habitat for aquatic species and also makes the water not healthy for domestic purposes

SOLUTIONS

- Proper disposal of waste
 - Some of the waste can also be changed to other useful products hence need to recycle them
4. **High Degree of salinity:** Controlled by application of lime to allow neutralization to take place.
 5. **Inadequate Drainage in some parts of the estate:** Solved by building/constructing drainage canal
 6. **Insufficient Irrigation in some parts of the estate:** Solved by constructing more irrigation canals.

IMPORTANCE OF THE SCHEME TO MALAWI

- a. **Source of employment:** Most people are employed more especially during planting, weeding and harvesting of the canes.
- b. **Source of foreign exchange earnings:** Sold to other countries to solve the problem of balance of trade.
- c. Source of government revenue through taxation
- d. Provision of raw materials: Animal feed and fuel.
- e. Provision of food: Sugar
- f. Development of the surrounding area.

PLANTATION AGRICULTURE

DEFINITION

This is a commercialized form of tropical cultivation of perennial crops on very large estates called plantation initiated by the European colonialists.

LOCATION AND CROPS GROWN

CROP	COUNTRIES
Rubber	Malaysia and Indonesia
Oil Palm	Ghana, Nigeria, Malaysia, Zaire
Coconut	India, Indonesia, Sumatra, Sri Lanka
Banana	Jamaica, West Indies Islands, West Africa
Sugarcane	Cuba, Jamaica, Barbados, Brazil
Coffee	Brazil, Colombia, Uganda,

	Angola
Cocoa	Ghana, Nigeria, Brazil, Ivory Coast
Tea	India, Sri Lanka, Japan, Malawi, CIS

CHARACTERISTICS OF PLANTATION AGRICULTURE

- Done on extensive farms called *Plantations*
- It is capital intensive since crops take long to mature
- New agricultural techniques are applied
- Monoculture is practiced i.e. one crop is cultivated on the farm.
- Estates have facilities that process the crop.
- A plantation is labour intensive looked after by a planter.

ADVANTAGES OF PLANTATION AGRICULTURE

- Work simplified due to many workers
- Knowledge of cultivation is gained by workers who can use it on their farms
- Rotation of harvests is possible being perennial oriented
- Provision of raw materials
- Good quality of crops is produced.
- Tree crop shed the soil thereby conserving water and soil
- Source of foreign exchange.

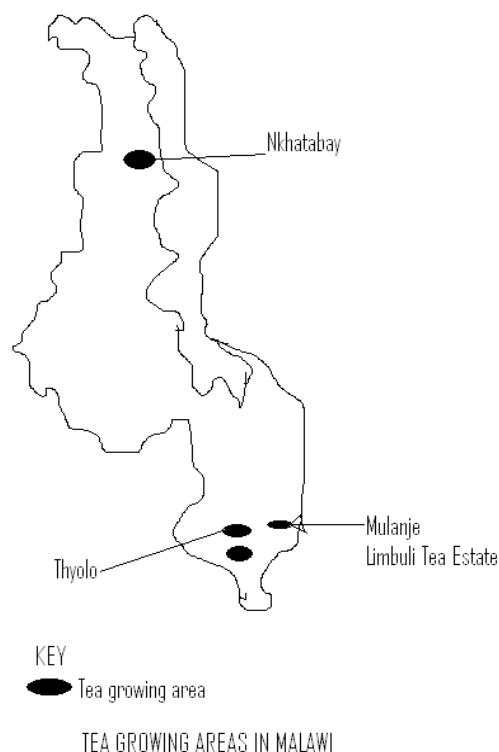
DISADVANTAGES OF PLANTATION AGRICULTURE

- Price fluctuation at the market dooming the farmers
- High rainfall in the tropics leading to leaching
- Difficult to grow plantation crops where there is shortage of labour.
- Diseases and pests can attack the single crop and losses can be made
- Natural disasters e.g. droughts, winds, ice etc can affect production
- It takes long time before realizing profits
- Delays in the processing of the crop would lead to loss of value.

TEA PLANTATION IN MALAWI

LOCATION

Tea in Malawi is grown in Thyolo, Nkhata Bay and Mulanje



FAVOURABLE CONDITIONS FOR TEA GROWING

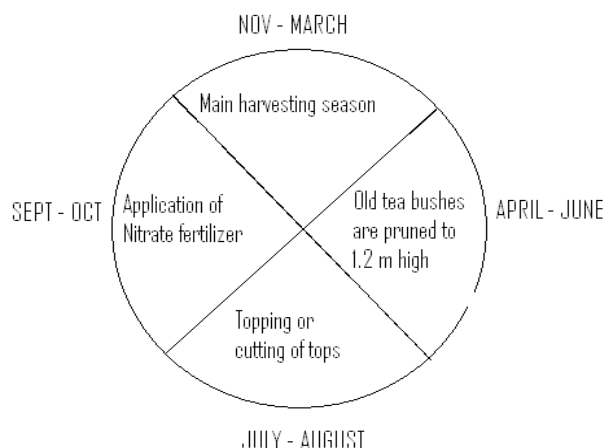
- CLIMATE**
 - Temperature: Ranging from 22 to 30 degrees Celsius
 - Rainfall: About 1200 to 2400 mm per annum.
- SOIL:** Well drained loam soils
- HUMIDITY:** The amount of moisture in the air is high because of high evaporation rates enabling dew to form i.e. providing moisture to the trees.
- LABOUR:** The high population in the areas of cultivation enables the farm activities to be carried out thoroughly.

METHODS OF TEA CULTIVATION

- Direct Method:**
 - Seeds are germinated in wet sand where they are removed and transported to nurseries.
 - Seedlings are retransplanted to plantation six months later
 - Shrubs are pruned to 1.5 m and can be picked after the second year
- Using cuttings:** Cuttings are planted in rows on the plantation

NOTE: Tea trees are usually affected by a fungal disease called *Armillaria*.

CYCLE OF FARM ACTIVITIES



NOTE: Topping and pruning are done during the first four years in order to obtain a flat plucking surface, to ensure thick growth of branches and to keep the branches at the height of 1.5m.

PICKING OF TEA

- From November to March which needs abundance of labour
- Two young leaves and a bud at the tips of these branches are the first to be picked because they have high tannic acid concentration giving tea its flavor.

PROCESSING TEA

A. BLACK TEA

- Drying of tea leaves on a tray either by the sun or heated in rooms i.e. withering causing the leaves to lose moisture and become easy for easy rolling i.e. cutting leaves into smaller pieces.
- Sifting and fermentation in order to reduce tannic acid content while fermentation changes the green colour of the leaves to copper and it is stopped by roasting or firing making leaves to turn to black colour
- Firing which helps to remove the remaining water.
- Rolling is done once more
- Grading is done and packed for export and local sale.

B. GREEN TEA

The process is the same only that the leaves are not allowed to undergo fermentation process.

IMPORTANCE OF SHADE TREES IN THE TEA ESTATE

- a. They provide moisture to growing tea bushes
- b. Fallen leaves rot and add humus to the soil
- c. Shade for tea pickers for resting during harvesting
- d. Trees around the estate act as wind breakers to avoid damage in the estate

SMALL HOLDER FARMING

Tea is grown on small scale by small holder farmers in Thyolo and Mulanje.

SMALL HOLDER TEA AUTHORITY

- Established in 1967 and there are over 4450
- Responsible for managing tea growers
- Collects tea produced by farmers in readiness for processing
- It pays individual tea growers in line with their quantity of tea leaves produced

SUCCESSSES

- a. Contributing to the establishment of the Malawi Tea Company (MATECO)
- b. The opening of the tea factory in Mulanje in 1975
- c. Giving incentives to farmers before 1990 enabling farmers to progress economically.

FAILURES

- a. Low wages for small holder farmer and are often put off
- b. No bonuses to farmers and this puts them off again
- c. A large percentage of tea is sold to the tea estates and not the Tea Authority
- d. Some farmers have stopped cultivating tea and diverted the land for other crops

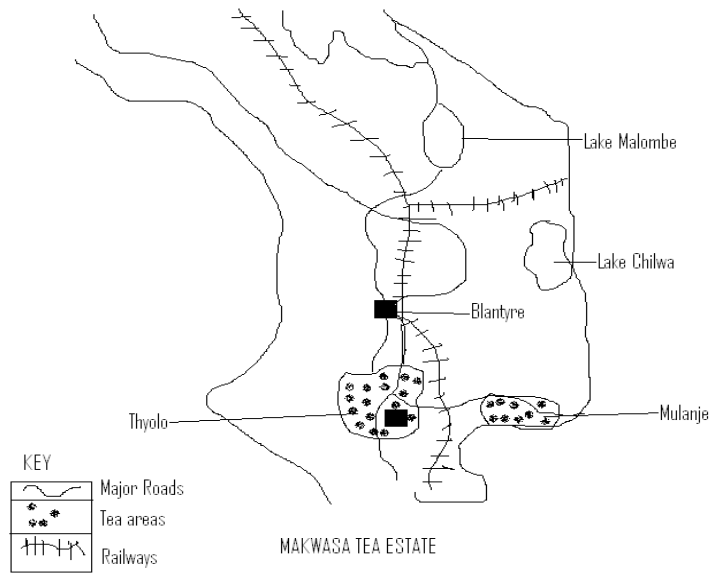
SOLUTIONS TO THE FAILURES

- Paying the farmers well
- Selling the tea to the Small Holder Tea Authority
- Re introduction of bonuses.

MAIN TEA GROWING AREAS IN SOUTHERN REGION

1. Makwasa Tea Estate in Thyolo
2. Mulanje

MAKWASA TEA ESTATE



LOCATION OF MAKWASA ESTATE

- Found in Thyolo district in the southern part of Malawi
- It is part of Thyolo Highlands Tea Estate Limited developed from a virgin forest
- It was started in 1924 when about 16 hectares of land were planted
- It relies on blue gum trees covering 317 hectares for the provision of fuel in the tea factory.

PICKING AND HARVESTING OF TEA AT MAKWASA TEA ESTATE

- It employs about 2000 people who pluck, weed and harvest the tea
- Tea is harvested from December to April
- Two soft leaves and a bud are picked on each tree.

CULTIVATION

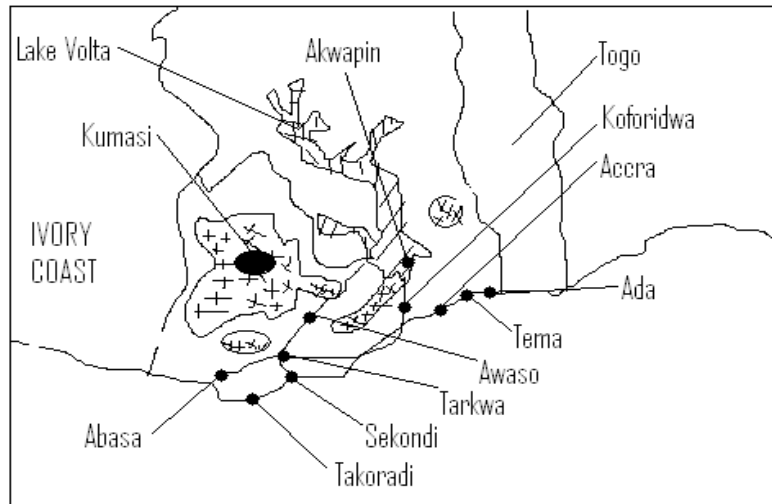
- Cuttings are used to grow tea bushes taken from selected clones (mother bushes) developed at the Tea Research Foundation.
- These cuttings are propagated in pots under polythene tents (these are removed when the cuttings have rooted and started growing)
- Tea bushes are grown in the nursery in pots for one year and half years.

NOTE: Tea bushes are attacked by pests such as *heleopeltis* and *thrips*. Tea leaves are processed using the various stages explained already.

IMPORTANCE OF TEA INDUSTRY TO MALAWI ECONOMY

1. Source of foreign exchange
2. Source of employment
3. Source of income to farmers

COCOA



KEY

	Cocoa growing area
	Cocoa exporting ports

GROWING AREAS IN GHANA

FAVOURABLE CONDITIONS FOR GROWING COCOA

a. TEMPERATURE

THE CLIMATE OF KUMASI IN GHANA

MONTH	Temp. C	Rainfall mm
J	25	20
F	27	58
M	27	130
A	27	145
M	27	190
J	26	200
J	25	109
A	23	79
S	25	123
O	26	180
N	26	94
D	26	20

- Hot, moist, equable climate with temperature 24°C.
- The Cocoa tree requires consistently high temperatures and high humidity

b. RAINFALL

It requires rainfall of 2000 mm to 3500 mm without long droughts

c. SOILS

Deep well drained soils which are rich in potash

d. ABSENCE OF STRONG WINDS

Occurrence of hurricanes and tornadoes can damage the crop

e. SHADE

Cocoa plants don't need direct sunlight but rather shade. Some trees can provide this but to the following disadvantages:

- Trees may compete with cocoa for soil moisture and minerals
- Trees may encourage insects and disease which are harmful to cocoa
- The shade they provide is uneven

f. COASTAL LOCATION

The crop thrives best near Coasts with tropics

g. HUMIDITY

- High relative humidity being a perennial crop

CYCLE OF ACTIVITIES ON A COCOA FARM

a. CULTIVATION OF COCOA TREES

1. **Direct Sowing of Cocoa Trees:** The crop is grown from seeds sown in a nursery
2. **Using cuttings:** They are planted direct on the land.

b. HARVESTING AND PROCESSING OF COCOA

- Two harvests are possible
- Each crop year begins in October with the main crop and the light crop in June.
- Ripe pods are cut from trees, breaking them open and extracting the seeds from them.

- Seeds are allowed to ferment for 6 to 7 days with two turnings before drying in the sun.
- Beans are then bagged and shipped

c. MARKETING

- Farmers are linked to international markets since locally there is no market for Cocoa.
- They do this through the Cocoa Farmers Union which buys and exports the cocoa through the ports on the map above.
- The effort of the government was to establish the Ghana Cocoa Board, COCOBOD in 1947 to develop the Cocoa industry.

MISSION

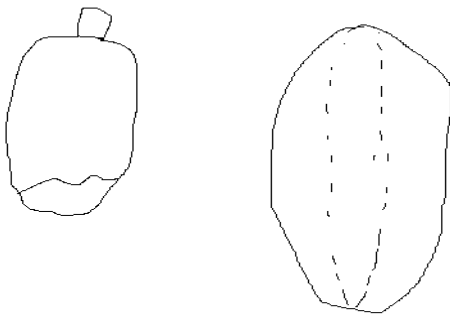
To encourage and facilitate the production, processing and marketing of good quality cocoa, coffee and sheanut in all farms in the most effective manner and maintain the best mutual industrial relation with its objectives

OBJECTIVES

- To encourage the production of Cocoa, coffee and sheanut
- To initiate programmes aimed at controlling pests and diseases of cocoa, coffee and sheanut
- Regulating marketing of cocoa, coffee and sheanut

PROBLEMS CONFRONTING COCA FARMERS

- An ageing labour force as young people move to towns in search of green pastures
- A 30% loss rate from pests and diseases i.e. viral disease called swollen shoots transmitted by an insect called mealy bug and fungal disease called black pod
- Weak land tenure systems that discourage investment
- Increased HIV/Aids rate: Most farmers are becoming infected with the pandemic and this is affecting production
- Hurricanes and tornadoes damage crop.
- Poor quality cocoa trees which produce poor pods.



A Cocoa pod with swollen disease (left) compared to the normal pod.

IMPORTANCE OF COCA INDUSTRY IN GHANA'S ECONOMY

1. Source of foreign exchange

- Cocoa is a major foreign exchange earner in Ghana
- It is exported to Germany, Great Britain, France, Sweden, USA, Italy and CIS

2. Source of employment

- People are employed in cocoa farms during growing, picking and processing.

3. Source of income

Cocoa farmers earn money after selling the product to the Cocoa Farmers Union

4. Source of government revenue

- It is a raw material in the industry i.e. Chocolate making.

MAIN GROWING AREAS OF COCOA

- Ghana
- Ivory Coast
- Nigeria
- Brazil
- Cameroon
- Ecuador
- Mexico
- Columbia

CASE STUDY: COCOA GROWING IN GHANA

- The cocoa is produced by small scale farmers
- Farms are 1 – 2 acres of land but large farms may be found
- Most farms are concentrated to the south – western part of the country

FAVOURABLE CONDITIONS FOR COCOA GROWING

- Well drained porous soil with potassium
- A hot, moist equable climate with temperature over 24°C
- Rainfall of 2000 – 3000mm without long drought
- Areas sheltered from direct sun and wind
- Coastal tropical regions

FARMING ACTIVITIES ON A COCOA FARM

- Seeds are planted in nursery and watered
- Shade trees or shelters provide shade to the seeds
- Healthy seedlings are planted to the main fields after six months of growth

The trees take 5 to 7 years before they can start bearing cocoa pods. Planted in the cocoa fields include plantains, cocoyams, vegetables, maize which are used as food for man.

PROCESSING OF COCOA

1. The pods are harvested with knives
2. Pods are split open
3. Beans are separated from the pulp
4. They are fermented for a week
5. They are dried for a week
6. Beans are then packed ready for export

PROBLEMS ASSOCIATED WITH COCOA GROWING

- a. Pests and diseases
- b. Hurricane and tornadoes damage crops
- c. Fluctuating cocoa prices on the world market

ECONOMIC IMPORTANCE OF COCOA FARMING

- Source of foreign earning
- Source of employment
- Source of government revenue
- It is used in making chocolate e.t.c.

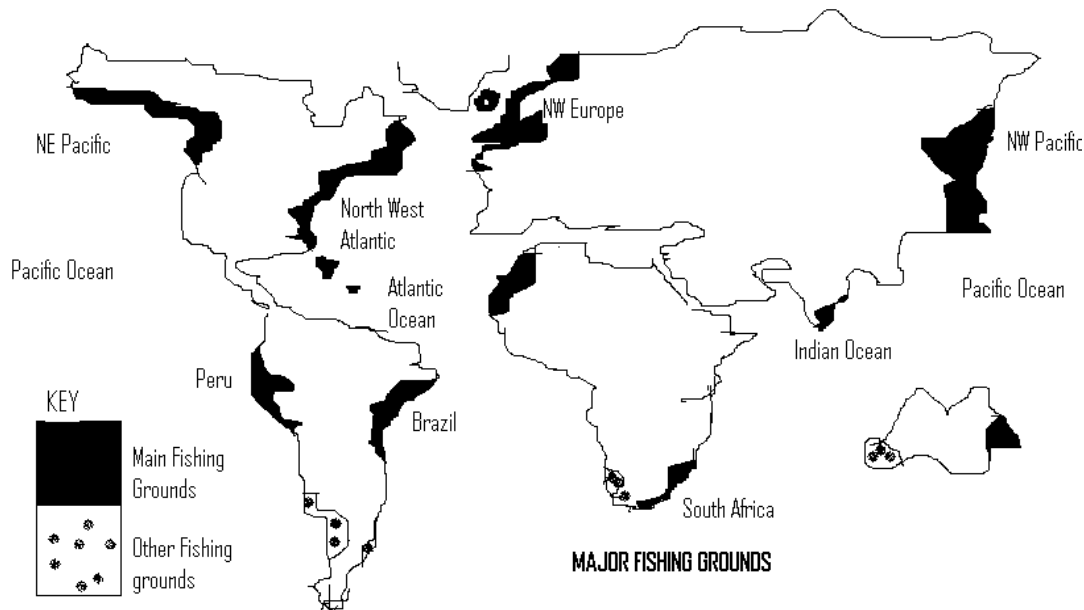
TOPIC 2: **HYDROSPHERE**

FISHING

Fishing: This is a primary industry involving the catching of fish and other aquatic or marine animals. It is also called a robber economy because fish is caught but no replacement.

