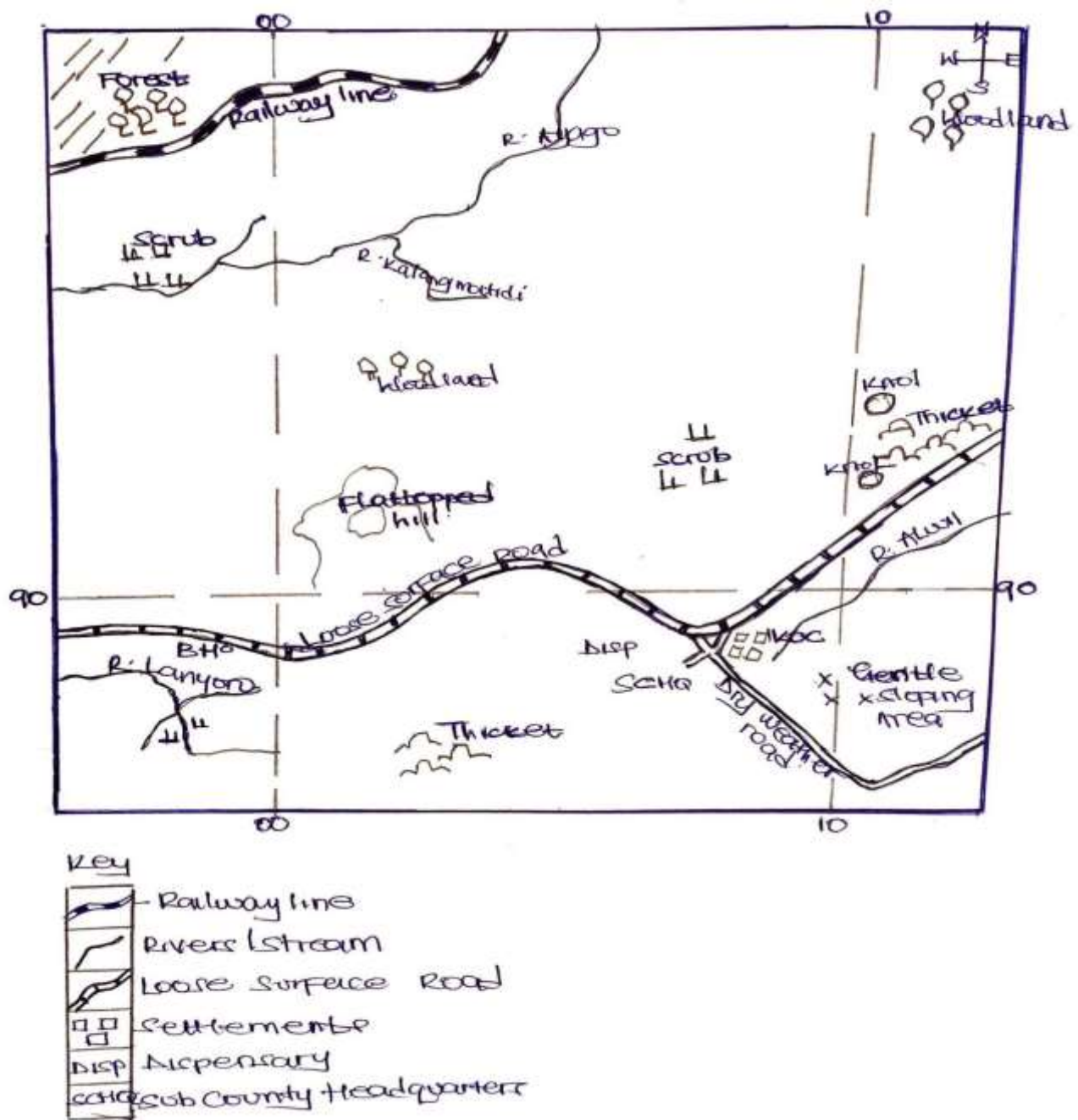


MT. ST. HENRY'S HIGH SCHOOL MUKONO
O LEVEL GEOGRAPHY SEMINAR HELD ON 27TH JUNE 2026

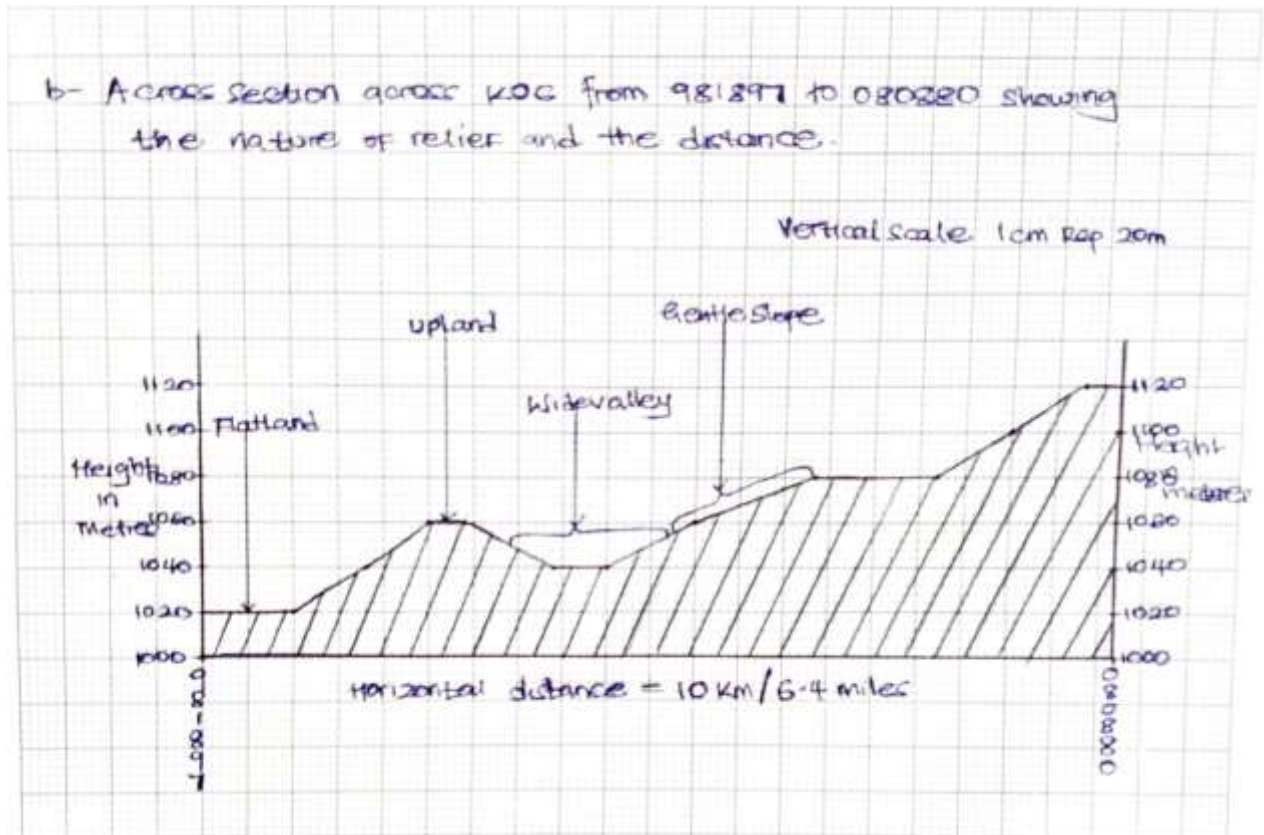
SECTION A

Responses to Item 1: Map skills

(a) A SKETCH MAP OF KOC SHOWING NATURAL RESOURCES AND HUMAN MADE FEATURES.



(b) A CROSS SECTION ACROSS KOC FROM 981897 TO 080880 SHOWING THE NATURE OF RELIEF AND THE DISTANCE.



(c) The geography class in the field faced the following problems:

- Physical barriers in form of isolated hills north of Onyona which hindered the groups from seeing landuse types beyond Onyona.
- Remoteness of the area evidenced by various foot paths linking to Tim Opok hindered their access to the woodland in the area which made them to miss information about the bio-diversity in the woodlands.
- Road impassability during the rainy days along dry weather road from Koc town to Bobi limited movement of the Groups to Bobi in order to record various natural resources in the area.
- Sound/noise pollution along busy loose surface road from Pakwach to Gulu in Koc town which hindered the groups from listening and recording the problems that traders in the town were facing
- Attacks from dangerous wild animals like snakes due to existence of thick forests in the North of Pamiyai and LALAR which hindered the class from accessing the forest to record various tree species in the area.

- Seasonal flooding of the rivers like Lanyoro during the rainy days which hindered their movement to areas like Koc Akili and Kalang hence missing out on writing down the agricultural practices carried out by people in such areas.
- Attacks from water-borne diseases and vectors like mosquitoes due to the existence of rivers like **Lamunawuch** and **Tido**, which hindered the class from extending to new areas like **BAROLAM** to record the various natural resources in such areas.

(d) Climate conditions in Koe can influence people's ways of life as below:

Climate condition + Evidence and location on the survey map + activity it supports / outcome / effect.

- Moderate rainfall evidenced by thick forests in North of **Lalar** and **Pamiyai** support growing of crops which provide food to people.
- Moderate rainfall evidenced by woodlands north of Otim Opoka and various rivers like **Kulutogo** in the East of Kalang support rearing of animals / livestock farming which animal products are sold to obtain income to people.
- Moderate rainfall received in **Tim opok** favour growth of woodlands that support bee-keeping which is a source of honey sold to generate income.
- Hot sunny conditions during day evidenced by the location of Koc **2°40'N** of the Equator help in generation of solar energy which supports domestic and industrial activities.
- moderate rainfall received encourages continuous water supply to river valleys like **Tido** supporting fish farming which is a source of fish sold to generate income.
- Unreliable rainfall evidenced by seasonal rivers South of **Akomo** encourage irrigation farming during the dry season in order to increase food supply to the people.
- Reliable rainfall received evidenced by numerous rivers like **Kalang** support the growing of trees/forestry which support wildlife conservation for tourism.

