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## Geography (UACE 250/2) paper 2 Agricultural (Farming, livestock and fishing) practices in the world

Agriculture is the planting of crops and rearing of animals. Agriculture provides food, and raw materials for clothing, shelter, medicine etc.

Agriculture types include

- Simple subsistence farming/small scale farming
- Small holding farming
- Large scale farming (extensive and intensive farming)
- Irrigation farming
- Specialized farming

### Simple subsistence farming

It is a form of farming in which nearly all of the crops or livestock raised are used to maintain the farmer and the farmer's family, leaving little, if any, surplus for sale or trade.

The main forms of simple subsistence farming include

- a. Shifting cultivation
- b. Rotational bush following
- c. Nomadic pastoralism

#### a. Shifting cultivation

Shifting cultivation is a form of traditional subsistence cultivation carried out mainly in the tropical areas. It involves clearing of small pieces/tracts of land in the bush or forest using simple tools and burning, after which crops are grown for one or two seasons. When land loses fertility, the plot is abandoned and another is cleared through the same procedure. The predominantly grown crops are beans, maize, millet, yams, vegetables, etc. It is common backward communities where vast land still exist e.g. Democratic republic of Congo, Brazil, Zambia, Zimbabwe etc.

### **Characteristics of shifting cultivation**

- Farm plots are cleared through cut and burning of the bushes/ trees.
- Plots are small and highly scattered.
- Production is for home consumption
- Simple tools such as machetes \ digging sticks are used in clearing the land.
- It's practiced in regions of low and sparse population.
- Farm output is supplemented by fruit gathering and hunting of wild animals.
- Annual crops such as beans, maize, millet, yams, vegetables, are grown and no cash crops
- No scientific methods of farming are applied e.g. spraying.
- Little attention is given to crops in the field until when they are ready for harvesting:
- Once the land productivity declines, the plots are abandoned and virgin ones are cleared.

### **Advantages of shifting cultivation**

- Ensures cultivation of fertile land
- Limits accumulation of pests and diseases on cultivable land
- Minimizes soil erosion
- Clearing of land is often done by bush burning which adds fertility to the soil
- Bush burning kills pests and disease causing organisms
- Intercropping increases land yield and maintains soil fertility
- It is cheap because simple tools are used
- Abandoned plots are allowed to regain fertility
- Less time consuming, thus allows a farmer to carry out other activities such as hunting and fruit gathering.

### **Disadvantages of shifting cultivation**

- Requires vast land
- Leads to deforestation and land degradation.
- Burning destroys soil structure and kills living organisms in the soil
- Small yields leads to low farmers' income
- Hinders development of infrastructures such as roads, schools, health facilities.
- Cannot support big population
- Absence of individual ownership of land limits credit facilitation
- No research is carried out to boost plant yield

### **Factors for persistence of shifting cultivation**

- Existence of vast tracts of land for farming or for cultivation
- The limited market for abundant agricultural commodities in remote areas of Brazil doesn't necessitate commercial production simply because their market.
- Unreliable transport facilities in remote areas to the market favor shifting cultivation due to limited commercial farming.
- Limited education by some people in remote about better farming practices like plantation farming.

- Limited capital to engage in commercial that require large sums of money to buy seed and farm equipment.
- The communal land tenure ship system that discourages large scale farming.
- Limited skilled labour to engage in commercial farming in remote areas
- Rudimentary technology /use of simple tools that cannot clear a big and for commercial farming
- Steep relief in some areas cannot support large scale farming because of problems in transporting the crops grown and the occurrence of soil.
- Declining soil fertility leads to abandonment of used plots of land
- Dependence on family labour limit commercial farming and favor shift cultivation
- Natural hazards like floods, and drought destroy crops forcing farmers to shift to other pots of land
- The system is flexible because it allows the growing a number of annual crops to feed the family
  - Cultural orientation to shift cultivation
- Limited government intervention
- It allows time for other activities such as fishing, hunting, and gathering fruits.

#### **Factors for decline of shifting cultivation in Tropical Africa**

- Increase in population leading to decrease of available land per person.
- Increase in the demand for food to meet the needs of rapidly growing population.
- Introduction of perennial crops such as coffee, cocoa cotton etc. that cannot be grown under shift cultivation
- Education of farmers against shift cultivation
- Introduction of plantation farming to grow cash crops like tea and sugar cane
- The introduction of monetary economy that required surplus production.
- Government policy of gazettement some land for forest and game reserve limits access to land
- Changes in cultural attitudes.
- Increased demand for agricultural products
- Accessibility of funds for commercial farming.
- Introduction of fertilizers and pesticides
- Development of land tenure systems
- Improvement in technology.

#### **b. Rotational bush fallowing**

It is a type of farming where exhausted land is left to rest (fallow) to regain fertility and then re-cultivated. It is common in low populated countries such as tropical countries like Northern Nigeria, Zambia, Senegal, Ethiopia, South East Asia etc.

#### **Characteristics of rotation bush fallowing**

- A piece of land is used and when crop yield declines, it is left to fallow in order to regain fertility before used again.
- Farming is based on permanent and semi-permanent settlement.
- Elementary tools are used in clearing land such as hoe, panga etc.
- Both food and cash crops are grown such maize, tobacco, vegetables etc.
- Food production is mainly for consumption
- Family labour is employed
- Land is subdivided into a number of plots each of which is cultivated until it can no longer support crops and then left to fallow.
- Farming depend on natural conditions

### **c. Nomadic pastoralism**

Nomadic pastoralism is the practice of grazing large herd of livestock on natural pastures which involves large scale movement of people and their livestock in search of water and pasture. It common in the Sahel region which is an area south of Sahara but North of the Savannah region of Africa; stretching from West Africa around Senegal to the horn of Africa. It passes through Senegal, Mali, Northern Nigeria, Chad, Sudan, Ethiopia, Somalia etc.

The examples of the Nomads located here include:-

- the Fulani of West Africa,
- the Nuer of Sudan and Ethiopia,
- the Turkana of Northern Kenya etc.
- The Masai of East Africa
- Karamajong of Uganda

#### **Characteristic features of nomadic pastoralism**

- The occupy area of low and unreliable rainfall
- The most valuable animals is cattle although sheep and goats are also common.
- Traditional breed yield low quantity and low quality of beef and milk
- Livestock is kept for subsistence purpose.
- Livestock depend on nature pasture
- Large flocks of animals are kept for prestige
- Communal grazing is carried out
- The animals provide the basic food from milk and blood.
- Overstocking leads to overgrazing.

Factors which have favored nomadic pastoralism in the sahel region of Africa include

- The harsh climate which is semi-arid characterized with low and unreliable rainfall of less than 500mm, with marked dry season, creating the need for constant search of surface water and pasture.
- Poor quality of the vegetation cover, the vegetation is scanty, dry savannah, scrub and bush land, thickets. This offers poor quality pasture with a low carrying capacity.

- A large expanse of land with a limited population leaves a large area of land where migrations can take place.
- The cultural tendencies of the nomads. They are adamant/ conservative. They prefer nomadism as life style.
- It is a source of live hood. They depend on live stock as a source of food for subsistence.
- Poor transport facilities/remoteness away from centres of modernity.
- Poor soils/ infertile soils which are not very suitable for crop farming, but can support some pastures of poor quality.
- The land tenure system especially communal ownership of land provides land and allows mobility.
- Existence of pests and diseases promotes mobility to avoid them.
- Poor government policies e.g. lack of an effective program to develop these areas.
- Poor local breeds which are low yielding but resistant to pests and diseases.
- Absence of surface water promo mobility to look for water.
- Low levels of education/ high levels of illiteracy.
- Hostility of some of tribe discourages development projects in the region.
- The plain relief favors mobility.
- Limited capital resources for modernization of farming e.g. through irrigation, ranching etc.
- Poor storage facilities for animal products.

#### **Problems facing nomadic pastoralism**

- Shortage of water
- Shortage of pasture
- Poor breed animals
- Pests and diseases
- Attacks from wild animals
- Cattle rustling
- Movements of long distances in search of water and pasture.

#### **Measures being taken to solve problems facing nomadic pastoralism**

- Construction of water dam such as Valley dams to harvest water.
- Introduction of cross breeding to improve cattle breeds
- Planting of fodder crops and grasses to supplement on natural pasture
- Introduction of cattle ranching schemes to regulate the number of cattle population
- Use of processed animal feeds
- Improvement of communication networks to enable marketing of animal products.
- Setting up of milk collection centers with cooling facilities to encourage commercialization of livestock rearing
- Carrying out regular pests and disease control

- Provision of security to minimize cattle rustling
- Introduction of free education to break up traditional barriers and practices.
- Setting up quarantine to restrict movement of sick/infected animals
- Availing services of extension workers to treat and teach modern methods to the pastoralists.
- Carrying out research to improve on cattle breeds.

