**Rare geography**

**Lunar eclipse**

A lunar eclipse occurs at full moon when earth is directly between the moon and the sun. During a lunar eclipse, earth blocks sunlight from reaching the moon. The moon is then in the shadow and looks dim from earth. Lunar eclipse occurs only when there is full moon because the moon is closest to earth at that time.

**Solar eclipse**

A solar eclipse occurs when the moon passes directly between earth and the sun, blocking sunlight from earth. The moon’s shadow then hits earth. So a solar eclipse occurs when a new moon blocks your view of the sun.

**Smog and acid rain**

The burning of fossil fuels can cause smog and acid rain.

**Smog**

This is due to the burning of coal by factories and houses—which releases smoke which combines with fog. Today it is also caused by the action of sunlight on pollutants such as hydrocarbons and nitrogen oxides. These chemicals react to form a brownish mixture of ozone and other pollutants.

**Acid rain**

This is rain that contains more acid than normal. It forms when nitrogen oxides and sulfur oxides combine with water in the air to form nitric acid and sulfuric acid. Rain , sleet, snow, fog, and even dry particles c carry these two acids to trees and lakes. This rain sometimes damages surfaces of buildings and statues, damages lakes and ponds which affects aquatic life.

**Global warming**

This is a gradual increase in the temperature of the earth’s atmosphere.

According to scientists human activities add greenhouse gases to the atmosphere may be warming earth’s atmosphere. They say that an increase in carbon dioxide is a major factor in global warming; and this is due to human activities like burning of wood, coal, oil and natural gas.

**Greenhouse effect**

The gases in the earth’s atmosphere hold in heat from the sun, keeping the atmosphere at a comfortable temperature for living things. The process by which gases in the earth’s atmosphere trap this energy from the sun is called greenhouse effect. These gases that trap energy are called greenhouse gases (such as carbon dioxide, water vapour, and methane).

**CHINA**

**COMMUNAL FARMING IN CHINA**

Communes are large farming areas created by compulsory grouping of people into large units purposely for promoting the quality and quantity of agricultural produce. Communal farming is where the government organized farmers into brigades and teams to carry out production, by working together for the general good of all members. The land is state owned and production, marketing and sharing of profits are controlled by the state.

**Organization of an agricultural commune**

* Communes started in the 1950s when the communist government organized about 800 million rural people into about 50,000 communes.
* Each **commune** is divided into about 16 **production brigades** and these were further sub-divided into **production teams** of about 100-300 people. These could hold land, tools, and other production materials under communal ownership and each carried out various production activities.
* Specifically about 5 families make up a production team, 10 teams make up I brigade and about 15 brigades make up I commune.
* The communes received production targets from the state and ensured that these targets were met in a series of five year plans. A given quantity of a commodity was expected from each commune.
* **Refer to the xtics below**

**Note:** Communes started in China after the people’s revolutionary command took over power and changes the land tenure system. Before this a lot of land was owned by a few rich landlords while the majority of the population were landless.

Communes are therefore strictly organized collective farms. Communes are found in Manchuria region, Hwang Ho basin, Yangtze kiang basin, the Great Plains Huang Ho valley, and South China.

***Examples of Agricultural communes include:***

* Dai Yunnan commune
* Ping Chau (Ting Chaw) commune
* Chauhan commune,
* Honam commune,
* Fwahtung commune,
* Yang tan commune,
* Chillaxing commune.

***(ii) Land use types found in the communes in China. (02mks)***

* Crop/ arable farming such as rice, soya beans, wheat, maize, oats, millet etc.
* Livestock rearing including: pigs, sheep, poultry etc.
* Settlement/ residential
* Industries for farm inputs and processing farm output
* Forest farming
* Infrastructure such as banking services, roads etc

***CHARACTERISTICS OF THE COMMUNES IN CHINA.***

* Each **commune** is divided into about 16 **production brigades** and these were further sub-divided into **production teams** of about 100-300 people.
* Each commune could accommodate about 150,000 people, a brigade about 3,000 people and a production team up to 300 people. The production team could work an average of 20 hectares of farmland.
* Communes are state owned,
* Land is owned by the whole community controlled by the state.
* Any form of private land ownership must be authorized and controlled by the state. Any form of private land ownership must be authorized and controlled by the state.
* Communes cover large areas of land,
* Leadership is periodically elected to organize the communes’ daily activities
* Individuals are expected to work six days in a week
* Workers are paid according to work done/ profits accruing to the commune and qualifications,
* Scientific methods are used on the communes
* Production and Marketing of output is done/ controlled by the government.
* Members in the communes were given chance to elect a committee to ensure that the production targets were met.
* Each commune is provided with banking services, an agricultural research station, food stores, workshops for repair of farm machinery, a power station, modern houses, a forest farm, a livestock farm and fish ponds, industries for farm inputs. All these were maintained by the commune itself.
* Any surplus produce and income is distributed among members according to skill, performance, commitment to communal activities.

***Advantages of communes in China***

* The system of creates viable units of land for agricultural mechanization and modernization. For example use of tractors, harvesters and this ensures food security for the ever-increasing population.
* It eliminates land fragmentation problem and subsistence farming, which otherwise is a hindrance to agricultural modernization.
* The system of farming standardizes land consolidation systems i.e no one owns land individually. This solves the problem of having landless people alongside the landlords.
* Communal farming gives the government firm political and economic control over the farms and agriculture in general. The government can easily initiate changes as far as agriculture is concerned for example assistance to farmers through the communal farms
* Communal farms facilitate training of farmers in handling of machinery and the organization of the farms is an easy avenue for the development and dissemination of scientific methods of farming.
* It promotes increased output and better quality of produce. For example communal farms have used irrigation schemes which have accelerated the production of high-value crops like cotton, tea, rice, maize, vegetables.
* Communes undertake research to improve agricultural production supported by the government and the farmers are able to learn better farming methods and use better crop varieties.
* Communal farming has promoted development of infrastructure such as storage facilities and transportation facilities (roads and railways) to the farmers and maintaining Waterways.
* It encourages cooperation and teamwork in the various farm activities such as digging trenches, planting, transplanting, weeding, harvesting, and livestock rearing, which fetches higher profits and incomes to the communes.
* Still marketing of the produce is done in bulk by the communes and hence eliminating the exploitation of individual farmers by middlemen.
* Communal farming facilitates easy acquisition of government assistance to the farmers, usually through the collectively done work.
* The system generates employment to the people on the communal farms such as in the agro-based industries. All this has improved the standards of living of the people and hence can afford better housing, medical services.
* It led to the development of agro-based industries established by the consolidated farms Such as flour mills, textiles, tea and rice processing, vegetable oils, drinks factories such as wine pressers, processing factories for meat and dairy products available.
* Promote easy provision of social services such as road networks, health facilities, educational services, accommodation facilities by the state committees.
* Promote the growth of urban centres such as Tianjin, Jing Hong, since each commune has its own headquarters with facilities like local markets, communal shops and banks have been established.
* It encourages diversification of the economy and putting of idle land under use.
* The sale of farm produce earns foreign exchange to the country. Crops such as rice, tea, wheat, maize are exported to Europe and Asia.
* There has been improvement in water conservation since many dams have been constructed to control river floods and to store water for irrigation where necessary. This has also increased cultivable land.
* It is has promoted environmental conservation, since each commune has a forest farm for providing fuel and other wood requirements. This has reduced over dependence on the available natural vegetation.