Negatively, the climate conditions in Koc can influence people's ways of life as below:

- Rainfall received in Riverine areas like **Kalang** can cause river flooding leading to destruction of people's property and loss of people's lives.
- Heavy rainfall received in steeply sloping areas North of **Lalar** can cause soil erosion which results into destruction of crop lands and soil degradation.
- Heavy rainfall received in the steeply sloping areas North of **Lalar** can lead to landslides which lead to destruction of property and loss of people's lives.

(e) (i)

(a). Annual Temperature Range Calculation

Annual Temperature Range = Highest monthly temperature – Lowest monthly temperature

$$= 24^{\circ} - 22^{\circ}\text{C} = 2^{\circ}\text{C}$$

Therefore, the annual temperature range is **2°C**.

(b). Total Annual Rainfall Calculation

Total Annual Rainfall = Total summation of Monthly Rainfall totals

$$\begin{aligned} &= 182 + 194 + 174 + 201 + 224 + 240 + 220 + 197 + 186 + 160 + 121 + 108 \\ &= \mathbf{2,207\text{ mm}} \end{aligned}$$

Climate Classification Conclusion:

Therefore, the type of climate is **Equatorial** due to heavy rainfall received of over **1500mm** per annum and a small annual temperature range of about **2°C**.

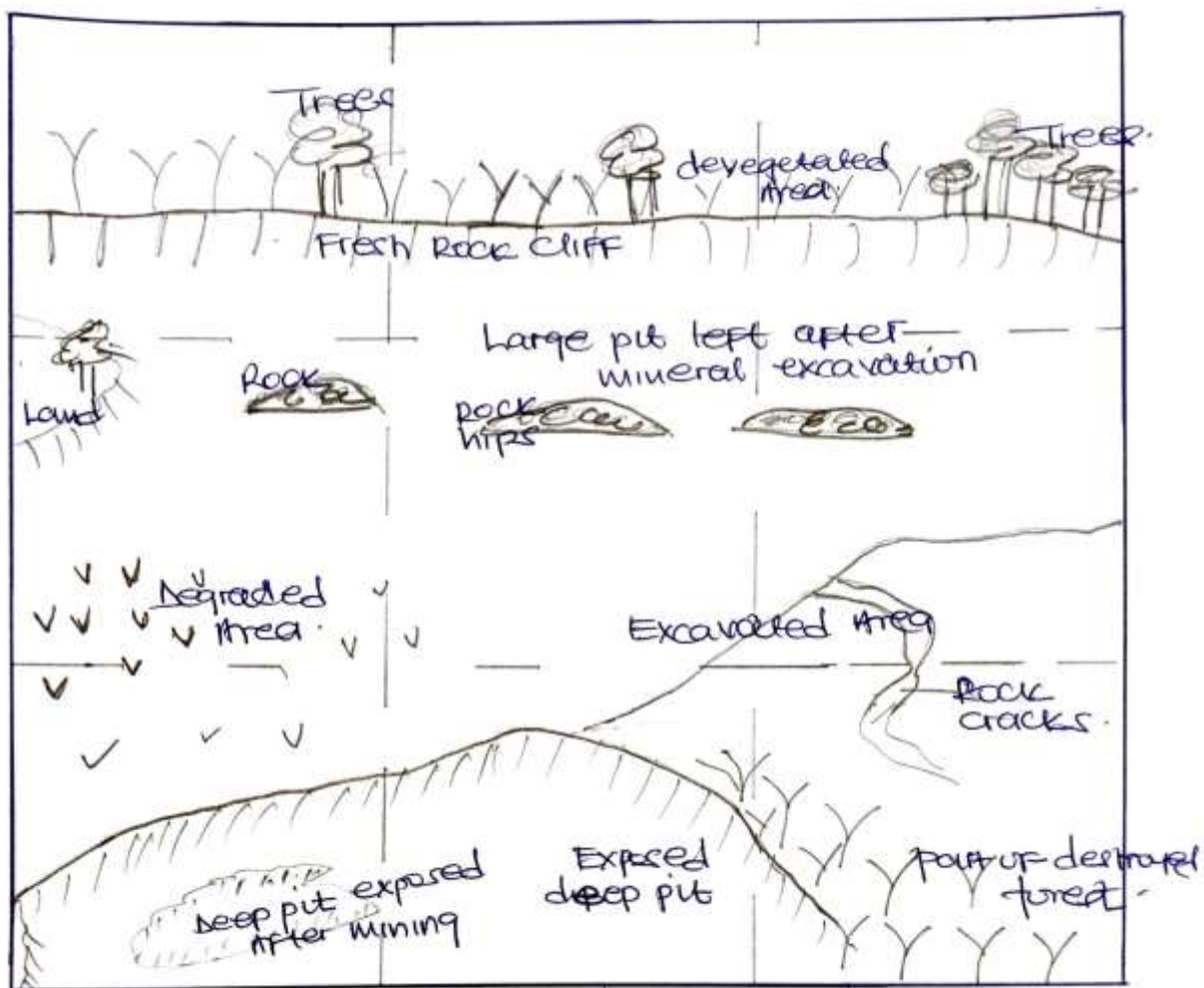
(ii) The dangers associated with the Equatorial climate can be overcome using the following measures:

- Afforestation / Agro-forestry / Planting trees along the relatively steep slopes in Lukutu and Barolam to bind the soil and rock particles together. This reduces the impact of soil erosion and landslides during heavy rainfall periods.
- Constructing of Gabions along the relatively steep slopes in order to increase rock stability in areas of Barolam and Lukutu during periods of heavy rainfall, encouraging other activities like crop growing and settlement.
- Construction of Embankments and Bridges along rivers in order to reduce flooding of rivers like Kalang, Alwii, and Obul, which encourages effective movement and engagement in other land-use activities along the river banks.
- Installing Thunder Arresters and Lightning Conductors on roofs of buildings in the hilly/sloping areas of Lukutu and Barolam to reduce lightning strikes in the rainy periods, hence improving people's lives.
- Planting of Cover Crops along the relatively steep slopes in Lukutu and Barolam to reduce soil erosion during the rainy season in order to ensure continuous crop growing.

- Stabilizing Banks of Rivers like Kalang, Alwii, and Obul by planting grass and bamboo in order to redirect rainwater away from the river banks to reduce flooding.
- Rehabilitating Dry-Weather Roads by putting marrum rocks (for example, the road linking Koc town to Bobi) in order to reduce their slippery nature during the rainy season to ensure effective movement of people along the road network.
- Construction of valley dams and water reservoirs in areas receiving seasonal rainfall like Akomo in order to ensure water supply in the dry season.
- Encouraging rain water harvesting in areas receiving seasonal rainfall like Akomo during the rainy season through installing water tanks in order to ensure water supply in the dry season.

Responses to item 2. Photograph Skills

A SKETCH OF THE AREA SHOWN ON THE PHOTOGRAPH SHOWING THE EFFECTS OF MINING.



(b) The activities have affected the community in the following ways:

Assessment Framework: Danger (effect) + Evidence and Location + Impact to the Community

- Occurrence of air and dust pollution due to exposed mineral dust in the middle ground leading to respiratory diseases to the miners.
- Occurrence of mining related risks like collapsing roofs due to exposed deep pits and numerous rock cracks in the foreground leading to death and severe injuries to the miners.
- Destruction of Vegetation Cover evidenced by the part of excavated grass and tree cover in the foreground, leading to a loss of biodiversity, the disappearance of wildlife, and a subsequent decline in local tourism.
- Creation of breeding places for dangerous disease vectors (such as mosquitoes) in exposed pits left after mining activities in the middle and foreground, leading to the spread of diseases that threaten people's lives/ ill health.
- Occurrence of soil erosion and landslides due to the excavation of rocks, making slopes and land structures unstable in the foreground, leading to the destruction of soil structure and a major decline in soil productivity.
- Excavation and destruction of tree and grass cover in the foreground and middle ground results in a significant decline in evapo-transpiration, ultimately leading to a decline in rainfall formation and reduced crop production.