### **Importance of nomadic pastoralism**

- They use land that would otherwise be idle
- Provides milk, beef and hides to processing industries
- Create employment through processing industries
- Selling of beef and milk provide income to the pastoralists
- They diversify economy
- Dung is used as a building material
- Smoking of dung provide heat and scare away pests and vectors
- Pastoralist provide market to food growers.
- Source of government revenue.

### **Lesson 2 of 6**

#### **Small holding farming**

It involves growing of crops mainly cash crops on small holding such as cocoa farms in Ghana, Ivory coast and Nigeria, oil palms in Nigeria, coffee in Ethiopia and Cameroon, cotton in Chad, Nigeria and Tanzania, etc.

#### **Characteristics of small holding farms**

- The farms are small that have been due to subdivision through many generation.
- Farming is done by simple tools such as hoes, pangas, etc.
- Farms are private
- Family labour is used
- Perennial crops are grown

#### **Advantages of small scale farming**

- Require small amount of labor usually provided by family members.
- Require little capital to set up.
- Provide enough food to support a big population.
- Crops grown have ready local market.
- Crops grown are exported to earn foreign exchange.
- Farmers may grow different types of crops on the same piece of land resulting in higher income.
- Reduced risks due to extreme climatic conditions, pests and diseases.
- Farming is flexible in case of changing from one crop to another.

- Less affected by world market price fluctuations

#### **Disadvantages of small scale farming**

- Low output and income to the farmer
- Use land without input of fertilizers leading to soil exhaustion
- Leads to land fragmentation
- Poor storage facilities leading post-harvest losses
- Lead to deforestation and soil erosion.
- Destruction of natural vegetation

#### **Growing of palm oil trees in Nigeria**

Oil palm is major cash crop of Nigeria. Over 80% of Nigerian oil palm production is done by small holdings. The plant is used in making palm oil soup, palm wine drink, soap, candles, cattle feeds etc.

#### **Benefits of growing palm oil trees in Nigeria**

- Source of income to the farmers leading to improved standards of living.
- Creation of employment on farms, processing industries, transport and marketing businesses.
- Government revenue.
- Foreign exchange earner through exports.
- Improved international relationship through trade.
- Improve infrastructures such as schools, health facilities etc. from generated revenues.
- Encourages growth of urban area.
- Helps in diversification of economy.

#### **Factors favoring growing of Palm oil trees in Nigeria**

##### **Physical factors**

- Deep well drained fertile soils
- Heavy evenly distributed rain throughout the year
- Favorable temperature of over 20°C.
- Presence of trees to provide shelter
- Low altitude between 0 – 1000m above sea level provide warm conditions necessary for growing of palm oil trees
- Presence of enough land
- High humidity over 70%.

##### **Human factors**

- Abundant cheap labor used in planting, weeding and harvesting
- Availability of large market for palm oil.
- Availability of capital to invest in palm oil

- Favorable government policies that favor growing of palm oil trees.
- Extensive communication network to transport palm oil to the market.
- Continuous research in palm oil leading to improvement of crop yields
- Formation of cooperative which enable farmers to access cheap input and bargain higher prices for the produce

#### **Challenges facing palm oil farmers**

- Pests and disease that damage palm oil.
- Palm oil price fluctuations
- Unstable climatic conditions
- Low level of technology
- Soil exhaustion
- High costs of farm inputs
- Competitions from other sources of oil in beverages
- Limited land for expansion
- Long gestation period
- Lack of improve palm oil quality crops
- Shortage of labour due rural-urban migration
- Destruction of natural vegetation

#### **Measures being taken to increase palm oil production in Nigeria**

- Application of fertilizers to deteriorating soils
- Use of pesticides.
- Research to produce improved varieties
- Value addition through processing
- Expanding transport network to reach all palm oil growing regions
- Use agricultural extension services to palm oil growers.
- Political stability to encourage investment in palm oil growing
- Extending credit facilities to palm oil farmers.
- Liberalizing palm oil business to attract investors.
- Formation of cooperative unions to bargain for lower farm inputs and higher prices for palm oil.
- Diversifying to reduce dependence on palm oil.

#### **Cocoa farming in Ghana**

Ghana is the second largest producer of cocoa in the world after Ivory coast. Other countries that produce cocoa are Togo, Nigeria etc. Cocoa is produced by peasant on small plots of land in most cocoa producing countries.

#### **Benefits of growing cocoa to Ghana**

- Source of income to the farmers leading to improved standards of living.



- Creation of employment on farms, processing industries, transport and marketing businesses.
- Government revenue
- Foreign exchange earner through exports
- Improved international relationship through trade
- Improve infrastructures such as schools, health facilities etc. from generated revenues.
- Encourages growth of urban area
- Helps in diversification of economy

## **Factors favoring growing of cocoa in Ghana**

### **Physical factors**

- Deep well drained fertile soils
- Heavy evenly distributed rain throughout the year
- Favorable temperature of over 20°C.
- Presence of trees to provide shelter
- Low altitude between 0 – 1000m above sea level provide warm conditions necessary for growing of cocoa.
- Presence of enough land
- High humidity over 70%.

### **Human factors**

- Abundant cheap labor used in planting, weeding and harvesting
- Availability of large market for cocoa
- Availability of capital to invest in cocoa
- Favorable government policies that favor growing of cocoa
- Extensive communication network to transport cocoa to the market
- Continuous research in cocoa leading improvement of crop yields
- Formation of cooperative which enable farmers to access cheap input and bargain higher prices for the produce

## **Challenges facing cocoa farmers in Ghana**

- Pests and disease that damage cocoa
- Cocoa price fluctuations
- Unstable climatic conditions
- Soil exhaustion
- Shortage of labour due rural-urban migration
- Low level of technology
- High costs of farm inputs
- Competitions from coffee in beverages

- Limited land for expansion
- Bush fire that frequently destroy cocoa plantation
- Long gestation period
- Lack of improved cocoa quality crops
- Destruction of natural vegetation

**Measures being taken to increase cocoa production in Ghana**

- Application of fertilizers to deteriorating soils
- Use of pesticides.
- Research to produce improved varieties.
- Value addition through processing.
- Expanding transport network to reach all cocoa growing regions.
- Use agricultural extension services to cocoa growers.
- Political stability to encourage investment in cocoa growing
- Extending credit facilities to cocoa farmers.
- Liberalizing cocoa business to attract investors.
- Formation of cooperative unions to bargain for lower farm inputs and higher prices for cocoa.

## Lesson 3/7

### Large scale farming

Large-scale farming, also known as commercial farming, refers to a type of agriculture where crops or livestock are produced in large quantities to meet the demands of the market.

Types of large scale farming

- Tropical plantation agriculture e.g. rubber plantation in Liberia and sugar cane plantation in Natal, south Africa
- Extensive cereal production e.g. in the Prairies of Northern America and the Maize Triangle in south Africa
- Livestock ranching e.g. in Argentina, New Zealand, Austria and south Africa

### Plantation /Extensive farming

Plantation farming as the growing of a single cash crop on large scales using scientific methods for commercial purposes and for export.

#### Characteristics of plantation farming

- Crops are grown on large estate covering thousands of hectares
- Plantations usually specialize in one crop
- Plantation are scientifically managed using machines, pesticides, herbicides improved crop varieties and fertilizers to produce quality products
- Plantation grow perennial crops
- Require a lot of capital to set up
- Employs a large number of workers both skilled and unskilled
- Produces for products for domestic and export use

#### Plantation farming in Kwazulu-Natal

- The crop grown is sugar cane which is grown from the coast towards the slopes of Drakensberg Mountains. Sugar cane milling is done in some of the coastal parts like Durban, Port Shepstone, etc.
- Individual milling centres include: Tongaat, Edgecombe etc.
- It is run by the south African sugar Association
- It is also grown by the individual out growers

#### Plantation Liberia

- The major crop is rubber. It is largely grown in Harbel and Cavalla plantations near the coast
- It is owned and run by the firestone company

#### Extensive wheat farming in Canada and North America

- Major crop is wheat grown prairies
- Wheat grown is mainly consumed by domestic market

- Farm size range from 400 – 1000 hectares
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### **Factors that favor plantation/extensive farming**

#### **Physical factors**

- Availability of cheap large pieces of land
- Favorable climate
- Fertile soils
- Low incidence of pests and diseases.

