

BUDDO SECONDARY SCHOOL
ANNUAL GEOGRAPHY SEMINAR, SATURDAY 27TH JUNE,
2026

P250 GEOGRAPHY
SEMINAR GUIDE

Basis of Assessment

- **Level 4** — presents all ideas, well explained with illustrations.
- **Level 3** — Presents Most Ideas
- **Level 2** — presents Some Ideas
- **Level 1** — Presents Limited Ideas/just outlines.
- **00** — Presents Wrong Ideas/No response

SCORING CODES FOR THE SPECIFIC ITEMS.

ITEM 1 (Map skills and map use)

- **MK₁** — Map Knowledge for item 1
- **MT₁** — Map Thinking for item 1
- **MA₁** — Map Application for item 1
- **MC₁** — Map coherence for item 1

Item 2 & 3 (Geomorphic Processes & their Impact)

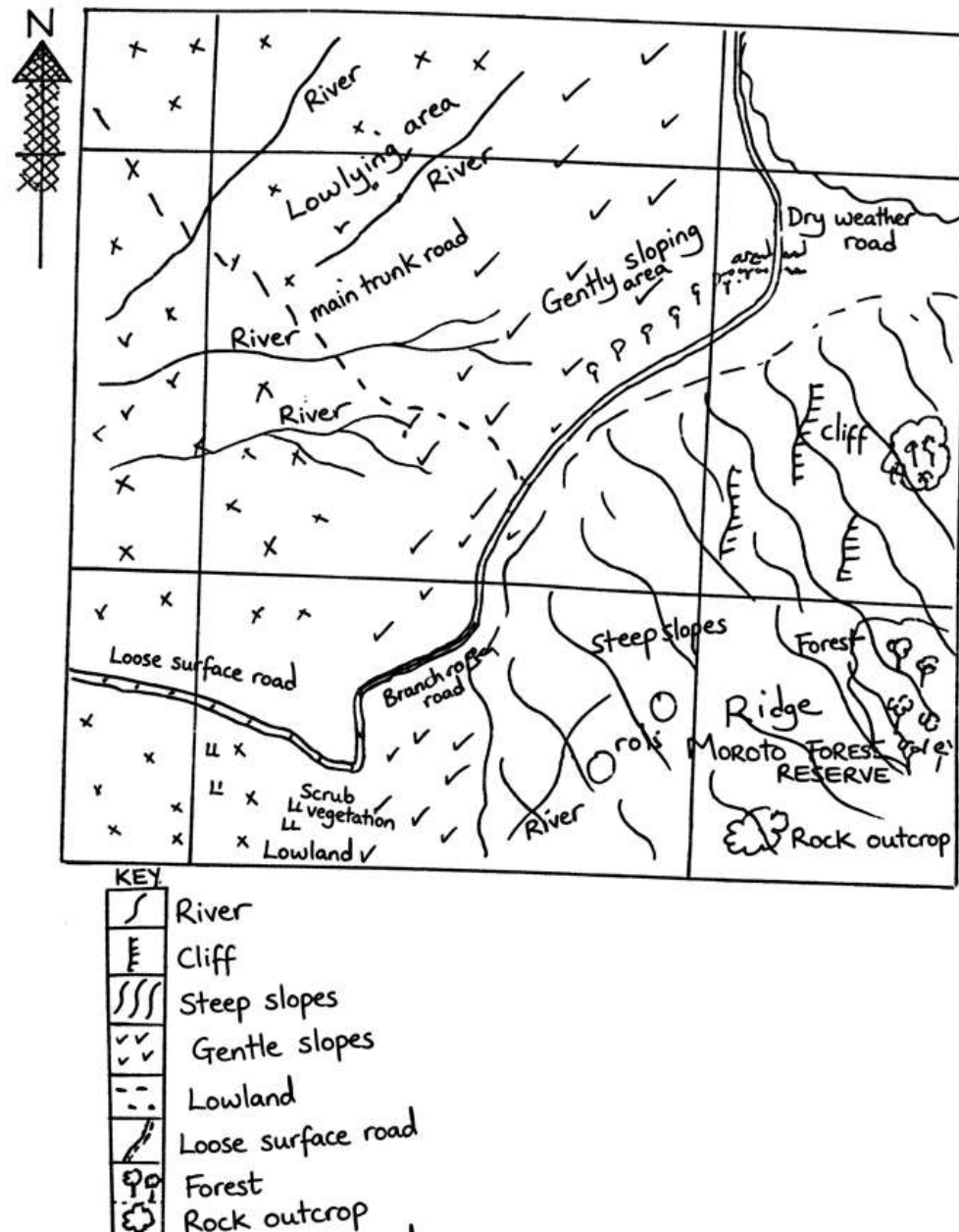
- **GK₂ & GK₃** — Geomorphic knowledge for item 2 & 3
- **GT₂ & GT₃** — Geomorphic Thinking for item 2 & 3
- **GA₂ & GA₃** — Geomorphic Application for item 2 & 3
- **GC₂ & GC₃** — Geomorphic Coherence for item 2 & 3

Item 4 & 5 (Weather & climate systems/Climatology & Meteorology).

- **CK₄ & CK₅** — Climatological Knowledge for item 4 & 5
- **CT₄ & CT₅** — Climatological Thinking for item 4 & 5
- **CA₄ & CA₅** — Climatological Application for item 4 & 5
- **CC₄ & CC₅** — Climatological Coherence for item 4 & 5

Item 1

A SKETCH MAP OF MOROTO SHOWING PHYSICAL AND HUMAN FEATURES



Problems limiting development in the area include:

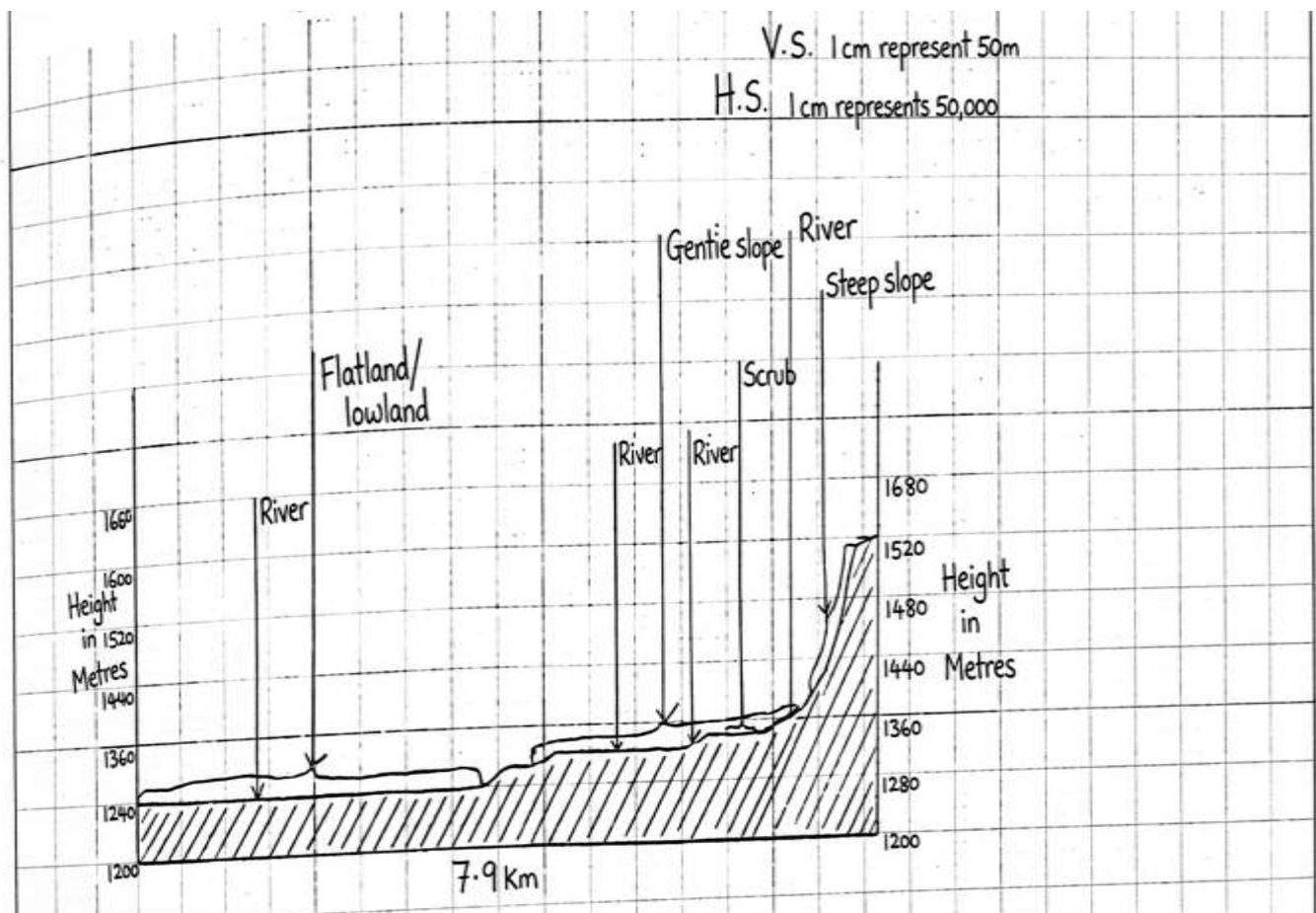
- Steep slopes/ hilly nature/ uplands in the south east are prone to landslide losing to destruction of property and loss of lives.
- Soil erosion due to steep slopes/ uplands in the south east leading to destruction of property and loss of lives
- Difficulty in construction of roads due to steep slopes in the south East hence remoteness.
- Difficulty in construction of settlements due to steep slopes in south east hose remoteness
- Difficulty in conducting agricultural mechanization due to the steep slopes in the South East leading to low crop yields.
- Destructive floods because of the rivers in the west and south west leading to destruction of farm lands, settlements and loss of lives
- Water borne diseases because of the rivers in the west leading to loss of lives.
- Poor roads/no roads due to the steep slopes in the east limiting use of resources such as forests.
- Forests are bleeding places for vectors that cause diseases in the South East hence loss of lives.
- Forests are hideouts for wrong doers e.g. Moroto forest reserve hence limiting man from utilizing those areas.
- Forests harbour dangerous wild animals e.g. Moroto forest reserve in the South East limiting settlement and other human activities.
- Drought conditions because of the scrub vegetation in the north and south of Moroto leading to crop failure