Fishing piracy: This refers to illegal fishing.

MAJOR FISHING GROUNDS



MAIN FISHING GROUNDS

a. NORTH WESTERN PACIFIC/NORTH EAST ASIA

This includes Japan (major fishing ground) which extends from Bering Sea to the East to China.

WHY JAPAN DIVERTED HER FOCUS TO THE SEA FOR FISHING

1. It is not well developed with natural resources i.e. about 80% of her land is not used for agriculture.
2. Presence of planktons on the continental shelves around the islands of Japan because

of Kuroshio warm current and Oyashio cold current.

3. The fishing ports are present on the coastline of Japan, calm waters and safe land places e.g. Hakodate and Kushiro
4. Absence of lowlands and pastures which mean that only a few animals can be kept to supply meat and other protein foods.
5. Industrialisation has made fishing to become scientific

EXAMPLES OF FISH CAUGHT

Those provided by warm waters

- Cod
- Halibut
- Herring
- Salmon

Those provided by cold waters

- Sardine
- Tuna
- Mackerel

b. NORTH WESTERN ATLANTIC/EASTERN CANADA

This fishing ground extends from Cape Cod to Newfoundland, off the coast of Canada in South America.

The major problem is overfishing.

REASONS FOR LARGE SCALE FISHING

- It has indented coast with good natural harbours
- Presence of harsh climate and infertile soils has forced people to look for alternative source of income
- The meeting of North Atlantic Drift warm current and Labrador cold ocean current facilitates precipitation of minerals which creates good conditions for plankton growth
- Presence of shallow waters which catalyses the process of photosynthesis in planktons.

EXAMPLES OF FISH CAUGHT

- Cod
- Haddock
- Sardines
- Halibut
- Hake
- Flounder
- Mackerel

c. NORTH EAST ATLANTIC/NORTH WEST EUROPE

Fishing grounds in the area include Barents Sea, Iceland, North Sea and Bay of Biscay.

North is the leading nation in the area.

WHY NORWAY THE LEADING FISHING NATION IN THIS FISHING GROUND

- Harsh climate makes farming difficult and hence people focus on the sea for their livelihood

- Absence of extensive minerals and forest resources has forced Norway to turn to the sea

Cod and herring dominate Norway's fishing industry although whaling in the Antarctic is of great importance.

The meeting of North Atlantic drifts warm current and Irminger of Eastern Greenland cold current makes fishing industry a possibility all year round

Fish countries include: France, Portugal, Iceland, Norway, Denmark, Germany, Spain and Great Britain.

d. NORTH EAST PACIFIC OR NORTH WEST AMERICA

These fishing grounds extend from California to Alaska

EXAMPLES OF FISH CAUGHT

- Halibut
- Cod
- Herring
- Salmon

Salmon fishing and herring is the most important type of fishing activity that takes place from Bering Strait to Oregon.

DESCRIPTION OF SALMON FISH

- Young Salmon fish hatch from eggs laid in mountain stream and lakes.
- At one year old the Salmon fish swim downstream to the sea.
- At about four years old they return to the rivers to lay their eggs (this when they are caught)
- Salmon fish are caught by trawls and seine nets in coastal waters
- Dams across rivers prevent Salmon from swimming up rivers unless special ladders are built to bypass the dams.

e. PERU

Found to the western coast of South America.

REASONS FOR BEING ONE OF THE MAJOR FISHING GROUNDS

- ❖ The flowing of Humboldt or Peruvian cold current enables planktons to grow abundantly
- ❖ Anchovy is the most common fish caught in large quantities and Chimbote is the main fishing port

f. SOUTH AFRICA

Fishing largely done at Agulhas Bank.

The major fishing ports include:

- ✓ Port Elizabeth
- ✓ Port Nolloth
- ✓ Durban
- ✓ Saldana Bay

REASONS FOR FISHING

- Presence of shallow waters that enable sunlight to penetrate to catalyze photosynthesis process in planktons
- Availability of planktons for fish growth.

EXAMPLES OF FISH CAUGHT

- Cape hake
- Cape Anchovy
- South African pilchard

FACTORS INFLUENCING THE DEVELOPMENT OF THE FISHING INDUSTRY

PHYSICAL

- Meeting of cold and warm currents which encourages the growth of planktons
- Presence of good natural harbours
- Shallow waters on the continental shelves which allow sunlight to penetrate to enable planktons to grow properly.
- Availability of plankton growth (these green, microscopic plants) on which fish feed.
- Being warm blooded animals, fish grow in temperatures lower than 20°C.

HUMAN

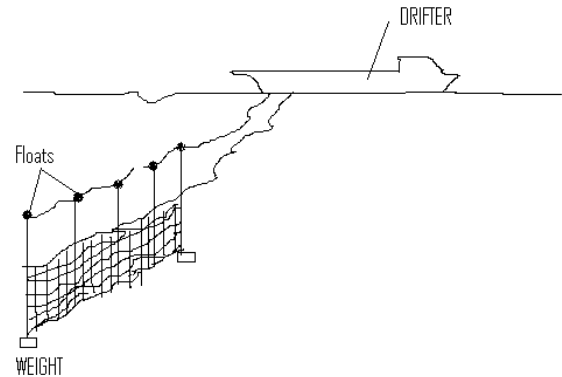
- Moderate or large population since it is labour intensive.
- Scarcity of cultivable land.

TYPES OF FISH

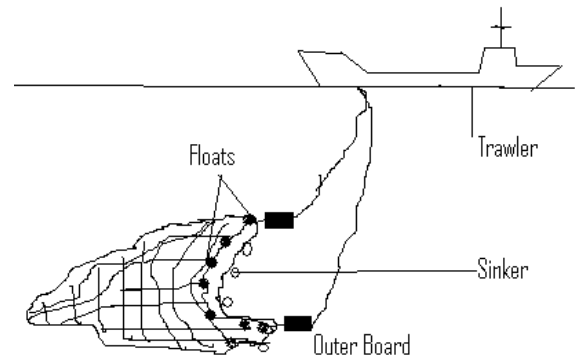
- **PELAGIC FISH:** They breed near to the surface of the sea water and they include: Tuna, pilchard, mackerel, sardines, anchovies and menhaden
- **DEMERSAL FISH:** They breed and feed on the sea bed on the continental sea and they include: Sole, Cod, Haddock, Halibut, Hake, Skate and Garoup.

FISHING METHODS

- a. **DRIFT NETTING:** Drift nets hang vertically in the sea. They are fitted with floats on the upper edge and weights below. They are usually pulled by boats called drifts. The caught in their gills.



- b. **TRAWL NETTING:** Conically shaped or bag shaped net whose mouth is kept open by outer boards or head beams. Trawlers drag the nets along the sea for catching demersal fish.



- c. **SEINE NETS:** There are two types of these:
 - i. **Purse seine nets:**
 - Pulled by their ends to surround a shoal of fish.
 - They are stretched between two fishing boats
 - Sometimes pulled by two fishermen with one end attached to a small boat
 - They are similar to drift nets
 - Used to catch pelagic fish

ii. Haul seine netting:

- They have an oval mouth with a conical shape used for catching demersal fish
- They are pulled by with much effort.

IMPORTANCE OF THE FISHING INDUSTRY

- a. Source of raw materials for various produce e.g. fertilizers, fish meals, glue, oil
- b. Source of proteins and minerals e.g. iron, calcium, iodine, copper e.t.c.
- c. Attracting tourists who normally study the species of fish

PROBLEMS FACED BY THE FISHING INDUSTRY

- Pollution of the sea due industrial waste discharged into rivers or directly into seas and oil leakage that deprive the fish of oxygen and make them die
- Overfishing due to rapid population growth exerting pressure on the fish.
- Destruction of fishing grounds due other activities e.g. sports and recreational
- Indiscriminate fishing i.e. the catching of immature fish because fishermen use nets with very small mesh.
- Lack of knowledge in conserving fish

SOLUTION TO THE PROBLEMS

- a. Minimizing use of poisonous and harmful chemicals
- b. Formulation of laws that will control the pollution of fishing ground
- c. Enforcing international law conventions or agreements that protect fish
- d. Relocation of fish from highly populated areas to overfished areas
- e. Introduction of new species in the overfished waters.
- f. Imposing tough measures on those that catch small fish by fining them
- g. Introducing fish farming

OTHER RESOURCES FROM THE SEA

- ✓ Fresh water i.e. produced through desalination
- ✓ Sand and gravel brought by erosion
- ✓ Oil – from dead marine plants and animals
- ✓ Natural gas
- ✓ Food – pawns and shells
- ✓ Metals e.g. iron, gold, tin, manganese
- ✓ Sea weed i.e. raw material for ice cream, malted milk, cheese, chocolate milk
- ✓ Minerals e.g. potassium, magnesium sulphur
- ✓ Salts

FISHING IN MALAWI

- Malawi covers 118,000sq. km
- 20% of this area is covered by water bodies
- Though landlocked Malawi catches more fish than Mozambique because meat is in short supply and fish provides the much needed proteins.

MAJOR FISHING GROUNDS IN MALAWI

- a. Lake Malawi
- b. Lake Malombe
- c. Shire River
- d. Lake Chilwa

INSTRUMENTS USED TO CATCH FISH IN MALAWI

- Trawlers
- Baskets/hand nets
- Fishing lines
- Gill nets (Cilepa)
- Seine nets
- Draw nets
- Traps (Miono)

TYPES OF FISH CAUGHT

- Tilapia
- Ntchila
- Chambo
- Utaka
- Mpsa
- Sanjika
- Kampango
- Mlamba
- Matemba
- Mcheni

PROBLEMS FACED BY THE FISHING INDUSTRY IN MALAWI

a. Overfishing

- Fish is the main source of protein and calcium for people in Malawi
- Overfishing has led to a decrease in the number of fish available and extinction (disappearance) thereafter of some fish species

b. Pollution

- The use of herbs (katupe) when fishing has polluted the waters and hence killing aquatic wildlife
- Industries dump wastes in water masses thereby polluting the water

c. Water Hyacinth (Namasupuni)

- These plants use oxygen which would have been used by fish for respiration and can make fish die

SOLUTIONS

a. Overfishing

- Regulations have been outlined by the Fisheries Act describing the size of mesh to be used i.e. using gill nets to allow young fish to grow and multiply abundantly
- Observing the closed fishing season with the help of Village Beach Committees set up by the Malawi Govt. To allow fish to spawn and build up stocks
- The Govt. is controlling the amount of fish caught by each fishery using quota system
- Civic education to fishermen about the problems of overfishing.

b. Pollution

- Civic education: Teaching fishermen to stop using herbs and industries should stop dumping waste in water masses.

c. Water hyacinth (Namasupuni)

- There is an effort to remove the water hyacinth from the fishing grounds.

TOPIC 3: NATURAL RESOURCES

MEANING

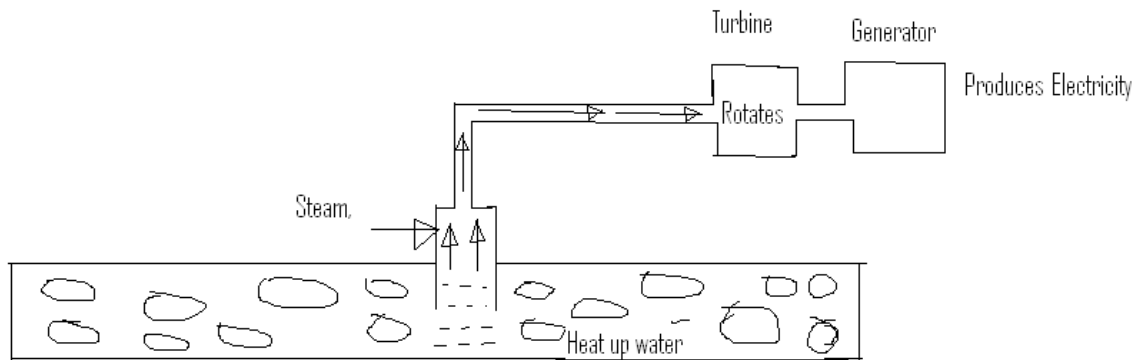
Natural resources are things provided by nature e.g. vegetation, air, minerals, soil, fossil fuel (coal, oil, and natural gas), water and the sun.

These provide energy in the environment and it is used for various activities.

TYPES OF ENERGY

1. GEOTHERMAL

It means heat from the earth i.e. from magma or rocks beneath the earth.



COUNTRIES USING GEOTHERMAL ENERGY

- New Zealand
- Iceland
- Central America
- Japan

The above countries lie within volcanic belts and have heated rocks which exist close to the earth's surface.

PRODUCTION

- When rain falls, it infiltrates down wards through cracks and pores and it comes into contact with the heated rocks where it is warmed
- Sometimes heat from magma chamber can also warm water present inside the earth.
- Later on, the water rises to the surface where it is ejected as either a hot spring or a geyser

NOTE: A hot spring is superheated water that is ejected slowly while a geyser refers to both superheated water and gases being ejected explosively.

USES OF HOT SPRINGS

- Heating homes and offices

- Geysers produce vapour that is trapped and led to turbines which are connected to generation in order to produce electricity.

ADVANTAGES

- It is sustainable since it is renewable
- It does not cause pollution.

DISADVANTAGES

- High cost of construction and maintenance
- Threat to power stations from volcanism and earthquakes as well as emission of sulphuric gases

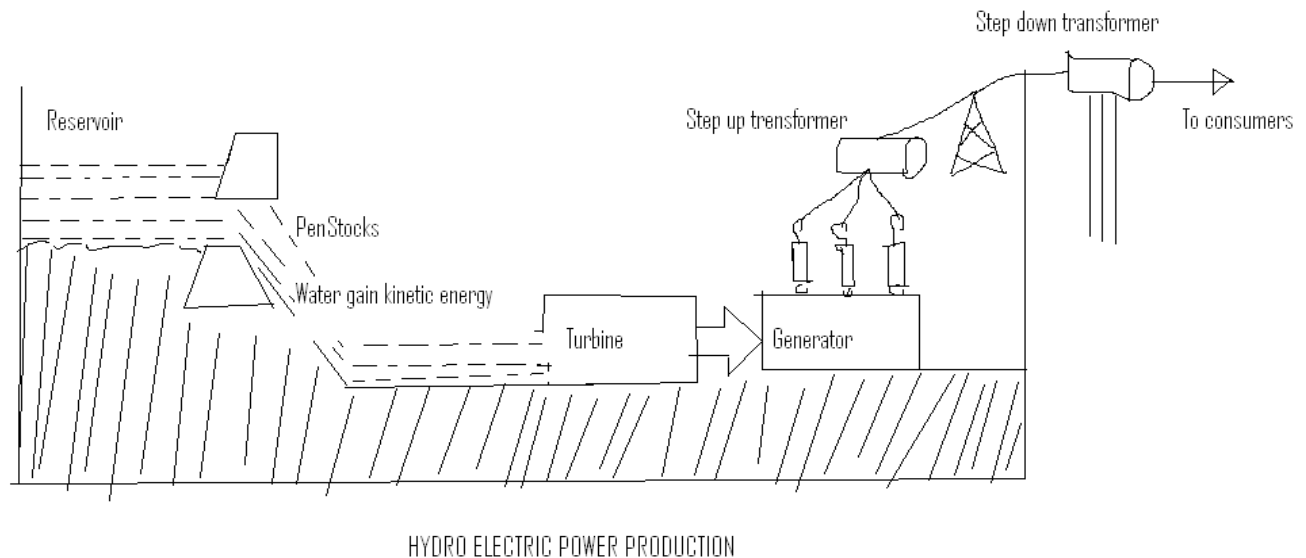
2. HYDRO ELECTRIC POWER (HEP)

PRODUCTION OF HEP

- Presence of a steep slope or gradient creates natural falls where a sufficient and constant volume of running water moves with fast speed because it gains a lot of kinetic energy
- This moving water passes through pipes called Pen stocks and is led to turbines which rotate forcing generators to produce electricity.
- The voltage produced is increased by step up transformers and transported to various places through wires.

- A large market is required for the Hydro

Electric Power.



ADVANTAGES

- It is sustainable because it uses water which is a renewable resource
- It is relatively cheap form of electricity
- It creates limited pollution
- The construction of dams reduces risks of flooding and water shortage
- It is efficient

DISADVANTAGES

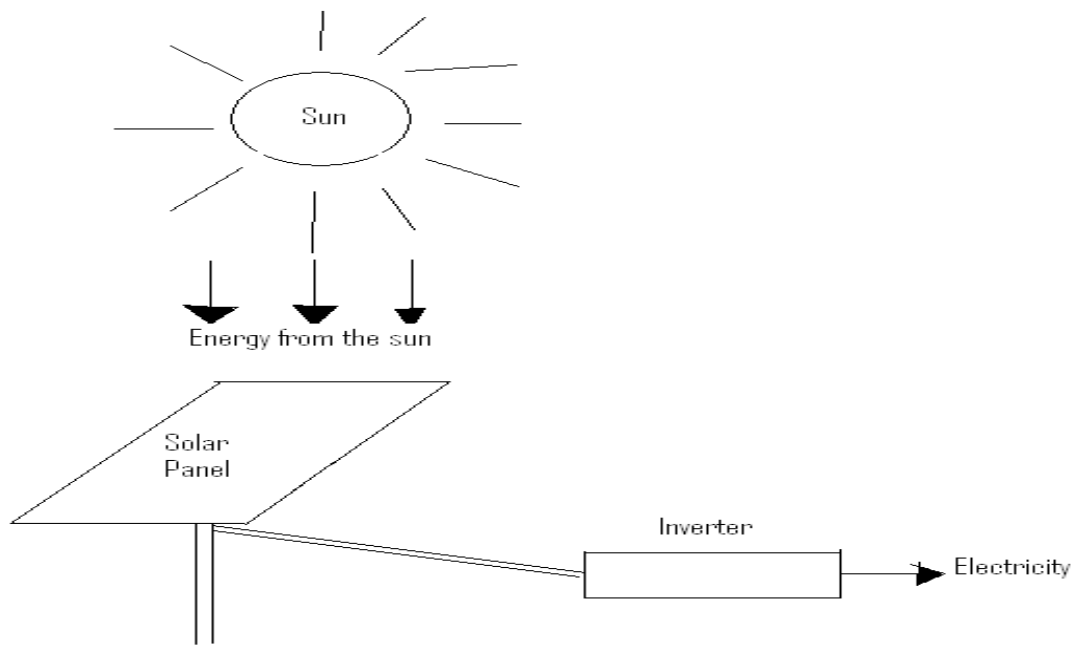
- Dams are expensive to construct
- Large areas of farmland and wildlife habitats may have to be flooded forcing people and animals to move
- Creation of dams often causes water borne diseases

- If an area is flooded, the decaying vegetation can release methane and carbon dioxide which are greenhouse gases responsible for global warming
- It can not be stored
- Damming destroys habitat for wildlife

3. SOLAR ENERGY

PRODUCTION

- Derived from the sun.
- Generated through solar panels, photovoltaic cells, absorber pipes and mirrors
- They absorb energy from the sun which is later on converted to electricity by inverters.



