

16. LAND RECLAMATION AND REHABILITATION

1.
 - a) - Perkerra
 - ahero
 - KAno
 - Bunyala
 - Bura
 - Hola
 - bi) - The black cotton clay soils found in the area suitable for irrigation because they retain water
 - The gentle-sloping land enables water to reach the farm by gravity
 - Presence of rivers Thiba and Nyamidi provides regular and abundant water for irrigation
 - The un-reliable and inadequate rainfall received in the area makes it necessary for irrigation
 - More land is available for future expansion
 - Availability of labour from high population
 - ii) - Stagnant water encourages its breeding of snails and mosquitoes increasing incidences of Bilharzia and malaria
 - Quelea birds which feed on rice grain lowers crop yield
 - Siltation in canals reduces capacity to hold enough water for irrigation
 - Fluctuating water volumes reduces water for irrigation
 - Poor marketing strategies
 - Delayed payment to farmers lowers their morale
 - Shortage of capital to finance farming activities such as ploughing
 - c) - The scheme produces the bulk of Kenya's rice saving foreign exchange
 - The scheme provides employment and income to thousands of people
 - Roads have been constructed in the area to transport rice from fields to markets
 - Social amenities like schools and hospitals have been provided improving standards of living
 - Floods that used to occur during rainy season have been controlled
 - The scheme has provided land to landless people enabling them to grow food crops
2.
 - a)
 - Irrigation of dry lands.
 - Clearing jungles.
 - Tsetse fly control.
 - Afforestation
 - b)
 - Flooding in the Yala and Nzoia plains has been controlled.
 - Hectares of land has been reclaimed for agricultural and settlement purposes.
 - The project has brought water borne diseases under control.
3.
 - a) i) Land reclamation is bringing back the useless land into more useful while land rehabilitation is bringing the land that has been misused by man into being useful
 - ii) – Basin irrigation
 - Overhead irrigation/ drip
 - Trickle irrigation
 - Canal irrigation
 - Shadoof Archimedean screw, sakia water wheel
 - iii) – Irrigation ensures a steady and reliable supply even in arid area while rainfall may fail in a given year
 - River water used for irrigation may bring in silt which makes soil fertile and leads to more yields unlike pure rain water
 - Enables cultivation throughout the year maximizing use of land while rainfall could be seasonal
 - Water drawn for irrigation may also be used for other purposes in the farm
 - b) i) – To settle the landless people
 - The presence of rivers Thiba and Nyamindi

- Availability of the black cotton soils – good for rice
 - To employee detainees during the days of emergency
 - Unreliable nature of rainfall in the area
 - ii) – Availability of reliable water supplies from river Thiba
 - Presence of fertile black cotton soils with high water retaining ability
 - Gently sloping land making it easy to mechanize and cheaply irrigate by gravity flow
 - Presence of high temperatures favouring rice growing
 - The unreliable nature of the rainfall made it necessary to irrigate
 - The soils were impervious thereby reducing the need to build concrete hence lowering costs
 - iii) – Disease – malaria & bilharzias
 - A lot of time is spent to tend crops
 - Presence of numerous weeds
 - Mismanagement of the scheme
 - Delayed payment to the farmers
 - Few extension officers
 - Pests i.e. quela birds
 - Siltation in the canals
 - Expensive human labour
 - c i) A polder is an area of low – lying reclaimed land enclosed by dykes, which protect the land against high water level that has to be maintained outside the area
 - ii) – Construction of ring canals to drain water out
 - Construction of ditches within each polder which leads water to a pumping station
 - Drying of land through planting of trees/ plants
 - Desalination of the soil through chemical, flushing and planting hardy plants
 - Dividing of land into economic units
 - Laying down of good infrastructure
 - Settling of people in villages
 - Spreading of soils to improve fertility
 - Addition of fertilizers
 - iii)- Control of floods of the area to the South West
 - Improved control and distribution of the regions fresh water
 - Damming has cut off salination and pollution of inland waters. This has led to the reduction of salinity of soil hence high yields
 - Islands that were isolated are now within easy reach of developed areas
 - The area is a good site for industry and a tourist resort
 - d) - Artificial insemination A.I is more widely used in Denmark than Kenya
 - There is an experience of high quality yields throughout the year
 - In Kenya, there is a practice of mixed farming while there is specialized farming in Denmark
 - Dairy product in Kenya are consumed locally whereas they are for export in Denmark
 - In Denmark it is highly mechanized while in Kenya it is low mechanized
 - In Denmark, it is evenly distributed all over the country than in Kenya where it is concentrated in highlands
 - Denmark dairy farming rely on fodder while Kenya depends mainly on grass pasture
 - Denmark has got an advanced technology in preservation of dairy products in Kenya
 - Denmark has got a well managed co-operative societies than Kenya
4. Heavy expenditure by the government in giving them pensions, money that could have been used to improve other sectors of the economy
- Through economically unproductive, they require care and feeding which is expensive
 - Through unproductive economically, they require people to take care of them, hence wasting man power that could be used on productive ventures