#### **Human factors**

- Availability of cheap skilled and unskilled labour
- Availability of capital to invest
- Well-developed transport network to deliver products to the market and inputs to the farm
- Availability of domestic and international market for the produces e.g. sugar in South Africa
- Favorable government policies to promote plantation agriculture
- Research to produce good crop varieties
- Availability of agro-processing factories to provide market for the produce.

### **Challenges of plantation/extensive farming**

- Limited land for expansion
- Pests and diseases
- Fluctuating market prices
- Lack of adequate market for the produce
- Soil exhaustion
- High cost of inputs such as fertilizers, equipment, herbicides
- Pollution from use of fertilizers and agro-processing industries
- Long gestation period of the crops
- Ownership by foreigners lead to profit repatriation
- High interest on credit
- Development of urban centres lead to congestion, high crime rates etc.

### **Positive contributions/Merits of Plantation/extensive farming**

- Source of raw materials for agro-processing industries
- Provide food such as wheat from Canadian prairies, sugar in Kwazulu-Natal sugar plantations.
- It provides employment opportunities to the people e.g. in management, agricultural officers, sugar cane cutters (Kwazulu-Natal), rubber tappers (Liberia) .They earn income and this improves their livelihood
- It provides foreign exchange through export of produce etc.

- Improvement of transport facilities e.g. roads, railways, water transport to transport finished products, labour, etc.
- It promotes the development of social services e.g. schools, health water, power, accommodation for workers, etc.
- It promotes the development of industries e.g. sugar cane mills, sweet making industries in Natal. Latex mills in Liberia, etc.
- Provides foreign exchange earnings through the export of finished products e.g. sugar in Natal, Rubber in Liberia, Wheat flour from Canadian prairies
- The government earns revenue from taxation which can be invested in other sectors
- It provides local products for consumption e.g. foods and beverages in Natal, rubber in Liberia
- Encourages research and education
- It leads to the development of urban areas e.g. Durban, Port Shepstone etc. in Natal, Cavalla, Harbel, Monrovia, etc. in Liberia
- Leads to the diversification of economic activities
- Promotes trade and good international relationships
- Leads to acquisition of skills on modern farming methods
- Encourages the development of the tourism industry.
- Leads to the development on modern technology e.g. mechanization of farming, processing (value addition).
- Encourages the development of out-growers
- Optimum utilization of large areas of land
- Provision of fuel, fertilizers and electricity which is added to the national grid especially in Kwazulu-Natal
- Extensive /plantation farming has led to economic diversification in a country by creating an alternative source of income, revenue from taxation and foreign exchange from exports and this is used for development.
- Extensive/plantation farming offers market for industries producing agricultural inputs such as pesticides, herbicides, fertilizers, equipment like tractors, transportation vans, spraying containers thus leading to development.
- Extensive farming has led to acquisition of skills by the farmers through on job training such as planting, harvesting, storage, technical skills like plumbing, mechanics etc.

#### **Demerits/Negative contributions of Plantation/extensive farming**

- Pollution of the environment from the agro-chemicals, industrial wastes etc.
- It leads to soil exhaustion due to monoculture
- High losses due to pests, diseases and weather vagaries
- Price fluctuations affects marketing of agricultural produce
- Labour strikes affect farming operations and production

- Causes food shortage due to emphasis on cash crops rather than food crops
- High costs of establishing and maintenance of farms.
- Encourages rural urban migration / they are population pulling centres. This reduces the productive labour force in the rural areas.
- Displacement of people from their land
- Repatriation of profits because they are foreign owned
- Destruction of natural vegetation

## Lesson 4/7

### Intensive farming

- It refers to the growing of crops and rearing of animals on a limited piece of land using scientific methods of production e.g. crop rotation, use of fertilizers/ manure application, artificial insemination, use of machinery, irrigation etc.
- It is largely carried out to cater for the existing large populations which require much food.
- Despite the high productivity of the land, limited output is available for export due to a high domestic demand for agricultural products.
- It is largely carried out in Western Europe (Netherlands, Belgium), South Asian countries (Thailand, China).

The different forms of intensive farming include

#### **(a) Market gardening /truck farming e.g. in California, Netherland, Belgium, Denmark, etc.**

- is the cultivation of vegetables, fruits, flowers and bulbs, solely for the urban market.
- The farms are small and located in areas easily accessible, land is intensively farmed, and irrigation is often used.
- Vegetables can grow under natural/ artificial glass conditions.
- Soils are constantly replenished by manure and artificial fertilizers.
- It is labour intensive but machines can be used during harvesting.
- Scientific methods of farming are used There is heavy outlay of capital to establish green houses, purchase machinery; fertilizers, insecticides etc.

#### **(b) Horticulture e.g. Netherland, Kenya Highlands, Denmark,**

It refers to sustainable growing of flowers, vegetables, tomatoes, onions, cucumber, cauliflower, carrots, plums, apricots, peaches, etc. on small plots of land using modern and scientific methods of production which result in high crop yield per unit areas for sale to the nearby urban centres as well as distant markets

#### **(c) Factory farming e.g. Denmark and other European countries.**

- is the rearing of livestock especially poultry, piggery and cattle herds.
- The animals are confined to pens or stalls and are fed on balanced manufactured food stuffs.
- This is carefully supervised to protect the livestock from diseases.
- Enormous amount of capital outlay is required to establish buildings, measuring devices,

drugs and food stuffs etc.

- It is carried out on limited land and employing limited labour but yields maximum standardized products.
- The market is readily available

**(d) Aquaculture e.g. Japan, Norway**

It involves breeding, raising, and harvesting fish, shellfish, and aquatic plants.

**Characteristics of intensive farming**

- Involves growing of crops, rearing of livestock, poultry and fish farming on small plots of land
- Crops are grown in either fields, green houses or under glass
- The farms are managed scientifically using high yielding crop varieties, livestock breeds, fertilizers, pests and disease control and/or irrigation.
- Skilled labour force is employed to give attention to crops and animals.
- High output per unit area
- Farms are located usually within the vicinity of urban centres where there is ready market for the produce
- The output intended for commercial purpose
- Most commodities are consumed while still fresh
- Require large capital

**Factors favoring intensive farming**

**Physical factors**

- Presence of land for intensive farming.
- Flat land scape to facilitate irrigation, use of machines and grazing of animals
- Fertile alluvial soil
- Favorable temperate climate of cool summers and mild winters with average temperature of 10°C and average rainfall of 750mm favors growth of plants and rearing of animals
- Presence of fairly fertile alluvial clays soils which support the quick growth of Horticultural crops like flowers, tomatoes and fodder.
- Reliable source of water for irrigation purposes which is easily obtained from rivers, lakes and underground water.
- Low incidence of pests and diseases

**Human factor**

- Ready market for agricultural products such as flowers, vegetables, milk, pork provided by a local population and rich neighboring countries such as Germany, Luxembourg. Belgium, etc.
- High technology involving storage, preservation of farm products and management of farms
- Presence of cooperatives that help farmers access loans, solicit market for the products, advocate for land for farming.

- Presence of a highly skilled and unskilled labour to grow, harvest and market agricultural products.
- High levels of continuous research involving introduction of high yielding and quick maturing crop and animal varieties.
- Supportive government policy for promotion of farming and livestock industries
- Efficient transport network: roads, railways, and water canals for distribution of farm products
- Political stability allows large scale investment in the in intensive farming.
- Availability of adequate capital to purchase of farm gadgets, land.
- Relevant education system for farming personnel
- Reliable power for green houses, refrigeration and processing industries
- Developed road network to deliver produce to the market

### **Contribution of intensive farming**

#### **Positive Contribution of intensive farming**

- Provides food stuffs to the population e.g. tomatoes, cabbages. This has improved peoples standards of living.
- Sources of raw materials for agro based industries e.g. tomatoes used in tomato sauce processing.
- Provision of employment both in agriculture and agro based industries.
- Provides Market for industrial products like machinery, fertilizers, pesticides etc.
- Diversified the economy.
- Foreign exchange is earned from exports of canned fruits and vegetables. This is used for the development of infrastructures such as roads, power stations, railways, etc.
- Research has been developed into resulting into development of high yielding crops.
- Has necessitated the development of co-operative organizations.
- Has become a tourism attraction.
- Has led to acquisition of skills.
- Leads to urbanization / growth of towns in areas of market gardening.
- Source of alternative land use in urban proximities.
- Source of government revenues.
- Encouraged development of infrastructure such as transport (road, railway)network, schools health facilities etc.
- Some of the crops grown have built resistance to pests and diseases.
- Promote good international relations through exports

#### **Negative contributions of intensive farming**

- Pollution of the environment from the agro-chemicals, industrial wastes etc.
- It leads lo soil exhaustion due to monoculture



- High losses due to pests, diseases and weather vagaries
- Price fluctuations affects marketing of agricultural produce
- Labour strikes affect farming operations and production
- Causes food shortage due to emphasis on cash crops rather than food crops
- High costs of establishing and maintenance of farms.
- Encourages rural urban migration / they are population pulling centres. This reduces the productive labour force in the rural areas.
- Displacement of people from their land
- Repatriation of profits because they are foreign owned
- Destruction of natural vegetation
- Poor hygiene from livestock keeping

### **Irrigation farming e.g. Sudan, Egypt, Senegal, Tennessee valley**

It is an agricultural practice that involves provisions of water either permanently or temporary for plant growth. It is carried out where natural precipitation is insufficient to meet the plant moisture requirements or where rainfall is abundant but its seasonality is improper to support cultivation crops.