SOLAR ENERGY PRODUCTION

ADVANTAGES

- a. It causes less environmental damage because it uses no finite resources. There is no atmospheric pollution
- b. It is suitable for small scale production

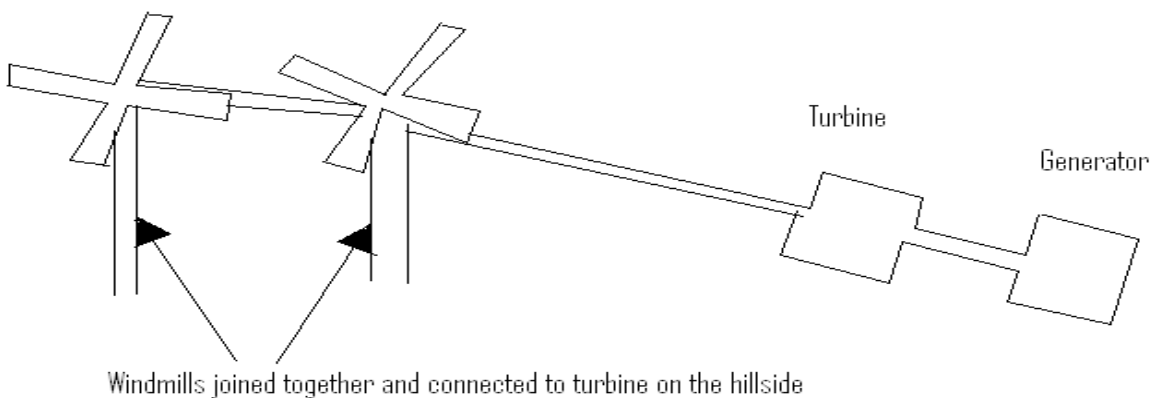
DISADVANTAGES

- It is affected by clouds, seasons or darkness
- It is not always possible when demand exists

- It is expensive
- Limited supply since solar panels convert only 30% of solar energy to electricity

4. WIND ENERGY

- It is good for small scale production.
- It needs an exposed site to wind such as hillside, flat land and strong and reliable winds e.g. Carmarthen Bay in Wales
Altamont Pass in California



WIND ENERGY PRODUCTION

PRODUCTION

- Produced when several wind mills are connected and joined to turbines which make generators produce electricity.
- These turbines need to be located in areas with regular and high wind speeds

ADVANTAGES

- It is safe (Does not give off radio – active emissions)
- It is clean (Does not give chemical emissions) unlike fossil fuels, it does not contribute to global warming or acid rain
- It has minimal effect on local ecosystem
- Its production is relatively cheap
- It is sustainable being a renewable resource
- There is no air, water and ground pollution
- There are no finite resources involved.

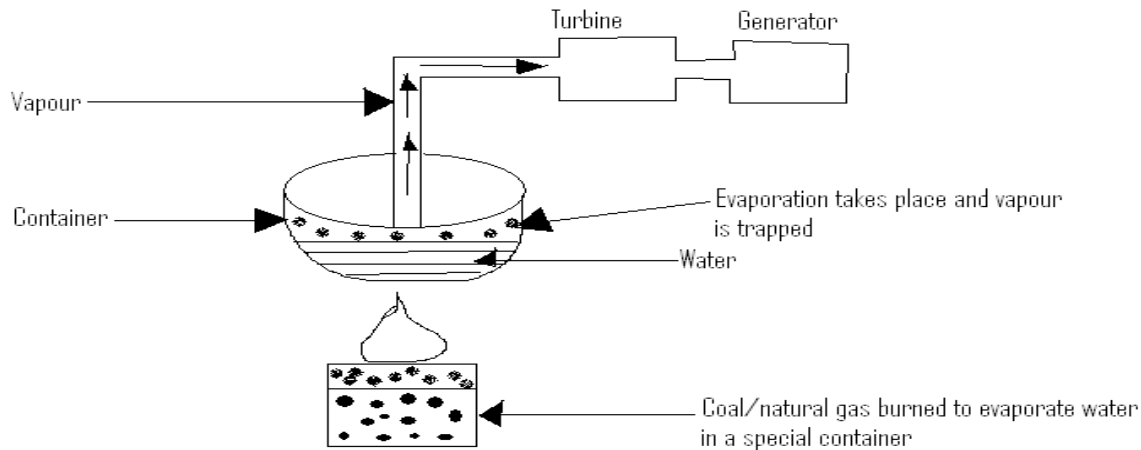
DISADVANTAGES

- It is not reliable because it does not blow all the time
- It cannot be stored during storms for use during calm periods
- It is very expensive because there is need to purchase a lot of turbines, windmills and generators to produce electricity
- It is not efficient

5. THERMAL ENERGY

PRODUCTION

- Thermal means heat
- Supplied by non renewable resources e.g. fossil fuels such as coal, oil and natural gas
- They are burned to release heat which vaporizes water put in special containers.
- The vapour is trapped and directed to turbines connected to generators in order to produce electricity



THERMAL ENERGY PRODUCTION

ADVANTAGES

- Oil and gas are more efficient to burn, easier to transport and distribute (by pipelines and tankers)
- It is safer than nuclear energy

DISADVANTAGES

- The burning of fossil fuels causes air pollution, global warming and acid rain.
- Destruction of the environment – deep mining of coal
- The most easily accessible deposits have been exhausted
- Increased production costs
- Both oil and gas are subject to international price changes and are vulnerable to political, economic and military pressures.

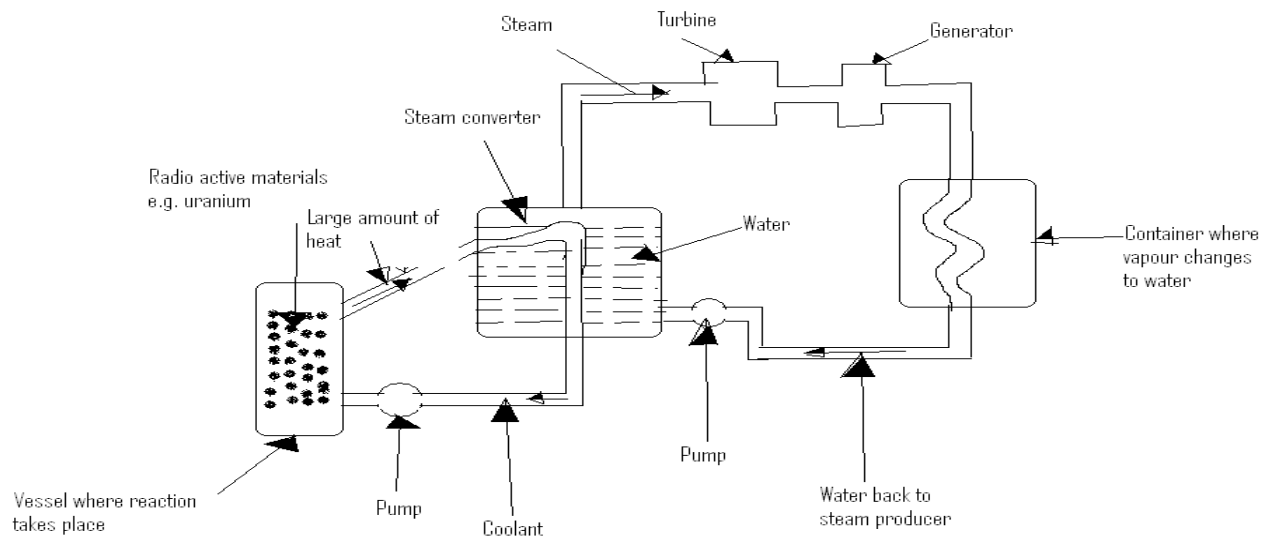
6. NUCLEAR ENERGY

PRODUCTION

- A lot of power can be obtained from the splitting of the nucleus of the radioactive materials.
- Largely produced by the United States of America, Canada, Zaire, Australia and Republic of South Africa.
- This can be done by bombarding the nucleus with several neutrons through the process called nuclear fission
- The bombarding induces an extra neutron in nuclear rods which in turn create chain reactions which affects the adjacent atoms and when this is done, more neutrons are released which in turn split to release large amount of energy.

- This energy from the reactor vessel or container heats up the water in the steam generator which is vaporized.

- The vapour is then directed to turbines connected to generators in order to produce electricity



NUCLEAR ENERGY PRODUCTION

ADVANTAGES

- It requires limited raw materials to be produced
- Nuclear waste is limited and can be stored underground

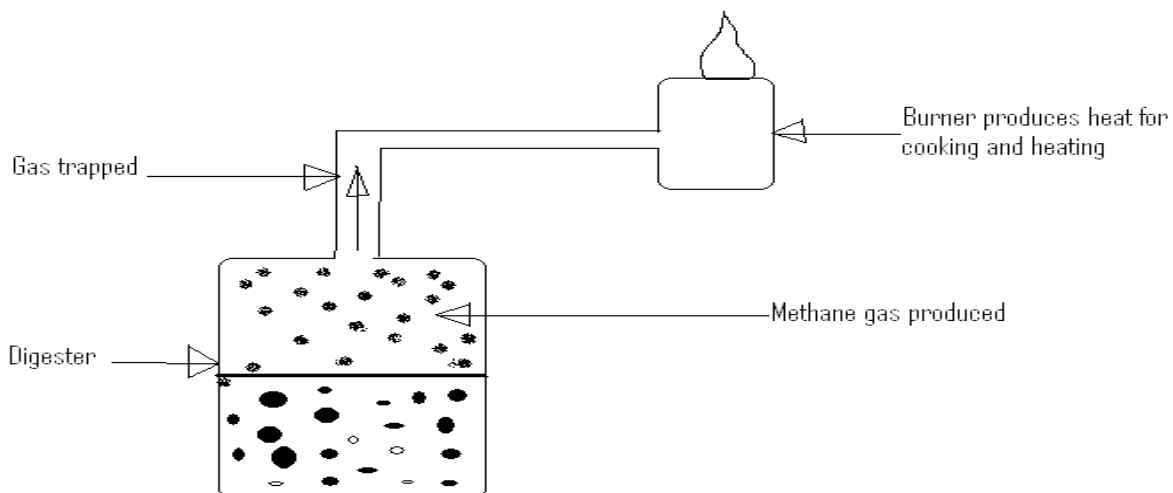
DISADVANTAGES

- It is very expensive
- It is not safe i.e. hazardous because the waste can remain radioactive for many years
- There is less demand for the energy which has been caused by alternation

7. BIO GAS

PRODUCTION

- This uses biomass such as wood, dung and grass.
- These materials produced by biomass are put in special digesters where bacteria act upon them to allow the process of formation to take place.
- This process releases methane gas which can be used in developing countries instead of firewood.



PRODUCTION OF BIO GAS

ADVANTAGE

- It is relatively cheap

DISADVANTAGES

- Farmers are forced to buy fertilizer to enrich soil since dung can no longer be used as fertilizer i.e. posing a big financial problem on the part of farmers
- The release of methane gas which is a greenhouse gas causes global warming.

IMPORTANCE OF ENERGY IN DEVELOPMENT

- a. It helps in transportation such as movement of trains
- b. It also assists in the production of food items such as beer, bread etc.

ENERGY CRISIS

Energy crisis refers to a situation where energy becomes scarce to the majority of people in a particular country.

IN MALAWI

- It has led into deforestation i.e. rampant clearance of both natural and artificial vegetation for firewood and charcoal business.
- There is risk of desertification which will in turn result into poor or no rainfall.
- Not all people have access to electricity

IN THE WORLD

- The reserves of fossil fuels are also declining at a fast rate being non – renewable resources.
- The fossil fuels are also becoming expensive because of demand and supply factor.

- Oil and natural gas in the known reserves are likely to be exhausted within less than 100 years and coal within less than 250 years.

POSSIBLE SOLUTIONS TO ENERGY CRISIS

- a. Using alternative renewable sources of energy such as biomass, wind, water and the sun
- b. Afforestation and reforestation in developing countries.

MINERALS

MEANING OF SOME TERMS

- a. A metal: A chemical element which can be separated from a mineral by a special treatment
- b. An ore: A rock which has a metallic content sufficiently high to make it worth mining
- c. A mineral: A chemical compound which occurs in the earth's crust and which forms the basis of rocks

TYPES OF MINERALS

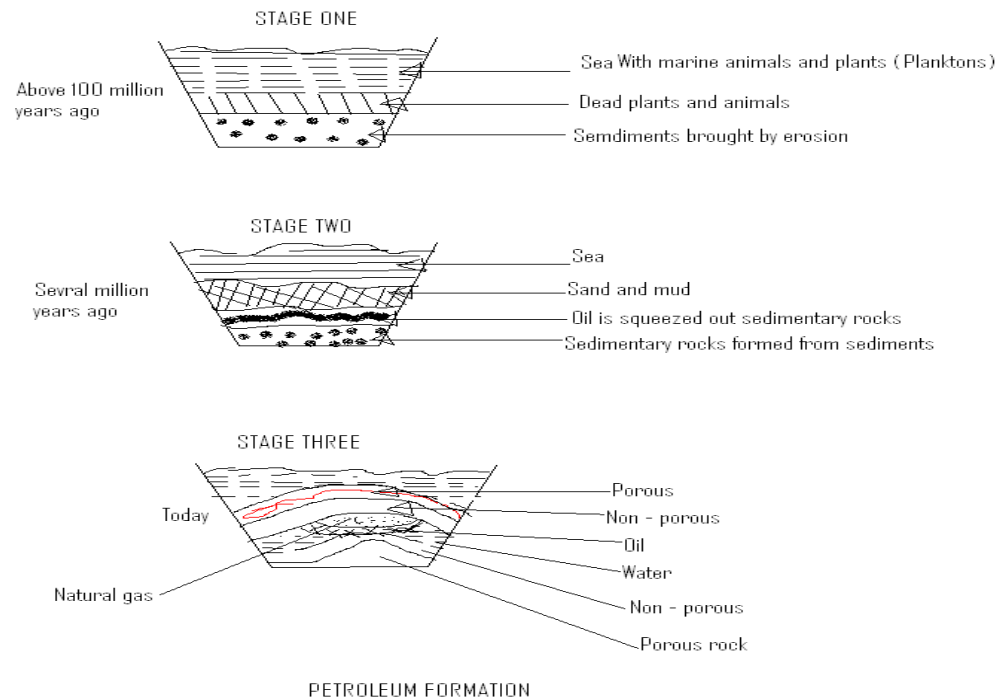
- a. Those which can be used to provide power e.g. coal and petroleum
- b. Metallic minerals: i.e. Non – ferrous (Those that contain metals such as tin, aluminium and copper. Ferrous i.e. minerals containing iron.
- c. Non – metallic such as asbestos, sulphur and salt

MAP ON WORLD DISTRIBUTION OF MINERALS

CASE STUDY - PETROLEUM

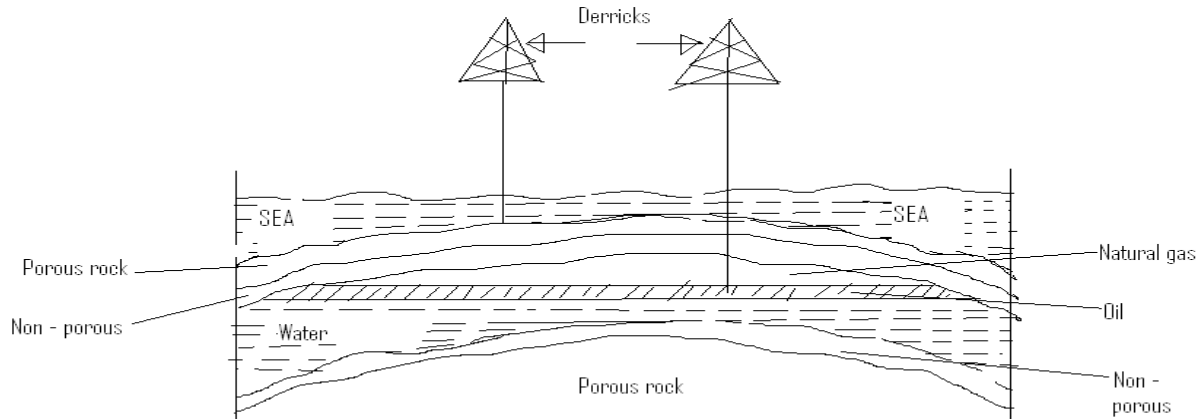
ORIGIN AND OCCURRENCE

Petroleum occurs in its natural state called crude oil which is a compound of hydrogen and carbon



- Formed from the decomposition due to the action of bacteria on small dead marine organisms which collect in the sedimentary basin (zone of sediments on the ocean floor or sea floor) on the sea bed
- It occurs both in the pore spaces of sedimentary rocks which form from compaction and lithification of sediments and between two layers of non - porous rock.
- Oil is squeezed out of the sedimentary rocks of sandstone and limestone into the porous sedimentary rocks by earth movements created by compression forces.