***Disadvantages of communal farming in China.***

* Lack of individual initiative on the part of the farmers, due to compulsory grouping, on a whole agricultural efficiency remained low especially in the early years. This resulted into collective responsibility and some people regarding the system as forced on them.
* The policy makers and implementers did not do proper feasibility studies in all areas for example some farms were put up in areas with poor drainage and soils. The system brought the regional quota system which involved forcing regions to grow crops not suitable for that particular region just for the sake of government interests.
* Resistance from some farmers about the amalgamation of land. For example landlords detested the new system of land ownership because it deprived them of their rights over land.
* The system encourages idleness among farmers since some farmers have shown little interest in collective work. Thus many of them are members by registration rather than by participation.
* In many cases low wages were paid to farmers hence the incomes very low which could not effectively inspire hard work among the farmers.
* The price of the crops initially was fixed by the government / state and not the market mechanism. Therefore often times the individual peasant farmers on communal farms could be exploited.
* High level of bureaucracy / Delayed decision making such as on what to grow, when, how and where are undertaken by central committees with many people to consult, and hence delayed or hindered.
* Increased output resulted into over production and hence fluctuation of prices and incomes of the farmers.
* Leads to monoculture problems since more or less the same crops are grown over a long period of time, leading to loss of soil fertility/ soil exhaustion.
* There are also problems of destruction of the environment under the system of communal farms, because the individual peasant farmers do not care about soil conservation measures and the environment in general since the farms are collectively owned.
* Communal farming has led to biased distribution of government assistance to the peasants. The progressive farmers who have resisted communal work have not been assisted by the government.

**Problems facing communal farming in China**

* No independence in decision making which limits creativity and innovation
* Lack of individual freedom to choose what crop to grow.
* Over centralized farm operations/ high level of bureaucracy
* High levels of crop failure
* Poor planning leading to miscalculation of rssources such as land, soils, labour
* Negative attitude of many people towards collective farming
* Absence of individual land ownership, leading to low intitative to invest in land maintenance.
* Price fluctuations
* Soil exhaustion
* Floods during heavy rains
* Pests and diseases
* Soil erosion
* Conflicts among members in production teams
* Etc

***Measures being taken to improve communal farming in China***

* Developing of agro-based industries by the consolidated farms Such as flour mills, textiles, tea and rice processing, vegetable oils, drinks factories such as wine pressers, processing factories for meat and dairy products available.
* Training of farmers in handling of machinery and the organization of the farms, hence the development and dissemination of scientific methods of farming.
* Undertaking research to improve agricultural production supported by the government and the farmers are able to learn better farming methods and use better crop varieties.
* Encouraging the use of fertiliers and organic manure to control soil exhaustion.
* Developing of infrastructure such as storage facilities and transportation facilities (roads and railways) to the farmers and maintaining Waterways.
* Improving water conservation since many dams have been constructed to control river floods and to store water for irrigation where necessary, and this has also increased cultivable land.
* Promoting environmental conservation, since each commune has a forest farm for providing fuel and other wood requirements. This reduces over dependence on the available natural vegetation. (afforestation and reafforestation)
* Allowing each family to produce its quota of specified crops under house hold contracting and responsibility system; and being free to sell its output on the free market.
* Setting up irrigation schemes in the communes which has promoted the production of high-value crops like cotton, tea, rice, maize, vegetables; and hence increasing agricultural output.
* Introduction of various crops/ crop diversification such as sugar beet, rice, beans, fruits to increase people’s participation and incomes.
* Extension of credit facilities to the farmers through their production teams and brigades to increase farm production.
* Establishing demonstration farms to act as study sentres for farmers from various brigades and teams.
* Changing the land tenure system by offering some tracts of land to private individual farmers.
* Constructing embankments and artificial levees to control flooding during heavy rains.
* Encouraging the use of soil conservation measures such as terracing, contour ploughing, and mulching.

**POPULATION DISTRIBUTION IN CHINA**

***A sketch map of China showing Areas of low population density of 0 to 9 people per km2 and Areas of high population density of over 400 people per km2***

***Factors which are responsible for low population density,***

* Low and unreliable rainfall of less than 500mm per annum and very cold temperatures discourage crop farming leading to sparse population such as most western states.
* Areas with thin /infertile, rocky and sandy soils limit crop growing hence leading to low population density *(particularly the western provinces).*
* High altitude leads to cold temperatures, reduced oxygen content and dampness which attract low population density such as the upper slopes of the Himalayas in the west.
* Presence of rugged relief/ mountainous landscape are inaccessible/ limit construction and mechanization leading to low population density such as the Tibet ranges and Himalayas in the west.
* Presence of thick vegetation cover hinder transport routes/ are not easy to clear, and thus have low population density.
* Absence of large water bodies are sparsely populated due to limited water supply/ limited water-related activities especially in western China.
* Water logged areas/ Poorly drained areas/ areas with periodic flooding have low population density due to problems in cultivation and construction.
* Areas which are prone to natural calamities discourage population settlement such as the highland areas of the west which are at times affected by landslides, hence sparse population.
* Limited economic activities such as mining and industry have less chances of employment, hence have low population density.
* Under developed transport routes/ remote areas which are far from main roads are less accessible / limit economic activities leading to sparse population.
* Areas of relatively recent population settlement have fewer opportunities for development leading to sparse population.
* Cultural factor for example the best form of land use is nomadic herding practiced by the Tibetans, Kazaks, Mongols and Kirgiz who rear goats, sheep, horses and camels and this partly explains the sparse population.
* Government policy of forest conservation/ nature conservation and limited infrastructural development discourages population settlement in such areas leading to sparse population.
* Political unrest/ insecurity discourage productive activities like trade, farming leading to sparse population such as the north western areas bordering Mongolia and Kazakhstan.