#### **Types of irrigation**

##### **Lifting devices**

Water is lifted from a well, river, canal or lake in a container and poured on to the crops in field.

##### **Basin irrigation**

It was once common in Egypt, flood water from river Nile was collected in flood basin-like fields on one side of the river and water controlled by sluices. The water is applied rapidly to the entire basin and is allowed to infiltrate.

##### **Tanks**

Rain water is stored in tank and used to water plants during dry season

##### **Canal irrigation**

Irrigation water is directed moved to the farm from rivers or storage lake using canals.

##### **Overhead irrigation**

Sprays and sprinklers are used to water the farms from public supplies

### **Factors that favors setting up large irrigation schemes**

#### **Physical factors**

- Inadequate and unreliable rainfall making irrigation the only solution to productive cultivation

- Presence of reliable source of water such as Permanent River (R. Nile in case of Egypt and Sudan, R. Senegal for Senegal) or lake.
- Presence of fertile soil
- Presence of extensive land where irrigation scheme can be set up
- Flat or gentle sloping land to facilitate irrigation by gravity
- Aridity reduces costs for clearing of land
- Low incidence of pests and disease
- Soils with low water retention to prevent water logging.
- Need to control river flooding e.g. TVA

#### **Human factor**

- Availability of market for the crops to be cultivated
- Availability of capital to set up irrigation scheme
- Presence of cheap skilled and unskilled labour to work on irrigation schemes.
- Need to generate employment
- Need to diversify agriculture and grow wide range crops
- Need to produce raw materials to feed local industries.

#### **Positive contributions/Benefits of irrigation farming**

- Increased cultivable land
- Research has been encouraged to produce high yielding crop varieties
- Increased food production such wheat, rice, round nuts etc.
- Production of cash crops like cotton, rice, tobacco.
- Increases government revenue from taxable farmers and farm employees
- Increase foreign exchange from exports of the produces
- Improvement of international relations with importing countries
- Increase income to the farmers that raises the standards of living
- Production of raw materials for local industries
- Farmers acquire modern farming skill from extension workers.
- Irrigation farms provide market for the farm inputs such as fertilizers, tractors, herbicides etc.
- Improvement of infrastructures such HEP dams, schools, health facilities from government revenues generated from the farms
- Revenues from tourist who come to learn irrigation technology from other countries
- Increased employment opportunities
- Continuous farming irrespective of nature conditions
- Permanent settlements are encouraged

#### **Negative contributions/shortcomings of irrigation schemes**

- Pollution from fertilizers
- Increased spread of water borne diseases

- Price fluctuation
- Soil degradation from monoculture resulting reduced production
- Development of urban areas resulting into congestion, increased crime rate, etc.
- Unemployment due to mechanization
- Lack of labor due to rural-urban migration
- Siltation irrigation channels
- Displacement of people

## Lesson 5/7

### Agricultural communes in china

**Agricultural communes** is type of farming where government organizes farmers in teams and brigades to carry out production on a government owned land where government control production, marketing and sharing of profit.

Examples of communes in China are The Henan commune, Yang tan commune etc.

Crops grown by agricultural communes in China include rice, soya bean, wheat and animals are pigs, poultry etc.

### Characteristics of communes are

- They are state controlled and people work on the farms as employees.
- They are subdivided into teams which then form a Brigade.
- They are communally owned.
- Each brigade has an inspector approved and responsible to the state.
- Work is labour intensive:
- The state determines the crops to be grown.
- The state determines the quotas.
- The surplus above the fixed amount is shared depending on the input.
- The state provides technical and financial assistance.
- They undertake processing of the produce.
- They use improved farming methods
- Research is carried out by the state

### Factors that lead to development of agricultural communes in China

#### Physical factors

- Favourable climate such as the heavy Monsoon rainfall which is evenly distributed have supported growth of a variety of crops such as rice, wheat, barley due to warm summers and mild winters. '
- Fairly fertile alluvial soils in the Manchuria plains and the south East deposited by River Yangtze, Yellow river, favoring quick growth of crops.
- Availability of extensive land in both the Manchuria plain and Yangtze basin suitable for extensive farming under communes
- Relatively flat/ undulating land or plains in the Yangtze basin and Manchuria allowing mechanized farming and gravitational flow of water under irrigation.
- Rivers e.g. Yangtze, Aksu Rive provide water e.g. for irrigation.

#### Other factors

- Relative political stability and security provided by the Chinese armed forces and police encouraged investment and operation of the communes.

- Presence of a large cheap labour of about 1.3 billion people to take part in the communes by clearing land, planting and harvesting of crops or raising livestock leading to formation of abundant teams and Brigades .
- Presence of ready market for commune products like wheat, rice and beef and dairy products by a local population of 1.3 billion people in China encouraged farming on the communes.
- Modern transport network e.g. roads, railways, e.g. the Hangzhou - Tianjin canal used for distribution and marketing of commune products.
- Supportive communist government policy that formed and still encourages commune through subsidies, credit, etc.
- Abundant permanent water supply from river Yangtze, Yellow river for irrigation farming in dry areas encouraged farming of the communes throughout the year. · ·
- Large sum of capital injected by the Chinese government to construct roads, canal, and storage facilities as well as provision of farm inputs like seeds, heifer and poultry.
- Modern or high levels of technology such as tractors used in clearing of land such as reclaiming swamps , harvesting of crops by use of combine harvesters, ploughing and planting of crops in the Manchuria region.
- Intensive research to decide the crops to be grown in a given area depending on the existing conditions, market research has enabled farmers produce high quality crops and animals.
- The need to increase food production and food security to feed the big population of over a billion people formation of communes,
- Presence of high levels of unemployment in China necessitated formation of the communes to improve people's incomes and food supply through fanning.

### **Contributions of commune farming in china**

#### **Positive contributions:**

- Mass production of food crops like rice, wheat, oats, barley have led to china's self-reliance in food requirements despite a high population.
- Improved quality and quantity of agricultural produce.
- The system enabled increase of cultivatable and through reclamation of flood swamps
- Increased income to farmers through export of surplus produce leading to improved standards of living.
- Encouraged value addition and increased income
- Encouraged specialization and division of labour leading to increased food production
- Created employment and job opportunities leading improved standard of living.
- Encourages cooperation and team work resulting into increased output and security within the country.
- Has led to improved research on agriculture resulting into introduction of high- breed quick maturing crop varieties like rice, barley to support China's big population.
- Encouraged easy access to the means of production e.g. Machinery, fertilizers, seeds, resulting into higher output.