OIL EXTRACTION



OIL EXTRACTION

OIL DRILLING

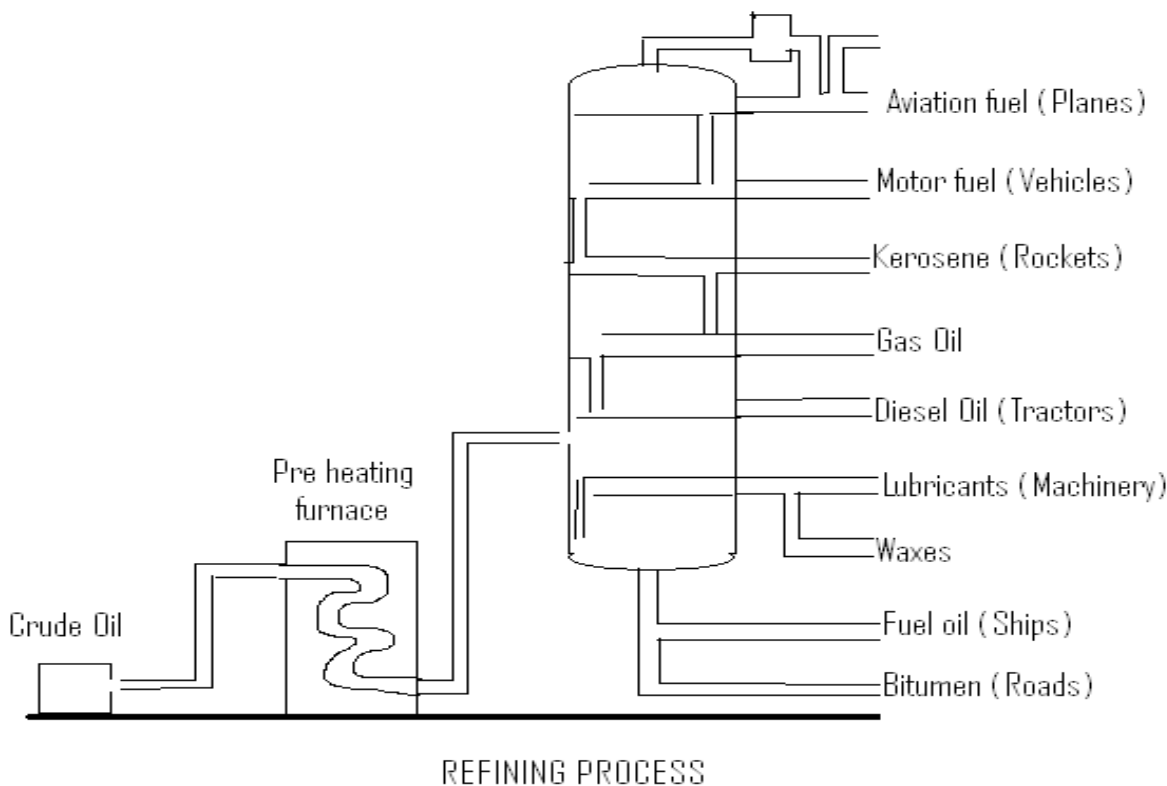
- It requires a large metal structure called a Derrick
- A steel pipe originates from this metallic structure to which is fitted a drill head called Diamond Cutter or Bit.
- A hole is drilled from the surface to the rocks harbouring oil by this structure which is forced slowly downwards.
- Furthermore, more steel pipes are added until oil deposits are accessed.
- Mud mixed with water is forced down the pipes to lubricate the bit and flush out the drilled rock particles.
- Naturally, the oil gushes out if it is under pressure and if not it has to be pumped.
- Sometimes, even the naturally gushing out oil can cease to flow and therefore, it still requires pumping.

OIL REFINING

Making petroleum pure by breaking it into various products in a refinery which is located at the port of export or import and in or near oil fields is called oil refining

WHAT HAPPENS

- Since crude oil is made up of different hydrocarbons being an organic compound, it has little use unless it is refined or made pure by the process of *Fractional Distillation*
- The various groups of hydrocarbons (also known as fractions) split from crude oil at very high temperature.
- The process of evaporation takes place as each fraction or hydrocarbon boils at different temperatures.
- This process is done in a *Fractionating Column*



PRIMARY DISTILLATION

- Various groups of hydrocarbons or fractions are extracted at their own boiling points as they condense into liquids.
- The lighter fractions such as paraffin, petrol, kerosene and benzene will be evaporated and condensed firstly at temperatures below 38°C .
- Heavier fractions such as diesel, lubricating and fuel oil will condense later at temperature between 38 and 427°C

SECONDARY DISTILLATION

- Due to high demand of the lighter fraction it has observed that the heavier fractions should be treated to come up with the lighter fraction in a process called *Thermal Cracking*.
- The heavier fractions are reheated at relatively much higher temperatures until they break or crack into lighter fractions such as gasoline, petrol, paraffin and benzene by a machine called a *Cat Cracker*

POLYMERIZATION

Gases are made to combine into large molecular compounds and it is important because it increases the production of petroleum.

USES OF PETROLEUM PRODUCTS

OIL PRODUCT	USES
Kerosene	It is used as fuel for jet aircraft and for cooking, lighting and heating
Natural Gas	It is good fuel
Gasoline	It is used for land transport
Bitumen or Asphalt	It is used for making roads, roofing and waterproofing purposes
Petroleum gases	It is used for making chemicals. This is an alkane compound comprising butane, methane and propane
Gas Oil	Raw material of diesel which is vital for the movement of lorries, cars and some locomotives
Lubricants	They are used for the manufacture of candles, seals and polishes
By products	These form the basic raw materials of the host industrial items such as plastics, synthetic rubber, detergents, insecticides, terylene, motor car anti freeze, adhesives and pharmaceutical as well as

	organic chemical products e.g. varnishes, drugs, solvents and diluents
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OIL TRANSPORTATION

a. PIPELINES

- The most efficient and cheapest way of transporting oil because they are inflexible i.e. they remain in position for a long period of time.
- Pumping stations and pipes are installed at high initial costs which becomes very economical in the long run
- Pipelines only take oil from the source to refineries or to exporting ports for filling oil tankers that transport the oil to distant countries.

b. OIL TANKERS

- They are used for sea transport and have become enormous in size over the last decades because of the following:
 - ❖ The costs of building and operating a large oil tanker are not proportional to the size.
 - ❖ It was economically viable to build large tankers called Supertankers designed to carry oil from the middle oil producers to the Far East (Singapore and Japan) at the same time when the Suez Canal was closed.

c. OIL TRUCKS AND RAILWAY WAGONS

These are used for transporting the refined petroleum products

d. AIRCRAFT

These are used by military and emergency requirements to transport oil.

THE ROLE OF THE ORGANISATION OF PETROLEUM EXPORTING COUNTRIES (OPEC)

- Ensuring that oil is supplied and regulated within the framework of national interests of its members.
- It controls prices of crude oil

MEMBERS OF OPEC

- Algeria
- Ecuador
- Nigeria
- Iran
- Venezuela
- Saudi Arabia
- Gabon
- United Arab Emirates
- Iraq
- Indonesia
- Libya

CASE STUDY

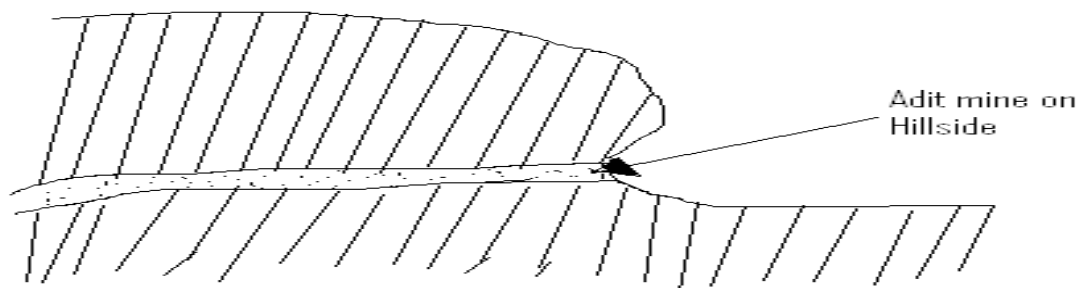
BAUXITE

OCCURRENCE

- Bauxite is clay which is rich in aluminium hydroxide and it is an ore which produces aluminium.
- The most important bauxite deposits occur in humid tropical regions or in regions having or which once had tropical climate.
- This is where the process of leaching has resulted in the formation of aluminium hydroxide in the sub soil (horizon B – Layer number two from the top layer)

MINING OF BAUXITE

Bauxite is mined by open cast method because most of the ores occur close to the earth surface



ADIT MINING

THE PROCESS OF EXTRACTING ALUMINIUM FROM BAUXITE ORES

STAGE ONE

- The bauxite ore is crushed.

- The caustic soda solution is added
- Heat is applied under pressure.
- The end result is a combination of dissolved silica and aluminium in solution, iron oxide is left undissolved

STAGE TWO

- This stage involves the removal of insoluble iron oxide by filtration process

STAGE THREE

- Aluminium hydroxide is added to form aluminium precipitate (powdery material that remains at the bottom)

STAGE FOUR

- Aluminium precipitate is heated in order to produce ALUMINA (this is aluminium oxide)

STAGE FIVE

- Molten cryolite is added to the alumina and the mixture is smelted or electrolyzed so that molten aluminium is formed at the cathode (negative node)
- This is done by passing through the solution a strong electric current

NOTE: An abundant supply of electricity is required and because of this most alumina smelters are located near hydro electric power plants.

PROPERTIES AND USES OF ALUMINIUM

PROPERTIES

- Malleability i.e. it can easily be rolled into sheets
- Ductility i.e. it can easily be moulded into any shape
- It is resistant to corrosion
- It is light in weight
- It is good conductor of heat and electricity
- It has high melting point

USES

- It is used for the manufacturing of aircrafts, railway carriages, buses and motor cars
- It is used for the manufacturing of aluminium paint
- It is used for the manufacturing of electrical goods and domestic utensils which include cooking utensils, refrigerators, washing machines and cooking ovens
- It is used for the manufacturing of aluminium foils which assist in the packaging of different products e.g. food.

OCCURRENCE OF BAUXITE IN MALAWI

Bauxite ore exists in Malawi on Mulanje Mountain. Despite its occurrence, it has not been mined because of several challenges.

PROSPECTS AND PROBLEMS OF BAUXITE IN MALAWI

- It is because of inadequate power supply to mine the ore. **Prospect:** Importation of more power from Mozambique.
- It can be expensive to transport the ore from where it can be mined to the bottom of Mulanje Mountain which requires purchasing pipes to do the job of transportation
- It can adversely affect tourism because Mulanje Mountain has beautiful plant and animal species. The excavation of the area can scare away wild animals and destroy the beautiful plant species
- It can also negatively affect matches industry since Mulanje cedar can be destroyed through excavation

NOTE: Investors are hesitating to embark on bauxite extraction simply because the outcome will always be minimal as compared to expenditure.

COAL

This is a carbonaceous fossil fuel, brownish in colour or black combustible mineral substance found in beds of seas inside the sedimentary rocks.

USES

- Source of fuel
- Creation of job opportunity
- Reduction of importation of coal
- Development of remote areas
- Raw material of coke used for heating and smelting iron ores in blast furnaces

FORMATION OF COAL

- Coal is formed from vegetation material growing in the carboniferous era.
- It develops in waterlogged conditions when compacted and hardened by pressure and heat arising from the earth movements.
- Therefore earth movement in form of compression force are important in addition to heat for coal to form

TYPES OF COAL

- PEAT**
 - It has carbon content of 4 %
 - It is burnt as a fuel
 - It is applied to improve the texture or raise the water retaining property of soil
 - It is a dense or heavy deposit of dead vegetable matter which has been decomposed mainly because it has accumulated in water or in very damp conditions where oxygen is deficient.

2. LIGNITE COAL

- It has a carbon content of 40%
- It is of low grade
- It is darker in colour
- It has lower moisture content and its properties fall in between peat and bituminous coal properties
- It is used as a fuel to produce heat in the normal electric generators

3. BITUMINOUS COAL

- It has carbon content of between 40% and 80%
- It has volatile material between 15% to 45%
- It gives more heat and burns with less smoke
- It is used for making coke which is used in blast furnaces

4. ANTHRACITE COAL

- It has carbon content over 90%
- It has low proportion of volatile material
- It does not easily ignite
- It produces great heat
- It burns with almost clear, smokeless flame
- It is hard, lustrous variety of coal with a high proportion of carbon

MAJOR WORLD COAL PRODUCERS

- USSR (Former)
- United States of America (USA)
- United Kingdom (UK)
- China
- Australia
- India
- Germany

TOPIC 4: SETTLEMENTS

DEFINITION OF TERMS

1. **SETTLEMENT:** A group of buildings with people living in the, what these people do and how they move from one building to another
2. **HAMLET:** Where there are two or three houses without shops, schools or services
3. **CONURBATION:** A situation where several towns are joined together.
4. **MEGALOPOLIS:** Where many cities are joined together. For example in South East Japan and United States of America
5. **METROPOLIS:** This is the main city of a region on which surrounding towns depend. These dependent towns are called Satellite settlements which together with the mother city are called metropolitan system or decentralized city

6. **COUNTER URBANISATION:** This is urban rural migration

TYPES OF SETTLEMENTS

a. RURAL SETTLEMENTS – CHARACTERISTICS

- The main economic activity is farming
- Traditional attitudes are very strong
- The value of land is very low.
- The largest percentage of land is customary owned i.e. it is communal
- Presence of poor social services i.e. roads, schools, hospitals, markets, banks
- The society is mostly homogeneous i.e. one tribe predominates
- Most people are related by blood
- People do not readily accept change or fashion
- Most buildings are semi – permanent

NOTE: Basically, rural settlement refers to all buildings in a village setting. The people in these settlements earn their living through the growing of crops and rearing of animals. These produce raw materials to be processed into products by secondary industries in the urban areas

b. URBAN SETTLEMENTS – CHARACTERISTICS

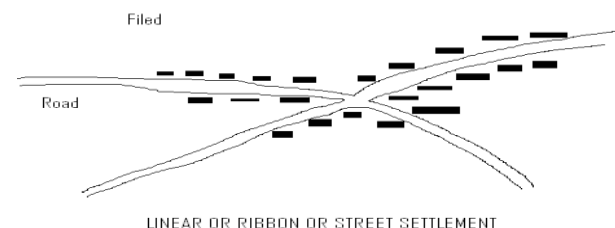
- The value of land is high following high demand
- Most buildings are permanent i.e. made of brick stone and cement
- The society is heterogeneous (Composed of several tribes or races)
- The population is very high
- Presence of modern social amenities e.g. hospitals, banks, restaurants, hotels
- It is dominated by secondary and tertiary industrial activities.

NOTE: These refer to settlements that process raw materials produced by rural settlements into finished products in addition to provision of services and administration such as towns, cities or conurbations.

SETTLEMENT PATTERNS

1. LINEAR OR RIBBON OR STREET

Buildings follow a line which may be a track road, river or railway line.



LINEAR OR RIBBON OR STREET SETTLEMENT

FACTOR THAT INFLUENCE LINEAR SETTLEMENTS

Presents of the roads, river or railway line. People would like to do business or farming activities along the road or railway line and river respectively.

ADVANTAGES OF LINEAR SETTLEMENT PATTERN

- Easy access to social amenities
- Easy to trade or to do business activities
- It creates enough land for other beneficial purposes

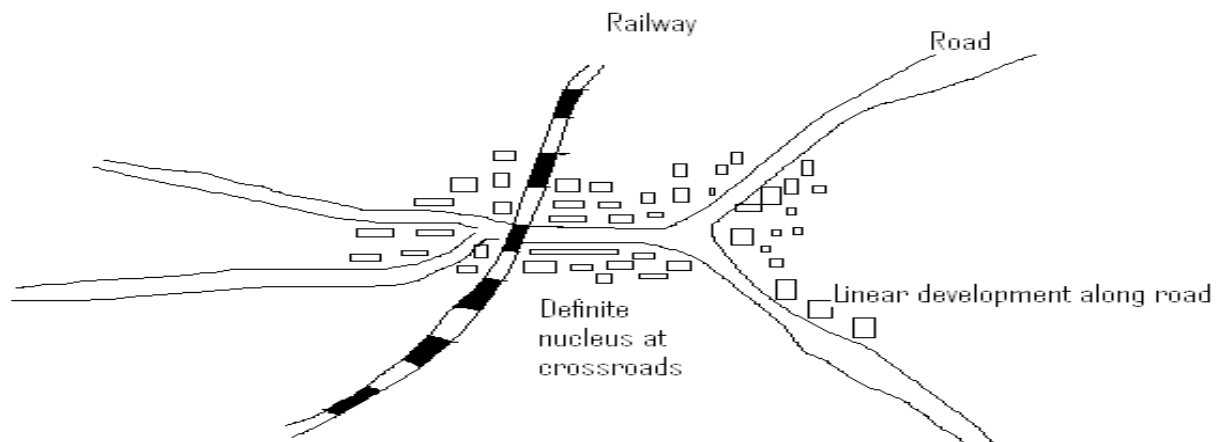
- Easy access to information or easy communication

DISADVANTAGE OF LINEAR SETTLEMENT PATTERN

Noise disturbances by moving vehicles or trains.

2. NUCLEATED OR COMPACTED

Buildings take the shape of the square or circle where houses are close to each other. The houses are normally connected by roads



FACTORS THAT INFLUENCE NUCLEATED OR COMPACTED SETTLEMENT PATTERN

- a. Availability of flat land
- b. Presence of social amenities e.g. water, electricity, schools etc
- c. Presence of fertile soils
- d. Trade or commercial activities

- d. It creates enough land which is left for other beneficial uses

DISADVANTAGES OF NUCLEATED OR COMPACTED PATTERN

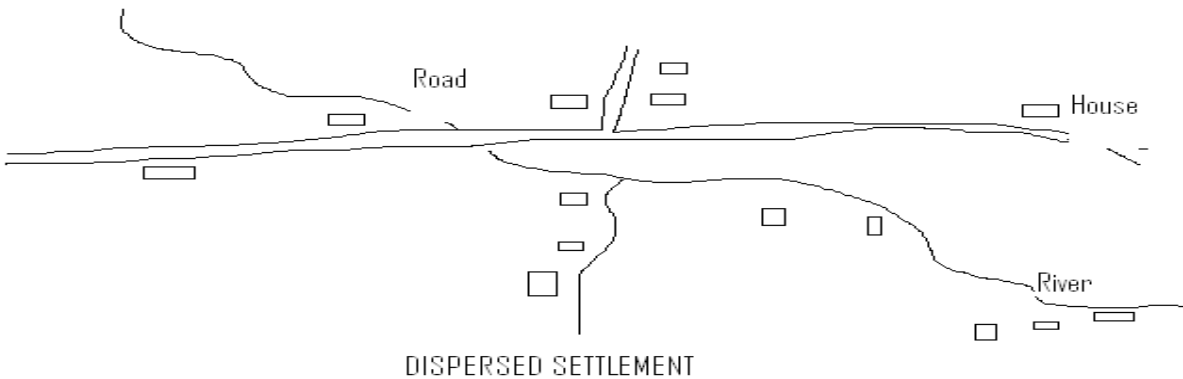
- Easy spread of diseases
- Pollution of environmental resources e.g. land, water and air

ADVANTAGES OF NUCLEATED OR COMPACTED PATTERN

- a. It ensures security to the residents
- b. It is easy for the government, non-governmental organizations and religious institutions to provide social services to the people
- c. It enhances social interaction and unity among the people

3. DISPERSED OR SCATTERED SETTLEMENT

This is the type of settlement pattern where houses are away from each other and are found away from the nearest village.



FACTORS THAT INFLUENCE DISPERSED OR SCATTERED SETTLEMENT PATTERN

- Presence of hilly or mountainous regions which often have infertile soils and do not allow construction of houses as well as mechanization in agriculture
- Availability of water everywhere for example presence of marshes
- Presence of forest reserves, game reserves and national parks
- Land ownership – Private land disperses people

ADVANTAGES OF DISPERSED OR SCATTERED PATTERN

- Good hygiene
- Protection of environmental resources
- There is maximum use of land

DISADVANTAGES OF DISPERSED OR SCATTERED PATTERN

- There is no security
- It is difficult to provide social services to the people
- Lack of unity and social interaction.

FACTORS THAT INFLUENCE SETTLEMENTS

1. SITE

This is a point at which the towns, hamlet, village, city are located in relation to local relief, soil and water supply. It can simply be described as the area occupied by a settlement

CHARACTERISTICS

- Bridging points: This is where the river becomes shallow and narrow to enable a bridge to be built (especially the lowest bridging point)
- A gap in the ridge or range of hills
- The convergence of valleys

2. SITUATION

This describes when the settlement is located in relation to surrounding features such as other settlements, mountains, rivers, and communications within the environment.