5.
 - a i) - Maize
 - Beans
 - Tomatoes
 - Vegetables
 - ii) - Availability of gently sloping land that allowed irrigation water to move by natural force of Gravity
 - Availability of permanent source of water from R. Thiba and Nyamindi which provided water for irrigation throughout the year
 - Existence of black cotton soils (clay) which hold water on the surface longer for use in irrigation fields
 - Sparse population in the region which reduced the cost of resettlement
 - Stagnant irrigation water in the fields serve as breeding grounds for water bone diseases nectars e.g. bilhazia workers and mosquitoes
 - Leaching of the soils due to over irrigation
 - Mono culture which reduces productivity of the soil
 - Interference with the life's of the people and animals who depend on the waters of these lines down stream
 - c) - The scheme has created employment which has improved the living standards of the people
 - It has saved foreign exchange through production of rice that could be otherwise imported/ which is invested in other sectors of the economy
 - It has facilitated urbanization e.g. Mwea town which has expanded trade opportunities
 - Has increased productivity by turning less productive land. Hence adding food for consumption and sale to get income
 - d i) - Perkerra irrigation scheme
 - Yala swamp reclamation/ Bunyala
 - Ahero irrigation scheme
 - Bura
 - Nola
 - West Kano
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 - ii) - Is a source of carbohydrates
 - Rice foliage is used as fodder
 - It is a source of income through sale of rice
6.
 - a) Land reclamation is the process by which wasteland is converted into farmland for growing crops and keeping animals.
 - Land rehabilitation is a process of restoring land to its former productivity.
 - b) - Irrigation
 - Drainage of swamps.
 - Tsetse fly control and clearing of jungles
 - Afforestation
 - c) - Land reclamation by drawing rivers & marshlands
 - Upgrading sandy and barren areas through. Use of fertile soil or application of fertilizer
 - d) - To control the seasonal flood of river peskerra.
 - To utilize excess water of river pekerra that used to go to waste.
 - Presence of flat and gently sloping terrain which enables flow water by gravity.
 - Fertile loamy soil.
 - Dry condition of the area.
7.
 - (a) - Improvement of standard of living.
 - Settlement of the landless.
 - Saving on foreign exchange.
 - Rehabilitation and development of the areas.
 - Con troll of environmental hazards.