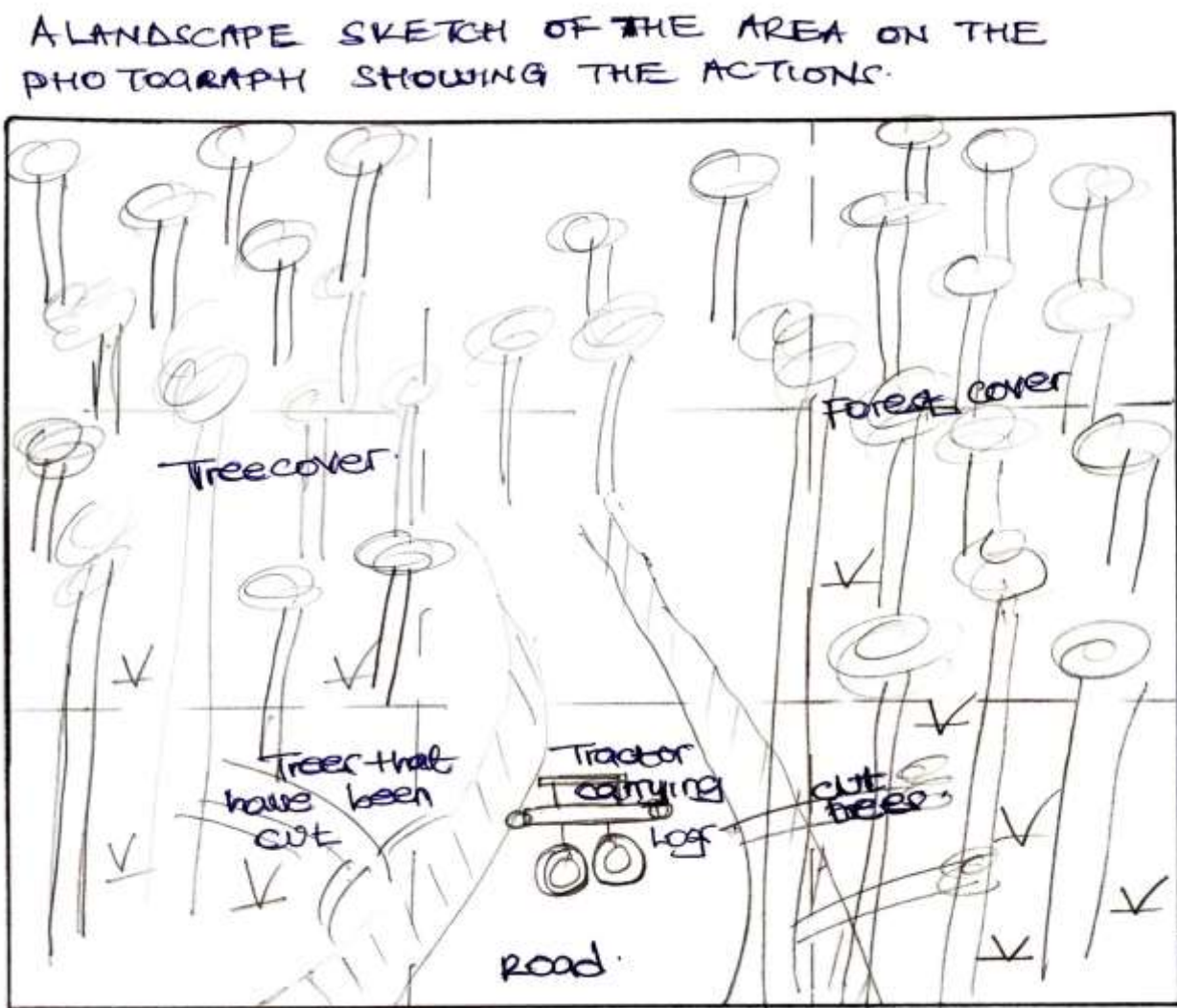
(c) The following are the measures that can be undertaken by the community to reduce the effects of mining activities:

- Filling the pits left after mineral excavation in order to increase rock stability and reduce water stagnation hence reducing vector breeding hence improving people's health.
- Use of protective gears like helmets while carrying out mining in deep pits in order to minimize accidents as a result of collapsing roofs.
- Pumping of fresh air into the mines in order to minimize suffocation as a result of mineral dust pollution in order to improve people's health.
- Resettling people leaving near the mining areas to distant areas in order to minimize accidents arising from excavation and rock cracklings.
- Gov't should enforce mining laws strictly by regulating mining activities, punishing illegal miners and ensuring that miners follow environmental protection guidelines

- Community involvement by allowing local people to make viable decisions on mining projects & also educating them about the benefits & dangers of mining
- Encouraging local people to engage in other source of incomes/economic activities like farming, trade & skills dev't to reduce dependence on mining
- Planting trees in areas affected by mining to reduce soil erosion & restore the ecosystems.
- Improve on health services by providing medical facilities e.g First aid units, mobile clinics, ambulances to deal with mining related illness & accidents
- Use of modern mining technology e.g dust collectors technology, GIS systems that reduce land pollution & environmental damage.

Responses to item 3. Photograph Skills

(a) A LANDSCAPE SKETCH OF THE AREA ON THE PHOTOGRAPH SHOWING THE ACTIONS.



(ii) The tourist activities that can be carried out in the area to generate wealth to the people include:

Format Guideline: Tourist activity + (Feature + Location)

- Nature walks in the forest in the middle ground
- Wild animals tracking in the forest in the middle ground
- Zip lining in the forest in the middle ground
- Game hunting in the forest in the middle ground
- Night camping in the forest in the middle ground
- Game driving in the access road in the foreground
- Bird watching in the forest in the middle ground
- Filming and photography in the forest in the middle ground.

(b) The following are the effects of encroachment on the conservation areas:

- Reduced rainfall totals due to destruction of forest in the background leading to reduced agricultural activities.
- Increase in temperatures due to limited evapotranspiration as a result of encroachment on forest in the foreground which leads to drying up of crops, water bodies.
- Soil erosion due to reduced soil bonding as a result of destruction of forest cover in the background leading to soil infertility and reduced crop production.
- Destruction of nearby settlements due to absence of wind breakers as a result of encroachment on forest cover in the background leading to destruction of property and losses.
- Loss of biodiversity such as wild animals, birds due to encroachment on forest cover in the middle ground leading to decline in tourism.
- Loss of valuable plant species of medicinal value due to destruction of forest cover in the foreground leading to poor health conditions.
- Attacks from dangerous wild animals due to destruction of their habitat in form of forests in the middle ground leading to death and displacement of people.
- Loss of scenic beauty due to the destruction of forests in the middle ground leading to reduced earnings from tourism.

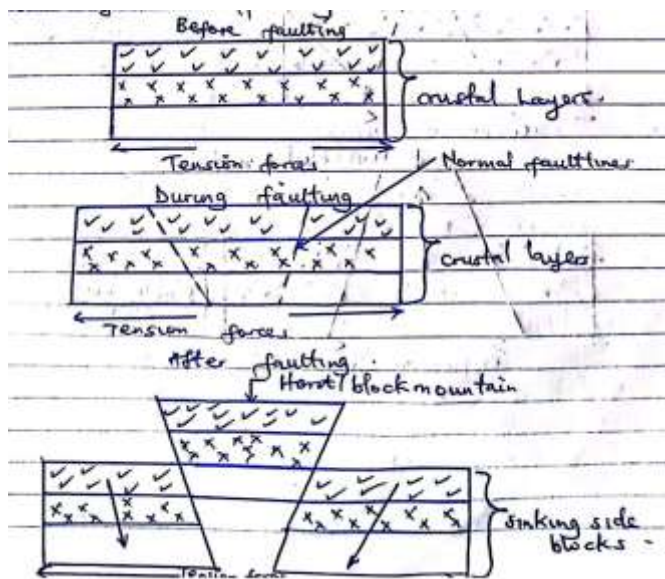
(c) The following are the ways how the community can reduce encroachment on the conservation areas and dangers associated with the activity;

- Creating buffer zones between the conservation areas and land for other activities by the government in order to reduce human encroachment on forest reserve.
- Creating barriers in the national parks through fencing with electric wires to reduce animal escaping from conservation areas.
- Educating/sensitizing the public about the advantages of conservation of wild life areas in order to change their attitude to reduce their destruction.
- Enforcing strict laws against poaching and other encroachment activities in order to safeguard wild life for tourism.
- Creating awareness to the public neighboring the conservation areas to reduce activities like smoking cigarettes which can cause bush fires among others.
- Resettlement of people close to the conservation areas to distant areas in order to reduce the risks of animal encroachment to their settlement areas and related risks.
- Treatment of waste materials before their release to the environment in order to reduce pollution of the area and health hazards to the wild life which reduces their extinction.
- Practicing afforestation practices in order to increase habitats for wild life to promote tourism and related activities.
- Using alternative energy sources like solar in order to reduce the use of wood for fuel energy.

Responses to item 4

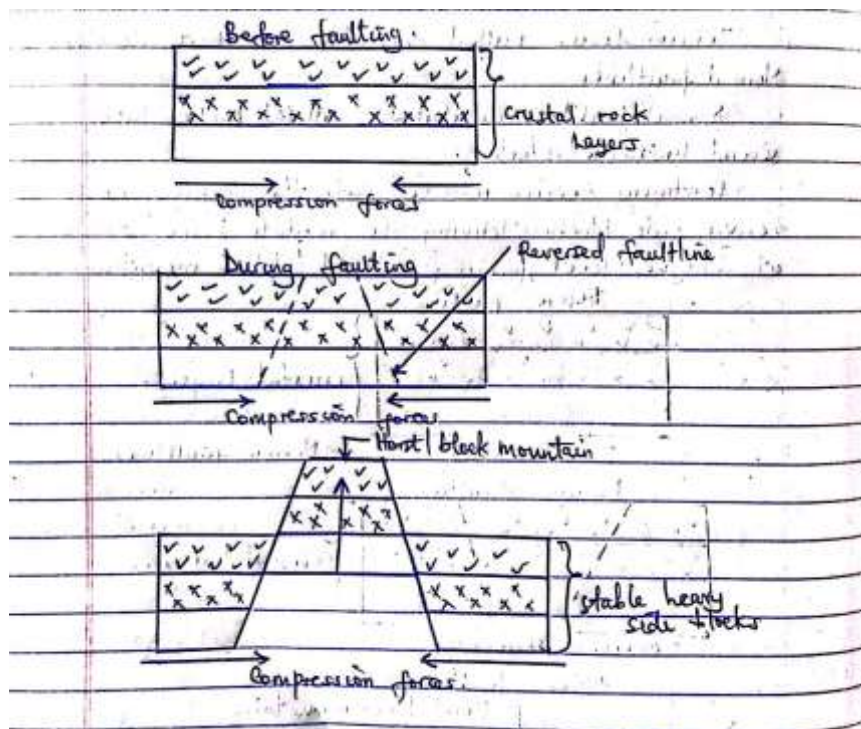
(a) The upland is mountain Rwenzori. It is block mountain / Horst refers to a steep raised upland by fault scarps on either side.