CHARACTERISTICS

- Wet point site: This is a point, which provides water in relation to dry areas
- A dry point site: This is a point, which avoids flooding in relatively wet areas
- Building materials: These include stones, wood and clay
- Defence: Security of a site is absolutely vital
- Nodal points: This is where several natural routes meet to create a central route or where rivers are joined
- Fuel supply: Required for cooking and heating on a site

FUNCTION OF SETTLEMENTS

The function of settlements relate to its economic and social development. It chiefly refers to its main activities and the existence of such settlements is justified by such developmental activities.

CLASSIFICATION OF TOWNS ACCORDING TO THEIR FUNCTIONS

- MARKET TOWNS:** These are towns, which act as centres of exchange, which collect and distribute local products
- INDUSTRIAL TOWNS:** There are towns that process raw materials produced by primary industries into finished products. These towns are located near power and water supplies, raw materials, markets among others
- COMMERCIAL TOWNS:** These include centres of commerce and finance, which deal with trade having banking and insurance facilities

- d. **MINING TOWNS:** These are towns which are Normally located in an unusual place provided it has sufficient mineral resources
- e. **ADMINISTRATIVE TOWNS:** These are towns which deal with administration and organization of the nation or the division within the country
- f. **CULTURAL AND EDUCATIONAL TOWNS:** These are towns that harbor renowned universities and cultural centres
- g. **ECCLESIASTICAL TOWNS:** These are historical and religious towns that are frequented by pilgrims from all angles of the world.
- h. **ROYAL TOWNS:** These include traditional residences of monarchs, kings and queens, sultans and their consorts having beautiful palaces and often visited by foreign dignitaries.
- i. **HOLIDAY, HILL AND HEALTH RESORTS:** These are resorts that are located in favourable geographical surroundings such as coastal resorts for activities like bathing and yatching
- j. **PORTS:** These are places having deep waters, warehouses, custom offices, banking and insurance services where steamers and ships berth or sleep. These include sea ports, Centerport, packet stations, out pots, river pots, fishing pots, residential or satellite towns

URBANISATION

MEANING

This refers to an increase in the proportion of people living in towns and cities. The surrounding agricultural land is taken over by urban structures and factory sites.

FACTORS RESPONSIBLE FOR URBANISATION

1. High Birth Rates: When the birth rate is higher in urban areas through natural growth, it contributes greatly to urbanization
2. Rural Urban Migration: The movement of people from rural to urban areas can also lead to urbanization.

DISADVANTAGES OF RURAL AREAS

- Families break down
- Poor services as energetic people migrate to towns e.g. roads, become unlimited
- Food production decreases because of decreased labour
- There is economic stagnation because of decreased output
- Lack of security
- Criminals are harboured in the houses which are abandoned and neglected

- Number of learners and enrolment in schools decrease.

DISADVANTAGES IN URBAN AREAS

- a. Increased crime rate e.g. armed robbery, drug and substance abuse, prostitution
- b. Destruction of environmental resources e.g. land, water and air through pollution
- c. Shortages of housing hence overcoming which eventually creates squatters and slums
- d. Food production decreases because of loss of agricultural land.

WAYS OF REDUCING RURAL URBAN MIGRATION

- Empowering rural residents economically
- Industrializing the rural areas for people to be employed there
- Establishment of rural growth centres
- Creation of entertainment centres in rural areas
- Establishment of satellite towns in rural areas

IMPORTANCE OF URBAN CENTRES TO THEIR HINTERLANDS (AREA THAT SURROUND URBAN CENTRES)

1. There are a source of employment opportunities for residents of the hinterland
2. They provide secondary inputs and implements for the primary activities of the hinterland
3. They provide better social services to the residents of the hinterland
4. They provide ready market for primary products of hinterlands or simply they are centres of consumption
5. They are centre of communication

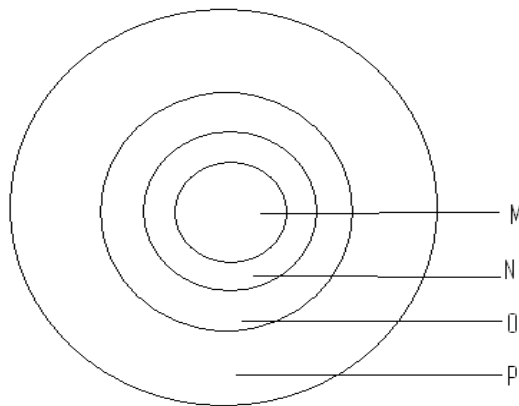
FACTORS FOR THE GROWTH OF BLANTYRE, LILONGWE AND MZUZU

- a. **BLANTYRE**
 - It has good network of roads, railways and presence of Chileka Airport
 - It is a centre for trade and industrial activities
 - It was established as a centre for missionary work where early missionaries settled.
- b. **LILONGWE**
 - It is a capital city (Transferred from Zomba in 1975)
 - It is a centre for industrial activities
 - It is easily accessible because of the presence of good roads and the Kamuzu International Airport
 - It has fertile alluvial soils and flat land for cultivation

c. MZUZU

- It is a centre for trade (Presence of Matayifa market)
- It has social services such as health facilities like Mzuzu Central Hospital
- Presence of industrial activities which provide employment
- It was a centre for administration of the tung estates around Vipha after world war II
- Good accessibility because of network of roads and presence of airport

FUNCTIONAL ZONES OF AN URBAN AREA



FUNCTIONAL ZONES OF AN URBAN AREA

KEY

M – Central Business District or Zone A

N – Zone in Transition or Light Manufacturing or Inner City or Zone B

O – Lower Class Residential (Inner Suburbs) or Zone or Industrial and Lower Class Housing

P – Medium Class Residential Suburbs (Outer Suburbs)

THE CENTRAL BUSINESS DISTRICT (CBD)

The centre of the town where shops, offices, banks, public buildings and entertainments are found. It is normally crowded and busy.

CHARACTERISTICS

- Main routes from the suburbs meet and so on the area is easier to reach from all parts of the city hence it is highly accessible
- Land is relatively expensive because of high competition.
- There are no houses where people can reside
- It is highly congested during day than it is at night.

- There are no secondary industrial activities i.e. no manufacturing.
- It offers services such as hotels, banks, restaurants, hair dressing etc.
- There is a lot of noise during day but quiet at night.

ZONE IN TRANSITION/LIGHT MANUFACTURING/INNER CITY/ZONE B

CHARACTERISTICS

- It has high rise flats, old factories, railway stations, terraced houses which are basically commercially oriented
- A small proportion is used for residential purposes
- This is a zone where little manufacturing is done
- It normally undergoes several changes hence the word transition.

LOWER CLASS RESIDENTIAL OR INNER SUBURBS OR ZONE C

CHARACTERISTICS

- It is nearly occupied by houses having gardens but a few garages
- High population density
- Land is relatively cheap
- There are also industrial activities in certain industrial plants.
- Presence of narrow and crowded streets.

MEDIUM CLASS RESIDENTIAL SUBURBS OR OUTER SUBURBS OR ZONE D

CHARACTERISTICS

- ❖ It has modern houses and council estates
- ❖ It has new shopping centres, small modern factories and areas of open space
- ❖ It has wider streets
- ❖ Land is costly
- ❖ There is low noise

EFFECTS OF URBANISATION

POSITIVE

- Urbanization creates demand and hence provides markets for the supply of manufactured products in the secondary industry. Therefore, it enables business to take place easily.
- It also provides enough labour for the industrialization process
- It controls the importation and exportation of goods
- It brings social changes that alter other elements of the social set up.

NEGATIVE EFFECTS

1. **UNEMPLOYMENT:** This may lead into the following:
 - a. Increased crime rate
 - b. Prostitution
 - c. Drug and substance abuse
2. **HOUSING:** This may lead into the following:
 - a. Accommodation becomes scarce and expensive i.e. rental rates
 - b. Ill health more especially in slums where overcrowding is keen
 - c. Increased crime rate
 - d. Pressure on social services
 - e. Unemployment
 - f. Poor health conditions.
3. **TRAFFIC CONGESTION:**
 - a. Slow down movement
 - b. Rise in accidents
 - c. Noise and air pollution
 - d. Lack of parking areas
4. **ENVIRONMENTAL DETERIORATION**
 - a. Disposal of sewage and garbage
 - b. Health problems due to smoke emanating from kitchens, factories and vehicles

POSSIBLE SOLUTIONS

- a. Teaching people different skills to curb unemployment
- b. Creation of new towns to relocate people to reduce congestion
- c. Provision of parking areas, free ways, single way streets and traffic lights to arrest the problem of traffic congestion
- d. Expanding the existing environmental resources such as sewages and garbages, water, electricity supply, social and recreational amenities to reduce environmental deterioration.

TOPIC 5: **POPULATION**

DEFINITIONS

- a. **Population:** This refers to the total number of people living in a country at a given time
- b. **Population density:** This refers to the average number of people living in a unit area
- c. **Population growth rate:** This is the net addition through birth and migration, to the existing population per expressed as a percentage of the existing population
- d. **Population explosion:** This occurs when the population grows rapidly
- e. **Population implosion:** It occurs when the population decreases sharply.

- f. **Birth rate:** The number of people born in a year per every 1 000 people.
- g. **Mortality rate/Death rate:** The number of people dying in a year per every one thousand people.
- h. **Push factors:** These are factors that drive people from some areas e.g. harsh climate
- i. **Pull factors:** These are factors that force people to come and settle in an area e.g. Fertile soils, industrial development.
- j. **Youthful population:** This is the population that is made up mostly of young people because the population growth rate is high
- k. **Ageing population:** This is the population composed of adults when the population growth rate is low
- l. **Population distribution:** The way that the population is spread out in a particular area.
- m. **Immigration:** The coming in of people from other areas or countries.
- n. **Emigration:** The going out of people to other areas or countries.
- o. **Fertility rate:** This refers to the average number of children that each mother is expected to have in a particular country in one year.

WORLD POPULATION DISTRIBUTION

FACTORS INFLUENCING POPULATION DISTRIBUTION

- a. Climate
- b. Physical relief
- c. Soils
- d. Mineral resources
- e. Government policy in immigration
- f. Historical, cultural, social, economical and medical.

1. THE NILE VALLEY AND DELTA

PULL FACTORS

- a. The Nile River has the Guezira plains which have some important advantages for irrigation e.g. a large and flat area, its annual flooding conditions and low rain fall
- b. Presence of fertile soils along the river bank creating a good environment for crop cultivation.

2. MONSOON ASIA

This area covers countries like China, Japan, India, Bangladesh, e.t.c.

PULL FACTORS

- a. Presence of fertile alluvial soils of the Chang Jiang (Yangtse Kiang), Hwang He (Hwang HO) e.t.c.

- b. The area is the centre of commerce.

3. INDUSTRIAL NORTH WEST EUROPE

This area covers Great Britain, France, West Germany, Benelux and Denmark.

PULL FACTORS

- a. Centre of civilization for over 1500 years
- b. Good climate for human habitation having warm summers and mild winters.
- c. It has evergreen coniferous and temperature deciduous forests which are of commercial value
- d. Improved agriculture due to scientific management and fertility of soil.
- e. Development of industries has abundant raw materials such as coal, iron ores and enough HEP
- f. Good sea transport because of the long indented coastline
- g. Improved living conditions.

4. NORTH EASTERN U.S.A./AMERICA

It covers the industrial areas of the United States and Canada stretching from the shores of the Great lakes through Pittsburg to New York and the Atlantic sea board

PULL FACTORS

- a. Growth of industries
- b. It has fertile soils which promote agriculture
- c. Excellent natural communication of the Great lakes and St. Lawrence Sea Way.
- d. High quality raw materials which have stimulated trade
- e. Enterprising immigration population
- f. Improved living conditions

5. WITWATERS RAND IN SOUTH AFRICA

PULL FACTORS

- a. It is the centre of trade
- b. Industrial growth inviting peoples to find employment
- c. People look for employment in the mining industry

6. WEST AFRICAN COASTAL REGION

PULL FACTORS

- a. Presence of good agricultural land
- b. Access to water and air transport

AREAS OF SPARSE POPULATION

A. VERY SPARSELY POPULATED PARTS OF THE WORLD

a. COLD POLAR LANDS/HOT DESERT

These include the Arctic and Antarctic, the Canadian and Eurasian, Tundra, Green, the Himalayas, Rockies and areas around Andes, Kalahari Desert, the Atacama Desert, the Great Australian desert and the Sahara e.t.c.

PUSH FACTORS

- 1) Infertile sandy soils which allow leaching to take place
- 2) Poor communication in terms of land and rail transport because the sand particles cover up the railway lines and the roads are often impassable.
- 3) The type of climate is not conducive to habitation (very harsh because it is absolutely hot and dry and very cold in some areas)

B. MODERATELY POPULATED PARTS OF THE WORLD

These include large parts of cool temperate forests, temperate and tropical grasslands where pastoral nomadism and large scale mechanized farming take place and the equatorial forest regions e.g. the Steppes (Southern USA) and prairies (America and Canada)

PUSH FACTORS

- a. Communication is poor due to presence of dense and thick forests making it difficult to construct roads
- b. Occurrence of diseases and pests that attack man and his crops such as tsetse flies which spread trypanosomiasis
- c. Construction of houses is also difficult
- d. The soils are normally waterlogged creating difficult conditions for plant growth.

THE STRUCTURE OF THE POPULATION

The population structure is normally shown by a **population pyramid** which is also called an **age – sex pyramid**.

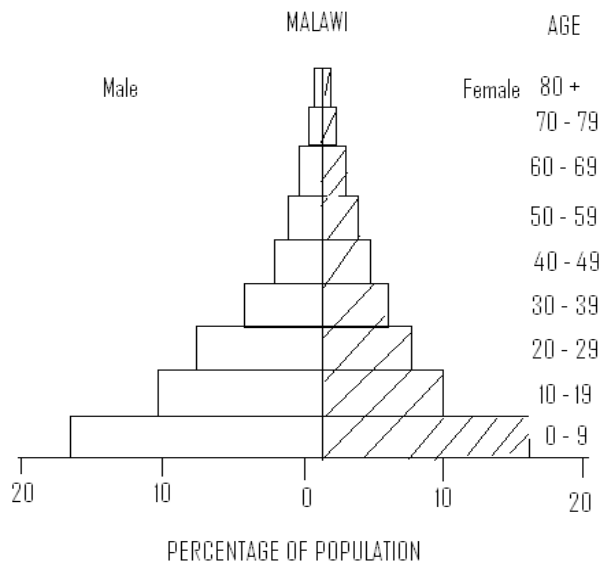
FACTORS THAT AFFECT THE POPULATION PYRAMID

- I. Death rate
- II. Birth rate
- III. Life expectancy

DESCRIPTION OF THE AGE SEX PYRAMID

- This shows the total population divided into five year age groupings e.g. 5 to 9 years, 10 to 14 years and the percentage of the total

- population subdivided into males and females in each of those groups.
- The population becomes youthful when there are more young people than adults and it grows highly.
- On the other hand, it becomes ageing when it has many old people as compared to young ones



- Developing countries including Malawi have a lot of young people and a few adults while developed countries such as Japan, Sweden, Great Britain etc. have more old people than young ones.
- Such countries would be associated with *third - world* or *developing economies*.

REASONS FOR AN AGEING POPULATION STRUCTURE IN DEVELOPED COUNTRIES E.g. JAPAN

- Long life expectancy – This is due to improved medical care and hygiene.
- Access to old age security systems
- Low fertility rate because of availability of family planning services, basic education and female literacy.
- Women have an access to many employment opportunities and this makes not to be submissive to their husbands
- Absence of child labour makes families to bear fewer children.

REASONS FOR A YOUTH POPULATION STRUCTURE IN DEVELOPING COUNTRIES E.g. MALAWI

- Lack of family planning methods that have contributed to today's situation.

- Families bear a lot of children with hope that they will assist them during old age following lack of social security systems
- High death rates due to lack of health care and hygiene despite improvement in these areas. Families bear a lot of children because they assume that if some die, others will survive.
- Most young people women and girls do not continue with education hence lack of jobs that force them to get married
- Beliefs that children are a source of labour hence need to bear more to facilitate work.

MEANING OF DEVELOPMENT

- Development is the sustained elevation of an entire society and social system towards a better human life involving major changes in social structures, popular attitudes and national institutions
- It is aimed at increasing the availability and distribution of basic life sustaining goods such as food, shelter, health and protection. Further, it is aimed at raising levels of living by providing high incomes, better education and greater attention to humanistic values.
- It helps to expand the range of economic and social choices available to individuals and nations by freeing people from external dependence and internal servitude.

IMPLICATIONS OF VARIOUS POPULATION STRUCTURES ON DEVELOPMENT

1. YOUTHFUL POPULATION STRUCTURE

- High levels of poverty
- Environmental degradation
- Lowering of quality of services
- Lack of security and peace

ADVANTAGE

- Presence of abundant labour in the work sector.

2. AGEING POPULATION STRUCTURE

- Increased investment and business activities
- sustainability of world vast resources in its environment

DISADVANTAGES

- Large unproductive dependent population since there are more old people
- Small work force, many young people spend much time on education and training and therefore labour has to be imported.

CAUSES OF RAPID POPULATION

- 1) High birth rate
- 2) Low mortality rate due to improved medical care and sanitation
- 3) Immigration

EFFECTS OF RAPID POPULATION GROWTH ON DEVELOPMENT

- 1) Pressure on social service delivery by the government and other organizations. More services are given to the large populations instead of them on political, social, economic, and technological development.
- 2) High death rate and ill health is a drawback to development
- 3) Increased rates of crime will scare away investors.

STRATEGIES FOR CONTROLLING POPULATION GROWTH

- a. Family planning: Contraception
- b. Wars: Resulting from human conflicts
- c. Civic education: About problems of rapid population growth
- d. Creation of old age social security systems: Forcing people to have less children
- e. Enhancement and enforcement of child labour laws regarding the suitable minimum age
- f. Sterilization techniques
- g. Enhancement of laws that will force individual families to have the required number of children.

INDICATORS OF DEVELOPMENT/POPULATION AND DEVELOPMENT

1. EDUCATIONAL INDICATORS

- a. Adult literacy rate: The percentage of people aged 15 and above who can read and write increases following development.
- b. School drop out rate: The percentage of students who drop out before completing a certain level of education reduces automatically
- c. School enrolment ratio: The number of children enrolling in both primary and secondary schools increases. Well educated people contribute effectively to development.

2. HEALTH INDICATORS

- a. Percentage of population with access to safe water increases.
- b. Percentage of population with access to sanitation increases
- c. Infant mortality rate: The number of children who die before reaching the age of one, expressed per 1000 live birth in a

given year decreases as a sign of good health

- d. Maternal mortality rate: The number of women who die during pregnancy or child birth, and is expressed per 100,000 live births decreases because the quality of life of human beings has improved
 - e. Life expectancy at birth: The number of years that a person would live based on statistical probability increases due to high living standards.
- 3. DECREASED RATE OF CRIME**
The rate of crime decreases when the population growth is controlled
- 4. PRESENCE OF TECHNOLOGICAL, SOCIAL, ECONOMIC AND POLITICAL INFRASTRUCTURE.**
Availability of schools, hospitals, parliament, banks, internet and fax machines among others is a good indicator of development.