- Creation of employment.
 - Growth of urban centres.
 - Availability .
- b) - Creating of a large fresh water lake in the middle of the country lake ijssel
- The reclamation polders have attract towns that love improved infrastructure & social amenities.
 - Has shortened the coastline distance by about 32km.
 - The protection of high titles by dykes.
 - Lake ijssel have help in reducing the salt content of the neighbouring regions.
 - The total flooding on the coastilen are ahs been completely reduced.
 - Reclaimed land is fertile and suitable for liable cultivation producing crops such as wheat.
 - The slayer sea has improved the drainage .
 - Reclaimed areas are used for settlement recreation and industry
8. (a) - Rice
- Onions
 - Green grams
 - Pepper
- b i) - Presence of rivers Thiba and Nyamidi which provide water for irrigation
- Gently sloping land enabled water to reach the farms by force f gravity
 - Extensive land for future expansion of the scheme
 - Fertile soils in the area which were suitable for crop production
 - Sparse population which made it easy and cheap to resettle people
 - Low supply of rainfall received necessitated irrigation
- ii) - To eradicate tsetse flies and hence provide conducive healthy living conditions for man and animals
- To enhance the keeping of quality livestock in the area
 - To provide land for farming
 - To provide land for human settlement
- iii) - Building gabions to check the speed of water
- Agro-forestry
 - Re-afforestation
 - Gazettement of forested areas to discourage human settlement and human activities
9. a i) Is land in the Netherlands that has been reclaimed from the sea and enclosed by dykes.
- ii) - Rye - Tomatoes - Flowers
- Barley -Oat - Fodder crops
- Suagr beet - Potatoes - Wheat
- b) - Protective dykes/sea walls are constructed enclosing the part of the sea to be reclaimed.
- Rings canals are constructed.
 - Pumbing stations are installed to pumb out sea water from the area enclosed by the dyke.
 - Water is pumbed out of the area enclosed by the dyke
 - Drainage ditches and more pumbing stations are made on the land being reclaimed.
 - Drainage pipes are laid below the soil.
 - The area is divided into rectangular portions using. inner dykes and ring canal.
 - The drained land is flushed with fresh water to remove salt from the soil.
 - Soils are treated with chemicals to remove salinity
 - Pumbing water from the polders is a continuous process to prevent water from accumulating in the reclaimed land.
10. a) Ahero Perkerra Hola/ bura
- West kano Mitunguu
- Dana katila Kibwezi
- Taveta Gezira Bunyala
- . b) - The area was sparsely populated thus making it easy and cheap to resettle the people

- The presence of river Thiba and Nyamindi which would provide water for irrigation
 - The black cotton soil in the area which was suitable for irrigation because they retain water
 - The fertile soil was suitable for crop production
 - The gentle land would allow water to reach the farm through gravity
 - The unreliable/ inadequate rainfall received in the area made it necessary for irrigation to be practiced
- c)
- People who live in the area were originally nomads but now lead a settled life
 - Farmers earn income after selling rice and other crops which enables them to improve their standard of living
 - Tenants have access to credit facilities which they use to improve crop production
 - The establishment of the scheme has created employment opportunities for the people in the area
 - Roads linking the scheme to the market centers have been improved
- d)
- Stagnant water encourages breeding of snails and mosquitoes which spread bilharzias and malaria respectively
 - Silting of canals/ weeds in the canals reduce the flow of water into fields. The farmers spend extra time and money dredging the canals
 - Delayed/ low payment discourage farmers
 - Diseases and pests e.g. giulea birds attack the crop which lead to low yield of rice
 - Expensive farm inputs such as fertilizer reduce the framers profit margin
 - Roads are rendered impassable during rainy seasons hence delaying delivery of rice and other crops to the market
- 11.
- a i) -Land reclamation is the process through which unproductive land is made useful for agriculture or settlement where as land rehabilitation is the process of restoring land to its former productive state.
- ii) - Afforestation.
- Reafforestation.
 - Bush fallowing.
 - Use of grass strip and cover crops.
 - Mulching.
 - Constructing bunds (making ridges of soil across a slope)
 - Manuring.
 - Constructing of cut-off drains (digging open trenches across slopes.)
 - Controlling grazing (division of land into paddocks, allowing different sections found to regain pasture.
 - Construction of drainage trenches (digging trenches to drain off excess water)
- b i) - Is land in Netherlands that has been reclaimed from the sea and enclosed hot dykes.
- ii) - Rye - Oat - Wheat - Barley - Potatoes
- Sugarcane - Flowers - Tomatoes - Fodder crops
- (c) - Protective dykes /sea walls are constructed enclosing the part of the sea to be reclaimed.
- Ring canals are constructed on the interior sides of the dykes.
 - Pumping stations are installed to pump out sea water from the area enclosed by the dykes.
 - Reeds are planted to help dry out the soil and prevent weeds from growing.
 - Drainage ditches and more pumping stations are made on the land being reclaimed.
 - Drainage pipes are laid below the soil.
 - The area is divided into portions using inner dykes and ring canals.
 - The soils are treated with chemicals to lower salinity.
 - The drained land is flushed with fresh water.
 - Pumping out water from the polder is a continuous process to prevent water from accumulating in the reclaimed land.
- d i) - The presence of River Perkerra which is a tributary of Suguta river in Kerio Valley provide water for irrigation.