***Factors which are responsible for high population density***

* Heavy and well distributed rainfall and hot temperatures favours crop growing hence attracting dense population such as tropical south China, sub-tropical east-central China where crops like rice, wheat, maize and tea are grown.
* Presence of fairly fertile / well drained fertile alluvial soils promote crop growing hence attracting dense population *such as in the* Yangtze valley, Sin Kiang delta.
* Presence of low altitude have warm conditions which attract dense population such as the coastal areas of the east.
* Presence of fairly/ relatively flat relief/ gentle slopes encourage construction and mechanization hence leading to dense population.
* Presence of large water bodies such as Yangtze River, Huang He River, the Yellow sea and East China Sea favour various water-related activities like farming, industry, fishing, transport; and thus they have a dense population.
* Areas of grasslands are easy to clear for various activities such as farming and thus have dense population.
* Well drained areas/ areas have high population density due to easy cultivation and construction of structures.
* Presence of more economic activities such as mining, industry provide more job /employment opportunities and hence attract dense population.
* Presence of developed transport system/ along main roads and coastal areas are easily accessible/ promote economic activities, hence attracting dense population.
* The long history of population attract more opportunities up to today such as trade, jobs; and thus dense population. This is true with eastern China provinces, known as China proper.
* The high level of urbanization/ the growth of major urban centers such as shanghai, Beijing, Tianjin, Shenyang, Guangzhou, and Tongtu attracts many people to enjoy the urban facilities such as banking facilities, insurance, education, recreation facilities which offer more opportunities, hence dense population.
* The government policy of infrastructural development and creating of investment zones attract population leading to moderate to dense population such as in the urban areas of the east.
* Political stability for a long period such as most urban areas of the east encourages productive activities such as trade, farming leading to dense population since the security of property and life is assured.

***Problems facing the people living in the densely populated areas of China***

* Strains the government budget / leads to increase in government expenditure on social services such as education, medical care in the densely populated areas.
* Increases the level of unemployment; because the rate at which the population increases is higher than the rate of job creation and this leads to increased poverty and high crime rate.
* Results into over exploitation of natural resources like minerals, water resources. This leads to quick exhaustion and denies the future generations a chance to use them.
* It leads to increase in cost of living due to high competition for the scarce resources / goods and services, hence low savings.
* High cost of importing food to supplement domestic production, hence diversion of resources from other projects.
* It increases pressure on land/ shortage of land for population and cultivation. This leads to land conflicts and land fragmentation. This has made the country less self-sufficient in food production.
* Leads to reduced productivity of land/ soil. The over-use of land for cultivation leads to a decline in its productive value and thus lower yields/ food shortages.
* Leads to the growth of slums and associated problems like high crime rate, poor housing/ accommodation, poor health facilities, alcoholism, drug abuse.
* Leads to overcrowding which results into easy spread of diseases and poor sanitation. There is crowding of social public places such as schools, health centres.
* Results into environmental degradation such as through pollution, deforestation and swamp reclamation due to many activities started to support the large population.
* There is cultivation of marginal lands such as steep slopes leading to landslides / environmental degradation.
* Large dependency ratio due to very many young and elderly population, hence reduced savings.

***Strategies being taken to by China to control the problems in (c) above? (04mks)***

* Gazetting some parts of the country as nature conservation parks to protect the environment
* Improving health facilities to control diseases such as better hospitals. There is also Promotion of hygiene standards to guard against the spread of diseases.
* Developing of more natural resources such as soils, power, and forests to support the bigger numbers of people.
* Modernizing agriculture to ensure higher food supplies /yields from the existing farmland such as through agricultural research, farm technology, swamp reclamation etc.
* Encouraging the government policy of the green revolution to increase the quality and quantity of food produced.
* Importing food to supplement domestic reserves/ production.
* Encouraging out-migration to relieve population pressure, by setting up small scale industries in other areas.
* Discouraging rural-urban migration through putting up more social services in the rural areas such as modern schools, high grade hospitals.
* Exporting of labour force such as expatriates to other countries (export skilled labour which is unemployed).
* Population control policies / legislations are being undertaken to limit large families such as one child per family policy, marriage age legislation.
* Setting up repopulation/ resettlement schemes for the people from the densely populated areas.
* Encouraging vertical expansion of cities/ towns using storreyed buildings/ sky scrapers to control the problem of limited land.
* Carrying out proper urban/ regional planning to separate residential and production zones to reduce the effects of pollution.
* Diversifying of the economy to provide alternative employment opportunities such as in fish farming, market gardening/ horticulture, tourism.

**POPULATION GROWTH IN CHINA**

**2016**

**11. (a) percentage change**

**(b) aline graph showing yunnan’s population trend between 2953 and 2010**

**(c) Factors for this upward trend:**

* Presence of a large initial population that rapidly multiplies even with a small population growth rate
* There is improved health facilities leading to low death rates
* There is high life expectancy due to better nutrition (and medical services),because few people die off before the age of 60 years
* There is abundant supply of food due to China’s green revolution to support the large population.
* Availability of imported food to supplement domestic production
* Political stability due to remoteness of the region has made it free from external invasions and aggression, hence low death rates.
* High rates of immigrations / increased migration in search for employment and education.
* Increased urbanization leading to trade and commerce attracting a large population.

**(d) Population problems facing Yunnan province**

(refer to high population density)

**FISHING IN CHINA**

1. (a) ***A sketch map of China showing seas, rivers and ports (8mks)***

(b) ***Describe the factors which have favoured the development of the fishing industry in China***

* Presence of a wide and shallow continental shelf which allows sunlight to easily reach the seabed and this supports the growth of planktons which act as fish food.
* The meeting/mixing of the warm and cold ocean currents which also favours plankton growth (Kuroshio and Oyashio currents).
* Presence of a highly indented coastline which promotes fish breeding and promotes the development of fish landing ports.
* Presence of large forests to support fishing for example providing the required timber for construction of fishing vessels and construction of ports.
* Presence of a variety of valuable fish species and in large quantities such as salmon, sardines, mackerel, herrings, cod, and tuna leading to increased production.
* The cool temperate climate which ensures cool waters for the growth of abundant planktons and survival of various fish species.
* Presence of many rivers and streams which bring in mineral salts from inland for plankton growth and also provide breeding grounds for certain fish species.
* Presence of large fishing grounds particularly the Pacific Ocean containing many fish species and in large quantities like tuna, salmon and mackerel.
* Presence of a smooth ocean floor which promotes the use of modern fishing methods like trawling, and long lining.
* Availability of large sums of capital to invest in the fishing industry such as the purchase of modern vessels, the construction of ports.
* Large supply of skilled and unskilled labour to work in the fishing industry such as fish extraction, fish processing, transportation and marketing.
* Presence of a large market for fish and fish products both domestic and foreign which has encouraged the fishing industry.
* High level of technology employed in fishing such as the use of modern fishing methods (trawling, drifting) and modern preservation leading to high quality production.
* Intensive/ Continuous research in the fishing industry into breeding habits, feeding and maturation of various fish species (leading to high quality and quantity of production).
* Efficient/developed transport system involving developed ports, roads and railways; which promotes fishing, distribution and marketing of fish.
* Supportive / positive government policy towards the fishing industry such as encouraging investment by large companies and financing fisheries research.