- Formed as a result of faulting caused by geo-chemical, geo-physical and radio activity reactions generating convective currents that cause tension and compression forces in the Earth's crust.
- Formation of the block mountain by tension force theory.
- Tension forces pulled crustal rocks apart developing Normal fault lines.
- Normal fault lines divided the crustal rocks into several unstable blocks.
- Continuous tension resulted into the sinking of heavy side blocks leaving the middle block stable at a higher level forming a Horst / block mountain.



Formation of the block mountain by compression force theory.

- Compression forces pushed crustal rocks towards each other leading to development of Reversed fault lines.
- Reversed fault lines divided the crust into several unstable crustal blocks.
- Continuous compression resulted into the uplift of light central block forming a horst / block mountain.

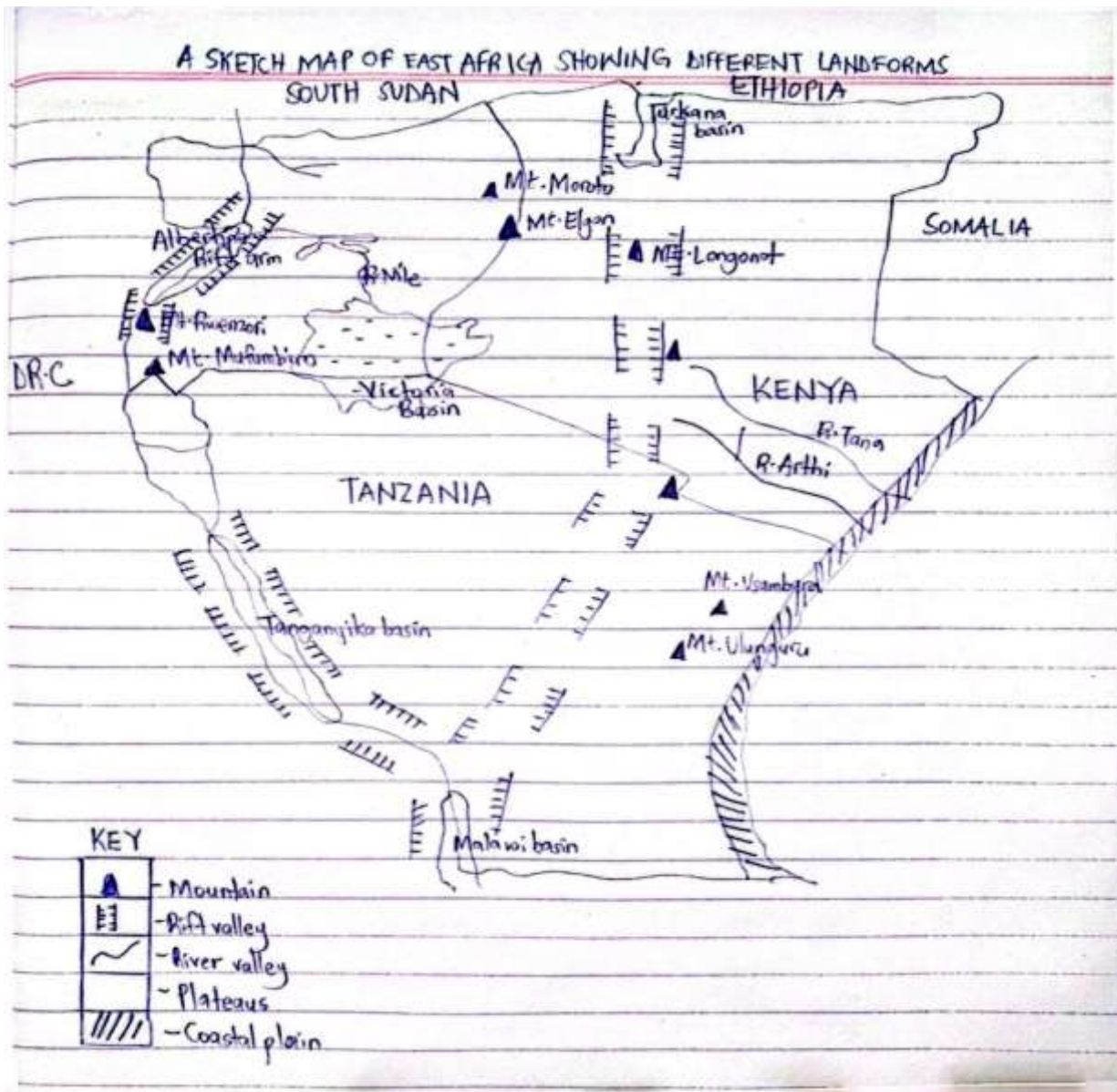


(b) The following are the ways they can transform their livelihood from subsistence to commercial better use.

- ✓ Growing of cash crops like coffee, pyrethrum to sell and earn income for better standards of living.
- ✓ Diversity arable farming by growing a variety of crops like fruits, vegetables to increase production and earn incomes.
- ✓ Adding value to their crops by processing their produce to make spices, jam which are sold to earn more income.
- ✓ Constructing accommodation facilities like guest houses, lodges for tourists to earn income.
- ✓ Establish recreation centres and facilities like Zip lining areas, camping sites which generate income.
- ✓ Make a variety of craft items which are sold to tourists for example wood curving, huts, bags in order to earn income.
- ✓ Carrying out Agro-forestry by growing some crops with trees which are sold to earn income.
- ✓ Forming entertainment groups to show some tourists cultural performances and earn incomes.

Responses to item 5

(a) A SKETCH MAP OF EAST AFRICA SHOWING VARIOUS RELIEF REGIONS (LAKE BASIN REGION AND PLATEAU) AND HIGHLANDS.



(b) The following are the measures John should put in place to deal with the dangers associated with the environment:

- Constructing gabions along the steep slopes to increase rock stability to encourage safe settlement and other activities with limited soil erosion and landslides.
- Terracing and contour ploughing of the cropland to reduce soil erosion in order to encourage crop growing.
- Sleeping under treated mosquito nets to reduce the spread of diseases like malaria in order to improve his health.
- Afforestation along very steep slopes in order to increase rock stability by the binding effect of roots to reduce occurrence of soil erosion and landslides.

- Spraying of forested areas along the highlands to control pest infestations in order to encourage crop growing.
- Sensitizing the government to construct winding roads in the hilly areas in order to access the remote areas.
- Planting of cover crops in order to control soil erosion and encourage commercial crop growing.

(c) The following are the ways how the people living in the highlands can generate wealth from the area:

- Crop growing along the gentle slopes with fertile soil for sale to generate income.
- Rearing of animals / Livestock farming along slopes with pastures which provide meat and milk for sale to generate income.
- Establishment of settlements along the gentle slopes / foothills of the mountain for residential and commercial purposes.
- Mineral extraction along the foothills of mountain to generate mineral ores that are sold to industries as raw materials.
- Wildlife conservation along forested mountain slopes to support tourist activities which generate income to people.
- Herbal medicine extraction from the dense forest cover on windward side of highlands which are collected and sold to generate income.
- Selective lumbering from the forested highland generates timber and poles which are sold to generate income.

Responses to item 6

(a) The following are the features portrayed in the scenario:

- Exfoliation dome / Inselberg
- Limestone cave / underground cave
- Stalactite
- Stalagmite
- Limestone pillar

1. Inselberg / Exfoliation Dome

An Inselberg refers to a steep-sided, isolated residual hill of hard rocks rising above the surroundings.

It is formed as a result of physical weathering due to temperature changes causing alternate expansion and contraction.

The overlying softer rocks are subjected to heating during the day hence they expand. At night, as temperatures drop, the rocks contract.

Alternate contraction and expansion results into cracks and peeling off of the soft overlying layer, exposing the steep-sided residual hill as an Inselberg. *An example of this feature is Tororo Rock.*

2. Limestone Cave / Underground Cave

This is a large, natural underground chamber or cavity formed in limestone rocks

It is formed by Carbonation and solution. Rainwater combines with Carbon dioxide to form a weak Carbonic acid that percolates through limestone rocks along joints and fractures.

This acidic water dissolves out Calcium Carbonate, carrying it away in solution and leaving behind an underground cavity called a Cave.

3. Stalactites and Stalagmites

Stalactite:

Is a finger-like rock projection of calcium carbonate hanging from the roof of the limestone cave.

Stalagmite:

Is a finger-like protrusion of calcium carbonate at the floor of a limestone cave.

Formation Process:

They are formed through Carbonation. Rainwater combines with Carbon dioxide to form carbonic acid which dissolves calcium carbonate to form calcium bi-carbonate taken in solution.

The calcium hydrogen carbonate solution percolates through limestone rock joints and drips from the roof of the cave. When water evaporates from it, calcium carbonate deposits form and grow vertically downwards from the roof to form **stalactites**.

When the calcium hydrogen carbonate drips to the floor of the cave and water evaporates from it, calcium carbonate deposits form and grow vertically upwards from the floor to form **stalagmites**.

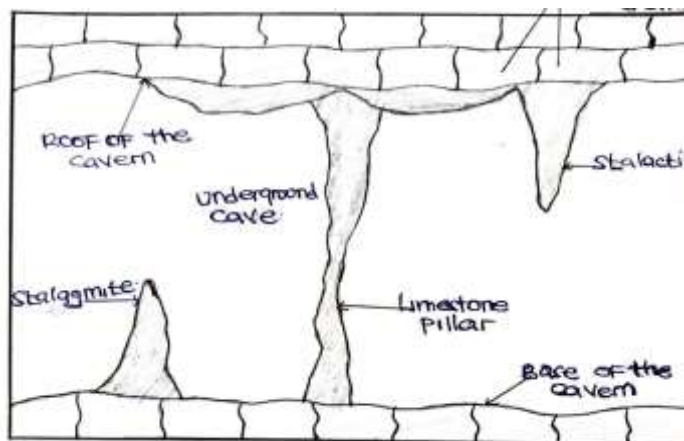
4. Limestone Pillar

Definition: This refers to a rock column of calcium carbonate that extends from the roof to the floor of the underground cave.