- Gently sloping land which permits the flow of water by gravity hence reducing costs of pumping water to the fields.
- Presences of clay soils rich in mineral nutrients enables variety of crops to be grown.
- Presence of extensive land which makes large scale cultivation of crops possible.
- The area is semi-arid hence the need for irrigation farming.
- ii)- Farmers earn incomes which improve their standards of living.
 - Irrigation schemes have created settlement for landless people.
 - Many people have been employed in the farms and other sectors within the irrigation schemes such as transport and processing factories.
 - It has facilitated reclamation of unproductive land, thus increasing land for farming. This has led to increase in food production.
 - Some crops grown through irrigation are exported, thus earning foreign exchange. The rice grown in irrigation schemes meets most of the domestic requirements thus saving foreign exchange that would have been used to import it.
 - It has facilitated development of infrastructure in the irrigated areas. Roads have been built to help in the transportation of inputs and commodities.
 - Social amenities such as schools and hospitals have been constructed thus improving the level of literacy and health of the people in the irrigation schemes.
 - Industries that use raw materials produced on the irrigation schemes have been developed.
 - Rice mills have been established on the rice irrigation schemes.
 - Some market centres in the irrigation schemes have grown in size due to increased trading activities e.g. Wanguru in Mwea irrigation and Margat near Perkerra irrigation scheme.

12. (a) i) Land reclamation is the practice by which less useful land is converted into more useful land While Land rehabilitation is the process of recovery/restoration of land which has been misused and destroyed through human activities

- ii) - Bush clearing
- Sterilization of the male fly
 - Use of traps
 - Spraying /use of insecticide
 - Creation of buffer zones
 - Killing or transfer of hosts

- b) (i) – Yala
- Bunyala
 - Kalusi (maragua-Euelyptus)

- ii) - The need to control seasonal floods from river Perkerra
- The presence of river Perkerra as a source of water for irrigation
 - Availability of fertile loaming soils
 - The area is gently sloping
- The dry condition of the area necessitated the use of irrigation
 - The need to occupy the large population of ex-detained in a productive way
- c) - The stagnant water in the plot and lands encourages the breeding of snails and mosquitoes which spread Bilharzias and malaria. this weakens the farmer causing low labour input hence low production
- Mismanagement of the irrigation projects leading to the collapse of several schemes
 - Pest and diseases are attack the crops leading to low production(mention of pest here is important i.e. quelea bird)
 - Poor payment for farm produce which discourages the farmers
 - Poor extension services to provide for the badly needed technical advice to farmers leading to low productivity.
 - Shortage of water during dry season reduced the land under cultivation and hence

reduced earnings

- Frequent silting of canals which is expensive to dredge reduces the amount of water required for irrigation
 - Inadequate labour which is largely required in the schemes hence burdening the farmer to hire for planting, weeding and harvesting which reduce the profits obtained.
- . d) - Floods caused by the tides has been completely checked by construction of dams and dykes
- The dams and dykes have completely cut off movement of salty sea water inland
 - There is plenty of fresh water for domestic and industrial use
 - The distance from Missigen to Rotter dam was shortened by 50KM opening up the area for industrialization
 - More recreational opportunities were created by the newly formed lakes becoming a tourist attraction
13. a) - Irrigation
- Control of pests and diseases
 - Afforestation/reforestation
 - Control of floods
 - Control of soil erosion /construction of gabions
- b) - Protective dykes/sea walls are constructed enclosing the part of the sea to be reclaimed
- Ring canals are constructed
 - Pumping stations are installed to pump out sea water from the area enclosed
 - Reeds are sown to both absorb excess salts
 - Soil is treated with chemical to lower salinity
 - The drained land is flushed with fresh water to remove salt from soil
14. a) - Swamps
- Dry lands
 - Eroded lands
 - Pest and disease infested
- b) - Regular and reliable
- Silt increases fertility
 - All year farming
 - Reduces year farming
 - Reduces salinity of soil
- Dams control floods/ are used for fishing