Strategies to address

- Afforestation/ Re-afforestation in the steep slopes in the South East to **bind soil particles together** hence reducing soil erosion.
- Construction of winding roads in steep slopes in the South East, & East to solve the problem of inaccessibility.
- Terracing of land in steep slopes in the East, South East to reduce soil erosion, landslides.

- Gazetting forest reserves in steep slopes in the South East, East to bind soil particles together to control soil erosion, landslides.
- Contour ploughing in the steep slopes in the South East, East to bind/reduce surface run off and improve soil fertility.
- Resettling of people from steep slopes in the East, South East to safer areas to control landslides effects.
- Irrigation mainly water from rivers to boost crop growing evidenced by river Mathiniko, Moroto that are sources of water
- Controlled mining/quarrying because of the out crop rocks in the South East.
- Controlled lumbering/ harvesting of forest products mainly from Moroto forest reserve to better their lives.

A CROSS SECTION OF MOROTO BETWEEN GRID REFERENCE 791230 & 880110 SHOWING NATURAL FEATURES



Item 2

- Candidates are expected to define continental drift as continental landmasses have changed their relative positions, they have not been stationary and continue to change their positions.
- Locate the continents as the world is made up of 7 continents namely; Africa, South America, Australia and Antarctica in the Southern hemisphere.
- There is also Europe, Asia and North America in the Northern hemisphere.
- There are ocean basins such as Indian, Pacific, Atlantic and Arctic oceans.

***Note:** A candidate can draw the world map to locate the continents and ocean basins.*

The theories of continental drift include;

- **The plate tectonics theory;**
 - A plate is any part of the earth's crust and tectonism means movement.
 - Plate tectonism refers to the process through which movement of the plates of the earth's crust is effected.

The earth is divided into tectonic plates which float on the denser rocks of the mantle, they are mobile and move like rafts and move horizontally within the earth's crust.

- There are 6 major plates and about 12 minor plates.
- The major plates include; the African plate, American plate, Eurasian plate, Indo-Australian plate, pacific plate and Antarctic plate.
- According to this theory, convection within the interior of the earth, from is heating by radioactivity, geophysical and geochemical reactions.
- The heating causes melting / nearly melting of the mantle rocks leading to the convective currents.
- The materials rise by convective currents and on reaching the crust, they move horizontally causing lateral movement of the plates of the earth's crust hence continental drifting.
- Since continents form part of the crustal plates, as the plates move due to convective currents, the continents move with them noted continental drifting.
- There are 3 types of movement caused by convective currents;

Convergent / Destructive plate boundary

- They push the continents to one another e.g. continents may move towards each other getting closer in the process.
- The sediments are folded to form Fold Mountains e.g. the Indian plate moved towards the Asian landmass, there was folding that led to the formation of the Himalaya Mountains.
- *Illustration:*
- Also continents may move towards the oceanic plates causing subduction of the denser simatic rocks.
- These rocks are assimilated into the mantle to form trenches and volcanic mountains.
- E.g. the S. American plate moved against the Nazca plate to form the Nazca trench and Andes Mountains.
- *Illustration:*
- The oceanic crust may move towards each other, this causes narrowing of the ocean basin and continents move closer.
- In the process, trenches and volcanic island arcs form.
- E.g. the pacific plate and Eurasian plates moved towards each other and led to the formation of the Mariana trench and Japan Arc.
- **Divergent movements / Constructive plate boundaries**
 - They cause drifting of the crust and consequently outward movement of the continents.
 - New rocks come to the surface and the old ones are pushed away. The sea floor spreading.
- The ocean basins are characterized by mid-ocean ridges which are formed between Africa and South America.
- *Illustration:*

Transform / Neutral / conservative plate boundary

- This involves plates moving passed each other without coming collision or diversion.
- In the process, they offset section of the continents and this results into formation of trenches and ridges.

- E.g. the North American plate moved against the Pacific plate and led to the Fault.
- *Illustration:*

Other theories include;

- The sea floor spreading theory.
- Alfred Wegner's theory.

The evidences to support the theory include;

- Frequent earth quakes in oceanic ridges, trenches and rift valleys e.g. in Japan, Peru, Chile and West Indies.
- The jig saw fit / Visual fit in the west coast of Africa and the East coast of South America exactly fit into each other both on surface and in-depth between 1000-2000m.
- Geometric fit; the West coastline of Africa and the East coastline of South America fit into each other. This when Africa is rotated at an angle of 57° and the rotation of points of 40° and 30° W.
- Similar minerals; the oil beds of Brazil and those of Angola, the coal reserves of and coal in N. America.
- Glacial evidence; glacial deposits exist in the tropical and sub-tropical lowlands in Congo basin and South Africa. The dwyika tillites of Eastern Brazil are similar to those in Australia and South Africa.
- Matching organic zones; a marked similarity in the alignment of fold mountains e.g. the Alps Mountains in Southern Europe and Atlas mountains N. Africa.
- Similar organisms i.e. the distribution of flora (plants) and animals (fauna) in the southern continents e.g. the tropical rainforests in the Amazon basin and Congo
- Tectonic activity i.e. the gap between Africa and South America is widening at a rate of 2cm, the East African rift valley is also widening at 2.4cm per year. The widening of the Red Sea which is now 300km wide.
- Corals reefs, they exist in the Northern hemisphere i.e. Britain, Greenland and North America yet they form under warm and hot conditions.
- Laterites in temperate regions; the occurrence of laterites in North America and some parts of Europe indicate that at one time, they enjoyed tropical climate

- Salt Evaporates, exist in Northern hemisphere i.e. in Europe and N. America which are cold areas.
- The Northward movement and position of the continents. Continents up to today still show their northward drift and movement towards the North Pole.

Item 3

- Candidates are expected to identify a rift valley, define it, give its location, process of formation, its origins and theories of rift valley formation.
- The landform is a **rift valley**.
- It is an elongated trough bordered by in facing fault scarps along more or less parallel faults.
- The rift valley has two arms/sections i.e.
 - The Eastern arm that runs through L. Turkana in Northern Kenya up to L. Malawi in Southern Tanzania. Lakes Magadi, Nakuru and Naivasha are found in this section.
 - The Western arm starts from L. Tanganyika through L. Kivu in Rwanda up to L. Albert in Western Uganda. Lakes Edward and George are found in this section.
- The rift valley was formed by faulting; which involves fracturing of the hard rocks of the earth's crust due to stress and strain leading to the displacement of the rock strata relative to one another along a fault line.
- It originates from the interior i.e. the mantle due to heating by radioactivity, geophysical and geochemical reactions.
- The heating causes melting / nearly melting of the mantle rocks resulting into the convective currents which exert pressure on the upper mantle resulting into a wide range of landform.
- When the convective currents move in the same direction, they converge hence compression forces.
- When the convective currents spread away, they diverge hence tension forces.
- When the convective currents move vertically, they lead uplifts and sinking of the rocks of the crust.