***The positive and negative effects of the fishing industry in China***

*Positive effects*

* Fishing has promoted industrial development by providing raw materials such as industries which make oil, fish meal, fertilizer, glue.
* Generation of employment opportunities in such as fish extraction, processing, transportation and marketing, to improve their standards of living.
* Generation of foreign exchange through the exportation of fish and fish products to various countries like France, Belgium, Sweden, and Spain.
* Fishing has promoted urbanization and port development such as shanghai, Guangzhou due to increased population.
* Development of other sectors especially agriculture by providing fertilizers.
* Provision of government revenue through taxation of the fishing companies, and workers’ incomes.
* Promotes international relations between China and other countries which import the fish and fish products such as Sweden, Portugal, and former USSR.
* Development of transport infrastructure such as roads and rail networks which transport fish products to the markets.
* Development of tourism due to large-scale fishing, use of modern technology such as trawler boats, and factory ships, which attract tourists and in turn generates foreign exchange.
* It has promoted diversification of the economy to reduce over depending on a few sectors such as forestry.

*Negative effects*

* Results into over fishing and hence reduction in the fish stocks.
* Leads to pollution of the environment from the fish processing industries such as air and water pollution.
* Indiscriminate fishing also leads to a reduction in the fish stocks.
* Fishing leads to conflicts among countries such as Japanese catching large quantities near the coast of China.
* Attraction of labour from other activities such as crop farming and mining.
* Fishing is associated with accidents, leading to loss of life and property.
* Urban-related problems such as slum growth, high crime rate.
* Straining of the government budget due to financing of the fishing sector; hence limited investment in other sectors.
* Depletion of forest resources such as during exploitation of timber for boat making***. (any 7mks)***

***Measures have been taken to improve the fishing sector in China***

* The government has controlled of fishing activities in order to reduce over fishing and indiscriminate fishing.
* Strict regulations/ laws on fishing in particular seasons of the year to control over fishing.
* Treating and proper disposal of industrial wastes in order to control pollution of waters.
* Export of fish and fish products to other countries to solve the problem of small domestic market. Market research is also carried out.
* More factories that use fish as a raw material have been put up such as those producing animal feeds, glue, fertilizers, oil to increase the market for fish.
* Diversified fish sources such as by introducing fish farming to supplement the natural sources of fish.
* Increased mechanization to minimize the problem of shortage of labour.
* Signing international fishing agreements to solve conflicts over territorial waters. These agreements recognize fishing rights and grounds for each country. **CLIMATE IN CHINA**

1. ***(a) A combined bar and line graph showing climate statistics of Kunming (China) (09mks)***

***(b) Calculate the:***

***(ii) Mean annual temperature (01mk)***

Total anuual temperature

MAT=

12

=149.9/12= 12.490c

***(ii) Annual temperature range (01mk)***

ATR= highest-lowest

=21.3-2.3

=190c.

***(iii)Mean annual rainfall (01mk)***

Total annual Rainfall

M A R=

1

=1781/1= 1781mm

***(c ) (i) Describe the characteristics of the climate of Kunming (05mks)***

* The area experiences warm mean annual temperature (12.50c)
* Large annual temperature range (190c)
* Very heavy rainfall is received (1781mm)
* There is a single maxima of rainfall (mono-modal rainfall)
* The area experiences very wet summers and moderate rainfall in winter (relatively dry).
* The wet season is relatively long and the dry season short.
* There are warm summers and cool winters
* The hottest month is July with 21.30c
* The coolest month is January
* The wettest month is May with 203mm (the heaviest rainfall)
* The driest month is January

***(ii) Explain how climate has influenced agricultural activities in Kunming (05mks)***

**Influence of climate on agricultural activities**

**Positive**

**During the wet summer season , farmers engage in activities like:**

* Planting due to adequate water for crop germination.
* Weeding to remove the unwanted plants that compete with the crops.
* Pruning to reduce excess branches from the crops for proper growth.
* Spraying against pests and diseases that lower crop yields
* Ripening of crops which favours harvesting.

**During the relatively dry winter season , farmers engage in activities like:**

* Ploughing the land to prepare it for the planting season.
* Clearing land to prepare it for the planting season.

**Negative**

**During the wet summer season, climate leads to:**

* Rapid growth of weeds due to presence of surface water
* Flooding which leads to loss of soil fertility/ destroying farmlands
* Excessive soil erosion which leads to loss of soil fertility
* High spread of pests and diseases due to humid conditions

**During the relatively dry winter season, climate leads to:**

* Shortage of pastures for animals and hence feeding indoors.
* Planning farm activities for next planting season/ record updating

***(d) Outline the problems facing farmers in Kunming (03mks)***

* Flooding during the wet season which destroys farmlands
* Excessive soil erosion during the heavy rains leading to loss of soil fertility
* Rapid growth of weeds during the long wet season leading to increase in the costs of production.
* High spread of pests and diseases during the wet season , which limits output.
* Limited farm activities during the cool dry winters, which limits production.
* Competition from other countries producing the same crops, which limits the available market.
* Etc

1. Study the map showing rainfall distribution in China and answer questions that follow:

(a) Name any one region which receives rainfall of :

(i) Over 1500mm (1mk)

(ii) Less than 375mm (1mk)

(b) Describe the factors which have influenced rainfall distribution in China (5mks)

( c) (i) Mention any human activities found in areas marked C and D (4mks)

(ii) Explain the relationship between rainfall distribution and human activities in China

(4mks)

(d) Outline the:

(i) problems facing the people living in areas marked A (4mks)

(ii) steps being taken to solve the problems in (d)(i) above (4mks)

**REGION III: CHINA**

1. ***(a) A combined bar and line graph showing the climate of shanghai (China)***

***(b) Describe the characteristics of the climate of shanghai***

* The area experiences mean annual temperature of (15.660C) which is warm.
* Large annual temperature range (220C)
* The area receives a mean annual rainfall of (1124mm) which is heavy
* There is a single maxima of rainfall (mono-modal rainfall/ one rainfall peak)
* The area experiences wet summers and relatively dry winters.
* The wet season is relatively long and the dry season short.
* There are hot summers and cool winters
* The hottest month is July/august with 280c
* The coolest month is January with 40c
* The wettest month is July with (the heaviest rainfall)
* The driest month is December (6mks)