Formation Process:

They are formed when stalactites and stalagmites continue to grow towards each other and eventually join. Pillars also form when a stalactite grows and touches the floor of the cave, or where the stalagmite grows and touches the roof of the cave.

An Illustration showing stalactites, stalagmites, cave and Limestone pillars



(b) The following are the ways how the landforms can enable the community to generate wealth:

- Weathered stalagmites and pillars are used in the manufacture of cement which is used in building and construction.
- Caves, pillars and exfoliation domes are great tourist attractions which generate revenue and foreign exchange to region used in providing public services.
- Weathered limestone rocks support agriculture which generates food to people hence improving their standard of living.
- Limestone rock areas favour the growth of pastures used for animal grazing which generate animal products like milk and meat sold to generate income.
- Limestone rock features are used for decoration purposes in buildings hence supporting better designing of residential homes, generating income to the engineers.

Responses to item 7

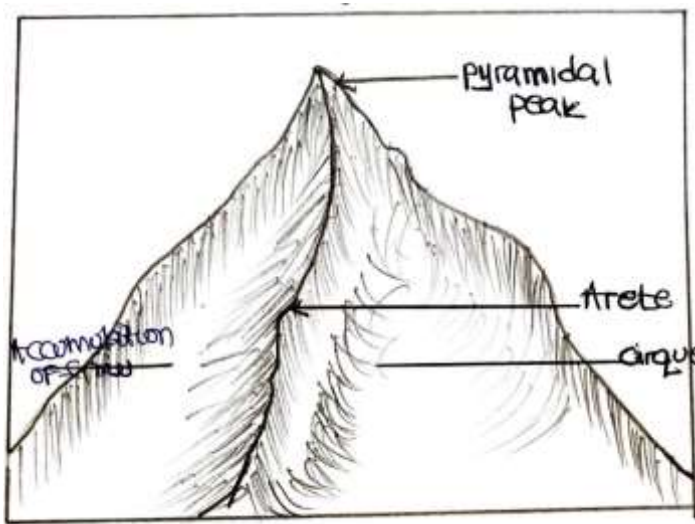
The features observed in the scenario are:

- Pyramidal peak
- Cirques / corries
- Arêtes

a. Pyramidal Peak / Horn

A **pyramidal peak / horn** is a sharp rock pinnacle which is steep-sided surrounded by a system of radiating arêtes. It is formed by glacial erosion through back wall recession of two or more corries on the mountain side through plucking and abrasion. **Examples include:** Margherita Peak and Stanley Peak on Mountain Rwenzori.

Illustration



b. Arête

An **arête** is a narrow sharp knife-like ridge between two or more cirques on a mountain side.

It is formed as a result of back wall recession of two adjacent corrie sides such that they eventually meet at the ridge. Plucking and abrasion assist in its formation.

Examples include: Arêtes can be seen on Mountain Rwenzori radiating downwards into Bujuku and Mubuku Valleys.

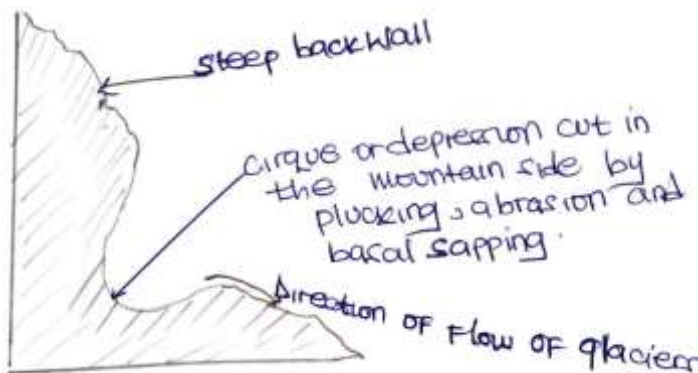
C. Cirque / Corrie

This is a steep-sided armchair-shaped rock basin / semi-circular depression cut into glaciated mountain sides and valley heads.

It is formed when water enters the cracks and freezes, breaking them down. The joints become enlarged. Abrasion drags the debris over the rock floor, deepening and widening the depression.

Back wall recession and plucking of the sides also enlarge the depression as well as steepening the cirque sides.

Illustration



NB: When cirques are filled with water they form tarns, such as Lac Gris, Lac Speke, and Lac Catherine on Mountain Rwenzori.

Other glacial erosional features that can be emphasized include:

1. Glacial Trough / U-Shaped Valley

This is a broad, flat-floored and steep-sided valley with a U-shaped cross profile.

It is formed when abrasion and plucking are subjected to the former river valley, leading to vertical and lateral erosion which deepens and widens the valley respectively to form a glacial trough.

Examples include: Bujuku, Mubuku, and Kamusoso Valleys along Mountain Rwenzori.

2. Hanging Valley

These are narrow tributary valleys of the main U-shaped valleys, joining the U-shaped valleys at vertical slopes, forming waterfalls at these points.

They are formed when tributary valleys are occupied by small volumes of glacial ice compared to the main valley.

As a result, the main valley is over-deepened by abrasion and plucking, leaving the tributary valley at a higher level, hence a hanging valley.

Examples include: The tributary valleys leading to Mubuku Valley and Bujuku Valleys on Mountain Rwenzori.

3. Truncated Spurs

These are spurs with steep-sided edges ending into the U-shaped valley. They are formed when the lower ends of former interlocking spurs projecting into the valley are laterally eroded due to plucking and abrasion, creating steep, cliff-like valley sides. **Examples:** Found at Bujuku and Mubuku Valleys on Mountain Rwenzori.

4. Rock Basins

This is an irregular and circular depression in the floor of the U-shaped valley. It is formed by differential glacial erosion of the less resistant bedrock through abrasion, plucking, and frost shattering.

Rock basins usually develop where tributary glaciers join the main valley and cause more glacial erosion, leading to the formation of a hollow. If the rock basin gets filled with water, it forms a lake (Rock basin lake / Ribbon Lake). **Examples:** Lake Michealson and Carr Lake on Mountain Kenya.

5. Rock Steps

These are hard rock projections in a glacial U-shaped valley formed as a result of differential erosion due to differences in rock resistance and variations in glacial thickness.

The increased volume of ice in the main valley makes it possible to cut deep into the valley floor, creating step-like features known as rock steps. **Example:** The Vivienne Falls on Mountain Kenya.

6. Crag and Tail

This is a mass of resistant rock outcrop with its upstream steepened by abrasion and its downstream side of soft rock elongated due to being protected by hard rocks from erosion. Sometimes the tail forms from the downstream deposition of the eroded materials.

7. Roche Moutonnée

These are rock masses, glacially moulded with a smooth gently sloping upstream smoothed by abrasion. The downstream is steep and rough due to plucking.

Examples: In Mubuku Valley along Mountain Rwenzori, and along the Gorges Valley near the snout of Lenana Glacier on Mt. Kenya.

(b) The formation of glacial features has impacted the lives of the people as follows.

Positively;

- Waterfalls at the hanging valleys are potential sites of hydroelectric power generation which is used for domestic and industrial purposes.
- The unique beautiful scenery such as arêtes and pyramidal peaks attracts tourists and this earns foreign exchange to the region.
- The lakes and rivers in the glaciated region are sources of water for domestic and industrial use.
- The moraines deposited contain sand and gravel which can be extracted for building and construction purposes.
- The boulder clay plains in the glaciated lowlands are fertile and suitable for crop growing.
- Glaciated areas act as recreation and sport centres for mountain climbing, skiing among other activities.
- Glacial erosion exposes valuable minerals like copper which become easy for them to be exploited thus sold to get incomes.
- The melted water from the streams and lakes act as micro climate modifiers through the formation of rainfall and lowering the temperature of the region.

negatively;

- Glaciers are associated with avalanches which lead to extensive loss of property and lives in the lowlands of mt. Rwenzori.
- Extensive areas of land are turning into myriads of lakes due to moraine deposits which landscape created limit agriculture and transport.
- Many outwash plains contain infertile soils rich in sand giving rise to extensive land which discourage agriculture.
- The marshy and swampy lowlands resulting from moraine deposition are breeding grounds for mosquitoes which spread malaria to man.

- The upland slopes offer hardships for construction of infrastructure such as roads over valleys leading to ineffective transport and communication.

Responses to item 8

River Flooding Occurrence in the Area is due to;

- Bursting of rivers due to heavy rainfall causing overflowing of water.
- Blockage of water channels due to silting leading to a barrier in water movement, causing flooding.
- Existence of low-lying relief that inhibits (hinders) rapid water infiltration and movement, causing surface stagnation of water.
- Improper dumping of waste materials in water channels leading to impeding of water movement.
- Existence of non-porous rocks that retain water on the surface for a long period, causing flooding.
- Clearance of swamps that limit coordinated water movement, resulting into water overflow in other areas leading to flooding.