The rift valley is formed due to:

- **Tension forces theory of W. J. Gregory.**
 - According to Gregory, radioactivity, geophysical and geochemical reactions resulted into the divergent convective currents hence tension forces were produced in the crust.
 - The tension forces acted/pulled apart in opposite direction from a central point within the earth crust forming normal fault lines hence displacement of the rock strata.
 - As a result, the side blocks were pulled apart as the central block was sunk under its own weight to form a depression called a rift valley.
 - The slopes were modified by erosion and mass wasting.
 - This explains the formation of the Eastern arm of the East African rift valley.
 - *Illustrations*
- **Compression forces theory of E. J. Wayland;**
 - According to the theory, radioactivity, geophysical and geochemical reactions produced the convergent convective currents hence compression forces.
 - The compression forces moved/pushed in the same direction and acted on the earth's crust. This resulted into the reversed fault lines.
 - The side blocks were forced to override/uplifted above the central block that remained stable at a relatively lower level forming a rift valley with sharp edges.
 - The sharp edges were removed by erosion giving rise to a smooth escarpment of today.
 - This applicable to the western arm of the rift valley.
 - *Illustrations.*
- **Differential uplift theory:**
 - This theory:
 - This dealt with part of Nairobi, part of the Eastern rift valley of Kenya which is step faulted.
 - It pre-supposes that there was a period of general uplift of the land of E. Africa.

- The uplift was probably due to diverging or converging of rocks of the mantle.
- The general uplift was associated with various fault lines.
- There was fast uplift of the side blocks and slow uplift of the middle block.
- At every stage of the uplift, there was the formation of terraces like the Kedong Scarp rising from the rift valley floor up to the escarpment.
- The middle block lagged behind to form a rift valley.
- ***Illustrations***

The challenges faced by the people in rift valley areas include;

- Earthquakes and volcanic eruptions; these cause tremors that crack houses, destroy roads etc, hence high risk of living in the area.
- Landslides due to the steep slopes along escarpments. This destroys farms, houses, roads.
- Soil erosion still along escarpments due to steepness. This results into thin, infertile and skeletal soils that hinder agriculture and subsistence cultivation
- Hot temperatures especially at the rift valley floor causing drought with its associated effects like crop failure.
- Difficulty in road construction especially along the steep slopes of the escarpments. The construction becomes expensive and may lead to inaccessibility.
- Flooding at the rift valley floor/basin since it lies in between two steep walls. This leads to destruction of farmlands, roads, settlements and death of people.
- Water scarcity in some rift valley areas with little rainfall. This limits agriculture as plants dry out.
- Rift valley areas are normally set out as conservation centres of wildlife check hence limiting other potential activities rendering the area underdeveloped.

The measures that can be suggested include;

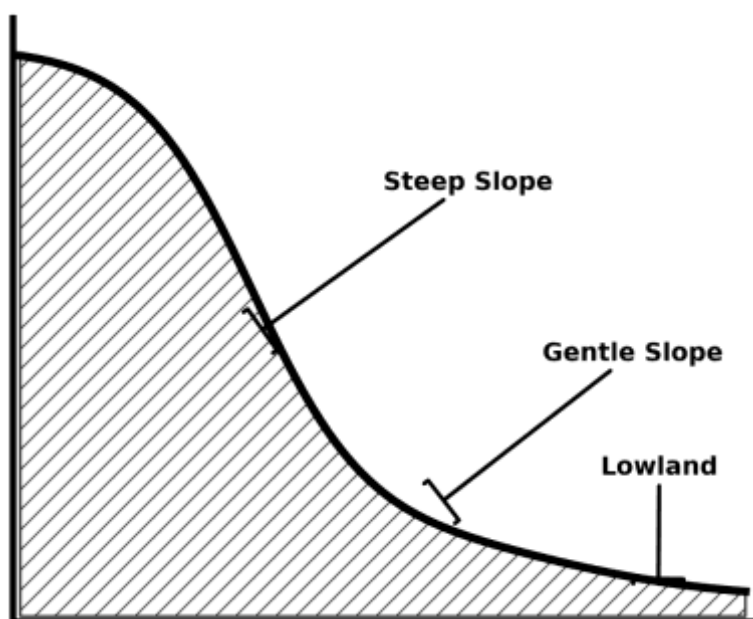
- Creating early warning systems and educate people on evacuation routes to address the earthquakes.
- Build using earthquake resistant designs as well as use of strong materials.
- Plant trees/grass to bind/hold the soil particles together to reduce landslides.

- Use of terraces that reduce the steepness of the slopes as well as the speed of water to check on soil erosion on the escarpments.
- Plant drought resistant trees to bring rain and regulate the temperatures of the area
- Construction of winding roads along the escarpments to make the areas accessible /open them up.
- Establishment/widening of drainage channels as well avoid interference with the river profiles at the rift valley floor.
- Sinking of boreholes and protection of springs for clean water as well harvesting rain water during times of seasonal rains.

Item 4

- Candidates are expected to;
- Define a slope as a surface of land that is higher at one end and lower at the other.
- Candidate should identify the different slopes i.e. Steep slopes with thin soils, gentle slopes with fairly deep soils and lowlands with deep soils.

Illustration of a slope



- Candidate is expected to account for slope development using any theory i.e.

The Davisian cycle of slope decline also known as the geomorphic cycle / peneplanation

- It was presented by an American Engineer called Professor William Morris Davis between 1884 and 1899.
 - According to W.M Davis, he assumed a rapid uplift of the land with an immediate onset of denudation.
 - He believes that landscapes undergo a cyclic pattern of evolution starting with the tectonic uplift, followed by progressive phase of erosion and then a peneplain.
 - The above processes of the tectonic uplift, erosion and peneplanation are influenced by rock structure, process and time.
- To him, landscapes are a product of sequences of stages with specific characteristics i.e. youthful stage, mature stage and old stage.
- He supports his theory using a simple method/breakdown;
- Base level is below the streams/rivers cannot erode their valley floor.
- Land form evolution begins with rapid uplift which takes place without erosion and once uplift is done, erosion starts in two phases.
- The youthful stage has high erosion leading to deepening of the valley and transportation of the sediments to form a narrow steep sided valley (convex slope).
- In the mature stage, there is lateral erosion where erosion concentrated on the valley sides hence widening it to form a concave slope/gentle slope.
- In the old stage, due to widened river valleys and reduced erosion, there is high deposition of the sediments forming an extensive floodplain, a level known as peneplanation.
- According to Davis, when the landscape reaches a lowland, it is referred to as a peneplain and after another uplift occurs again called rejuvenation.
- You can consider other theories e.g.
 - Walther Penck's model of slope replacement
 - L.C King's model of parallel retreat.

- Candidates are expected to give strategies for relief related challenges.
- Afforestation and re-afforestation / tree planting to bind/hold the soil particles together.
- Agro-forestry where trees are planted together with the crops to bind the rocks and soil particles together.
- Gazetting some forests as forest reserves e.g. Mt. Elgon forest reserve to hold the soil particles together.
- Terracing that reduces the steepness and therefore reduced movement of the loosened rock materials.
- Contour ploughing / Strip Cropping that reduces the steepness of the slopes.
- Controlled cultivation on steep slopes that allow vegetation to grow binding the soil particles together.
- Controlled Settlements on steep slopes to allow vegetation grow binding the soil particles together.
- Use of gabions that involve use of wire mesh and stones along steep slopes to strengthen the steep slopes.
- New engineering technologies of construction of steps on roads to make them firm.
- Enacting laws against deforestation and settlement along steep slopes to reduce pressure and allow soils to strengthen.

Item 5

- Candidates are expected to;
- Describe water retreat into the ocean and a come back to the shore as sea level changes/changes in water levels.
- It refers to a rise or fall in the sea in relation to the land.
- The changes in sea can be worldwide or small scale.
- The changes can be positive, or negative.
- The changes can lead to a rise in sea level creating submergence or a positive change.
- The changes can lead to a fall in sea level and create emergence or negative changes.