WORLD POPULATION POLICIES

1. MALAWI

- a. She advocates girl – child education through GABLE and FAWEMA projects for secondary and tertiary education respectively.
- b. She also encourages late marriages. This is done through print and electronic media
- c. Fight against child labour. This is done by making primary education free for all and civic education to teach parents and guardians about the dangers of child labour
- d. The BLM is providing contraceptives to people at affordable rates in order to control population and prevent themselves from sexually transmitted diseases such as HIV/Aids pandemic.

2. NIGERIA

- Targets for four major policy goals which include the following:
- a. Improved living standards
 - b. Preventing premature death and illness among high risk groups of mothers and children
 - c. Reducing population growth rates through voluntary family planning
 - d. More even distribution of population between rural and urban areas

The population policy has the following specific targets:

- 1) To reduce the proportion of women who marry before the age of 18 by 50% by 1995 and by 80% by 2000.
- 2) To achieve a birth rates spacing interval of at least 2 years for half the country's mothers by 1995 and for 80% by 2000

- 3) To extend family services to half the women of child – bearing age by 1995 and to 80% by 2000
- 4) To direct a significant proportion of the family life education programmes and appropriate family planning services to all men by 2000

3. EGYPT

The policy has the following major objectives:

- a. Family planning methods are advocated for and employed although their religion is against use of contraceptives
- b. Discouraging big families by providing incentives to small families. This is done through direct money payments.

EUROPE

1. THE UNITED KINGDOM

- a. Enactment and enforcement of laws that protect young girls from early marriages below the age 18.
- b. Provision of old age social security schemes that force couples to bear less children.
- c. Family planning campaigns.

2. SWEDEN

- a. Family planning techniques
- b. Provision of old age social security services.
- c. Encouraging small families

ASIA

1. ISRAEL

The country has problems of labour shortage and she is advocating for more children to be born

SOLUTION

Due to hostility of Arabs, the country is asking Jews to return to Israel through a process called Aliyah.

2. CHINA

- a. Discouraging early marriages
- b. Enactment and enforcement of laws that allow families to have 2 to 3 children
- c. Advocating for family planning techniques. To a larger extent, sterilization, is also used especially in rural areas
- d. Abortion is practiced especially by rural citizens

3. INDIA

- a. Forcing people to process sterilization certificates
- b. Provision of gifts and money to those who possess sterilization certificates
- c. Family planning campaigns

TOPIC 6: **STATISTICAL** **ELEMENTS IN** **GEOGRAPHY**

TERMINOLOGIES

- a. **DATA:** This refers to raw or unprocessed information
- b. **PRIMARY DATA:** This is the name given to data that is used for specific purpose for which they were collected.
 - They will contain no unknown quantities in respect of method of collection, accuracy of measurements or which members of the population were investigated.
 - Sources of primary data are either censuses or samples.
 - Censuses are surveys that examine every member of the population and examples include population, distribution and production censuses whereas samples are representative subjects of population.
- c. **SECONDARY DATA:** This is the name given to data that is being used for some purpose other than that for which they were originally collected.
 - Summaries and analyses of such data are sometimes referred to as secondary statistics
- d. **DATA COLLECTION:** It is a means by which information is obtained from selected subjects of an investigation.
- e. **SAMPLE:** This is the examination of the small or representative subset of the population.

METHODS OF DATA COLLECTION

1. QUESTIONNAIRES

- It involves designing questionnaires and can be used with most forms of sampling. The questionnaire should properly designed and as short as possible and simple to avoid problems.

ADVANTAGE

It is cheaper than personal interview (since manpower is one of the most expensive resources).

2. INTERVIEWS

- a. Individual or Personal Interview – It is a method used to collect data that involves interviewing interviewees by trained interviewers.
- b. Street or Informal Interview – It is a method of interviewing the interviewee where the interviewer is just one of the team

ADVANTAGE

It is accurate

DISADVANTAGE

It is expensive

c. TELEPHONE

It is a method used in conjunction with systematic sample (from the telephone book)

DISADVANTAGE

It can cause aggravation and the interviewer needs to be skilled because there is no eye contact.

3. OBSERVATION

It is a method that is used for examining items sampled from work study i.e. geographic data.

ADVANTAGE

It is more accurate

DISADVANTAGE

It is labour intensive and hence it is expensive

4. MEASUREMENTS

Geographers can collect data through measurements i.e. drawing, reading and interpretation of graphs and calls for practice because reading graphs is a skill.

TYPES OF GRAPHS

- Histograms
- Bar graphs
- Pie chart
- Line graph
- Pictograms

HISTOGRAMS

A frequency distribution can be represented pictorially by means of a histogram. A histogram can be defined as a chart consisting of a set of vertical bars and is constructed as follows:

- Each bar represents one class, the bar width corresponds to the class width and the bar height generally corresponds to the class frequency.
- The bars are joined together (reinforcing the fact that classes have common boundaries)
- The vertical axis (representing frequency) and horizontal axis (representing data values) must both be scaled and labeled clearly.
- The chart as a whole must have a title.

Example: Draw a histogram using the data in the table below:

Number of days (X – axis)	Number of employees (Y – axis)
1	30
2	50
3	20
4	10
5	40
6	25
7	5
8	2

KEY: Take 2 cm to represent 10 employees on the Y – axis and 1 cm to represent the width of each bar on the X – axis

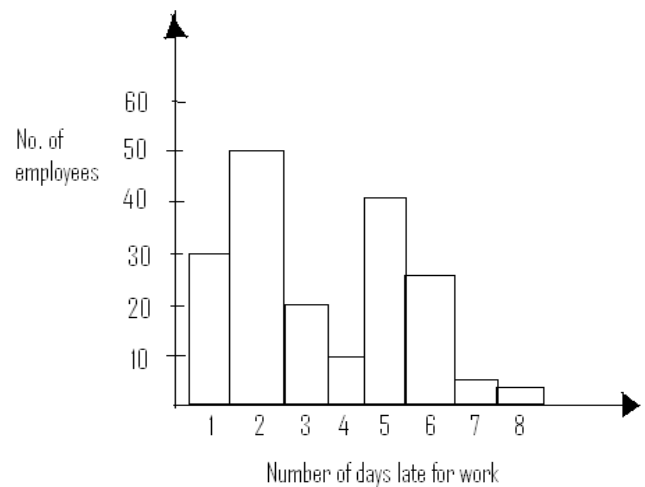


DIAGRAM SHOWING THE HISTOGRAM

Activity: A sample of 50 cooks was asked how long they boiled cabbage and their replies recorded below:

Time in minutes (to the nearest minute)	Number of cooks
Under 5	5
5 – 9	20
10 – 14	5
15 – 19	10
20 – 59	10

Take 2 cm to represent a period of 5 minutes on the Y – axis and 1 cm to represent bar width. Draw a histogram to display this data.

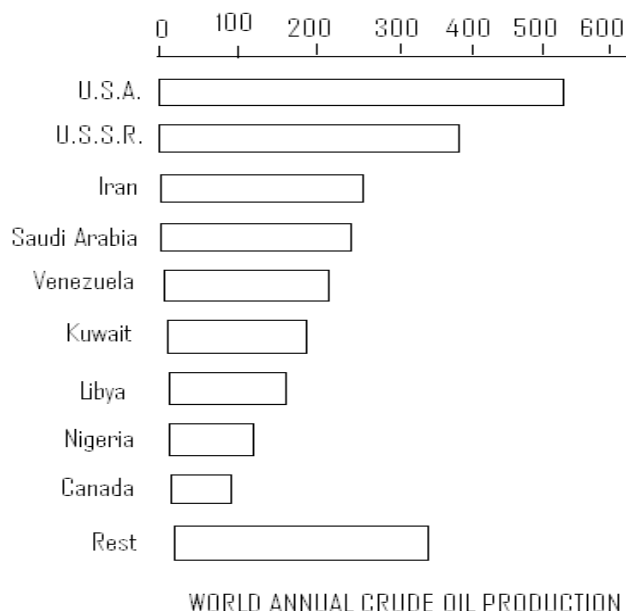
SIMPLE BAR CHARTS

- A simple bar chart is a chart consisting of a set of non – joining bars.
- A separate bar for each class is drawn to the height proportional to the class frequency.

- The width of the bars drawn for each is always the same and if desired, each bar can be shaded or coloured differently.
- Additionally, these bars can be drawn horizontally or vertically as shown below.

EXAMPLE 1: Using the graph below, by how much did the rest of the world annual crude oil production surpass that of Venezuela?

World Annual Crude Oil Production (average for the last five years in millions of metric tons). Total approximately 2,360,000,000 metric tons.

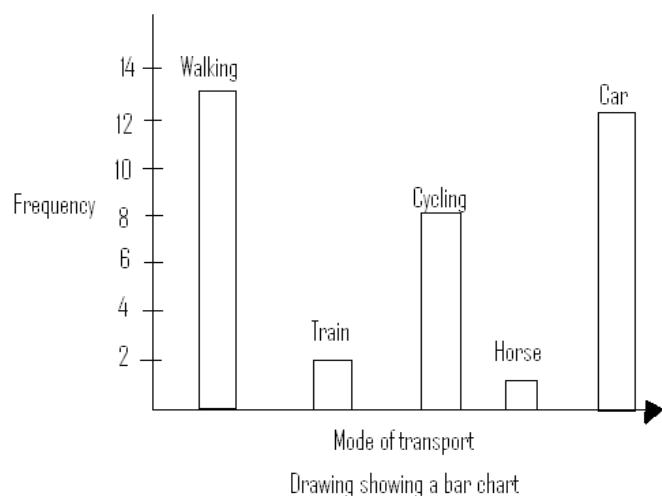


Solution: $300 - 210 = 90$ Metric tons

EXAMPLE 2: The teachers at a certain school were asked how they travelled to school one day and their replies recorded as follows:

Mode of transport	Frequency
Walking	13
Train	2
Cycling	8
Horse	1
Car	12

Draw a bar chart to display this information. Use 1 cm to represent a frequency of 2 on the Y – axis and 1 cm to represent a width of each bar



Activity: A survey of the occupations of men in a certain club produced the following information:

Occupation	Frequency
Accountants	1
Engineers	7
Bankers	3
Lawyers	4
Doctors	3
Salesmen	5

Draw a bar chart representing the information above.

PIE CHARTS

- A pie chart shows the totality of the data being represented using a single circle (a “pie”).
- The circle is split into sectors i.e., pieces of pie, the size of each one drawn in proportion to the class frequency.
- Each sector can be shaded or coloured differently if desired.

In order to construct a pie chart, the size of each sector in degrees needs to be calculated. The procedure is:

- Calculate the proportion of the total that frequency represents
- Multiply each proportion by 360, giving the sizes of relevant sectors (in degrees) that needs to be drawn.

EXAMPLES: The table below shows life expectancy data for 1995 of the same countries in Southern Africa. Use it to answer the questions that follow:

COUNTRY	LIFE EXPECTANCY
Malawi	43

Mauritius	71
Mozambique	47
Namibia	59
South Africa	64

Question: Draw a pie chart to illustrate the data. Use a radius of 5 cm.

Firstly, add all the life expectancy values i.e. $43 + 71 + 47 + 59 + 64 = 284$

Then calculate the proportion of the total that frequency represents.

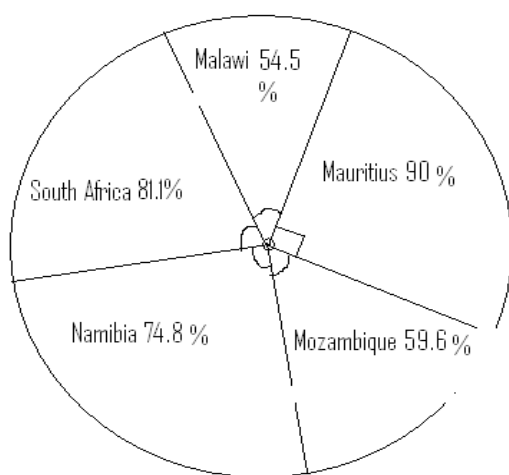
$$\text{Malawi} = 43/284 \times 360^\circ = 54.5^\circ$$

$$\text{Mauritius} = 71/284 \times 360^\circ = 90^\circ$$

$$\text{Mozambique} = 47/284 \times 360^\circ = 59.6^\circ$$

$$\text{Namibia} = 59/284 \times 360^\circ = 74.8^\circ$$

$$\text{South Africa} = 64/284 \times 360^\circ = 81.1^\circ$$



PIE CHART SHOWING LIFE EXPECTANCY

Activity: In a certain school, the lessons each week are allocated as below:

SUBJECT	NUMBER OF LESSONS
English	4
French	4
Math	5
German	4
Science	6
Others	13

Draw a pie chart illustrating this data

LINE GRAPHS

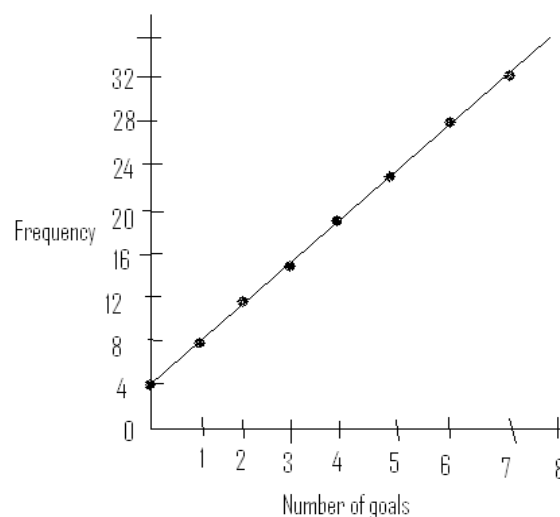
In order to plot linear graphs, you should follow the procedure given below:

- Plot the pairs of X on the X – axis and Y on the Y – axis
- Join the points with a smooth line

Example: The goals scored one Saturday by a sample of 54 football teams were recorded as below:

NUMBER OF GOALS	FREQUENCY
0	4
1	8
2	12
3	16
4	20
5	24
6	28
7	32

Draw a line graph using the information from the table. Use the vertical scale of 1 cm = 4 (frequency) and the horizontal scale of 1 cm = 1 goal



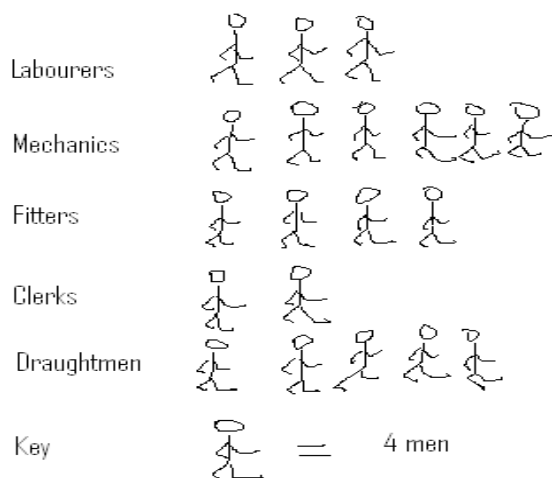
Activity: The numbers of attempts a certain darts – player needed one evening before he hit a “bulls” eye were recorded.

NUMBER OF ATTEMPTS	FREQUENCY
1	0
2	5
3	10
4	15
5	20
6	25
7	30

Draw a line graph using the above given data

PICTOGRAMS

- Pictograms are sometimes referred to as ideograms.
- These are charts which represent the magnitude of numerical values by using only simple descriptive pictures.
- These pictures are then duplicated in proportion to the class frequency, for each class represented as shown below:



Activity: How many are labourers, mechanics, fitters, clerks and draught men.

TOPIC 7: INDUSTRY

TERMINOLOGIES

MANUFACTURING: This refers to the conversion of inorganic and organic raw materials as well as refined materials, by mechanical or chemical means into new products.

INDUSTRIES OR FACTORIES: These are places where raw materials are processed into products.

TYPES OF INDUSTRIES

- Primary industry
- Secondary industry
- Tertiary industry
- Quaternary

PRIMARY INDUSTRY

- These are industries that involve the production collection and extraction of raw materials or natural resources.

- Industries relating to getting minerals from the ground are called Extractive Industries.

EXAMPLES OF PRIMARY INDUSTRIES

1. Mining
2. Quarrying
3. Farming (growing and harvesting sugarcane)
4. Forestry (growing of trees)
5. Fishing (drying and curing of fish)

SECONDARY INDUSTRIES

- Manufacturing industries involve the transformation of raw materials into consumable products and high technology.
- They process materials produced by primary industries

EXAMPLES OF SECONDARY INDUSTRIES

- a. Car manufacturing
- b. Sugar manufacturing
- c. Cement manufacturing
- d. Textile manufacturing
- e. Cigarettes, matches manufacturing

TERTIARY INDUSTRY

- These are also called Service Industries because they provide for the need of the population.
- They are concerned with the provision of social services to customers

EXAMPLES OF TERTIARY INDUSTRIES

- a. Electricity Supply Commission in Malawi (ESCOM)
- b. Water Boards i.e. Northern, Central and Southern

QUATERNARY INDUSTRIES

These provide information and expertise in different fields.

EXAMPLES OF QUATERNARY INDUSTRIES

- a. Universities
- b. Media houses
- c. Political policy units
- d. Research and development

AN INDUSTRY AS A SYSTEM

- An industry is one of the open systems because there is always an output.

- Any system is composed of interrelated parts namely inputs, processes and outputs.