- Earns government revenue through taxation of the farmers. This is used to set up social facilities like; roads, schools, etc.
- Diversification of economic activities to include forestry, small scale industries, fisheries, Poultry, thus encouraging a steady inflow of revenue in the economy necessary for development.
- Have made it easy to offer advice to farmers on modern methods of farming because people are collected together leading to massive development.
- Making of economic decisions on what to grow, when to grow is jointly done by a committee to enable effective planning
- Land consolidation was possible because of amalgamation of land. This encouraged commercial farming on a large scale so as to create food safety.
- Made it easy for government to assist farmers in form of loan as an incentive to produce more leading to rapid development.
- Government assists in transporting, storing and marketing of agricultural produce thus reducing the costs of production.
- Individual members who show exceptional work are rewarded in kind or in cash depending on the effort put in to boost their morale and this increased production.
- Encouraged growth of industries e.g. textiles, chemicals and farm equipment since each commune is required to possess its own processing factory. This has led to China's rapid industrial growth in the Shenyang, Xi'an industrial centers.
- Encouraged team work and unity among the population which is important for political stability of China as a country.
- Formerly idle land in Manchuria plains and or deserts have been put to productive use through irrigation farming thus leading to better regional development and equitable income distribution.
- Eliminated farmers' exploitation through state control of prices which eliminated middlemen hence higher returns from the agricultural sales

#### **Negative contribution of commune farming in china**

- The crops grown are sold to the state at fixed prices far below the prevailing market prices and compulsory amounts must be produced hence exploitation of farmers.
- The deprivation of farm ownership and lack of competition kills the farmers' incentive to work leading to limited output.
- The state takes the bulk of the harvest and pays low wages thus exploitation of members.
- They were formed hurriedly and against the wishes of the peasants. There was resistance and reforms were slow
- Lack of individual security over the land discourages farmers to grow more crops.
- Mono-cultural practices e.g. growing of cereals has led to soil exhaustion of collectives between those well favored areas climatically, by government or due to soil suitability e.g. there are more collectives.

- Have led to pollution due to agricultural chemicals and industrialization causing health hazards to the people.
- Bureaucracy delays decision making
- Increased mechanization has led to unemployment hence poor standard of living of the people.
- Encouraged destruction of the environment e.g. forests to establish communal farms and this led to loss of wildlife, encouraged occurrence of soil erosion and reduction of rainfall which have continued to affect agriculture.
- State policies at times dictate growing of crops not suited to the conditions of certain areas leading to wastage of effort by commune members.
- Involves a lot of bureaucracies such as what to grow, when to grow resulting into time wastage.
  - Led to growth of agro-based industries, textiles, flourmills with their associated problems such as pollution.
  - Some farmers resisted amalgamation of their land into communes hence undermining the practice in some regions especially in the south east and Manchurian plains and this led to conflicts between the state and people resulting into imprisonment of some members.
  - Increased use of machines in order to realize a high output to meet the state targets has resulted into unemployment to the commune hence affecting their incomes.
  - Encouraged increased government expenditure on public goods like maintenance of roads, schools, provision of security, etc.
  - Natural hazards like floods, drought, frost and hailstorms have affected output in some instances where communes are along river valley, coastline or in drier areas in the interior and this has led to losses to the farmers.
  - Increased output of some crops led to negative price fluctuation thus low incomes were earned and this discourages farmers to put in a lot of effort.
  - Economic imbalance because all areas are not favored in terms of suitability of environment Monoculture encourages soil exhaustion.
  - Pollution of air, water and land e.g. by industries.
  - State policies dictate on what to be produced irrespective of environmental suitability.
  - Urbanization increased congestion, crime and other vices

## **Collective farming**

It is a type of farming common in communist countries such as Russia, Monrovia, etc. it involves voluntary or compulsory grouping of land into large units with an aim of increasing and modernizing agricultural production.

### **Main characteristics of collective farming**

- Voluntary or compulsory amalgamation of farm units into larger farms
- Farms are managed communally or by selected committees.
- Crops grown are specified
- Farms are highly mechanized

- Marketing of produces is controlled by the state
- Farmers are allowed some limited area for their own crops and livestock
- The proceeds from the sale of farm produce are shared among the members.

#### **Positive contributions/Advantages of collective farming**

- Large farms has enable mechanization
- High output
- It encouraged development of agro-processing industries
- Encouraged development of infrastructures such as schools, roads, healthy units etc.
- Encourages research into better varieties of crops
- Stimulated growth of urban centers
- Created employment opportunities
- Has contributed to diversification of economy
- Increased government revenue for taxes
- Increased foreign exchange from export of produces
- Fosters good international relationship with trading partners

#### **Negative contribution of collective farming**

- The crops grown are sold to the state at fixed prices far below the prevailing market prices and compulsory amounts must be produced hence exploitation of farmers.
- The deprivation of farm ownership and lack of competition kills the fanners' incentive to work leading to limited output.
- The state takes the bulk of the harvest and pays low wages thus exploitation of members.
- Lack of individual security over the land discourages farmers to grow more crops.
- Mono-cultural practices e.g. growing of cereals has led to soil exhaustion of collectives between those well favored areas climatically, by government or due to soil suitability e.g. there are more collectives.
- Have led to pollution due to agricultural chemicals and industrialization causing health hazards to the people.
- Bureaucracy delays decision making
- Increased mechanization has led to unemployment hence poor standard of living of the people.
- Encouraged destruction of the environment e.g. forests to establish communal farms and this led to loss of wildlife, etc.
- State policies at times dictate growing of crops not suited to the conditions of certain areas leading to wastage of effort by commune members.
  - Encouraged increased government expenditure on public goods like maintenance of roads, schools, provision of security, etc.
  - Urbanization increased congestion, crime and other vices

#### **Ujamaa system in Tanzania**



It is a form of cooperative farming practiced in Tanzania since 1975

#### Benefits of the Ujamaa system

- Mobilization of labour force for specialized projects such as re-forestation, dairying etc.
- Increased production of food and cash crops
- Increased area under cultivation
- Organized settlement leads to easy provision of social services
- Increased government revenue
- Increased foreign exchange earnings from export
- Better production techniques provided by extension workers
- Provided raw materials to processing industries
- Stimulated growth of urban areas.
- Generation of employment

#### Shortcomings of Ujamaa system

- Government lack enough resource to provide necessities to the farm
- Fluctuation of farm produces
- Emphasis on production of cash crops reduces food security
- Failure to improve farmers' income
- Poor management of village communities by government officials
- Poor planning of village communities.
- 

#### Agricultural production in Monsoon Asia

The countries in the Monsoon Asia include Malaysia, India, China, Pakistan, Korea etc.

- Due to the dense population, more intensive methods of agriculture are used.
- More emphasis is put on intensive subsistence production.
- There are basically two types of intensive subsistence farming i.e. wet-padi-rice and dry farming e.g. sorghum, soya, beans, maize and vegetables.

#### Favorable Factors intensive agricultural production in Monsoon Asia

- Climate: the occurrence of heavy monsoon rains support agriculture i.e. water during dry sunny period helps in crop ripening.
- Abundant supply of cheap labour.
- Presence of numerous rivers supplies water for irrigation. e.g. river Yangtze, yellow river in the Yangtze basin and Manchuria plains allowing mechanization
- Generally flat relief for easy irrigation.
- Fertile alluvial soils in the river valleys and peninsulas.
- Availability of adequate capital to invest in agriculture.
- Use of skilled but simple appropriate technology.

- Existence of large market provided by the large population.
- Good government policy on land tenure system. Landlords rent land out to tenants / green room policy of agricultural modernization.
- Improved transport system.
- Research in agriculture.
- The existence of political stability that allows free participation in agric.
- Efficient processing and storage facilities.
- Long culture of agriculture by Asians.
- Ready market for commune products
- NB: candidates should explain the above outlined points giving specific examples

### **Problems faced by agricultural production in Monsoon Asia**

- The mountainous/ragged land scape that limit agricultural activities
- Poor and thin soils which limit plant growth
- Harsh climate with heavy rainfall in some areas causing floods and strong winds like hurricanes, monsoon winds.
- Poor drainage in some areas limits arable farming
- Problems of pests, diseases and wild animals
- Poor animal and crop breeds
- Dense population limits land for agriculture
- High cost of land and agricultural inputs
- Poor transport network for carrying products to the market
- Competition with other developing countries that produce similar products
- Limited capital to carry out research
- Political instabilities in the region
- Government policies that do not prioritize agriculture
- High rural urban migration that reduces labor for agriculture
- Price fluctuation
- Poor storage facilities

### **Steps being taken to solve the problems of agricultural production in Monsoon Asia**

- Introduction of better farming methods e.g. land terracing
- Introduction of high yielding improved seeds.
- Conducting research to improve on crop varieties
- Diversification of agricultural activities
- Importation of supplementary agricultural produce
- Consolidation of land and discouraging fragmentation
- Maintain political stability

- Irrigation farming
- Improvement of social infrastructure
- Revision of education system to favor agriculture.