Such changes are brought about by;

- **Climate;**
 - Pluviation a period characterized by heavy rainfall that leads to a rise in sea level because the rainfall adds water into the sea.
 - Dessication, Is a period of low rainfall amounts and hot temperatures that lead to a fall in sea level.
- **Glaciation and deglaciation**
 - During de-glaciation, ice sheets from the continental landmass melted forming rivers which drain into the sea leading to a rise in sea level.
 - During glaciation, water was transformed into ice sheets which results into a fall in sea level.
- **Tectonic movements;**
 - Expansion of the ocean basin due to plate divergence leads to a fall in sea level.
 - While Contraction of the ocean basin due to plate convergence leads to a rise in sea level.
- **Volcanism and Seismic activity;**
 - At constructive plate boundaries and subduction zones, there are Volcanoes that lead to pouring of lava in the ocean occupying the area previously covered with water causing a rise in sea level.
- **Warping movements;**
 - Up warping of the coastal areas and down warping of the ocean basin leads to a fall in sea level.
 - Down warping of the coastal areas and up warping of the ocean basin leads to a rise in sea level.
 - Isostatic re-adjustments;
Accumulation of ice in continental areas during the ice age. After melting of ice sheets, Isostatic uplifts of landmasses occurred leading to a rise in sea level.
 - Sedimentation;
When deposits from rivers and tidal currents are laid in the ocean floor, water is gradually displaced upwards within the ocean basin leading to a rise in sea level.

- A change in ocean water temperatures;
 - ✓ A rise in ocean water temperature causes expansion leading to a rise in sea level when water is heated, it expands and its volume increases.
 - ✓ When there is a fall in ocean water temperatures, the water in the ocean will contract and the volume falls causing a fall in sea level.

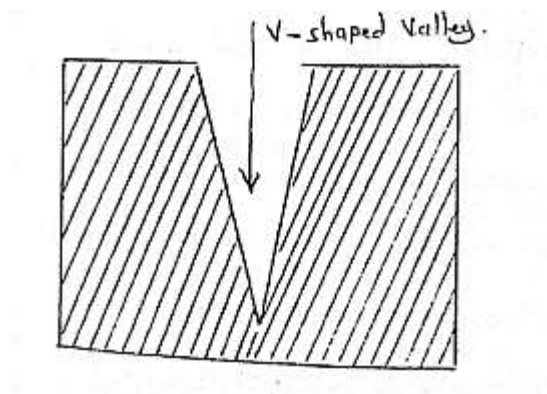
Owing to the above causes sea level changes features like Rias, Island coasts, Peninsulas, Raised beaches, cliffs and wave cut platforms are formed. The changes in sea level affect the natural environment & human activities in the following ways;

 - ✓ Flooding of coastal areas due to high tides and storm. This increases the risk of permanent flooding of coastal settlements and agricultural land.
 - ✓ Displacement of people to become climate refugees as may be forced to migrate due to flooding and land loss. This creates pressure on social and economic infrastructure inland.
 - ✓ Salinization; the salty sea water mixes with soils. This reduces agricultural productivity and contaminates the drinking water.
 - ✓ Features formed by sea level changes such as raised cliffs, Rias, raised beaches shape the coastal landscape hence beautifying it.
 - ✓ Indicator of climate change; rising sea level are sign to global warming linked to melting of glaciers and thermal expansion of sea water.
 - ✓ A guide for urban and coastal planning; this informs zoning, building disaster preparedness policies. It also helps to avoid constructing in flood prone zones.
 - ✓ Navigation and port operations i.e. affect navigation, docking facilities. A higher sea level can make ports accessible while a rise in sea level can as well damage the infrastructure.
 - ✓ Effects on coastal ecosystems e.g. mangroves, coral reefs and wetlands. This reduces bio-diversity and natural protection from waves and storms.
 - ✓ Destruction of infrastructure i.e. roads, buildings along the coast become damaged with the rise of sea levels. This leads to high costs of maintenance and re-construction.
 - ✓ Economic impact on tourism, fishing and agricultural activities which are key economic activities suffer from disruption and loss of income.

- Study and research activities on coastal emerged and submerged landforms like rias, Island coasts hence widening knowledge.

Item 6

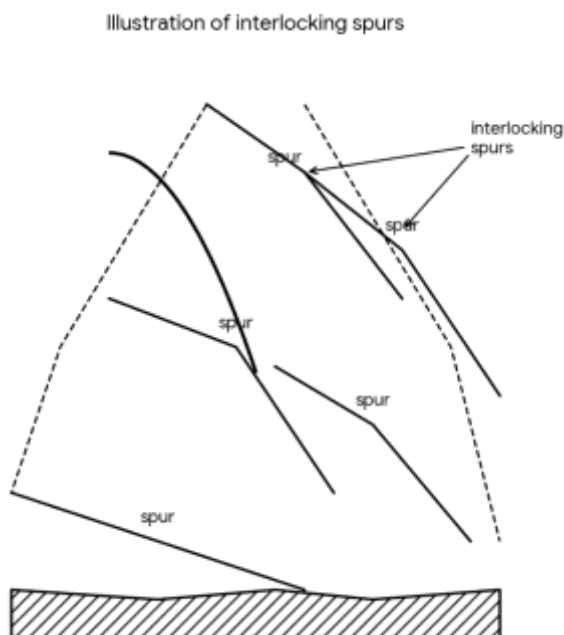
- Candidates are expected to;
- Identify the major stages of the river i.e.
 - Upper stage with a steep gradient, high river velocity, small volume of water, vertical erosion with features like waterfalls, V-shaped valleys etc.
 - The middle stage with reduced gradient, lateral erosion, meanders begin to be pronounced with cliffs and slip off slopes.
 - The old stage associated with flood plains, deltas, reduced gradient, low velocity and maximum deposition.
- Candidates are expected to refer to the photograph to identify the feature(s) as;
- **V-Shaped valley**
 - This is a deep and narrow valley formed by vertical erosion.
 - It is formed by river erosion through hydraulic action in the upper stage.
 - The river undercuts its bed faster than the sides, producing a deep and narrow valley called a V-shaped valley.
 - *Illustration of a V-Shaped valley*



- **Interlocking spurs;**
 - These are resistant obstacles around which the river winds in the youthful stage.

- They are formed in the youthful stage by river erosion due to abrasion attrition and hydraulic action.
- Interlocking spurs form in areas of alternate soft and hard rocks.
- As the hard rocks resist erosion, the river concentrates and erodes the soft rocks.
- Bends are gradually emphasized to form the spurs.
- Spurs do alternate on the opposite sides of the river bank and seem to interlock/overlap into each other forming the interlocking spurs.

Illustration of the interlocking spurs



How to improve the use of features found along the river channel.

- By carrying out eco-tourism involving nature walks, sightseeing to promote conservation of meanders, waterfalls and rapids.
- Study and research of the river features such as waterfalls, ox-bow lakes and flood plains.
- Filming and photography of mainly waterfalls, interlocking spurs and meanders. This in the end boosts tourism.
- Sport fishing i.e. fishing done for pleasure, competition or leisure on ox-bow lakes and deltas.
- Planting trees along river banks to reduce erosion and siltation in flood plains and meanders.

- Collecting non timber products e.g. fruits, medicinal plants and other resources from riverine vegetation in deltas.
- Fish farming in specific areas using cages especially in ox-bow lakes.
- Bee-Keeping near river banks without destroying the vegetation.
- Controlled water abstraction i.e. drawing water for domestic and agricultural with sustainable limits in deltas and ox-bow lakes etc.

Item 7

- Candidates are expected to;
- Define climate change as a shift in long patterns of climatic conditions such as temperature and precipitation.
- The world temperatures have increased by above 0.8°C.
- **The major indicators of climate change include;**
 - Rainfall seasons come too late, too early or unpredictable.
 - Prolonged droughts in some areas.
 - Ocean heat content is increasing.
 - Sea levels are rising.
 - Air temperatures are increasing.
 - Melting of the glaciers like on Mt. Rwenzori.
 - Heavy rainfall in some areas. etc.
- Climate change is caused by both physical and human activities.
- Volcanic eruptions which release black carbon and ash which reflect sunlight or scatter the incoming radiation. This therefore cools/lowers the world temperature.
- Earth's revolution changes or orbital changes alter seasonal solar radiation which affects global temperatures especially when the maximum is received during the sun's hot spot.
- Reflectivity or absorption of sun's energy by the clouds, dust particles and aerosols. This increases the atmospheric temperature.
- Ocean currents can also alter heat distribution between the ocean and the atmosphere that can lead to both long term and short term effects on world temperatures.