Inputs	Process of converting the inputs into outputs	Outputs
<ul style="list-style-type: none"> - Physical/Natural input e.g. timber, sugar canes, fish, e.t.c. - Human/Economical input e.g. finance, people, information 	Manufacturing process	<ul style="list-style-type: none"> -Waste products e.g. molasses during sugar manufacturing -Services e.g. electricity and water supply -Products for sale e.g. matches

CASE STUDY: SUGAR MANUFACTURING

- Sugar canes are grown and harvested as physical natural inputs or raw materials.
- The processing of sugar from canes requires a large financial muscle labour during harvesting because it is labour intensive in addition to knowledge of how to process it.
- These are human and economical inputs
- When the canes have been harvested and brought to the factory, they are processed to sugar through the manufacturing process which involves several stages.
- This process produces sugar as a product to be sold locally and internationally.
- Additionally, this process also produces waste products such as molasses and golden syrup.
- The money realized from sales can be used for re – investment i.e. it can be used for sugar growing, purchase of machinery, payment of labour, maintenance of equipment among others

MAJOR WORLD INDUSTRIAL AREAS - REASONS FOR THEM TO BE MAJOR INDUSTRIAL AREAS

- The United States of America (USA)**
 - Natural resources: Coal, oilfields, natural gas, copper, aluminium, zinc, gold, lead, iron, steel, woolen textiles and hydro electric power (HEP)
 - They provide enough power to industries
 - They serve as raw materials for manufacturing of different products
 - Great lakes region provided cheap transportation of raw materials such as steel.
- China**
 - Natural Resources: Woolen textiles, iron ores, tin ores, coal and steel

- Cheap water transport to transport raw materials
- Large population providing cheap labour and market for the industries

c. Western Europe

- Natural resources: Hydro Electric Power (HEP), coal and nuclear power for industrial purposes
- A lot of raw materials for the production of several products e.g. iron, steel and coal
- A lot of industries.
- Large population providing cheap labour and market for manufactured products

d. Japan

- Abundant supply of Hydro Electric Power (HEP)
- Major deposits of coal and aluminium
- Importation of iron ore from other countries e.g. Australia, India and Chile
- High population providing cheap labour for iron and steel industry and market for its products.

e. India

- Abundant reserves of iron ore which is largely exported
- Access to the sea with good ports has made it possible for the importation of raw materials

f. Australia

- Abundant supply of Hydro Electric Power (HEP) for industrial growth
- Large deposits of bauxite ores, coal, iron and steel.
- Access to sea for easy importation of raw materials in manufacturing industry

g. South Africa

- Reserves of gold which is a raw material for the production of ornaments backing currencies, coinage and jewellery, gilding and dental fillings
- Growth of manufacturing industries and hence urbanization
- She has access to the ocean with good ports providing cheap water transport

FACTORS INFLUENCING THE LOCATION OF AN INDUSTRY

a. PHYSICAL FACTORS

- Presence and location of raw materials
- Presence and nearness to power industry
- Presence and nearness to water supply
- Topography/Presence of flat land

b. HUMAN AND ECONOMIC FACTORS

- Skilled and semi skilled labour
- Capital
- Access of markets

- Transport and transport costs
- Political stability
- Government and local influence

THE CEMENT FACTORY IN MALAWI

FACTORS FOR THE LOCATION OF CEMENT FACTORY IN BLANTYRE

- a. A good network of roads, traders can easily reach it
- b. There is a good market threshold
- c. Presence of enough space and sites where the product can be stored

STAGES INVOLVED IN CEMENT MAKING

Stage 1: Raw material namely shale and limestone is crushed

Stage 2: Water added to the mixture

Stage 3: Mixture is put in a solution called kiln and then heated to evaporate the water

Stage 4: Clinker is produced from stage 3 and it is transported to Blantyre.

Stage 5: Gypsum which is imported from Germany is added to produce a mixture

Stage 6: The mixture is ground to powder which is cement.

THE IMPORTANCE OF CEMENT INDUSTRY TO MALAWI

- a. Source of employment to people who could otherwise not be employed
- b. Source of revenue to the government through taxation and used by the government to provide some social services e.g. schools, hospitals etc

THE IMPACT OF THE CEMENT INDUSTRY ON THE ENVIRONMENT

1. Quarrying of limestone and shale depletes and destroys resources in the environment such as soil, water and vegetation.
2. It uses land which could otherwise be used for agriculture
3. It upsets the ecological balance leaving the land scarred

SOLUTIONS TO ENVIRONMENTAL PROBLEMS

- a. Refilling the pits
- b. Reafforestation and afforestation in the refilled areas to maintain the water cycle and ecological balance.

MOTOR VEHICLE INDUSTRY IN UNITED STATES OF AMERICA

FACTORS FOR THE GROWTH OF MOTOR VEHICLE INDUSTRY IN USA

1. Closeness to iron and steel industries which are raw materials in the car manufacturing industries
2. The Great Lakes namely Detroit, Cleveland, Buffalo, Gary and Chicago provide cheapest transport for the raw materials to production plants
3. Presence of Hydro Electric Power (HEP) within the Great Lakes region.
4. Availability of both local and international markets
5. Nearness to oil fields such as Ohio – Indiana

THE IMPORTANCE OF THE MOTOR INDUSTRY IN THE USA

- a. Creation of job opportunities to people who could otherwise not be employed
- b. Source of foreign exchange earnings
- c. Source of revenue to the government through taxation
- d. Provision of convenient, comfortable and relatively cheap personal transport
- e. Construction of houses has been extended to remote areas because there is assurance of fast movement
- f. There is great opportunity to enjoyment of leisure time

PROBLEMS ASSOCIATED WITH MOTOR VEHICLE INDUSTRY IN USA

- a. Stiff competition from car makers outside the United States of America i.e. smaller companies being pushed out of business
- b. There is a decline in public transport because more people are owning their personal cars
- c. It has led to increased pollution of air leading to global warming, acid rain and airborne diseases
- d. It has also led to increased road accidents and hence deaths and injuries.

THE PROCESS OF CAR MANUFACTURING

- This is the process which was designed by Henry Ford which simply referred to as the Assembly Line technique
- It is also known as taking the work to the worker.

EXPLANATION

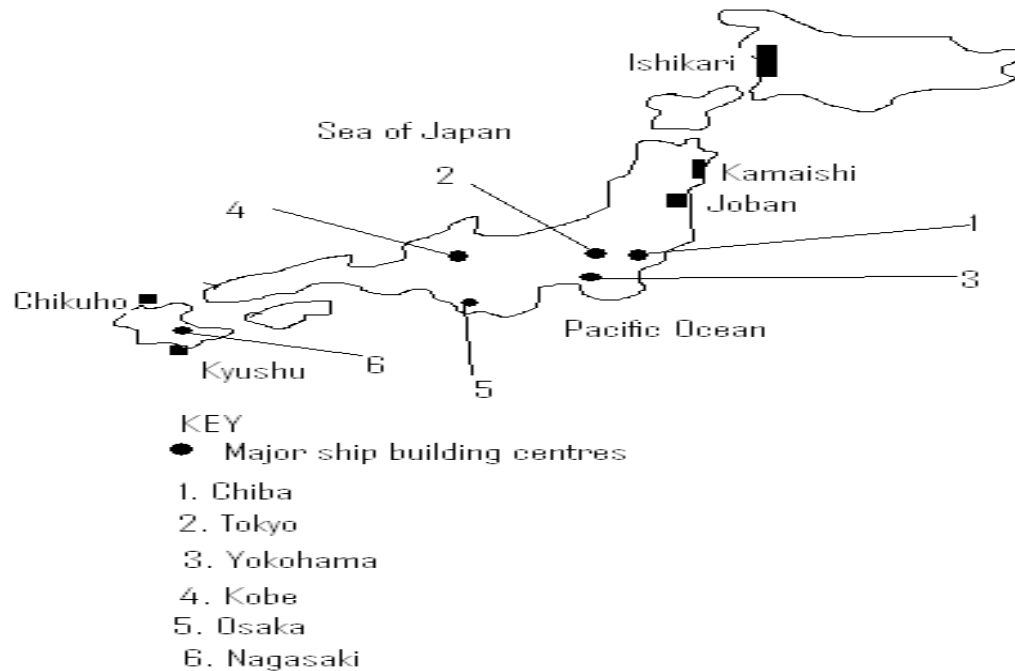
- First of all, workers specialize in fixing various parts of a car.

- The different cars in a line are placed on a conveyor belt which takes them to the designated station.
- At each station, specialists fix only the parts they specialize and then wait for the

automated conveyor belt to bring the next car.

THE SHIP BUILDING INDUSTRY IN JAPAN

LOCATION OF THE MAJOR SHIP BUILDING CENTRES ON THE MAP OF JAPAN



MAJOR SHIP BUILDING CENTRES OF JAPAN

- Japan consists of four main islands namely: Kyushu, Hokkaido, Honshu and Shikoku and numerous small islands.
- It is located to the east of the Asian continent
- Japan is very mountainous and therefore only 16 – 20% of the land is used for farming.
- This implies that food produced is not enough and hence need to diversify to other industrial activities such as ship building and fishing.
- Japan is a major ship producer in the world
- Although, her ship building industry was largely destroyed, the government was encouraged to rebuild industries by occupying forces and nations.
- Finally, Japan started to rebuild her industries including ship building industry.

REASONS FOR THE SUCCESS OF THE JAPANESE SHIP BUILDING INDUSTRY

BACKGROUND OF SHIP BUILDING IN JAPAN

- In the 19th century and early 20th century, Japan used ships for trade and naval purposes.
- The government put in place the expansionist policy and she was compelled to build more vessels for trade and naval ships to protect her newly acquired lands

- a. Large capacity to produce heavy engineering products
- b. Large skilled labour force
- c. Introduction of prefabricated ship building
- d. A determination to survive the destruction emanating from Second World War, the zeal to become industrial, trading and successful nation.
- e. Expansion of external trade which created high demand and market

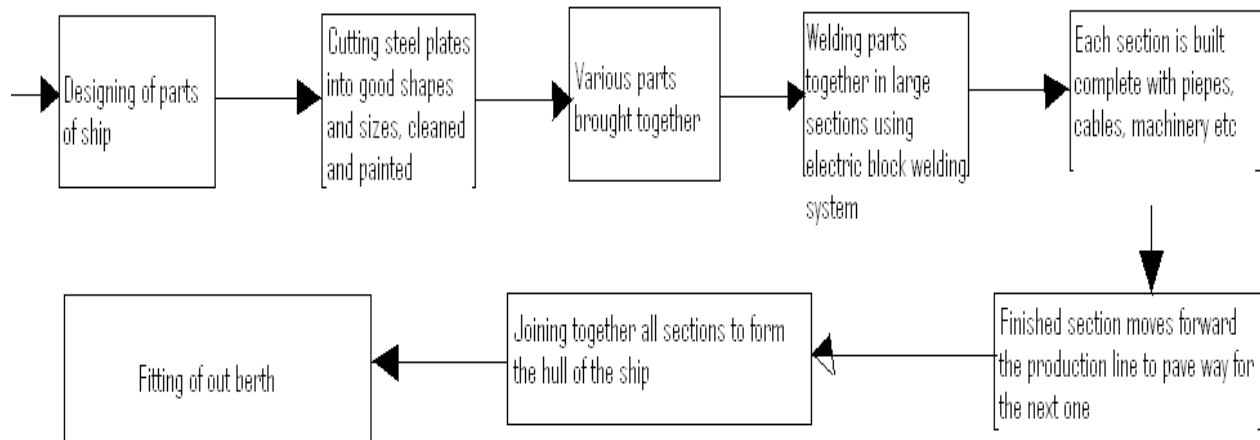
DESCRIPTION OF THE MAIN SHIP BUILDING

- a. **Yokohama:** It is a centre sited on reclaimed land about 30 km from Tokyo. It is a port city
- b. **Kobe:** It has the finest harbours and its centres include Kawasaki Dockyard and Mitsubishi Kobe shipyard
- c. **Hiroshima:** It is a centre for the construction of tankers and it has a naval dockyard

CENTRES OF JAPAN

- d. **Nagasaki:** It is the finest harbor which produces Mitsubishi ships. It has coal mines and steel plants nearby.
- e. **Osaka:** It is a commercial centre
- f. **Chiba:** It is located close to steam electrical plants and it is 30 km from Tokyo.

HOW TO CONSTRUCT OR BUILD A SHIP



FACTORS THAT ARE NECESSARY FOR SHIP BUILDING IN JAPAN

1. **POWER:** Japan is one of the world's greatest producers of Hydro Electric Power (HEP)
2. **RAW MATERIALS:** Japan has got an access to cheap water transport which eases the importation of iron ores (94%) from Australia, India and Chile. It is also close to iron and steel integrated works.
3. **MARKET:** There is very high demand for ships made in Japan and the market is therefore extensive
4. **SKILLED LABOUR FORCE:** Japan has largest skilled labour force in such areas as welding, electrical installation and metal work.
5. **EXTENSIVE FLAT LAND:** The shipyards with their assembly plant docks cover large area which should be flat for building and expansion. Japan has good coastal plains
6. **DEEP NAVIGABLE WATER:** Japan is endowed with a large or long coast line with deep water navigable estuaries, a series of gulf, bays and inlets protected from wind

THE ECONOMIC IMPORTANCE OF THE SHIP INDUSTRY

- a. Source of revenue to the government through taxation
- b. Creation of employment to people
- c. It has also expanded the development of supporting secondary and tertiary industries
- d. Source of foreign exchange earnings through sale of ships
- e. Provision of merchant ships to facilitate trade with the outside world
- f. It has also developed other parts of Japan

TOURIST INDUSTRY

MEANING

- This is the visiting of places of interest for pleasure by people who came from abroad and within the same country especially during holidays.
- It is also called a hospitality industry because it involves creation of a friendly atmosphere in welcoming the tourists.

FACTORS THAT PROMOTE TOURISM IN AFRICA

- a. **CULTURAL FACTORS:** Africa offers a variety of good cultures across the spectrum of countries i.e. centres of civilization and museums
- b. **PHYSICAL FACTORS:** The natural environment of Africa offers beautiful features e.g. Mountains, Lakes, forests etc
- c. **ECONOMIC FACTORS:** The presence of roads, airports and railway lines including shopped centres also attract tourists.

ADVANTAGES OF TOURIST INDUSTRY

- a. It uses the resources in the natural environment such as water masses
- b. Revenue collected from this industry is usually more than the revenue from export of other raw materials
- c. Creation of domestic employment for people working in hotels, entertainment and guides. This industry is totally labour intensive
- d. It reduces migration
- e. The overseas investment in airports, roads and hotels
- f. It encourages production of souvenirs (things taken, bought or received as gifts and kept as a reminder of a person, place or event)
- g. It has led to increased cultural links with foreign countries and the preservation of local customs and heritage

DISADVANTAGES

- a. Eroding of local cultures and traditions which force people to adopt foreign values resulting into social ills such as prostitution, crime, drug and substance abuse
- b. Small scale industries such as local craft industries may be destroyed in order to provide many cheap souvenirs
- c. Local people can not afford tourist facilities
- d. Employment is seasonal and the better paid jobs may be given to foreigners
- e. Most hotels are foreign owned and therefore profits go overseas since tourists spend most of their money within the spheres of hotels
- f. Relocation of people as hotels are built next to beaches and people might also lose their traditional means of livelihood as fishermen

ECOTOURISM

DEFINITION: It is a specialized form of tourism where people want to see and experience relatively untouched natural environments

Typical areas visited include game reserves, national parks, mountains and forests. A good and classical example include gorilla – watching in Africa

TYPES OF TOURISM

- a. **MASS TOURISM:** It is concerned with a large number of people visiting places of interest for pleasure.
- b. **DOMESTIC TOURISM:** It exists where local people travel within the country to visit places of interest
- c. **HEALTH TOURISM:** It deals with health workers and those who do not have knowledge in the field of health visiting places that offer medical services.
- d. **COMMON INTEREST TOURISM:** Both local and international people concerned with the visiting of cultural and historical places
- e. **INCENTIVE TOURISM:** This deal with things that are attached to the visiting of places of interest e.g. commissions hence the word incentive.

TOURISM INDUSTRY IN MALAWI

FACTORS THAT PROMOTE TOURISM IN MALAWI

- a. Attractive scenery: Malawi's natural environment is attractive to tourists from other countries e.g. Mulanje mountain, evergreen vegetation etc
- b. Culture: The way of life of Malawians in terms of their traditional dances such as vizekese, gulewamkulu, ngoma, ingoma, vimbuza etc i.e. the Warm Heart of Africa
- c. Politics: Tourist centres in Malawi offer peace and calmness because there is no war in Malawi accompanied by the political will to develop tourism
- d. Climate: Malawi has an ideal climate for tourism which offers warm weather and sunshine especially during summer.
- e. Accessibility: Malawi is easily reached from North America and Europe through the Kamuzu International Airport.

PROBLEMS FACED BY TOURISM INDUSTRY IN MALAWI

1. **MALARIAL DISEASES**
 - Malaria spread by mosquitoes is a serious disease in many areas of Malawi.
 - The solution being using mosquito nets and mosquito repellents.
2. **BILHAZIA**
 - Spread by snails is also one of the common diseases in certain areas
 - The solution is to avoid urinating and defecating in areas of Lake Malawi.
3. **INSUFFICIENT ACCOMMODATION**
 - There is insufficient accommodation in the different cities and towns such as Lilongwe and Blantyre

- Solved by constructing hotels of high standards
- 4. POOR COMMUNICATION AND INADQUATE AIR TRANSPORT SERVICES**
 - Due to poor communication facilities e.g. telephone and internet
 - Solved by maintenance of telephone lines to improve telephone services which improve internet and fax machines.
- 5. ACCESSIBILITY**
 - Many roads leading to tourist attraction centres are impassable because they are in poor condition i.e. pot holes which may become bad during rainy season
 - Solved by improving the condition of secondary roads that lead to those places by tar marking or gravelling

IMPORTANCE OF THE TOURIST INDUSTRY TO MALAWI'S ECONOMY

- a. Source foreign exchange earnings
- b. Creation of job opportunities to people who work in hotels, motels, game reserves and national parks and historical sites
- c. Public relations as well as international understanding are promoted
- d. Since tourists buy a lot of mats, baskets and carvings, their visit promotes small scale industries which include art and crafts
- e. It leads to development of Malawi since there is improvement in the construction of roads and railways, hotels, motels and restaurants
- f. Source of revenue to the government through taxation

TOPIC 8: **TRANSPORT AND** **TRADE**

TRANSPORT: The carrying of goods and people from place to place by air, land and sea

COMMUNICATION: The exchange of words and messages

TRADE: The buying and selling of goods and services.

ADVANTAGES AND DISADVANTAGES OF DIFFERENT TYPES OF TRANSPORT

1. ROAD TRANSPORT ADVANTAGES

- Roads can be constructed anywhere
- Roads are fast over short distances and motor ways

- Roads from direct links between producers and consumers
- It is cheap over shortest distances
- It is very convenient since it can be used for short distances

DISADVANTAGES

- High costs of building new roads and repairing older ones. Lorries are relatively cheap
- Presence of many routes from motor ways to minor roads
- Heavily congested in towns and on major motor ways. There are daily and seasonal peaks
- Occurrence of fogs and ice in some areas cause accidents and blockages respectively
- Vehicles carry small quantities of goods.
- They also cause noise and air pollution, acid rain as well as global warming
- They cause strain for drivers

2. RAILWAY TRANSPORT ADVANTAGES

- Railways are fast over longer distances e.g. in the commonwealth for independent states (CIS) and USA
- This form of transport is relatively cheap over longer distances with bulk goods
- They carry heavy goods at one time
- No truck congestion since they are limited to commuter trains
- Not virtually affected unless there is extreme snow, cold and floods
- Good over medium distances

DISADVANTAGES

- High cost of maintaining trucks, new signaling and new trains
- They are mainly limited to intercity passengers and freight
- There is noise and air pollution.

3. AIR TRANSPORT ADVANTAGES

- It is the fastest over long distances
- It is relatively cheap over longer distances with bulky goods
- It causes little congestion
- It is comfortable over long distances

DISADVANTAGES

- Relatively high costs of use of land and fuel where large airports are created
- Normally, there are few internal airports which impede movement and accessibility
- There is no flexibility of routes
- It is sometimes affected by bad weather e.g. of high value and perishable
- It also causes noise and visual pollution coupled with some air pollution

- It is expensive comparatively with the other forms of transport
- There is need to firstly obtain permission before air space is used because it is less free.