## **Agricultural productivity in tropical Africa**

### **Factors responsible for low level of agricultural productivity in tropical Africa**

#### **Physical factors**

- Low and unreliable rainfall such as in Northern Kenya, Northern Nigeria limits growth of crops and pastures for the animals
- Rugged relief or steep landscape for example in Ethiopia discourage agricultural mechanization
- Poor drainage such as floods destroy crops and animals
- Poor or infertile soils in Niger, Liberia limits cultivation of crops
- High incidence of pests and diseases that destroy crops and infect animals
- Poor quality crop and animal varieties e.g. Zebu cattle

#### **Human factors**

- Poor land tenure system limits effective use of land
- Rural-urban migration in Nigeria, Uganda have led to scarcity of labor on farms
- Political instability in Somalia, Zimbabwe discourages investment in agriculture.
- Inadequate capital to purchase farm inputs
- Inadequate market for agricultural produce
- Cultural and religious constraint that limit farming e.g. rearing pigs by Muslims
- Inadequate storage and preservation facilities lead to post harvest losses
- Poor transport networks to market centres lead to losses
- Unfavorable government policies that do not favor agriculture.
- Inadequate skilled labour in form of extension workers and veterinary doctors to stimulate agricultural modernization
- Corruption and embezzlement of agricultural funds for modernization of agriculture.
- Poor technology
- Inadequate research to develop resistant high yielding crops and animals

## Lesson 6/7

### Livestock farming

Livestock farming is simply the management and breeding of domestic, livestock or farm animals for the purpose of obtaining their meat and products (milk, eggs, leather, etc.).

**Dairy farming** is the rearing of animals/ livestock for the purpose of milk and milk products such as Cheese, Butter, and Yoghurt etc. This can be earned out on a small scale or large scale. Dairy farming is dominant in Denmark, Switzerland, the Netherlands, New Zealand, Kenya etc.

A variety of dairy animal breeds are kept e.g. Ayrshire, Alderney, Friesians, jersey, Guernsey, etc.

**Ranching** is the keeping of large herds of livestock mainly for beef. Animals are kept on a defined piece of land (paddocks).

Large scale cattle ranching farms are found on the pampas (Argentina) western parts of N. America, Australia, New Zealand, Botswana etc. Other areas are Zimbabwe, Zambia, and Namibia etc.

Some of the breeds include: Boran short horn, Aberdeen, Argus, Zebu etc.

### Cooperative farming in Denmark

Cooperative farming is where farmers with small and medium sized farms with similar interest voluntarily pull their resources together to realize increased production and greater benefits through collective purchasing of inputs, collective marketing and selling of products and collective bargaining for credit. Farmers are responsible and control their business.

### Characteristics of cooperative farming

- There is collective ownership of resource
- Labour is provided by members
- Cooperatives are officially registered by law.
- There is quality control of products
- Farms are either scattered or consolidated into one place
- Technical advice is provided by extension staff.
- Collective marketing
- Profit and losses are shared among members
- Land ownership may individual, collective or public.
- Cooperatives may process their produces.

### Positive contributions/merits/Advantages of cooperative farming

- Large capital is realized

- Bulk purchase of inputs such as fertilizers, equipment at low prices
- Transportation and marketing costs are reduced
- Collective bargaining fetches good prices for the produce
- Ease of obtaining cheap credit.
- Ability to carry out research leading to improve quantity and quality of produces
- Increased income of members leading to improved standards of living
- Creation of employment on the farms
- Increased government revenue from taxes
- Increased foreign exchange earnings from export of the produces
- Increased food production leading to food security
- Stimulated development of industries e.g. milk processing to produce yoghurt, cheese, butter, etc.
- Each farmer gets extra income each year from dividends.
- Exportation of farm products leads to strengthening of international relations.
- Attracts tourists
- Cooperative farming encourages teamwork and fast acquisition of skills leading to specialization.
- Cooperatives receive collective education cheaply

#### **Negative contribution**

- It leads to over exploitation of resources such as and resulting into soil exhaustion.
  - Overproductions cause a fall in prices.
  - Corruption and embezzlement of funds amongst the group members discourage operation of the cooperatives leading to a fall in farmers' incomes. ·
  - Competition from other countries producing similar goods reduces profit margins.
  - Encourage increased government expenditure support services like roads, railways, extension of water to cooperative farms.
  - Cooperative farms encourage rural urban migration leading to poor standards of living due to congestion
  - Cooperative farms cause pollution through dumping farm wastes.
  - Unbalance incomes among cooperative and non-cooperative members cause social lift
  - Natural hazards like flood cause bigger losses to cooperative farmers due to the sizes of investment.
  - Cooperatives delay decision making due to bureaucracy.
  - It leads to retardation of personal initiative and creativity.
  - Conflicts can arise between the cooperatives and the government.
- 
- Lack of trust within members may negatively affect production
  - Increased mechanization has led to unemployment hence poor standard of living of the people.
  - Encouraged destruction of the environment e.g. forests to establish farms and this led to loss of

wildlife.

- Increased mechanization has led to unemployment hence poor standard of living of the people.
- Leads urbanization increased congestion, crime and other vices

### **Roles of cooperatives in the development of dairy farming in Denmark, Kenya etc**

- Undertake bulk purchasing of farm inputs such as drugs, sprays etc.
- Hire equipment to small dairy farmers
- Engage in research to produce favorable varieties and economical means of keeping cattle
- Establish own banking facilities
- Provide dairy farmers with extension service
- Undertake collective storage, preservation, transportation and marketing of dairy products.
- Undertake processing of milk and other dairy products
- Undertake education of members.

### **Factors that favors dairy farming in Denmark, Kenya etc.**

#### **Physical factors**

- The temperate climate with moderate to heavy rainfall conducive for rearing of dairy cattle
- Flat relief of Denmark that favors grazing of cattle
- Presence of fertile soils that support growth of pasture and fodder
- Low incidence of pests and diseases
- Presence of steady supply of water for animals

#### **Human factors**

- Availability of skilled and unskilled labor
- Availability of supplementary fodder such as corn, hay, alfa alfa etc.
- Availability of capital to invest on the farm
- Efficient transport network to deliver farm output to the market
- High technology for dairy farming such as automated milking machines, preservation system.
- Continuous research resulting high yielding animals
- Relevant education system
- Supportive government policies such political stability that enable investment in dairy farming
- Presence of cheap credit facilities.

### **Ranching in Botswana and Argentina**

Livestock industry is the keeping of animals such as cattle, sheep, goats, poultry, and piggery for both domestic and commercial purposes.

### **Botswana**

In Botswana the livestock industry is based on the keeping of local-breeds which are resistant to diseases and harsh climatic conditions

- They mainly rear local and improved breeds of cattle
- The animals kept are predominantly for beef.
- Animals kept are of poor quality due to lack of selective breeding
- Demonstration farms have been set up by the government with a view of producing more livestock products of high quality.
- The main demonstration farms include Loberts, Kanye, Serowe, etc.
- The main cattle keeping areas are mainly in the Eastern side of the country.

### **Argentina**

Rearing of livestock is based on the pampas which is temperate grassland that supports livestock farming on extensive ranches commonly referred to as estancias

- These exceed over 100 square km and they keep over 20,000 heads of cattle
- Ranches are owned by large companies and business men and are managed by a manager referred to as a Gauchos or Cow boy
- Ranches are scientifically managed with automatic feeding towers with veterinary surgeons who attend to the animals regularly.
- The major breeds of cattle kept include: Aberdeen Angus and Herefords.
- The main cattle processing centres include: Rosario, Cordoba, Santa Fe and Bahia Blanca
- Ranches are purely for commercial purposes

### **Factors favoring ranching**

#### **Physical factors**

- Favorable marine climate characterized by moderate rainfall above 500mm and mild temperatures about 24<sup>0</sup>C facilitates quick growth and fattening of beef cattle.
- Fertile soils that support growth of pasture e.g. alfa alfa, maize etc.
- Presence of vast land that enable establishment of big ranches
- Relatively flat land scape with facilitate grazing
- Availability of abundant temperate grassland that provide pasture to the animals.
- Presence of water provided by rivers such as collorado for animals
- Resistant breeds adapted to local environment
- Low incidence of pests and diseases that encourage multiplication of cattle

#### **Other factors**

- Availability of skilled labour from historical experience



- Introduction of productive breed of cattle from Europe
- Modern technology pumping water to the animals using wind and other pumps
- Introduction of nutritious cattle feeds e.g. alfalfa promotes rapid growth of animals
- Availability of capital to invest in ranches
- Presence of market for beef and other animal products.
- Relative political stability encourages investment in ranches
- Supportive government policies e.g. providing land to foreign cattle farmers from New Zealand, and tax incentives.
- Intensive research involving cross breeding to generate high beef producing cattle.
- Developed road network to facilitate transportation of beef to the market.
- Effective ranching cooperatives that train cattle farmers better farming techniques