Landslides are caused due to:

- Steep nature of the slope encourages swift erosion, lubrication, and mass wasting due to instability in rocks.
- Heavy rainfall that saturates rocks, hence increasing their weight leading to downslope movement.
- Existence of vertical cliffs and road cuttings increases instabilities in the rocks, leading to their detachment & down movement.
- Existence of rock jointing that widen causing instabilities in the rocks, leading to their detachment.
- Existence of permeable rocks that allow massive water penetration, increasing weight and rock sliding.
- Absence of vegetation cover along the slope increases the impact of rainfall, causing instability in the rocks and quick down movement.
- Overstocking and grazing causing destruction of vegetation structure and soil cohesion, accelerating down slope movement of rocks.

- Vibrations from moving heavy vehicles / like tractors along road cuttings and steep cliffs cause widening of rock cracks leading to their detachment.
- Mining, quarrying and over cultivation along the steep slopes expose the rocks to instabilities leading to down slope movement.

(b) The following are the measures that can be adopted by the community to reduce the occurrence of the calamities.

Flooding and landslides;

- Build and maintain efficient water drainage channels to ensure flow of water and reduce water logging especially in urban areas.
- Dredging and desilting of river valleys to facilitate easy flow of water and navigation.
- Construct embankments, concrete walls to redirect the flow of water to minimize agricultural land loss through flooding.
- planting of trees, grass along the river banks to promote water infiltration and conservation of wild animals.
- Construction of dams to control and store water which is in excess to reduce displacement of people and wild animals.
- Contour ploughing and terracing to help reduce surface run off on hillslopes during heavy rains to reduce landslides and conserve wild animals, soil quality and water resources.
- Enforce land use control and zoning measures to prevent building in flood prone zones.
- Sensitisation of people on the dangers of building in flood plains to reduce loss of lives and property.
- Flood forecasting and monitoring by installing rain gauge and river monitoring systems to avert displacement of people.
- Afforestation along steep slopes to increase the root binding effect of rocks In order to reduce landslides and destruction of property.

Responses to item 9

(a)(i)

Total interstate Transport Coverage (km)

$$35000 + 3750 + 2500 + 8000 = 49250$$

Calculation of degrees

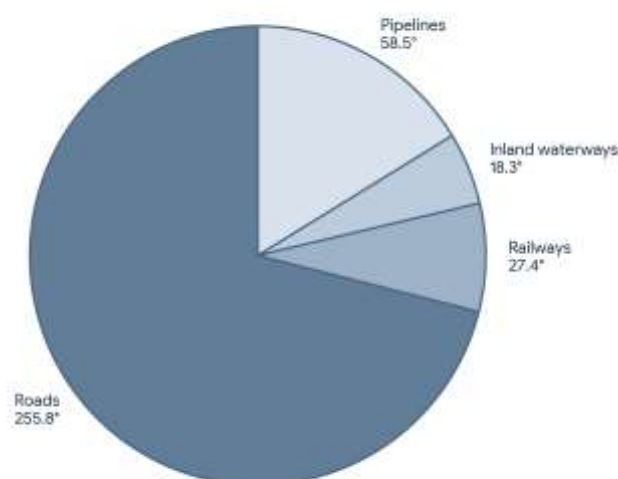
$$\text{Roads} = \frac{35000}{49250} \times 360^\circ = 255.8$$

$$\text{Railways} = \frac{3750}{49250} \times 360^\circ = 27.4$$

$$\text{Inland waterways} = \frac{2500}{49250} \times 360^\circ = 18.3^\circ$$

$$\text{pipelines} = \frac{8000}{49250} \times 360^\circ = 58.5^\circ$$

A simple pie chart showing the African inter-state transport system coverage in kilometres in 2025



Observations on the Inter-State Coverage data:

- Roads have the largest inter-state coverage of 35,000km, making it the most dominant/common mode.
- Inland waterways have the least/smallest use with 2,500km.
- Railway networks remain the second least used with 3,750km.
- Pipelines have significant connectivity as the second largest with 8,000km.
- Road transport development out-weighs the other modes with a substantial difference of 27,000km across Africa.

(b) Ways through which the African Leaders should enhance the continental transport connectivity.

- By constructing more highways to link major cities and economic centres so as to ease distribution and marketing.
- Through expanding railway networks to remote and inaccessible areas so as to open up rural areas.
- By developing modern standard gauge railways to replace outdated rails in order to quicken movement across borders.
- Introducing and developing Air Transport through upgraded airports and air routes for faster and safe delivery.
- By modernizing and uplifting Seaports using advanced technology so as to increase efficiency and cargo handling capacity.
- By developing Inland Water Transport on interconnecting waterbodies so as to ease navigation on rivers and lakes across borders.
- By soliciting and mobilizing money resources through public-private partnerships and foreign donations to extend transport routes.
- By promoting regional cooperation through signing continental transport agreements so as to ease connectivity across borders.
- By maintaining peace and security through peace talks and deployment of security personnel to ensure safer movement across boundaries.
- By introducing and adopting modern technology to construct resilient and smart transport routes using digital tracking and management systems.

Responses to item 10

Determined the percentage growth rate of the population in Country Z is:

Step 1: Given this in the scenario:

- Population in 2000 = 20 million
- Population in 2025 = 45 million

Step 2: Formula:

Percentage Growth Rate = [Increase in Population (New) - Original Population (Old)] / Original Population (Old) × 100

Step 3: Calculate Population Increase

$$45,000,000 - 20,000,000 = 25,000,000$$

Step 4: Calculate Percentage Growth

$$\text{Final Response is: } (25,000,000 / 20,000,000) \times 100 = 125\%$$

The population of Country Z increased by 125% between 2000 and 2025.

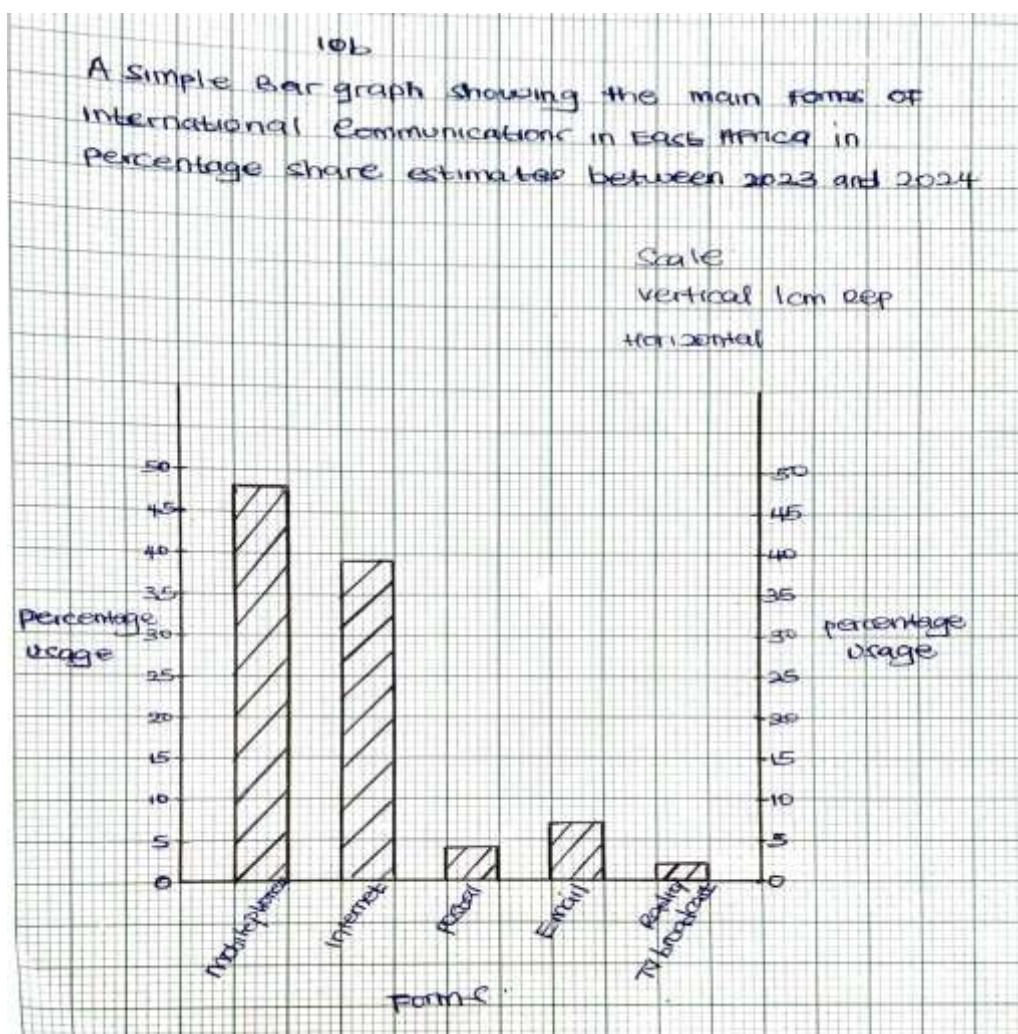
b. Suitable measures that could help reduce population growth rate in Country Z are:

- Promoting Family Planning Services by increase in access to contraceptives; establish reproductive health centres; and conduct awareness campaigns so as to lower birth rates, fertility rate.

- Educating Girls to complete secondary and tertiary education so as to marry later and have fewer children.
- Delaying and de-campaigning Early Marriages by enforce laws against child marriages so as to pursue education before marriage/producing.
- Engineering Women's Employment Opportunities by economic power so as to be fully engaged than child bearing.
- Public Sensitizing and educating family communities about the benefits of small family sizes and dangers of large families.
- Introducing Social Security Systems to pension the retired members of family so as to reduce dependence on children as old-age security.
- Poverty Reduction Programmes by offering soft seed capital to the people so as to start their businesses to earn better as wealthier people have smaller family sizes.
- Legalising abortion for cases of sexual immoralities like rape, defilement, adultery and prostitution to curb unprepared births.