4. WATER (OCEANS) ADVANTAGES

- It carries heavy, bulky goods at one time
- It is cheapest means of transport
- It offers good comfort
- There is very little congestion because routes are normally wide
- It causes no pollution unless oil tankers leak

DISADVANTAGES

- It is affected by bad weather e.g. storms, fog and ice
- It is very slow because ships follow the naturally existing routes which are often indirect
- High cost of port dues and large specialized ships
- Presence of few coast ports
- The construction and maintenance of ports are expensive

5. PIPELINES ADVANTAGES

- They provide continuous flow
- They are fast
- There is no congestion
- They are useful for heavy liquids e.g. oil and gas

DISADVANTAGES

- They are expensive to construct and maintain

- They pose environmental problems e.g. the Trans Alaska pipeline i.e. water and air pollution
- They are not flexible since fixed
- Vandalism – Pipes can be vandalized by disgruntled people especially during times of war.

6. INLAND CANALS ADVANTAGE

- They are cheap over long distances
- They carry bulky goods
- They are good for recreation

DISADVANTAGES

- There are few routes
- They are narrow
- They are expensive to build and maintain

NOTE: There are several factors that influence the type of transport to be used and these include the following:

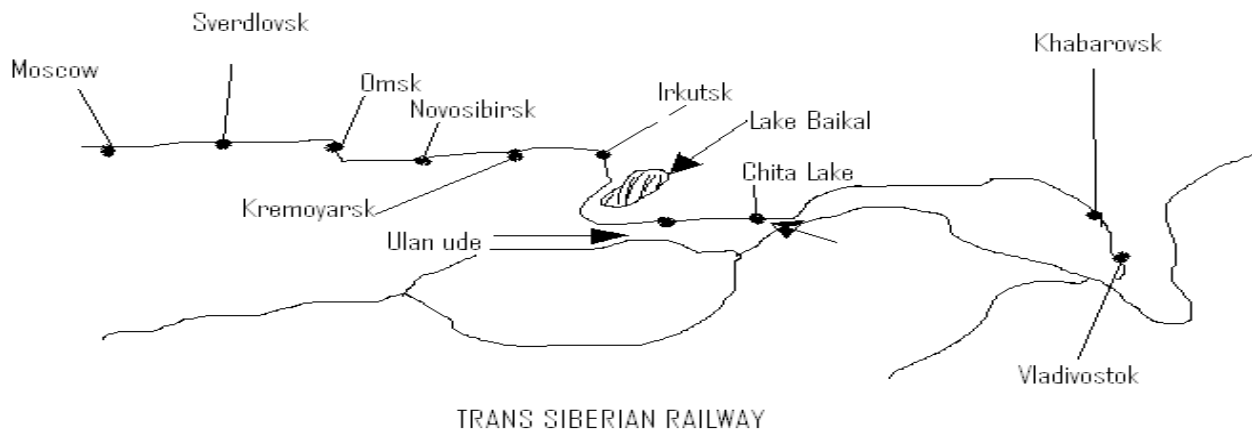
- The cost of transporting the items
- The nature of item to be transported
- Speeds with which the item needs to be transported e.g. perishable goods such as flowers and fruit need to be transported rapidly whereas heavy goods such as coal can be transported slowly by the cheapest means of transport

MAJOR WORLD TRANSPORT ROUTES

RAILWAY

a. The Trans Siberian Railway

- It is about 9 000 km long.
- It has played a great role in the opening up of the Siberian and Russian steppes



b. The Canadian Railway

- It is about 4 800 km long.

- It has helped in the opening up of Canadian Prairies where wheat is grown
- Therefore, there is access to both local and international markets.

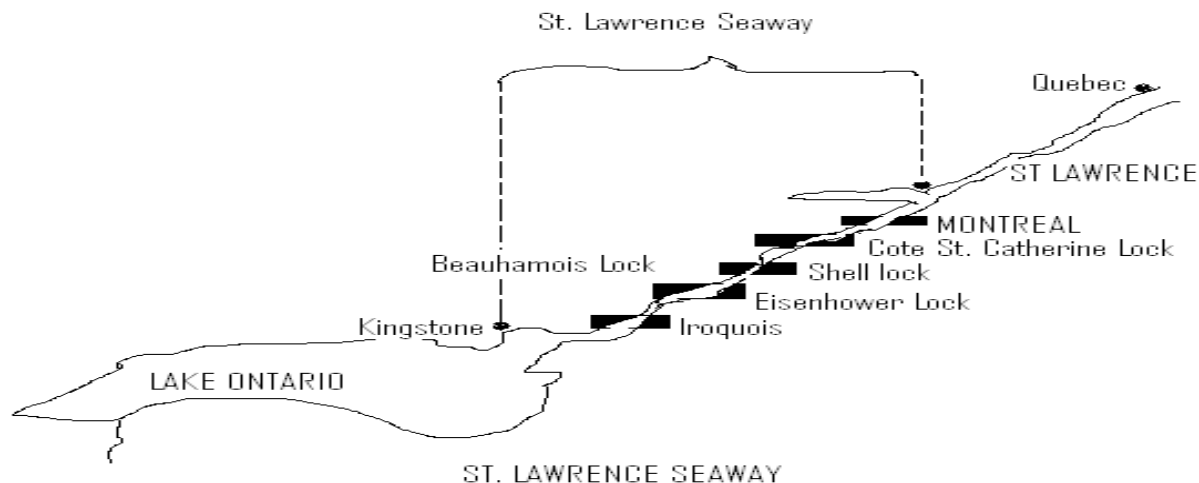
INLAND WATER TRANSPORT

- The slowest but cheapest form of bulk transport
- In Europe and North America, many industrial areas have their raw materials (Coal, iron ore, rubber and timber) and bulky goods such as machinery and steel are all conveyed entirely by inland waterways.

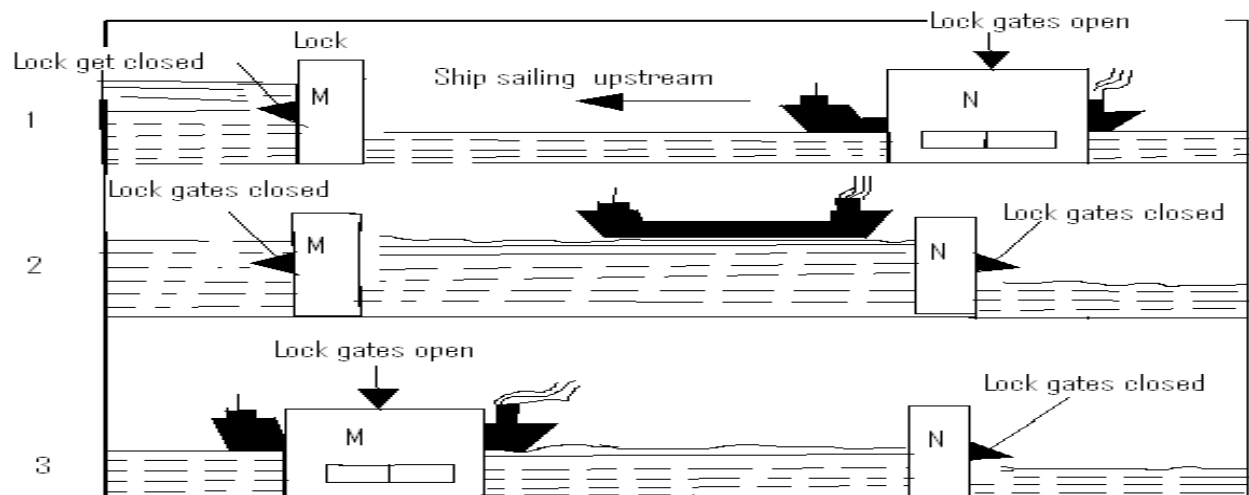
The St. Lawrence Seaway

- This constitutes one of the world's most important inland waterways.

- It exists in the Great Lakes region covering Gary, Chicago, Detroit, Cleveland and Buffalo.
- It is joined by the Welland and Soo canals.
- These serve the industrial areas on both sides of USA and Canadian border.
- Ships carrying wheat, dairy products, meat and industrial goods sail from the prairies to the Atlantic and continue their journeys across the North Atlantic to Western Europe.
- The water ways may be improved by dams and a system of locks which helps to maintain a uniform depth of water.
- This sea way is closed to shipping for about four months a year because of the freezing of the water in the St. Lawrence river



HOW LOCKS ARE OPERATED



OPERATION OF LOCKS

EXPLANATION

- In stage one, the arrival of the ship at the lock N will make the gates to open to allow the ship to pass through.
- In stage two, when the ship crosses lock N, its gates are closed.
- This means that both gates are now closed when the ship is between the locks M and N.
- As the ship approaches lock M, its gates sluices are opened so as to allow water to flow from the left of the lock M to between locks M and N.
- This makes the ship to rise with the water level
- In stage three, the gates of the lock M are opened and the ship sails on to the other side after which the gates are closed.

WORLD SHIPPING ROUTES

MAP OF THE WORLD

- a. The South Atlantic Route
- b. The North Atlantic Route
- c. The Panama Canal Route
- d. Trans Pacific Route
- e. The Cape of Good Hope Route
- f. The Suez Canal Route

A. THE SOUTH ATLANTIC ROUTE

This connects North West Europe with South America

Examples of goods transported

- a. From South America (Eastern Brazil and Argentina) to Europe
 - Coffee
 - Wheat
 - Meat
 - Cocoa
 - Dairy products
- b. From Western Europe to South America
 - Manufactured products

This is one of the routes of the present at peak of modern trade

B. THE NORTH ATLANTIC ROUTE

This route connects North West Europe and North East North America

Examples of goods transported

- a. From North West Europe to North East North America
 - Machinery
 - Steel
 - Fertilizers
 - Textiles
 - Wine

- b. From North East North America to North West Europe
 - Copper
 - Paper
 - Tobacco
 - Wheat
 - Iron
 - Cotton
 - Timber
 - Wood pulp
 - Transport equipment

NOTE: This is the busiest and most important route linking regions which are highly developed and enjoy high standards of living. It is another route of the present at peak of modern trade

c. THE PANAMA CANAL ROUTE

This route connects the following with Asia and Australia

- i. The East and West Coast of North America
- ii. The East Coast of North America and the West Coast of South America
- iii. Europe and West Coast of South America
- iv. The East Coast of North America
 - This canal joins the Caribbean Sea (Atlanta) with the Pacific Ocean.
 - It is 80 km long. It has three locks that slow down ship movement.
 - This is the most recent route which started in 1914 when the Panama Canal was opened
 - It has replaced the old route of Cape Horn.
 - It is one of the routes of the future for countries bordering it.

IMPORTANCE

- a. This has improved trade of Caribbean countries such as Mexico, Cuba, Jamaica, Venezuela and Central America States as well as Colombia, Ecuador, Peru and Chile
- b. It helps in the domestic trade between the East and West Coast of USA.

EXAMPLES OF GOODS HANDLED

1. Oil
2. Cotton
3. Coffee
4. Ores
5. Manufactured goods

C. TRANS PACIFIC ROUTE

This is the longest in distance, connecting Yokohama, San Francisco or Panama by way of Honolulu, Hawaii. It has excellent prospects for countries bordering it.

EXAMPLES OF GOODS SHIPPED

1. Grain mainly wheat

2. Meat
3. Dairy products
4. Wool
5. Manufactured goods
- D. THE CAPE OF GOOD HOPE ROUTE**
 - This is the oldest route first sailed by Vasco Da Gama on his discovery voyage to India.
 - This was extensively used by ships trading between Europe and Australasia when the Suez Canal was closed but its importance is likely to decline with the reopening of the canal in June, 1975.
 - The opening of the Suez Canal affected it because ships travelling between Colombo and Southampton were saving about 6440 km.
 - It is one of the present routes at the peak of modern trade
1. Why is it that the volume of the trade has increased through this route now?
 - It is because of economical development of South Africa States and their production of minerals (gold, diamonds, copper)
2. What forced the Suez Canal to be closed in 1967?
 - It was closed because of the Arab Israel war.

NOTE: The cape route is likely to be used permanently even though the Suez Canal has been reopened because the Suez Canal was not able to accommodate oil tankers over 20,000 tonnes

- E. THE SUEZ CANAL ROUTE**
 - This is the route of the past with no real future
 - It is 160 km long it connects the Mediterranean and the Red Seas.
 - It has no locks easing the movement of ships.
 - It was closed in 1967 but later it was reopened in 1975.
 - The most important commodity shipped was oil from Persian Gulf region to North West Europe

NOTE: Canals are normally built across narrow strips of land separating adjacent seas and oceans to shorten the transit time between the trading countries

OCEAN ROUTES

Much of the world's trade passes along certain ocean routes saved by established junctions and terminals.

TYPES OF VESSELS USED

- a. Passenger Liners**
 - The most luxurious and carry mainly passengers, express mail and limited high amount of high value freight.
 - These are suffering more from competition from air ways
- b. Cargo Liners**

- These combine freight with passenger and scheduled routes
- They have a gross tonnage of about one third or half of an average passenger liner.
- Many of them have refrigerators for carrying perishable fruits and meat
- They reserve sufficient space for passengers
- c. Cargo Boats**
 - They are independent cargo boats that have no fixed schedule and sail where there is cargo to carry
- d. Industrial Carriers**
 - These include oil tankers (carrying only petroleum), colliers (that carry coal), banana carriers and grain ships.
- e. Container Ships**
 - These are used to carry goods by specially designed lorries, ships, and trains as well as designed crane equipment and port storage facilities.
 - The use of these container ships started in the United States of America after World War II and it is advantageous in that it saves labour costs since handling of containers requires less manual labour.
 - In addition, these containers minimize breakage and theft and loading as well as off loading is done quickly
- f. Bulk Cargo Ships**
 - These are ships that are used to carry large quantities of goods which is basically of one type e.g. wheat grain, oil and iron ore.
 - Loading and unloading of goods is mechanized because of the nature of the goods which are usually large.
- g. Tramp cargo Ships**
 - These are ships that carry assorted goods
 - They do not have regular sailing dates and they are much slower than cargo liners and bulk cargo ships

RAILWAY NETWORK IN AFRICA

FACTORS THAT INFLUENCE THE DISTRIBUTION OF RAILWAY IN AFRICA

- 1. NORTH EAST AFRICA**
 - Relief plays a great role in construction of railways in this region
 - Presence of hilly areas such as the Ethiopian Highlands which has several hills and deep river valleys hinder railway construction
- 2. SOUTHERN PART OF AFRICA**
 - The degree of economical development is so high in this region and this has made it to have the best network of railways within the continent
 - Agricultural and mining activities in SADC region have paved way for the existence of abundant railways in the region. Mining in SA, Zambia, Zimbabwe and Botswana and tobacco growing in Malawi and Zimbabwe
 - Flat land

3. CENTRAL AFRICA

- It has low network of railways because of the low degree of economic activities coupled with low productivity and the frequency of thunderstorms and landslides occurring because of heavy convectional rainfall
- Relief is not so friendly to the construction of railways since it is mountainous e.g. Ruwenzori, Elgon and Kilimanjaro

4. NORTH AFRICA

- It has low network of railways because of the Sahara Desert.
- Frequent occurrence of sandstorms in the region creates barriers to rail movement because the sand covers the railways.
- Low productivity in the region because of infertile soils
- More push factors e.g. harsh climate and poor soil that have driven people out of this region.

IMPORTANCE OF THE TANZARA AND NACALA RAILWAY LINES TO ZAMBIA, TANZANIA AND MALAWI

- These lines are vital in that they promote trade among the countries
- They help in the transportation of raw materials from areas of production to the production plants and finished products to the markets

EXAMPLES OF GOODS THAT HANDLED THROUGH THE TANZARA ROUTE

- Petroleum products e.g. diesel, petrol, paraffin, bitumen for making roads, candles, seals, polishes, plastics e.t.c.
- Manufactured products such as clothes (baled) all sorts of vehicles e.t.c.

EXAMPLES OF GOODS HANDLED THROUGH THE NACALA CORRIDOR

- From Malawi to Zambia, Zimbabwe, South Africa and Mozambique
 - Tobacco
 - Cotton
 - Tea
 - Sugar
- From Zambia to Zimbabwe
 - Lime for decorating buildings and sugar manufacturing
 - Gypsum for cement making

FACTORS THAT AFFECT RAILWAY CONSTRUCTION IN AFRICA

- Occurrence of landslides, thunderstorms and sandstorms.
- Steepness of land
- Low industrial production

- The level of economic development in a particular area
- The availability of fuel to be used by the railway.

TRADE

MEANING

- This is the flow of commodities from producers to consumers and is important in the development of any country
- One way for countries to improve their standard of living and to grow more so as to export more and import less in order to make their balance of trade favourable

FACTORS THAT INFLUENCE THE TYPE OF TRADE OF PARTICULAR REGION

- Presence of natural resources e.g. gold in SA, Copper in Zambia, rubber in Malaysia, Petroleum (Middle east), timber and wheat (Canada)
- The degree of industrial development e.g. South Africa which manufactures several products
- Geographical position of a particular country i.e. A country can participate in trade with countries having contrasting economies because its geographical position i.e. **entrepot trade**
- Tariffs and import duties often reduce trade among countries.

NOTE: Countries can jointly impose external tariffs while ensuring that internal trade is freed among themselves. Such countries normally form a customs union within the free trade area (area covering countries whose external tariffs against outside countries differ among themselves while their internal trade becomes free)

REGIONAL TRADE GROUPINGS

1. THE COMMON MARKET FOR EASTERN AND SOUTHERN AFRICA (COMESA)

GOAL

- It aims at ensuring that there is free trade among member countries so that output of goods and services is increased.
- It eyes at achieving a big domestic market thereby improving economies of the member countries.
- Furthermore, it also targets free movement of labour and capital member countries.

MEMBER STATES

- Zambia
- Mozambique
- Tanzania
- Zimbabwe

2. THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC)

It was established in 1980

GOAL

- It aims at achieving economic independence and self sufficiency through increased trade among members
- Furthermore, it also aims at improving transport and communications infrastructure to facilitate trade.

MEMBER STATES

- Malawi
- Democratic Republic of Congo
- Lesotho
- Tanzania
- Zambia
- South Africa
- Namibia
- Zimbabwe
- Mozambique
- Angola
- Mauritius
- Seychelles

3. THE ECONOMIC COMMUNITY OF WESTERN STATES (ECOWAS)

It was established in 1975

GOAL

- It aims at achieving rational division of labour among member countries.
- Furthermore, it targets full economic growth and independence of its members through smooth trade
- It also aims at improving transport and communications infrastructure to allow smooth trade

MEMBER COUNTRIES

- Chad
- Ivory Coast
- Senegal
- Ghana
- Mali
- Nigeria
- Burkina Faso
- Sierra Leone

IMPORTANCE OF REGIONAL TRADE GROUPINGS IN AFRICA

- a. Rational division of labour and specialization of production among member countries
- b. The local or domestic market is normally expanded to cater for all goods produced and services provided
- c. There is full economic and political union achieved through proper industrial planning i.e. different member states assigned different and specific industries