- Industrialization releases smoke in the atmosphere in form of carbondioxide that destroys the ozone layer increasing the surface temperatures.
- Exhaust fumes from vehicles. Vehicles burn fuel releasing toxic gases that increase global warming.
- Deforestation i.e. where there is destruction of trees for agriculture, urbanization, release carbondioxide thereby increasing the temperature.
- Bush burning by pastoralists that destroy vegetation which affects local rainfall pattern and consequent increase of temperatures.
- Swamp reclamation/loss of wetlands. Vegetation reduce carbondioxide absorption leading to global warming.
- Poor waste management such as burning, landfills that produce Carbondioxide and methane as waste decomposes leading to increased temperatures.
- Rapid population growth which increases demand for food and leading to deforestation for fuel, and space for settlement.
- Open cast mining that destroys natural vegetation which would otherwise absorb carbon dioxide.
- Road construction that destroys the existing vegetation leading to reduced rainfall totals and increased temperatures.
- Pollution by cars due to emission of carbon dioxide and other gases that destroy the ozone layer.
- Fossil fuel burning in the power plants, vehicles and industries burn coal and gas releasing dangerous fumes that affect the environment.

Effects of climate change in East Africa and other parts of the world

- Shortage of water in some parts of the world
- Shortage of food due to prolonged droughts leading to malnutrition and death of people and animals.
- Flooding due to increasing water levels that leads to death of people.
- Death of livestock due to prolonged droughts
- It has led to increase in temperature which makes many pests and diseases to thrive thus affecting human and animal health.
- Waterborne diseases due to floods leading to poor health conditions and death of people.

- Displacement of people/migrations due to reduced rainfall thus destroying the social structure.
- Loss of vegetation cover due to prolonged drought leading to low rainfall.
- Wildfires especially during the dry season which destroy property and cropland.
- Landslides due to heavy rainfall leading to loss of lives and destruction of property.
- High increase in temperatures and heat waves leading to discomfort.
- Stronger storms.
- Migrations of animals and extinction (birds and whales)
- Thawing permafrost/melting of glaciers that increase the volume of water in rivers leading to flooding that claims people's lives.
- Rainfall unreliability leading to crop failures and food shortage.
- Drying of crops during prolonged drought leading to food shortage and malnutrition.

Ways of controlling climate change in East Africa

- Planting trees to modify the climate and creating carbon sinks to clean the atmosphere (Afforestation and Re-afforestation)
-
- ✓ Population control through family planning methods like celibacy.
 - ✓ Proper waste management such as the recycling /treatment of waste.
 - ✓ Sensitizing people about the benefits of conserving the environment.
 - ✓ Establishing and enforcing strong laws to safeguard the environment.
 - ✓ Use of energy saving technologies in order to conserve forests e.g. cooking using energy saving stoves
 - ✓ Use of friendly environmental alternative sources of fuels such as solar, bio-gas, and wind power so as to conserve forests.
 - ✓ Research into disease resistant, high yielding and drought resistant crop varieties.
 - ✓ Rainwater harvesting so as to have water supply throughout the year.
 - ✓ Construction of water reservoirs/ dams and ponds for use during the dry seasons.

- ✓ Practicing irrigation farming for food security.
- ✓ Adopting use of environmentally-friendly means of transport such as bicycles,
- ✓ Conservation of available resources such as forests, swamps, by gazetting them into national parks, sanctuaries, etc.
- ✓ Global agreements on controlling climate change.

Item 8

Candidates are expected to identify the coastal areas, their climatic conditions, accounts for the causes of the differences and major challenges experienced in these coastal areas.

- **Mozambiquan coast** experiences warm and humid tropical climate with relatively heavy rainfall of 1500mm
- Small annual temperature range of less than 3°C
- Frequent convectional rainfall
- No distinct dry season
- Dense cloud cover
- **Namibian coast** experiences cool dry desert climate with relatively very low rainfall usually less than 250mm.
- Low humidity.
- Cooler temperatures than hot deserts.
- Large diurnal temperature range.
- Clear skies.
- Strong dry winds.

The major cause of the differences in the climatic type is attributed to;

- **Ocean currents** i.e. it is influenced by the warm Mozambique current and this affect/influences the climate in the adjacent areas through:

- ✓ Increasing temperatures of the nearby coastal regions making them warmer than the places at similar latitude
- ✓ Increase evaporation from the ocean surface, adding more moisture to the

atmosphere implying high condensation level and later heavy rainfall.

- ✓ Enhance rainfall formation by supplying moist air that can form clouds and precipitation.
- ✓ Raise humidity levels creating more humid climatic conditions.
- ✓ Moderate temperature extremes resulting in milder winters and smaller annual temperature range.
- ✓ Encourage cloud formation especially when moist air rises over land.
- ✓ Encourage development of tropical storms & cyclones where other conditions are favourable.

These affect human activities in the following ways;

- ✓ Heavy rainfall encourages crop cultivation or rain fed agriculture.
- ✓ Heavy rainfall encourages forestry.
- ✓ Hot temperatures encourage coral growth hence tourism.
- **Namibia's coastal climate is influenced by the cold Benguela currents** and these affect/influence the climate of the nearby areas through;
 - ✓ Lower temperatures along nearby coasts, making them cooler than other places at the same latitude.
 - ✓ Reduce evaporation from the ocean surface because of the lower water temperatures.
 - ✓ Decreased rainfall by limiting the amount of moisture available in the atmosphere.
 - ✓ Create dry and arid conditions this creates formation of coastal deserts.
 - ✓ Cause frequent fog formation when moist air passes over cold water and condenses.
 - ✓ Leads to clear skies for much of the year due to limited cloud formation.

These affect human activities in the following ways;

- ✓ Arid conditions lead to growth of pastures hence pastoralism.
- ✓ Arid conditions promote tourism.
- ✓ Arid conditions promote development of film industry.
- ✓ Ocean currents cause upwelling of ocean waters creating conducive conditions for growth of planktons hence fishing.

Climate related challenges of the Namibian coast.

The cold Benguela current cools the air and reduces evaporation, resulting in:

- ✓ Very low rainfall and frequent drought
- ✓ Water shortages for people, livestock and agriculture

- Desertification and extension of barren land.
- Limited Moisture, limited crop production due to lack of Moisture.
- Sparse Vegetation, reducing grazing land for livestock.
- Dust storms caused by dry, loose soils.
- Persistent coastal fog which can reduce visibility & disrupt transport, especially shipping and road travel.

Climate related challenges of the Mozambiquan coast.

- The warm Mozambique current increases temperature and Moisture along the coast, leading to;
- Heavy rainfall that causes flooding.
- Frequent tropical cyclones, especially during rainy season.
- Soil erosion due to intense rainfall.
- Landslides in steep & Mountainous areas.
- Damage to crops, roads, bridges & settlements from storms & floods.
- High humidity which encourage pest & crop diseases.

P250/2

BASES OF SCORING

LEVEL	DESCRIPTION
LEVEL 4	Gives all points well explained with examples i.e. 7 and above
LEVEL 3	Gives most points I.E. 5-6
LEVEL 2	Gives some points i.e. 3-4
LEVEL 1	Outlines points, also gives only i.e. 1-2 points
LEVEL 0	Off topic irrelevant information written or learner fails to attempt the item.

SCORING CODES FOR THE SPECIFIC ITEMS

Item 1 (Statistics)	Meaning
SK1	Statistical Knowledge for item 1
ST1	Statistical Thinking for item 1
SA1	Statistical Application for item 1
SC1	Statistical Coherence for item 1

Item 2 & 3 (Human environment interaction)	Meaning
EK2 and EK3	Environment knowledge for item 2 and 3
ET2 and ET3	Environment Thinking for item 2 and 3
EA2 and EA3	Environment Application for item 2 and 3
EC2 and EC3	Environment Coherence for item 2 and 3

Item 4 & 5 Resource utilization and conservation	Meaning
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RK4 and RK5	Resource Knowledge for item 4 and 5
RT4 and RT5	Resource Thinking for item 4 and 5
RA4 and RA5	Resource Coherence for item 4 and 5
RC4 and RC5	Resource Application for item 4 and 5

N.B: COHERENCE WHERE CANDIDATES SHOULD CATEGORIZE THE POINTS

Item 1. Compulsory statistics

Uganda's population is growing rapidly from about 32 million people in 2014 to over 45.9 million people in April, 2024 with great differences in its distribution, growth and structure among different regions for example some regions like Northern and West Nile regions have high population growth rate due to improvement in infrastructure, security and influx of refugees from Democratic Republic of Congo and South Sudan while other regions are experiencing low growth rates due to economic reasons.