(c ) ***Explain the conditions that have influenced the climate of shanghai***

* Influence of the water bodies which contribute the heavy received in the area through evapo-transpiration process.
* Influence of the ocean currents –warm kuroshio current and cold oyashio current
* Low altitude leading to warm to hot temperatures in the area.
* Latitudinal location/ the apparent movement of the over head sun which results into heavy rainfall in the period of April to august when the over head sun is in the northern hemisphere and low rainfall in the period of oct to Feb. when the over head sun is in the southern hemisphere.
* Wind systems/ the prevailing onshore winds which lead to heavy rainfall received in the period of april to august. (any 4x2)

***(d) Outline the problems faced by the people living in the area around shanghai***

* Rapid growth of weeds during the wet season which increases the cost of production.
* Flooding which leads to loss of soil fertility/ destroying farmlands during the wet season
* Excessive/severe soil erosion which leads to loss of soil fertility during the wet season/ due to heavy rainfall.
* High spread of pests and diseases due to humid conditions/ heavy rainfall
* Rapid growth of weeds during the long wet season leading to increase in the costs of production.
* High spread of pests and diseases during the wet season, which limits output.
* Limited farm activities during the cool dry winters, which limits production.
* Urban related problems such as slums, drug abuse due to increasing number of people.
* Traffic congestion leading to unnecessary delays.
* Pollution of the environment due various economic activities such as industry, trade and commerce, transport which reduces the quality of life
* Etc

**MINING IN CHINA**

1. (a)***A combined bar graph showing the annual iron ore production and consumption in China (1984 and1998 (000metric tones)*** (8mks)

***(bDescribe the:***

1. ***trend of production***

There was a slight increase in iron ore production between 1984 and 1988 and there was a great /sharp increase between 1988 and 1992. (2mks)

***(ii) trend of consumption,***

There was a small increase in iron ore consumption between 1984 and 1988, and a bigger increase between 1988 and 1992. (2mks)

***(iii)relationship between production and consumption of iron ore in China between 1984 and 1992***

As the iron ore production increases, the iron ore consumption also increases. (2mks)

***(c )(i) State any one area where iron ore is mined in China***

***(1mk)***

***(ii) Explain the factors which have promoted the production of iron ore in the area stated in (c) (i) above***

* Availability of large iron ore deposits/ reserves has attracted large-scale investment in the mining industry.
* Some iron ore deposits are near the surface and thus easy to mine.
* Large supply of energy such as petroleum, natural gas and hydro-electric power has also supported mineral exploitation and processing.
* Well developed and cheap transport system provided by rivers, canals , railways to transport iron ore to industries and markets.
* Large sums of capital to invest in mining such as mineral exploration, extraction, setting up processing plants.
* Development in technology in the mining sector such as open-cast mining for exposed iron ore, adit method for deep ores. There is intensive research in mining technology such as the use of cranes, excavators etc to support mineral exploitation.
* Presence of skilled labour employed in mining and mining –related industries such as geologists specializing in mineral exploration/survey, mining engineers, machine operators, managers
* Presence of large market for minerals and mineral products in the industrial centres of China and also exported to Scandinavia, France, Italy and The Netherlands.
* Political stability of the country, which also enabled the establishment and maintenance of mineral processing plants.
* Positive /supportive government policy towards the mining sector such as investing in the mining, providing subsidies to mining companies.
* High level of research in the mining sector which leads to the discovery of more mineral deposits, their quantity and quality. There is also research into the new uses of the iron ore.

***The contribution of iron ore to the development of China***

* Generates government revenue due to taxation of various companies and workers
* Generates foreign exchange through export
* Promotes development of urban centres such as ……..
* Provision of employment to many people such as supervisors, transporters, hence better standards of living.
* Diversification of the economy by reducing over dependence on a few sectors such as agriculture.
* Promotes the development of infrastructure such as roads and railways which transport iron ore.
* Promotes international relations with other countries which are the markets of iron ore such as Germany, Holland ***(any 4mks)***

**URBANIZATION AND PORT DEVELOPMENT**

**HONGKONG**

***12. Study the figure 4 showing the site of Hongkong and answer the questions that follow:***

***(a) Name the:***

***(i) Islands marked***

***1—***

***2—***

***(ii) Railway line marked A***

***(iii) Road marked B***

***(iv) Built up areas marked***

***C—***

***D—***

***(v) Water body marked 3— (07mks)***

***(b) Describe the conditions that have favoured the development of hongkong entrport***

* Presence of deep waters at the entreport enabling big/large ships to anchor easily.
* Presence of a well sheltered natural harbor that enables large vessels to anchor at the site (enables the port to handle all types of vessels).
* The low tidal range which allows easy shipping/anchoring of vessels to the coastline. Therefore, ships easily come and go at any time.
* Generally flat topography of the area encouraging the construction of port facilities such as buildings and transport systems.
* Ice-free conditions all year round thus enabling the use of the port throughout the year, leading to the growth and expansion.
* Strategic geographical location of the port at the east coast which gives it easy accessibility to foreign markets.
* Presence of a rich and productive hinterland comprising of areas like HongKong, China, Mongolia and parts of India which increases the cargo handled by the port.
* The development of many industries in the area such as shipbuilding, marine engineering, oil refining which has increased the volume of cargo handled by the port.
* High level of technology which has enabled the construction of the port facilities such as canals, and containerization at the port.
* Availability of large sums of capital to invest in the modernization of the port such as construction of canals.
* Political stability of the region, which has enabled the port to expand without any disturbance of war.
* Improvement in transport systems linking the port to the large hinterland for example roads and railways linking to the interior which has also increased the volume of cargo handled by the port.
* Supportive/ positive government policy for example the need to open up the region to easily access markets for the manufactured goods; and greatly financing the modernization of the port.
* Availability of skilled labour in the area to carry out modern construction and development of the port. (08mks)

***(c ) Explain the importance of Hongkong entrepot in the development of China***

* The port has promoted trade between the interior and the rest of the world because it is a major entreport.
* Promotion of industrial development due to handling raw materials and finished goods.
* Promotion of urban development such as expansion of Hongkong city and other towns in the region
* Promotion of mineral exploitation due to cheap water, and railway transport to industries and markets.
* Promotion of tourism development since it is a tourist attraction, hence generating foreign exchange.
* Provision of employment opportunities to many people such as engineers, hydrologists who monitor the water levels, hence improving the standards of living.
* Generating of government revenue by taxing the shipping companies and workers’ incomes/ the revenue is used to develop various sectors such health, education.
* Facilitation of international relationship/ cooperation between the countries of the interior and other parts of the world which promotes trade relations and economic integration/ international peace and unity.
* Diversification of the economy in the countries by developing many sources of income / various activities such as mining, agriculture, service sectors.
* Promotes the development of the agricultural sector due to large demand for food by the population in the region of the port.
* Promoted the development of infrastructure like canals and railway lines linking various areas to the port. (06mks)