Responses to item 11

- (a) A Simple Bar graph showing the main forms of International Communications in East Africa in Percentage share estimates between 2023 And 2024



Comments on the percentage share estimates:

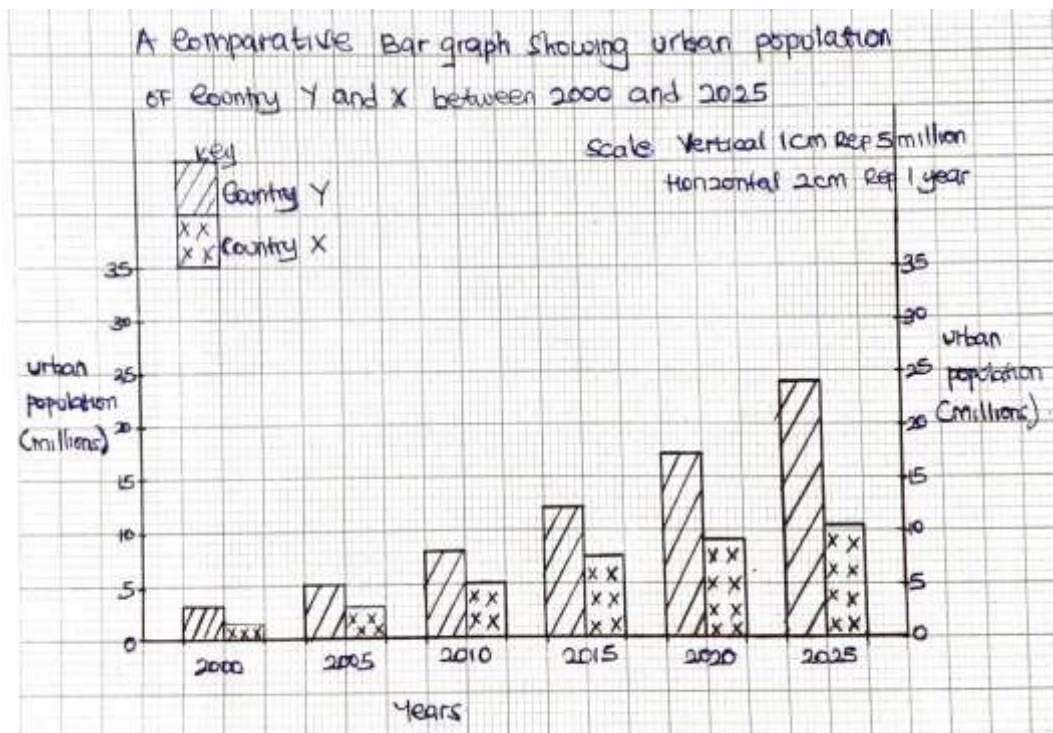
- Mobile phones dominate communication with 48%.
- Internet use is rapidly growing and is the second most dominant form with 39%.
- Postal communication has become less important, accounting for only 4%.
- Radio and TV play a minor international communication role, being the least at 2%.
- Digital communication accounts for the largest share over traditional postal services.

(b) Challenges associated with Internet-based communication in East Africa.

- Discussed Challenges associated with Internet-Based Communication in East Africa are:
- Poor rural connectivity due to limited internet coverage leading to failed communication and economic backwardness.
- High cost of internet due to expensive data bundles resulting in communication breakdowns and unreliability.
- Frequent power interruptions due to weather hazards and outdated electricity facilities leading to delayed or standstill operations.
- Encouraged cybercrime due to fraud and hacking in transmissions and transactions, threatening users' security and causing financial losses.
- Digital illiteracy among the masses due to limited computer (ICT) knowledge and skills, resulting in low user numbers and inefficiency.
- Language barriers due to a general high rate of illiteracy and software localized in foreign languages, leading to low communication rates.
- Weak and poorly developed infrastructure due to limited fibre-optic networks and extensions resulting in poor service delivery.
- Data privacy concerns due to hacking and software viruses leading to risk of information theft and loss.
- Slowed internet speeds due to network overload and congestion, lowering business operations and efficiency.

Responses to item 12

- (a) A comparative bar graph showing urban population of country Y and X between 2000 and 2025



(b) conditions responsible for slower population growth in Country X.

- Easy Access to Family Planning methods/contraceptives like condoms and pills due to free distribution by health department in public places so as to lower the fertility and birth rates.
- High Literacy Levels among the masses due to universal education from grassroots to higher institutions to have knowledge of using contraceptives for lowered births, shortened bearing period for smaller families, and skilled employment for monogamous marriage.
- Later Marriages due to long duration in schools and mindsets of formal employment to make people marry at older ages and fewer children.
- Urban Lifestyle due to westernized/modernized culture to make urban dwellers prefer fewer children.
- Better Status of Women due to girl-child education and woman emancipation making women participate in decision-making of small families suitable for their health.
- High Cost of Raising Children due to economic constraints and hardships causing parents to choose manageable family sizes of one to three kids.
- Effective Population Policies like birth control and economic incentives to smaller families fulfilling encouragement to slower child bearing.
- Reduced Polygamy due to population awareness to the masses and general large family hardships calling for more Monogamous marriages of few numbers.

Responses to item 13

(a) Solutions

Scale: 1 dot represents 500,000 people

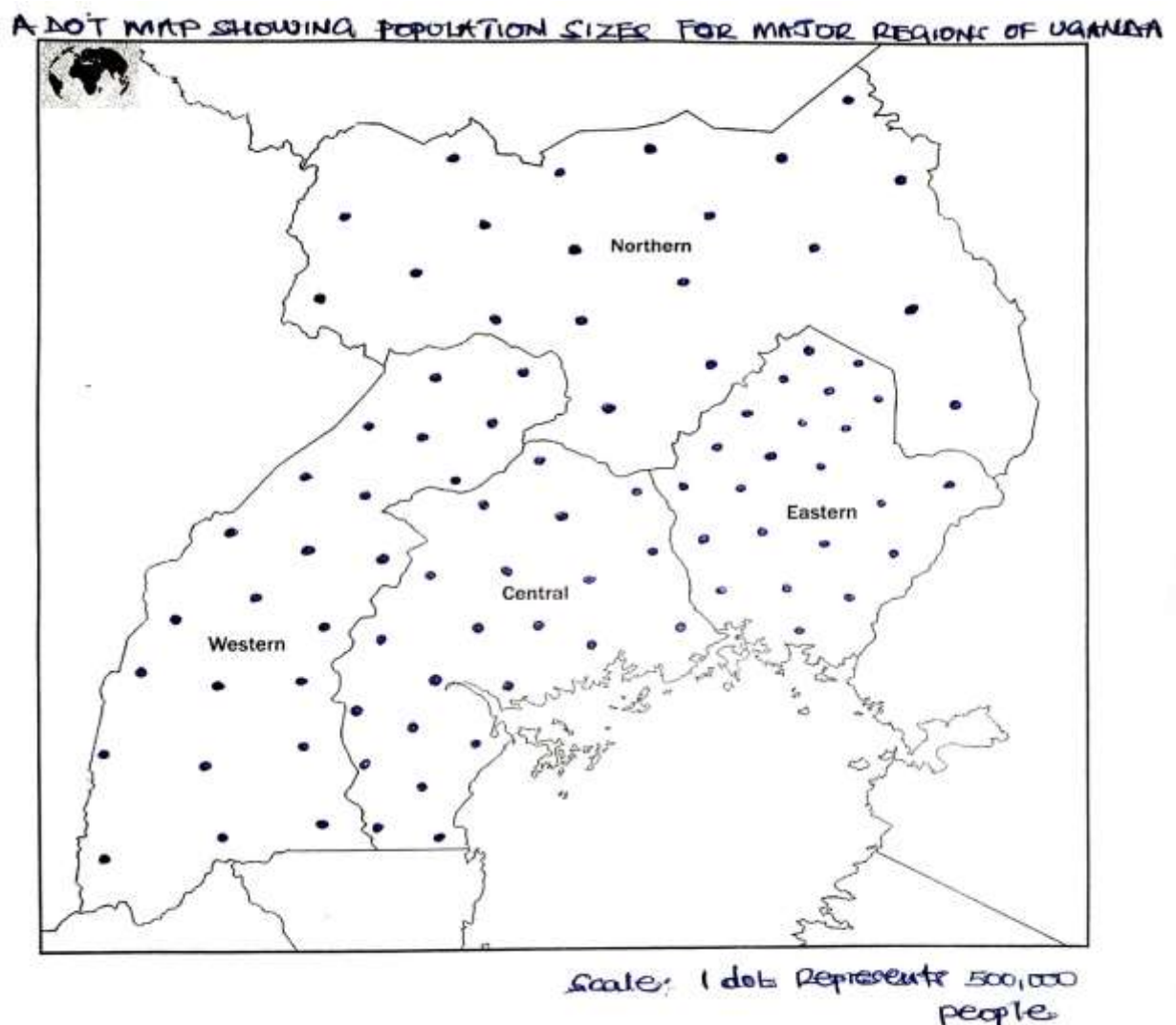
Eastern Region = $11,403,222 \div 500,000 = 22.8 = 23$ dots

Western Region = $11,576,559 \div 500,000 = 23.1 = 23$ dots

Central Region = $11,171,924 \div 500,000 = 22.3 = 22$ dots

Northern Region = $9,955,190 \div 500,000 = 19.9 = 20$ dots

A Dot map showing population sizes for major regions of Uganda



(b) The following are the factors that lead to an even distribution of the population in the different regions of Uganda.

1. Nature of Climate, areas receiving heavy rainfall and moderate temperatures are densely populated e.g around L. Victoria, Foothills of highlands because a variety of crops can be grown & support the growing population while areas with unreliable rainfall & hot temperatures are sparsely populated like Amudat, Kaabong, Nakapiripirit discourage human settlement and makes cultivation difficult.