This growing population has greatly affected resource utilization, development and environmental sustainability.

The government of Uganda is concerned about the rapidly growing population and has organized a meeting in your community to sensitize the people on the causes and mitigation measures for population growth rate.

You have been invited in the meeting to address the community members.

The table below shows Uganda's population structure by age and gender in 2024 in percentage

Age Group	Male	Female
75+	0.3	0.3
70-74	0.3	0.4
65-69	0.5	0.5
60-64	0.7	0.7
55-59	1.1	1.1
50-54	1.5	1.2
45-49	1.9	1.9
40-44	2.1	2.4
35-39	2.5	2.9
30-34	3.2	3.1
25-29	3.8	3.4
20-24	4.5	4.2
15-19	5.2	4.3
10-14	5.8	5.0
5-9	6.5	6.6
0-4	7.6	7.6
Total	9.0	8.9

Source: Adapted from UBOS report 2024

Task:

Make a write up of the presentation which should include a suitable statistical graph, causes and the measures to overcome the challenges in the scenario.

Item 1. Expected Responses

Skill 1 (SK1): Graphical Representation Requirements

Candidates must construct an accurate population pyramid illustrating the age-sex structure of Uganda's population for the year 2024. The final presentation must meet the following criteria on a single sheet of graph paper:

- **Layout:** Display male cohorts on the left side and female cohorts on the right side.
- **Progression:** Arrange age groups chronologically, positioning the youngest population segment at the base.
- **Technical Elements:** Incorporate an appropriate mathematical scale, precise labeling, an explanatory key, and maintain high standards of neatness and accuracy.

Locations Experiencing Rapid Population Growth

Candidates should identify key urban centers and districts in Uganda undergoing fast population expansion, including: Kampala, Jinja, Mbale, Gulu, Arua, Iganga, Kasese, Kabale, Mbarara, Bushenyi, and Masaka.

Substantive Thesis 1 (ST1): Drivers of Rapid Population Growth

Candidates need to explain the factors accelerating population growth in Uganda, using specific regional examples:

- **Elevated Fertility Rates:** High average birth rates per woman, notably observed in regions like Mbale and Gulu.
- **Gender Disparities & Low Status of Women:** Limited educational and economic opportunities outside the home leave many women acting exclusively as housewives, which often correlates with higher birth rates (e.g., Iganga, Nebbi, Gulu, Kasese).
- **Declining Infant Mortality:** Enhanced healthcare delivery and localized medical facilities at the parish level have raised child survival rates (e.g., Moyo, Mbale, Kabale, Kisoro).
- **Socio-Economic Utility of Children:** Offspring are highly valued as agricultural labor, sources of bride price, and symbols of social status (e.g., Mbale, Jinja, Masaka).
- **Poverty Dynamics:** Low household incomes combined with limited career upward mobility leave individuals with fewer socio-economic alternatives, often resulting in larger family sizes (e.g., Mbarara, Kisoro).

- **Educational Deficits:** Widespread illiteracy reduces awareness, accessibility, and correct usage of modern birth control methods (e.g., Gulu, Nebbi, Kamuli).
- **Religious Doctrines:** Traditional faith-based opposition (such as certain Catholic and Muslim teachings) toward artificial contraceptives contributes to larger families (e.g., Arua, Jinja, Masaka).
- **Early Marriage Practices:** Commencing marital unions at a young age extends the biological reproductive window for women (e.g., Kabale, Kasese, Butambala).
- **Polygamy:** Plural marriage arrangements can foster reproductive competition among co-wives to secure familial standing (e.g., Gulu, Arua, Iganga).
- **Advanced Pediatric Healthcare:** Widespread immunization initiatives have significantly enhanced child survival rates across urban and rural centers (e.g., Kampala, Kasese).
- **Food Security and Improved Diet:** Better nutrition and reliable food supplies support healthier physical development and lower child mortality (e.g., Gulu, Mbarara).
- **Low Contraceptive Prevalence:** Low uptake or poor access to modern family planning resources accelerates birth rates (e.g., Mbale, Masaka).

Cultural Values: Rooted tribal traditions and customs strongly encourage large family structures. Ie

the Basoga in Jinja, Bagishu in Mbale Bakyiga in Kisoro.

- Political stability and reliable security has led people to produce many children due to no disturbances such as Kampala, Mukono, Mba prod
- Imbalance in sex ratio where there are more women than men in Masaka, Mukono, yet women prefer producing children.
- Preferred sex of children by the parent has led to population such as Mbale, Mbarara, Gulu.

SA1 Candidates should come with the measures to control population growth which may include:

- Use of family planning methods to encourage use of contraceptives , injectables and implants.
- Promoting girl education so that girls stay longer in schools through introduction of UPE, USE

- Reducing early marriages by setting up to 18 years as legal marriage age.
- Improving on healthy services by setting up healthy centre 3 in every subcounty to provide better medical care.
- Economic empowerment of the local people through PDM, Youth livelihood programs, OWC, NAADS.
- Improvement of reproductive health services increasing access to maternal and child health services.
- Youth sexual and reproductive health education by providing information on sexuality, reproductive health and prevention of teenage pregnancies.
- Urbanizing the country through NDP4 so that majority of the people live urban centres and creating more cities
- Sensitization of the local community on dangers of rapid population increase by use of radios, televisions and community meetings.
- Government population policies by implementation of national family planning strategy and advocacy program of having four children only per home.

SC1 statistical coherence good flow of information and presentation of work.

ITEM 2 expected responses

EK2

Students should define subsistence farming; give areas where it is practiced and also give the characteristics

- Subsistence farming refers to the growing of crops and rearing of livestock for home consumption and little or nothing is left for sale.
- This farming practice is done in the districts of Mukono, Luwero and many smallholder farmers grow bananas, sweet potatoes, cassava and maize.

The characteristics of subsistence farming include:

- cultivation is on small scale.
- use local tools such as hand hoe, pangas.
- Family labour is used.
- Traditional farming methods are used such as inter cropping, use of organic manure such as cow dung.
- Depends on natural weather especially rainfall.
- No surplus mainly for home consumption.
- Low level of productivity.
- Plant indigenous crops or traditional crops are planted

ET2 candidates should bring out the reasons for persistence of subsistence farming which include:

- Increased levels of poverty in rural communities
- Cultural traditions
- Climate dependence
- Limited government support
- Population pressure
- Nature of land tenure
- Limited skilled labour
- Limited market
- Limited capital
- Low level of technology used

- Rugged relief

- High illiteracy

EA2 Candidates should come up with strategies to address the challenges as:

- Promoting improved agricultural inputs such as high-yielding seeds, fertilizers and pesticides like in Mbale and Tororo where organizations like National Agricultural Advisory Services (NAADS) have distributed improved maize and bean seeds to smallholder farmers which are more resistant to pests and perform better in changing weather conditions.
- Introducing climate smart agriculture (CSA) as an integrated approach to farming that helps farmers adapt to climate change, reduce greenhouse gas emissions and increase agricultural productivity and food security for example in Gulu, Lira and Kitgum.
- Practicing irrigation like in Kasese and Mbarara to ensure the constant supply of water to crops throughout the year.
- Development roads that link farmers to markets and the establishment of farmers' cooperatives like in Mukono and Luwero where farmers are linked directly to buyers through digital platforms and SMS based services that provide market prices and weather updates.
- Introducing drought resistant crops for example in Karamoja and Moroto, crops like sorghum and millet have been introduced while also supporting veterinary services to improve animal health.
- Promoting better land use practices for example in Kabale and Kisoro where terracing is being promoted to limit soil erosion on the steep slopes of the highlands.
- Educating farmers and extension of services across various regions like eastern districts of Tororo, Iganga and Jinja. Village based advisors are trained to offer guidance on the best farming practices.
- Putting in place government led programs like Operation Wealth Creation (OWC) and the Parish Development Model (PDM) like in Mubende where farmers are provided with free seedlings, animals like goats and pigs and farm equipment.
- Land consolidation and promotion of communal farming are helping some families put land together for more efficient farming. This allows for better planning and use of mechanized tools, increasing productivity on limited land.