***(d) Outline the problems which resulted from the development of Hongkong entrepot***

* There is congestion of vessels since it is one of the busiest ports in the world causing delays.
* Maintenance of the city is extremely expensive such as water supply, sewage disposal, law and order. This is due to overcrowding.
* Pollution of the environment especially due to toxic gases and wastes from industries such as oil refineries, petro-chemical industries, automobile industries.
* Narrowness and shallowness. There is still work to be done to expand the port and to deepen it in order to accommodate even larger vessels.
* Risks of fire hazards due to presence of oil tanks all over the port.
* Unemployment problems due to high rural urban migration and high population in the city. This leads to social evils like theft and robbery.
* Shortage of land for expansion of the port due to many activities carried out around the port.
* Population increase has led to inadequate housing resulting into slum growth.
* Overcrowding of people leading to easy spread of diseases and high crime rate.
* Risk of fire due to the presence of many oil tankers all over the port. (04mks)

**SHANGHAI PORT AND CITY**

Shanghai is an international port, and the chief port of china. It is also the largest city in china with over 15 million people. The word shanghai in Chinese means ‘on the sea’, and the port is located at the mouth of river Yangtze, which provides water transport to the interior. It is the major port and sometimes called the gateway to the Yangtze. It handles most of china’s imports and exports.

**Factors for the growth and development of Shanghai port/city**

1. **Presence of a well sheltered and deep natural harbor** leading to the Pacific Ocean. The harbor is well protected from strong water waves which favoured the construction of the port. This deep natural harbor makes Shanghai to handle all types of ocean-going vessels (barges and ships) and has therefore developed a modern port due to handling large cargo.
2. **The low tidal range** of less than 2 metreswhich allows easy shipping or anchoring of vessels to the Pacific coastline. Therefore ships easily enter and leave the port at any time.
3. **Ice-free conditions throughout the year** due to the conducive sub-tropical climate. This allows continued use of the port throughout the year and hence its modernization.
4. **The topography of the area is relatively flat** which allows easy construction of port facilities and accommodation facilities for the large population.
5. **The Presence of a large and productive hinterland** which covers the Shanghai city, eastern and northern china areas. Specifically these include Jiangsu, Henan, Nanjing, Beijing and the Manchuria region. Rapid industrialization such as in Beijing and, Manchuria and Shanghai City led to increasing cargo handled at Shanghai port. This was because Shanghai is one of the easiest ports to trans-ship cargo to and from the region .The imports/ cargo to the interior are basically raw materials such as agricultural products—cotton, rubber; tropical timber. The exports/ cargo from the interior include: general merchandise, automobiles, chemicals, machinery, electronics, rubber products, wheat, and minerals (coal, refined oil, gold).
6. **The strategic location of Shanghai port** along the Pacific Oceanand on the mouth of navigable Yangtze River. This made Shanghai accessible to major markets such as in the Far East—like Canada, USA, and Brazil. In fact most of china’s international trade is controlled by shanghai. Therefore the coastal location made the port to handle large volumes of cargo to and from the interior and hence development into an international port. The Yangtze river connects the port to the interior
7. **Relatively flat landscape of Shanghai** which facilitated the construction and expansion of port facilities such as docking facilities, commercial buildings, and transport networks linking to the large hinterland. This in turn increases the volume of cargo handled at the port.
8. **Presence of a hard rock** which provided a firm foundation for the construction of port facilities and the construction of tall buildings.
9. **Historical factor—……………………………………………………………………………………**This led to a high population that favoured many activities like industry and trade, hence development into major urban centre and port.
10. **Availability of adequate capital to develop the port and city**. This has favoured the construction and development of port facilities.
11. **Modern / High level of technology** which led to improvement in modern port handling facilities—sky scrapers for accommodation, docking facilities, construction of the waterways, and reclamation of land to expand port. There is also increased containerization at the port to save space and time of loading and unloading of cargo.
12. **Large supply of skilled labour in the area** to carry out modern construction and development of the port. The large population of the region supplied the required labour.
13. **The development of many industries at Shanghai** which include oil refineries, iron and steel works, ship building, general engineering, automobile assembly lines, textiles, paper and printing, brewing, food processing. This has attracted many people to the port to look for employment and also increased the volume cargo handled by the port.
14. **Political stability of the region** which has enabled the port to expand without any ravages of war. The area has been stable for a long period of time and therefore many modern port handling facilities have been put up.
15. **Modernization of transport systems linking the port to the large hinterland**. For example roads and railways linking to the interior of CHINA such as Nanjing, Henan and Beijing. There are also flyovers constructed in shanghai city to reduce traffic congestion. The Grand Canal also connects shanghai to north eastern china. This makes the movement of goods to and from the interior easy; and thus increases the volume of cargo handled by Shanghai port.
16. **Supportive government policy** for example the need to open up the interior —by easily accessing markets for the manufactured goods such as chemicals and sources of imported raw materials such as iron ore, tea, and cotton. This explains why the government has heavily financed the modernization of the port.

**Problems facing Shanghai port and city**

1. Pollution of the environment especially oil/petroleum related industries such as oil refineries, petro-chemical industries, automobile industries.
2. There is congestion of vessels due to the increased number of vessel handled at the port and yet the handling facilities are limited.
3. There is also congestion/ overcrowding of people in the city, and this leads to high crime rate among other problems. Due to this maintenance of the city is extremely expensive such as water supply, sewage disposal, law and order.
4. Seasonal flooding, since the port is situated at the mouth of the Yangtze River which is prone to seasonal flooding. This in turn destroys life and property.
5. Narrowness and shallowness. There is still work to be done to expand the port and to deepen it in order to accommodate even larger ocean-going vessels.
6. Risks of fire hazards due to presence of oil tanks all over the port.
7. Unemployment problems which is attributed to high levels of rural urban migrations and settlements due to port attraction facilities.
8. Inadequate housing/ accommodation facilities resulting into the growth of slums—characterized by poor sanitation, drug abuse and easy spread of diseases.