### **Challenges of ranching**

- Harsh climate e.g. prolonged drought leading to shortage of water and pasture which affect the quality of the livestock.
- Poor pastures (natural pastures) with a low carrying capacity and dry up easily lead to low quality livestock.
- Limited market
- Fluctuation of prices for livestock output.
- Pests, wild animals and diseases such as ticks, fever which attack and kill the animals discourages farmers.
- Poor land tenure systems e.g. commercial ownership limits grazing land thus limiting the size of ranches. Limited market for animal products externally and locally discourage large scale investment in the livestock sector.
- Limited capital resources for commercial livestock farming.
- Inadequate transport and communication facilities in some regions of the country/ high transport costs.
- Unfavourable government policies e.g. on extension services, modern farming, etc.
- Increase in population has led to a reduction in the amount of size grazing land.
- Political instability especially in Nigeria which affect farming activities limits investment in the livestock sector.
- Limited research on modern livestock farming results into poor quality animal breeds. Poor cattle breed which yield less and poor quality products.
- Poor storage facilities e.g. meat canning, refrigeration have led to waste of milk and beef
- Labour is predominantly unskilled resulting into limited production.
- Wild fires leading to shortage of pasture during the dry season.
- Effect culture and tradition
- Competition with other economic activities -such as industrialization.

### **Measures being taken to improve the livestock industry in Botswana and Argentina**

The measures are more or less similar for both countries

- Planting of improved varieties of grasses of pastures such as all Alfa alfa
- Padlocking to reduce communal grazing and reduce on the spread of diseases in Botswana
- Provision of water from underground and construction of valley dams to ensure constant supply for the animals
- Intensified research on pasture varieties and animal breeds
- Improved preservation methods and storage of beef
- Aggressive marketing of animal products to capture both local and international markets
- Improvements of infrastructures e.g. Roads and railways
- Provision of capital and credit facilities to boost the livestock industry.
- Control of pests and diseases through dipping, spraying, vaccination and quarantine
- Cross breeding to improve the quality of the animals and importation of exotic breeds
- Education programs and awareness to improve on cattle keeping skills of the farmers
- Establishment of demonstration farms for Botswana
- Maintaining the carrying capacity of the land
- Establishment of processing plants/ facilities
- Establishment of co - operative societies
- Improvement on the technology in the management of the animals
- Enhancing policy to support cattle keeping
- Government policy to support cattle keeping
- Provision of extension services to cattle keeping areas etc.
- N.B candidates must mind about the Tense used

### **Contribution of ranching**

#### **Positive Contribution of ranching**

- Provides meat to the population thereby improving peoples standards of living.
- Sources of raw materials for beef processing industries
- Provision of employment of people on ranches.
- Provides Market for industrial products like drugs and pesticides etc.
- Diversified the economy.
- Foreign exchange is earned from exports of beef, hides.
- Research has been developed into resulting into development of high yielding animals.
- Has become a tourism attraction.
- Has led to acquisition of skills.
- Leads to urbanization / growth of towns in areas of market gardening.
- Source of government revenues.
- Encouraged development of infrastructure such as transport (road, railway)network, schools health facilities etc.

- Promote good international relations through exports

### **Negative contributions of intensive farming**

- Pollution of the environment from the veterinary chemicals, industrial wastes etc.
- High losses due to pests, diseases and weather vagaries
- Price fluctuations affects marketing of animal products
- Labour strikes affect farming operations and production
- Causes food shortage due to emphasis on rearing animals rather than food crops
- High costs of establishing and maintenance of farms.
- Encourages rural urban migration / they are population pulling centres. This reduces the productive labour force in the rural areas.
- Displacement of people from their land
- Repatriation of profits because they are foreign owned
- Destruction of natural vegetation
- Poor hygiene from livestock keeping

### **Challenges facing commercial farming in developing countries**

Harsh climate e.g. prolonged drought leading to shortage of water and pasture which affect the quality of the livestock.

- Poor pastures (natural pastures) with a low carrying capacity and dry up easily lead to low quality livestock.
- Limited market
- Fluctuation of prices for livestock output.
- Pests, wild animals and diseases such as ticks, fever which attack and kill the animals discourages farmers.
- Poor land tenure systems e.g. commercial ownership limits grazing land thus limiting the size of ranches. Limited market for animal products externally and locally discourage large scale investment in the livestock sector.
- Limited capital resources for commercial livestock farming.
- Inadequate transport and communication facilities in some regions of the country/ high transport costs.
- Un favourable government policies e.g. on extension services, modern farming, etc.
- Increase in population has led to a reduction in the amount of size grazing land.
- Political instability especially in Nigeria which affect farming activities limits investment in the livestock sector.
- Limited research on modern livestock farming results into poor quality animal breeds. Poor cattle breed which yield less and poor quality products.

- Poor storage facilities e.g. meat canning, refrigeration have led to waste of milk and beef
- Labour is predominantly unskilled resulting into limited production.
- Wild fires leading to shortage of pasture during the dry season.
- Effect culture and tradition
- Competition with other economic activities -such as industrialization.

## Lesson 7/7

### Fishing industry

Commercial fishing involves all activities that are concerned with growing, catching, processing or transporting fish either as a hobby or as an economic activity

#### Fishing industry in selected countries

##### Norway.

Fishing is carried out in the North Sea.

The major fish species caught are: herrings, sardines, cod, haddock, and mackerel

The major ports handling fish include: Bergen Stavanger, Bodo etc.

##### Ghana.

Fishing is carried out at the Atlantic coast and inland water bodies.

The major ports include: Tema, Sekondi -Tekoradi, Accra etc.

The major species of fish include Tuna, Sardines cod, Snapper, Barracudas etc.

##### PERU

- Found on the Western part of the South American continent along the Pacific Ocean coast.
- It is the leading producer of fish in the tropical America.
- Major fish species include Anchovy, herrings, Shell fish, Sardines and Tuna etc.
- The Methods of fishing used are Drifting, Trawling, Purse-seining, long lining etc.
- Fishing ports are Chimbote, Callao, Vegueta, Atico etc.
- The major fishing grounds are Pacific Ocean and Inland water bodies

##### Sweden

- Fishing grounds are Baltic Sea , North sea, Norwegian sea
- Rivers include: Umealven, Pitealven, kalixalven etc.
- Lakes include: Vanern, Vattern etc.
- Fish types include Salmon, Arctic char, trout, pike, cod etc.
- Ports are Gothenburg, Malmo, Gavle, Stockholm, Uppsala etc.
- Fishing methods are drifting, trawling, purse seining, etc.

##### Angola

- Fishing grounds are Atlantic Ocean
- Rivers are Cubango, Cuando , Cuanza etc.
- Ports are Luanda, Porto Amboim, Lobito, Banguela, Namibe, etc.
- Fish species are Anchovies Tuna, ocean perch, pilchard, stock fish etc.

##### China.

- Is found on the Eastern part of the Asian continent
- The fishing grounds are the North West pacific/ East China Sea, Yellow sea, South China Sea,

etc.

- The rivers include Yangtze river, Yellow river, Tarim river etc.
- The fish types caught are silver carp, salmon, cods, Herrings, Bonito, Sardines etc.
- The fishing methods used are trawling, drifting, purse-seining etc.
- Major fishing ports include Hankou, Guangzhou, Nanjing, Beihai etc.

#### **Namibia**

- Its fishing ground is located in the South East Atlantic ocean.
- The main fish species caught are haddock, sardines, mackerel, pilchards, , tuna, and cape hake.
- The main ports are Walvis Bay, Swakopmund.

#### **Japan.**

- The fishing ports are Yokohama, Nagoya, and Nagasaki etc.
- Its fishing ground is located in the North West pacific. Fishing is largely carried out in the Sea of Japan, the Yellow sea, sea of Okhotsk, the Bering Sea etc.
- The major fish species caught include Tuna, Bonito, sardine, Herring, Mackerel, Salmon, whales etc.

#### **Chile**

Fishing is carried out at the Atlantic coast and inland water bodies.

The major ports include Arica, Iquique, Antofogasta etc.

The major species of fish include mackerel, Sardines, Herring etc..