- In arid regions like Moroto and Nakapiripirit, more emphasis is being placed on integrating indigenous knowledge with modern farming. Farmers are being encouraged to combine traditional drought resistant seed varieties with modern techniques such as Zai pits (shallow planting basins that retain water), helping to grow crops in dry conditions.

EC2 COHERENCE WITH CATEGORIZATION OF POINTS

Item.3.

Task:

Write a presentation you will use to address the community members on the causes and strategies to solve the situation in the scenario.

Item 3 Expected responses

EK3 Candidates are expected to come up with the definition of food shortage as; The situation where the supply of food is insufficient to meet the needs of the population leading to food insecurity, rising prices and potential social unrest Candidates should go ahead and give/mention/districts in Karamoja suffering from food shortage as;

Kaabong, Abim, Kotido, Moroto, Karenga, Amudat and Nakapiripirita

ET3 Candidates should go ahead to bring the effects of food Shortage in the communities of Karamoja region as.

- **Increased Hunger and Malnutrition** which is one of the most Immediate Consequence of a decreasing food supply: people in districts like Kaabong struggle to access enough food to meet their daily needs
- People lack access to diverse and nutritious food, leading to micronutrient deficiencies, particularly in vulnerable groups such as children, pregnant women and the elderly. This results in wide spread malnutrition and a higher incidence of stunting, wasting and anaemia.
- **Increased poverty** leading to loss of livelihoods, a decreasing food supply, reduces agricultural income and undermines farmer's ability to support themselves and their families. This creates a poverty trap where lack of access to food leads to worsened economic conditions.
- **Increased economic Instability** where agriculture accounts for as significant portion of GDP and a decreasing food supply directly Impacts agricultural productivity resulting in lower economic output and a decline in export revenues.
- It also leads to less of jobs in related Industries such as food processing,

transportation and detail. This leads to higher unemployment rates in rural areas and worsens overall economic instability

- Increased poor health outcomes such as higher mortality rates due to malnutrition and under-nutrition among children under five stunting which Impairs physical and cognitive development affect children. Lack of proper nutrition makes individual. Lack of proper nutrition makes individuals more admirable to infections and diseases due to lack of vitamin A and Iron weaken the Immune system and increase Chances of disease like malaria, diarrhea, and respiratory Infections
- Increased Education and development Setbacks where hunger and malnutrition directly effects children's ability to learn and grow. Malnourished children are unable to attend School or Concentrate on learning. Adults suffer from hunger are less able to work effectively, diminishing productivity leading to development setbacks.
- Increased dependence on aid, and International food assistance. This undermines efforts to create sustainable food systems and long term solutions for food security.
- Increased Conflicts and social Instability due to competition for resources. A declining food supply leads to increasing scarce resources leading to conflict over land, water and food. As food becomes scarce, internal displacement increases with people migrating from rural areas to urban areas. This also creates large refugee arises destabilizing both local and regional security.
- Worsening gender Inequality among women and children because women are the primary food producer and increase in food supply effects them and their children. Food insecurity can lead to sender-based Violence as men and women may experience increased stress and frustrations due to the mobility to provide for their families.

EA3 Candidates should be able to come up with Strategies/measure to address food shortage challenge as below.

- Promoting climate- smart agriculture through drought resilient crop varieties to help farmers maintain yields despite erratic rainfall patterns.
- Improving agricultural productivity by Investing in modern family techniques such as introducing high yields, Innovative farming methods like precision agriculture to increase food production.

- Quality inputs such as seeds and affordable fertilizers expanding irrigation systems in regions/districts with unreliable rainfall to reduce dependence on unpredictable weather patterns and allow cultivation year round
- Enhancing food storage and distribution through building better storage facilities that keep food safe especially for perishable crops. Constructing more harvest losses.
- Supporting small-holder farmers by providing affordable credit and Insurance that can help them invest in better equipment and cope with risk and climate related challenges. Educating farmers on sustainable farming practices, pest control and crop rotation can improve both food security and Income
- Push-pull pest management method which is an eco-friendly approach using inter-cropping and trap crops to naturally repel pests and enhance soil fertility. For example planting Desmodium between maize rows repels stem borers and suppresses Striga weeds. This method increases yields and reduced pesticide use
- Implementing Sustainable Land management which conserves the soil like Contour ploughing, terracing and cover cropping to prevent soil erosion, maintain soil fertility and sustain agricultural productivity.
- Investing in rural Infrastructure to reduce transportation costs and time enable farmers to access markets more efficiently and sell their produce at better prices.
- Strengthening regional cooperation and trade by establishing regional food reserves to serve as buffer against food shortages caused by climate and economic shocks. Simplifying trade regulations and reducing tariffs among African Countries
- Improving education and awareness through balanced diets teaching and how to make use of locally available foods to reduce food wastage and improve food security and nutrition.
- Promoting women's Involvement in agriculture through education, training and access to resources can lead to better household food security

EC3 COHERENCE WITH CATEGORIZATION OF POINTS

Item 4

Task

Prepare a fieldwork report which should include the objectives and methods used during the study, the causes and measures to address the situation in the scenario.

Expected responses

RK4 Candidates are expected to come up with the objectives of study which may include

- To find out the location of the area
- To find out the importance of wetlands to the people
- To find out the problems facing the people living around wetlands.
- To find out the causes of wetland destruction.
- To find out the solutions to the problems facing the people living around wetlands.
- To find out the future prospects of the area.
- To find out the effects of wetland destruction

Candidates should also come up with the methods of data collection which include:

- **Observation method** involves use of all senses to obtain the information in the field. We used our eyes saw the importance of wetlands provide materials for art and craft.
- **Interviewing method** involves oral asking of questions and receiving answers verbally from the respondent. We asked the chairperson of the area the causes of wetland destruction.
- **Recording method** involves writing down information got in the field. We used a pen and paper to write down the importance of wetlands.
- **Sampling method** involves selecting a small part to represent the whole or rest. We picked/ selected the chairperson of the area and asked him the problems facing the people living around the area.
- **Documentary/literature review** involves reading written information related to the topic of study. We read the NEMA report on the measures to conserve wetlands.
- **Measuring method** this involves use of calibrated and non-calibrated instrument to establish distance, area of geographical features. We used a tape

measure to establish the area covered by the wetland and found out that it had reduced in size..

- **Field sketching/ map orientation** involves rotating the base map until the features are in the correct position. We used a base map of the area around the school to come up the correct sketch map of the area.
- Questionnaire method involves setting the questions and sending to the respondent to answer in writing. We sent a list of questions to chairperson of the area which included what are problems facing the people.

RT4 Candidate should bring out the definition of wetlands and types of wetlands in Uganda such as:

Wetlands are defined as areas which are permanently or seasonally flooded by water and where plants and animals have become adapted.

Candidate gives the different types of wetlands which includes:

- **valley floor swamps/open valley wetlands** are found in lowlands like Sezibwa swamp, Rubigi swamp, Lumbuye swamp, Naigombwa swamp.
- **Riverline swamps** found along the courses of major rivers such as along River Nile, along River Katonga, along River Kafu.
- **Lakeshore swamps/lacustrine wetlands** found along shores of lakes such as along Lake Victoria swamps like Lutembe swamp, Masese wetland, along Lake Kyoga swamps like Galiraya wetlands and Lwampanga wetlands.

Candidate should bring out the causes of wetland destruction which include:

- Agriculture especially rice, yam growing has led to destruction of wetlands such as Naigombwa wetland, Lumbuye swamps, Doho wetlands.
- Industrial development where most industries have been established in wetlands and dump industrial wastes in wetlands such as Rubigi wetland, Nakivubo wetland.
- Conflicting government policies and programs on conservation of wetlands such as reclamation of Kiruruma wetland for dairy farming, Banda wetlands for investors.
- Construction of sports and recreational centres leading to draining of wetlands such as Nakivubo wetlands, Wankulukuku wetlands,
- Urbanization especially expansion of towns where wetlands have been filled in for real estates for example Nakivubo wetland

- Population pressure to create room for settlement and disposal of domestic wastes such as Rubigi wetland.
- Deforestation of wetland vegetation for craft and firewood has led to disappearance of wetlands such as Ssezibwa wetlands.
- Mining of sand and clay has created craters and disrupted wetland natural hydrology such as Lwera wetlands
- Climate change through prolonged drought have affected wetlands ability to

maintain water levels such as Awoja wetlands.