**BEIJING CITY**

**Factors that have favoured the location of Beijing city**

* Strategic location /Proximity to the East China Sea, Yellow Sea on the eastern coast for easy access to international trade routes.
* Gently sloping/ generally flat topography of the area encouraging the construction of urban facilities such as buildings and transport systems.
* Presence of a hard basement rock that has provided a strong foundation for construction of tall buildings and other urban infrastructure.
* Presence of a rich and productive hinterland which is agricultural and industrial which increases the volume of trade in the city.
* Availability of extensive land for the establishment of the large urban centre.
* Large supply of fresh water to support various urban activities such as domestic use and industry.
* Availability of various sources of power to support the urban activities such as HEP, oil and nuclear power.
* The development of many industries in the area such as engineering, iron and steel, machinery and textiles which has increased the population and volume of trade in the city.
* High level of technology which has enabled the construction of the urban facilities such as engineering technology in the construction of commercial buildings and the Grand canal.
* Availability of large sums of capital to invest in the modernization of the city such as construction of canals and roads.
* Political stability of the region, which has enabled the city to expand without any disturbance of war.
* Availability of modern transport systems linking the city to ports and to the large hinterland for example roads and railways which has also increased the volume of trade and industry in the city.
* Supportive/ positive government policy for example greatly financing the modernization of Beijing as the capital of China.
* Availability of skilled labour in the area to carry out modern construction and development of the city
* The large population in the city which provides large labour supply and market for the urban activities such as banking, education, industry.

**Functions of Beijing city**

**(Refer to those of New York City)**

**Importance/ contribution of Beijing city**

**Problems facing Beijing city**

**(Refer to those of New York City)**

**Steps being taken to improve Beijing city**

* Vertical expansion of the city by building sky scrapers to minimize the problems of limited space.
* Industrialists have advised to build elsewhere away from the concentrated area of Beijing.
* Treating industrial wastes before disposal into water to reduce pollution.
* Industrial fumes have been exposed high up in the atmosphere by very long chimneys.
* Proper housing plans drawn so that residential areas are far away from industrial zones to control pollution.
* Enforcing anti-pollution laws to reduce the effect of smog and diseases.
* Creating more green belts in the city to reduce the rate of pollution and improve the beauty of the city.
* Strengthening the police and urban authorities to fight against crime among citizens such as using heavy penalties/ punishments.
* Construction of more small scale/ cottage industries to create more jobs and hence reduce crime.
* Limiting the number of people entering Beijing City using strict laws and procedures to reduce unemployment and slum growth.
* Extending social amenities to the peri-urban areas and hence reduce overcrowding in the central business district.
* Constructing underground tunnels, by-passes and flyovers to reduce traffic congestion.
* Sensitization of the masses against racial discrimination by encouraging peaceful co-existence among different races.

***13(a) A sketch map of China showing plateaus, rivers, Sichuan basin and neighboring countries***

***(8mks)***

***(b) Describe the economic activities which are being carried out in the Yunnan province of China***

* Arable farming which involves crops like tea, maize, barley, oats, potatoes, wheat, beetroot, fruits.
* Forestry and lumbering which involves conserving and exploiting both natural and planted forests
* Animal rearing which involves beef and dairy cattle , and growing of fodder crops
* Industry which involves both heavy and light industries
* Trade and commerce which involves exchange of goods and services
* Transport
* Mining which involves exploiting minerals like copper, iron ore and limestone
* Tourism which involves the conservation natural resources, maintenance of cultural attractions and urban facilities (06mks)

***(c ) Explain the factors which have influenced the economic activities identified in (b) above***

* The relatively flat landscape which allows the cultivation and use of machines in farming, setting up and expanding industries.
* The sub-trpoical climate which allows a variety of crops to grow naturally.
* Presence of well drained fertile soils which have supported growing a variety of crops for long.
* Availability of large sums of capital to invest in arable farming , trade and commerce and industry
* Presence of a large market for output such as the large urban population. The country is also located in highly populated Asia and thus a ready foreign market available.
* The highly developed transport network such as water, railway, road to transport inputs and output.
* Well developed technology which has enabled farmers to increase production on the farms such as use of fertilizers, tractors on the farms, glass houses used for some crops.
* The favourable/positive government policy towards farming such as protecting and promoting local farmers, giving them subsidies.
* Presence of skilled labour to work in the agricultural sector such as applying fertilizers in farming, construction of industries.
* The formation of cooperatives which have improved the buying of inputs and the marketing of the output such as in farming.
* Developed/Intensive research carried out in farming, industry, tourism leading to the development of high quality production. (08mks)

***(d) Outline the measures being taken to develop the Yunnan province of China***

* The government has come in to subsidize production such as the farm inputs for them to catch up with the increasing costs of production.
* Promoting organic farming which consumers are increasingly demanding although their price is a bit higher.
* Encouraging the use of fertilizers and organic farming to control soil exhaustion. Organic farming relies on crop rotation, manure, compost
* Spraying using of chemicals to control pests and diseases to increase farm production.
* Emphasis on mechanization to solve the problem of labour shortage in farm activities such as harvesting, sorting, packing.
* Many companies have resorted to importing raw materials for those which are relatively scarce.
* Emphasizing the production of high quality products. Still some industries have opened up plants in other parts of the world , targeting the market there.
* Using of migrant labour from other countries like India, South Korea.
* Emphasis on treating of industrial wastes to increase the quality of output although it increases the costs of production.
* Emphasis on production of high quality products to minimize competition.
* Improvement of transport infrastructure such as raods, railway and port facilities to ease transportation of raw materials and export of manufactured goods.
* Further diversification of economic activities to increase employment opportunities and incomes
* Maintaining political stability in the region to encourage more local and foreign investors.
* Controlling pollution using environmental standards and anti-pollution laws

***DEVELOPMENT OF RIVER BASINS IN CHINA***

***Steps taken by China ton develop the Si-kiang river basin***

1. Construction of numerous canals to help control the flow of waters for use during irrigation
2. Establishment of various dams to provide hydroelectric power
3. Development of strong embankments and barrages to control periodic floods
4. Construction of strong dykes to cut off the sea incursions
5. Building of several bridges and culverts to enable movement of traffic
6. Construction of modern roads and railways to connect the river basin to the rest of China
7. Constant dredging of sections of the river to allow the fast flow of river Si-kiang and its tributaries

**Contribution of the Si-kiang river basin to the development of China**

* The fertile soils in the region have attracted settlement of many people hence promoting trade and commerce.
* Provision of hydroelectricity for industrial and domestic use.
* Perennial irrigation is now possible leading to the growth of food and cash crops throughout the year/ increased food supply.
* Improvement in navigation on the river hence facilitating easy movement.
* Promotion of industrial development due to many raw materials provided by the various activities and HEP hence increasing employment.
* Promotion of urban development such as expansion of Hong Kong, Canton, Litang; with related advantages such as trade and commerce, employment.
* Promotion of tourism development since it is a tourist attraction, hence generating foreign exchange.
* Provision of employment opportunities to many people such as engineers, hydrologists, farmers, industrial workers hence improving the standards of living.
* Generating of government revenue by taxing the shipping companies and workers’ incomes/ the revenue is used to develop various sectors such health, education.
* Diversification of the economy by developing many sources of income / various activities such as mining, agriculture, service sectors.
* Promoted the development of infrastructure like canals and railway lines linking to various areas, making transport easy.
* The fishing activities on the river have increased people’s incomes.