### **The factors that favor fishing industry**

#### **Physical factors**

- Presence of commercial fish species such as cod, Red fish, mackerel, sole and Haddock etc.
- Norway has an extensive shallow continental shelf with abundant plankton that favors growth of fish and fishing activities.
- Presence of forded coastlines with hundreds of offshore Islands that harbor fish
- Poor soils that limit other agricultural activities.
- Rivers that transport nutrients into the sea to promote growth of planktons e.g. Norway.
- The cool climate also makes fish preservation a lot easier.
- Presence of smooth sea floor that enables use of trawler nets, to catch demersal fish such as cod, haddock and plaice in large numbers.
- Ice-free conditions along the fishing ports ensure fishing throughout the year
- Presence of forest which provide wood for making of boats, ship, packing boxes and for smoking of fish

#### **Human factors**

- Ability to build ships and other fishing equipment such as nets that are used in fishing.

- Engineering of better processing, preservation and storage of fish.
- Experience in fishing developed over years.
- Supportive government policies encourage investment in fish industry
- Political stability encourage investment in fishing industry
- Local and internal market encourage fishing industry
- Research has developed good varieties of fish
- Formation of cooperative that assist in procurement of fishing inputs and marketing of fish.
- The use of modern fishing methods such as Trawlers, drifters, long lining and purse- seine nets have facilitated fishing activities in Norway. These tend to catch large quantities of fish within a short time period.
- Presence of capital to invest in the fishing industry
- Presence of skilled, semi-skilled and unskilled labour in catching fish, processing, transportation and marketing of fish.
- Intensive Research that involves fish farming as well as re-Stocking to maintain sustainable industry.
- Transport network helps in transporting and distributing fish to fishing ports and market centres.

### **The contributions of fishing industry**

#### **Positive contribution of fishing**

- Fish forms a vital source of food for people. It is a source of animal proteins.
- Fish and fish wastes are used as raw materials for some industries e.g. fish canning industries.
- It provides employment opportunities for the people during fishing in processing industries, trade etc.
- The fishing industry provides revenue for the government e.g. through taxes paid by fishermen, traders and fishing companies.
- It provides foreign exchange earnings through the export of fish and fish products.
- It encourages the development of tourist industry e.g. sport fishing.
- It leads to economic diversification therefore reducing overdependence on one/ other sectors.
- It promotes trade which promotes good international relationships.
- It has led to development of ports and urban centres e.g. Atica, Bergen, Trondheim, and Stavanger.
- It leads to the development of transport facilities as roads, railway lines etc.
- Encourages the development of social services as health centres, schools, piped water etc.
- Encourages research and education on fish species, breeding habits, oceanography, etc. This ensures sustainability.
- It leads to the improvement in the level of technology/mechanization of fishing e.g. echo-sounders.
- Fishing has led to acquisition of skills of operating machines, packing, making animal feeds

etc.

- It is a source of medicine e.g. cod liver oil/omega
- It promotes agricultural development through provision of fertilizers of animal feeds.

#### **Negative contributions of fishing**

- Pollution of the atmosphere, land, water etc. by the fish processing industries.
- It has led to the development of ports and towns like Callao, Chimbote in Peru with their related problems.
- It leads to conflicts between fishing nations which share fishing grounds.
- Fishing may lead to accidents on water e.g. due to bad weather; ship wrecks leading to loss of lives.
- It encourages water piracy/robbery leading to loss of property and life.
- It has encouraged profit repatriations leading to loss of government revenue.
- It has encouraged children neglecting school especially in Peru.
- It has resulted into regional imbalances with places which do not have industries such as the interior of Peru.
- Depletion of forests to provide firewood for smoking fish and provision of for Boat and ship building.
- Unemployment resulting from mechanization of fishing operations.
- Over fishing which lead to depletion of water resources.

#### **Factors that limit the development of the fishing industry in the main fresh waters of Africa**

##### **Low level of technology i.e.**

- Use of elementary tools like hooks, arrows, basket traps, spars which lead to limited catch in rivers, lakes and swamps.
- Indiscriminate fishing methods/gears lead to depletion of fish stock from lakes such as L. Victoria
- Use of undersized nets catch immature fish on L Albert, Victoria, George and .Edward limits growth of the young fish such as Tilapia, Nile perch leading to fish scarcity.
- Fish poisoning / electrocution on L. Victoria leads to depletion of fish quantities and reduced demand for Africa fish on the world market.
- Use of poor fish preservation methods like sun drying, smoking at Lwampanga, Kagwara landing sites on L. Kyoga leads to high post-harvest losses leading to low income.
- Limited research to develop fishing activities.
- Lack of big fishing vessels limits deep fishing
- Poor transport facilities from fishing ports affects fish distribution to market centres.

##### **Other factors**

- Hot tropic climate affects both fish preservation as well as growth of plankton in countries like Mauritania and Somalia . . . . .



- Limited off shore Islands limits deep Sea fishing for example along Liberia, Sierra Leone etc.
- Africa has great potentials for agricultural activities due to fertile soils and equatorial reliable rainfall in DRC, Cameroon, Nigeria, etc. There is hence little need for fishing activities.
- Limited numbers of commercial fish species such as Cod, Tuna. etc.
- Political instability in most countries like Liberia. Sierra Leone, Zimbabwe, Morocco, Algeria, Somalia.
- Limited capital in Zimbabwe, Congo and Nigeria.
- Limited skilled labour in most countries like Ivory Coast, Liberia.
- Insecurity along fishing grounds such as pirates, thieves along the coast of Somalia, Namibia, etc.
- Weak government policies fish smuggling, over-fishing and indiscriminate fishing etc.
- Competition with developed fishing nations such as Norway, Japan.
- Waterfalls, rapids and rocks along rivers like river Congo, Nile, etc.
- Predator fish species like Nile perch which has eaten smaller fish species like tilapia.
- Invasion of the water hyacinth on fishing grounds like Lake Victoria, river Congo, Nile, Black Volta, Lake Volta. This chokes fish to death and limits movement of fish vessels.

### **Problems/ Factors affecting fishing in tropical Africa and developing countries.**

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

- Limited continental shelf along most countries like Mozambique.
- Hot tropical climate affects both fish preservation as well as growth of plankton in countries like Mauritania, Somalia
- Limited indented coastline limits development of fishing ports in most countries like Ivory Coast and Cameroon
- Limited off shore Islands limits deep Sea fishing for example along Liberia, Sierra Leone etc.
- Warm Mozambique current bring hot temperatures along the Eastern Coastline of Kenya, Tanzania and Mozambique hence limiting fishing. It affects the growth of plankton.
- Presence of coral reefs along the eastern coastline affecting fishing in Kenya, Mozambique. Tanzania, etc.
- Africa has great potentials for agricultural activities due to fertile soils and equatorial reliable rainfall in DRC, Cameroon, Nigeria, etc. there is hence little need for fishing activities.
- Limited numbers of commercial fish species such as cod, Tuna, etc.
- Steep escarpments especially along the rift valley/ lakes.,

#### **Other factors**

- Political instability in most countries like Liberia, Sierra Leone, Zimbabwe, Morocco, Algeria, Somalia.
- Limited capital in in most of the African countries such as Zimbabwe, Congo and Nigeria.
- Poor transport facilities from fishing ports affects fish distribution to market centres
- Poor preservation methods such as frying, salting with limited use of freezers.

- Poor and small fishing vessels such as boats limit deep fishing
- Poor fishing methods like hooks, basket traps used in Congo, Liberia, Ghana.
- Poor technology, hence limited fish caught.
- Limited skilled labour in most countries like Ivory Coast, Liberia.
- Insecurity along fishing grounds such as pirates, thieves along the coast of Somalia, Namibia, etc.
- Weak government policies encourage fish smuggling, over-fishing and indiscriminate fishing etc.
- Limited research to develop fishing activities. This affects sustainability.
- Competition from developed fishing nations such as Norway, Japan.
- Waterfalls, rapids and rocks along rivers like river Congo, Nile, etc.
- Predator species like Nile perch which has eaten smaller fish species like tilapia.
- Invasion of water hyacinth on fishing grounds like Victoria, Lake Kyoga, L. Volta etc. which chokes fish to death and limits movement of fish vessels.
- Domination of foreign fishing companies leading to profit repatriation
- Over fishing leading to the decline in the quantity of fish stocks
- Pollution of water bodies leading to the death of aquatic life
- Poor Government policies on modernization of the fishing industry
- Competition from other sectors e.g. Agriculture, mining, etc. that affect the quantity of labour
- High rates of accidents scares off labour
- Effect of cultural beliefs where by some tribal groups do not eat fish or certain species
- Territorial conflicts especially on the shared water bodies.
- Piracy/ robberies on water bodies scare off fishermen.
- Limited numbers of fishing co-operative organizations to enhance fishing and marketing

Thank you  
Dr. Bbosa Science