- Pollution from domestic and industrial wastes such as Nakivubo wetlands
- Fishing activity especially fish farming has increased on wetland encroachment such as Tirinyi wetlands.
- Lack of awareness and environmental education by local community
- Lack of proper enforcement of environmental education and weak laws.
- Corruption by top officials through issuing out land titles in wetland areas such as Rubigi swamp.
- Insecurity leading to destruction of wetlands such as Awoja swamps
- Bush burning during dry season leads to destruction of large areas covered by swamps such as Awoja swamp.
- Increasing road construction has led to destruction of wetlands such as Katonga swamps along Mpigi- Masaka Road, Mpologoma wetlands along Mbale-Iganga road.
- Wild fires during prolonged drought leads to destruction of wetlands such as Katonga wetlands.
- Some wetlands are destroyed by local people in order to control pests and diseases to reduce spread of malaria caused by mosquitoes and sleeping sickness caused by tsetse flies such as Naigombwa wetlands, Sezibwa swamps, Nabajuzi wetlands.

RA4 Candidates should also come up with measures for sustainable use of wetlands which may include:

- Climate change adaptation by promoting water conservation and flood mitigation such as Doho wetlands, Mubuku wetlands

- Regulation of sand mining by ensuring sand miners acquire permits and follow environmentally friendly extraction methods.
- Sensitization of the local people on protecting wetlands such as Nabajuzi wetland, Sezibwa swamps.
- Evicting wetland encroachers to conserve wetlands such as Rubigi swamp.
- Control of invasive plant species through mechanical removal, herbicides and introduction of natural predators.
- Encouraging use of alternative building materials such as iron sheets to save papyrus vegetation such as Lunbuye swamp, Nabajuzi wetland, Sezibwa swamp.
- Buffer zone protection helps to control pollution and physical destruction, plant trees to shield core wetland from urban sprawl.
- Promotion of alternative livelihoods such as fish farming, poultry, bee keeping such as Tirinyi wetlands, Awoja swamps.
- Public awareness and community engagement through environmental education campaigns and community outreach programs help people on waste management, importance of maintaining wetland vegetation such as Tirinyi swamps, Awoja swamps, Nabajuzi wetlands.
- Legislative and policy frameworks where Uganda has laws and policies in place aimed at conservation and sustainable use of wetlands such as cancelation of land titles issued within Rubigi wetlands.
- Wetland restoration programs by re-establishing natural water flow patterns by local community such as Doho wetlands, Naigombwa wetlands.
- Sustainable fisheries management by establishing fishing seasons, limits on fish catches, and creation of fish sanctuaries within wetlands where fishing is restricted to allow population to regenerate, encouraging sustainable fishing methods, such as Sezibwa swamps, Nabajuzi swamps.
- Promoting eco-tourism development to generate income to local people such as bird watching, nature walks education tours such as Nabajuzi wetlands, Mabamba wetlands.
- Agro-forestry where trees are planted in wetlands to preserve biodiversity while providing economic benefits to farmers.

- Promoting integrated wetland management by involving all stakeholders in decision making.
- Wetland mapping and demarcation using satellite data, drones and field surveys where all wetlands have been gazetted preventing future encroachments such as Kiruruma wetland, Nabajuzi swamp.
- Promoting family planning to control population pressure on wetlands such as Lumbuye swamp, Nabajuzi swamp, Awoja swamp.
- Climate smart wetland management to improve climate resilience through flood control, carbon storage, and water regulation.
- Payment for ecosystem services where communities are compensated for conserving wetlands and maintaining ecosystem such as Nabajuzi swamp.

RC4 proper flow of information with correct spelling of words, no crossing of candidate work.

Item 5

Task:

Challenges facing energy resources and the strategies to address the situation. Prepare a write up of the information to deliver at the meeting which should include

Expected responses

RK5 Candidates are expected to come up with the identification of different types of energy in Uganda which may include:

Major power and energy sources include

- Hydroelectric power generated at Nalubaale power station and Kiira dam on River Nile.
- Geothermal power expected to be generated at Kitagata, Sempaya and Kisizi hot springs
- Thermal power such as oil from Hoima, Bulisa
- Solar energy widely used in hospitals, schools, industries and homes eg. Kampala, Mukono, Iganga, Kamuli.
- Biomass from vegetation like Mabira forest in Buikwe
- Natural Gas from urban centres such as Tororo, Kampala, Jinja
- Biogas generated from plants and animal waste such as Bushenyi, Mbarara.

- Wind energy generated in areas with scanty vegetation cover such as Moroto, Kotido, Abim,

RT5 Candidates should bring out the challenges Uganda is likely to face which may include the following;

- Production of petroleum causes pollution of air, land and water this leads to death of aquatic animals like fish, crocodiles hence loss of diversity, and pollution of air with carbon monoxide from moving vehicles causes diseases hence death.
- Fluctuation in water levels reduce on power production such as Bujagali HEP dam.
- Low level of technology to develop more power plants such as Karuma HEP dam, Isimba HEP dam.
- Limited skilled labour in form of few engineers, technicians such as wind power at Kabong.
- Limited research to discover other power and energy potentials such as Nyangak HEP dam, Sipi falls.
- Resistance from environmental activists to set up power plants such as Karuma HEP dam.
- Illegal connections and high rate of stealing electricity by the local people reduces revenue generated such as Bujagali HEP dam.
- Limited government support by delaying establishment of power plants such as Sipi falls.
- Limited capital to set up power plants in form of purchasing equipments to establish the dam such as Sipi falls, Sempaya geothermal plant.
- Insecurity in areas leads to destruction of transmission lines such as Owen falls HEP dam.
- Limited market for electricity due to poverty by the locals limit transmission of power such as Karuma HEP dam, Bujagali HEP dam.
- Deforestation/rampant disappearance of vegetation, this may leads to loss of habitats for wild animals like snakes, monkeys etc. and reduction in forest resources like timber, firewood, fruits, herbal medicine which are sources of people's livelihood.

- Corruption by top officials who divert funds for personal use other than expanding on power.
- Land incurberances or land ownership where people near sources of power need a lot of money for compensation such as Sipi falls.

RA5 Candidates are also expected to come up with measures that can be taken to promote sustainable utilization of energy resources.

These may include;

- Encouraging afforestation and afforestation programs to replace the depleted forests and therefore increase on the supply of Biomass e.g. from Katugo forest in Nakasongola and Leydin forest in Nebbi.
- Encouraging power production from Biomass residues e.g. Bagasse from sugar mills e.g. at Kakira sugar works and Kinyara sugar factories to save biomass from forests like Mabira.
- Encouraging the use of energy saving equipment e.g. UGA stove for saving charcoal from Budongo forest and energy saving bulbs to save hydro-electricity from Nalubaale power station at Jinja.
- Gazetting forests into forest reserves so as to preserve them for the future
- Importation of modern technology in the country to facilitate the generation of power and energy sources e.g. solar panels for solar energy in Kampala, this will lead to reduction in deforestation.
- Construction of thermal plants in different parts of the country should be adopted to supplement hydroelectricity e.g. the 50 MW heavy fuel oil thermal plant at Namanve and the use of standby generators in Kampala.
- Carrying out intensive research by the ministry of Energy and Mineral Development to concerning energy development and conservation e.g. geothermal energy at Kitagata to supplement on the existing sources of energy.
- Fighting corruption and embezzlement of funds to reduce mismanagement of funds meant for research and development of power and energy sources like installation of clean energy like solar panels, generation of geothermal energy, wind energy from kotido etc.
- Support institutions like Ministry of energy and mineral development should be established to ensure effective generation and management of power and energy e.g. Hydro-electricity from Kiira dam.

- Promoting clean cooking energy technologies e.g. Biogas to reduce indoor air pollution and lower Biomass use.
- International partnerships should be strengthened to boost technical and financial support for developing countries like Uganda in its energy transition such as projects funded by the world bank and GTZ to help build infrastructure, train technicians and support rural electrification.
- Mass sensitization should be carried out to sensitize/educate people on the management and use of energy resources together with its sustainable use so as to preserve energy resources for future generations e.g. About the use of alternative sources of fuel like solar energy than that cutting trees for Biomass.
- Licensing timber men should be provided to forest users like lumber men, charcoal burners so as to limit forest users and spare the extraction of trees e.g. from Budongo forest.
- Strict laws should be set up to guard against destruction of forests which may lead to depletion of Biomass e.g. arresting and imprisoning forest encroachers without licenses.

END