**Environmental problems resulting from the development of the Si-kiang river basin**

* Siltation of rivers which results into constant dredging which is expensive.
* Loss of fertile soils from the flood waters which reduces soil fertility, hence need to apply artificial fertilizers.
* Maintenance of the urban centers is extremely expensive such as water supply, sewage disposal, law and order. This is due to overcrowding.
* Pollution of the environment especially due to toxic gases and wastes from industries, hence spread of diseases.
* The growth of urban centers is associated with many problems such as slum growth, prostitution and high crime rate.
* Unemployment problems due to high rural urban migration and high population in the region. This leads to social evils like theft and robbery.
* Shortage of land/ Overcrowding of people leading to poor sanitation and easy spread of diseases.
* Prevalence of water borne diseases
* Floods are common in the region leading to loss of life and property.

***Factors which have favoured the development of agriculture in the Si-kiang basin***

1. Presence of well-drained, fertile alluvial soils which support agriculture with a variety of crops.
2. Heavy rainfall in the region which supports the growing of a variety of crops and pasture.
3. Presence of sunny conditions which are ideal for the ripening of especially fruits and harvesting of crops.
4. Presence of the gently sloping/ generally flat landscape which allows easy mechanization, irrigation by gravity flow and construction of transport routes.
5. Availability of large/ extensive land for growing of crops on large scale. There is also land reclamation which has expanded farming land.
6. The long frost-free growing period of about 220 days which increases the growing season, and promotes outdoor grazing/ leads to high quantity of production.
7. Presence of rivers such as Si-kiang which provide reliable water supply for irrigation of farmlands.
8. Availability of large sums of capital to invest in agriculture such as buying farm chemicals, machines.
9. Availability of skilled and semi-skilled labour to work on the agricultural farms such as irrigation, application of fertilizers and harvesting.
10. Availability of appropriate / Modern technology employed in agriculture involving the use of machines such as combine harvesters, seed discers, ploughs, tractors, hence high quality and quantity of output.
11. Availability of ready/ large/ wide market for agriculture at home and in various countries such as European countries, Asian countries which encourages further production.
12. Presence of efficient/ well developed transport network for transporting agriculture output to markets such as railway and water transport in west, north and south.
13. Increased/ intensive research resulting into improved seed varieties which quick maturing and cold resistant.
14. The development of many processing factories which provide market for the agricultural produce, which encourages further production.
15. Supportive government policy towards agriculture such as giving farmers advice and carrying out market research in order to expand the sector.

**Benefits /Importance of agriculture to the people of Si-kiang basin**

1. Source of food through various products for both human and animal consumption; and this improves the quality of life.
2. Promotion of infrastructural development such as roads, railway, and canals intended for easy movement.
3. Generation of foreign exchange through the exportation of the agricultural output to other countries, which increases the importation of foreign goods.
4. Generation of many employment opportunities to the people of Si-kiang basin; which improves their standards of living.
5. Promotion of industrial development by providing raw materials such as agro-processing factories.
6. Generation of more government revenue through taxation of farming companies and workers’ incomes, and the revenue is used to provide social services.
7. Facilitates diversification of the economy hence avoiding over dependence on a few sectors/ as an alternative foreign exchange earner.
8. Strengthens international relations between Si-kiang basin and other countries which import its farm products such as USSR, Japan; hence promoting international peace.
9. Promotes growth of urban centers such as Canton and Hong Kong; and associated facilities such as recreation, hospitals, and educational facilities.
10. Promotion of crop research which develops new varieties of several crops, experiments with pests and disease control, soil improvement and fertilizer application techniques.
11. Promotion of tourism development which brings in foreign currency to the region.

**Negative effects of agriculture on the physical environment**

1. Monoculture has led to soil exhaustion/ loss of soil fertility and thus lower output.
2. Pollution of the environment such as due to application of fertilizers which have contaminated water sources. Also the burning of cotton weeds and cotton stalks leads to atmospheric pollution.
3. Destruction of natural vegetation cover such as forests to establish cotton farmlands, hence affecting the rainfall pattern.
4. Soil compaction due to the use of heavy agricultural machinery leading to the creation of hardpans/ difficult ploughing.
5. Soil erosion which has led to creation of gullies and general environmental degradation.
6. Decrease in soil moisture and reduction in the water table, due to continuous cultivation and swamp reclamation.
7. Crop farming near river has led to the silting of the valleys causing floods during the rainy seasons.
8. Leads to easy spread of pests and diseases in the area though agricultural activities leading to low production.
9. Cultivation on steep slopes leads to mass wasting and landslides, destroying the landscape/ scenic beauty.
10. Salination due to irrigation along the coastline and in the delta.

**Measures taken to improve agriculture in the Si-kiang river basin**

* Encouraging mixed farming including production of other crops and rearing animals to encourage interdependence, hence increasing output. For example crops act as animal feeds yet animals provide manure to the crops.
* Practicing irrigation to control the problem of drought and hence increase output.
* Using of organic manure and fertilizers to maintain soil fertility
* Spraying with chemicals to control pests and diseases I.e. use of pesticides to improve on the agricultural output.
* Constant dredging of the silted river valleys to control flooding.
* Increased research into new varieties of crops which are disease resistant and fast maturing.
* Diversification of crop production by introducing more crops such as fruits and vegetables to increase the profits to the region.
* Development of more on-site processing factories to reduce the perishability and hence save transport costs.
* Emphasis on quality production through government control systems, to compete favourably in the international markets.
* Mechanization of farm activities to solve labour shortage problems.
* Attraction of part-time workers during the busy harvesting period. There is also increase in wages to workers to attract more labour to agricultural farms.
* Using better farming methods such as banding and mulching to control soil erosion
* Provision of better and bigger storage facilities for agriculture during over production to stabilize prices.
* Use of the quota system to pre-determine production and control over production.
* Extending credit facilities to the farmers to increase farm production.
* Educating the farmers about climatic changes to prepare in time for any negative changes.
* Carrying out land reclamation to increase land under agriculture.

**YANGTZE RIVER BASIN**

(***Refer to the Si-kiang river basin)***