2- Nature of soils e.g areas with fertile soils in Africa are densely populated like the volcanic mountain areas like foothills of Mt Elgon, Mt Muhavura, Plateau areas with loam soils, support dense population because they support agriculture & settlement. while areas with infertile soils are sparsely populated like Nakapiripirit, Amudat, Napak discourage human settlement and makes cultivation of crops difficult.

3- Nature of relief e.g highlands & plateau areas with gentle slopes, heavy rainfall & fertile soil are densely populated e.g Mukono, Jinja, Foothills of highland areas encourage human settlement, movement & cultivation of crops while hilly areas & uplands areas with steep slopes and very cool temperatures are sparsely populated because of the risks of erosion, landslides hence hindering agriculture & settlement.

4- Nature of drainage e.g areas near drainage features like lakes are densely populated because of availability of water, fertile soils e.g along banks of R. Nile, L. Victoria to support agriculture while areas which are partly drained & water logged have sparse population e.g around swamps

5- Nature of vegetation e.g areas with thin vegetation in Uganda are densely populated like savannah areas because they can easily be cleared to establish settlement structures and transport routes while areas with dense tropical forests are sparsely populated for example budongo forest, Bwindi impenetrable because equatorial forests are hard to clear for settlement & agriculture & they harbour dangerous pests, diseases which scare away human settlements

6- Pests and diseases e.g areas with numerous pests & diseases are sparsely populated like the poorly drained areas while areas which are free from pests & diseases are densely populated like major towns of Jinja, Mbarara.

7- Natural disasters do influence the distribution of population. Areas which are prone to natural disasters are sparsely populated e.g some highland areas especially volcanic highlands, drainage areas due to flooding while areas which are free from natural disasters are densely populated e.g in Mukono, Wakiso.

8 Mining activities have attracted scumby & employment opportunities line in Busia, Tororo around shores of lakes hence are densely populated while areas with limited minerals are sparsely populated because they don't offer any employment opportunities

9 Level of urbanisation have also influenced the distribution of people like urban centres tend to have better facilities in form of social amenities, better security, better trading activities thus attracting dense settlements e.g Jinja, Mbarara, Gulu city while small trading centres in rural areas have sparse population because of few employment opportunities

10 Influence of historical factors like wars, slave trade some districts of northern Uganda were depopulated because large number of people were sold away in slavery & others were killed due to rebel activities of Kon. In addition, historical activities like dev't of infrastructure like roads, attracted dense population in Kampala, Jinja.

11 Distribution of industries also influence population distribution in Uganda in that industrial areas attract dense population because of employment opportunities available e.g Kampala, Jinja while areas without industries like in some rural areas have sparse population because of few employment opportunities

12 Government policies have led to population distribution. Gov't have influenced settlement in certain areas by providing adequate social services, establishing irrigation schemes settlement than in such areas hence have dense population gov't has gazetted some areas for the protection of the environment like national parks, game reserves, forest reserves hence leading to sparse population e.g Karenga, Kaabong for Kidepo National Park

13 Political climate e.g politically stable area attract dense population especially in urban areas of Kampala, Wakiso, Jinja & some stable areas have attracted big population due to refuge influx some places in northern Uganda have sparse & moderate population due to political unrest of Lord's resistance Army in mid 2000s

SUSTAINABLE USE OF VARIOUS RESOURCES

FISHERIES RESOURCES.

Various ways through which the local communities can use to maintain a sustainable use and better livelihood through fishing activities

Use of better fishing methods like standard sized nets catch mature fish which allow young fish to mature for future use

Promoting seasonal fishing in some parts of the lake to give room to allow breeding of fish to increase fish stock

Encouraging fish farming using cages, ponds to reduce over reliance on the lake for fishing and allow fish breeding.

Restocking the lake using the fish from the hatcheries to increase fish stock

Encouraging the fishing community to engage in fish processing to get other products and value to earn income.

Using modern/improved fish preservation methods like refrigeration to reduce fish losses

Encouraging proper waste management by using established dumping sites, regular collection to reduce pollution of the fishing grounds

Encouraging the fishing community to form saving groups to encourage saving culture and investment to get more profits.

DRAINAGE RESOURCES/WATER RESOURCES

The item taker explains the guidance to the local community of the area on proper ways of using drainage resources

Planting trees / reforestation/ afforestation to replace the ones that were out previously to act as carbon sinks / recovery from degradation and surface run off in areas crossed to waterbodies.

Treating wastes before disposal to promote quality water / sanitation.

Regular checking of engine boats for any oil spills to reduce water pollution and accidents.

Evacuation of human settlement near water sources to reduce dumping of wastes that suffocate the fish so as to allow growth of fish.

Setting age limit for fishermen to minimize school drop outs.

Constructing toilet facilities for people along water body to improve sanitation.

Regular monitoring of fishermen / fisheries and regulations to prevent illegal fishing methods.

Restoration of the shore line areas by controlling activities such as papyrus harvesting, sand mining e.g. licensing mining companies to reduce over exploitation

Establishing closed seasons to protect fish during breeding, spawning or migration which promotes fish maturity.

Implementing recommended / minimum net size and limits to protect Juvenile fish and allow species to reproduce.

Educating / sensitizing people by civil society organizations on better methods of fishing to reduce depletion and values of proper water resources.

Using drainage screens/filters to control sediments before entering drainage system for quality water.

Installing flood control measures like flood gates/levees/gabions to protect the drainage features from the flood effects

Recycling of wastes like plastics and metals in areas surrounding water bodies by local investors or entrepreneurs to avoid the effects of plastic dumping.

TOURISM AND WILDLIFE CONSERVATION

The various ways of reducing the human-wildlife conflict in the area.

Fencing the conservation areas using poles and live electricity wires to prevent wild animals from straying human habited area ad property.

Promoting habitat conservation and restoration by limiting human activities so as to provide safe areas for wildlife.

Protecting the livestock and crop farms by fencing which reduces the damage/loss of crops and animals.

Developing surveillance system or cameras to monitor animal movements and human activities near conservation areas.

Promoting community engagement and education through workshops, seminars to promote conservation practices, show importance of co-existence hence reduce conflicts.

Recruiting more game rangers and wardens to monitor the movement of animals and watch out negative human activities in conservation areas.

MEASURES/SAFTY MEASURES TO PUT IN PLACE BEFORE CONSTRUCTION OF INDUSTRIES.

Compensation of the affected farmers/people to other areas

Employing the affected farmers/people in the industries

Community involvement through consultations in order to capture the local concern before the industry is built in place where the locals are in agreement with the project.

Resettling /relocation of the displaced people elsewhere in the same area

Proper waste management plan, through establishing clear systems for treating of solids, liquids and gaseous wastes before discharge.

Emphasizing reforestation and afforestation programs to absorb the greenhouse gases in order to reduce pollution and vegetation depletion.

Strengthening urban authorities and police to control urban problems like drug abuse and high crime rate.

Pollution control measures through installing air filters, scrubbers and noise-reduction system.

Proper site selection for the construction of processing industry, it should be constructed far from residential area, water sources, forest and wetlands in order limit health hazards.

Through sustainable water use by employing water recycling and conservation technologies to reduce on water wastage.

Comprehensive environment impact assessment to evaluate the effect on land, water air vegetation and wildlife.

Proper transport and accessibility plan through establishment of efficient transport routes to minimize traffic congestion and dust.

MEASURES/SAFTY MEASURES TO PUT IN PLACE BEFORE MINING.

Environmental laws /standards put up to control pollution of the environment especially in processing factories.

Emphasizing reforestation and afforestation programs to reduce vegetation depletion.

Refilling of the mining pits/hollows to avoid stagnant water and possible accidents. (The mining companies are forced to rehabilitate the land where possible with clear time-limits).

Regulating the dumping of waste rock in only large specified places rather than in several small pits to reduce the destroyed area (derelict land).

proper waste management plan, through establishing clear systems for treating of solids, liquids and gaseous wastes before discharge.

Spraying with chemicals to kill disease causing vectors and medical treatment of the affected people.

Resettling /relocation of the displaced people elsewhere in the same area.

Compensation of the affected farmers/people to other areas

Employing the affected farmers/people in the mines

community involvement through consultations in order to capture the local concern before the industry is built in place where the locals are in agreement with the project.

Strengthening urban authorities and police to control urban problems like drug abuse and high crime rate.

FORESTRY. FOREST RESOURCES

Sustainable forest management practices and strategies that communities in forested areas can implement to ensure long term economic, social, and environmental benefits of forest resources for at least the next fifty years and beyond.

Carrying out selective/controlled logging/lumbering by cutting only mature trees so as to allow young tree to mature for future generation.

Encouraging practice of agro-forestry by growing trees together with crops to increase the tree coverage and create areas for future generation.

Afforestation which involves planting of trees in areas which have not been previously covered with forests to ensure future supply of wood for different purposes.

Re-afforestation which involves replacing the trees which have been cut down to ensure future supply of wood for different purposes.

Developing recreation activities zip lining in the forested areas to earn incomes without felling down trees

Encouraging tapping/harvesting of non-wood products from the forests like herbal medicine, fruits which benefit society/health without clearing forests.

Encouraging use of alternative sources of energy such as biogas, agricultural wastes (coffee husks, sugarcane husks, banana peelings), use of HEP, etc. to reduce forest destruction.

Education/sensitization of the masses about the value of forests, dangers of cutting down trees through radios, adverts, workshops and the need to conserve nature.

Forest protection against pests or fires. This involves a close system of inspection using towers and patrols around the forests to prevent fires.

Gazetting areas into forest reserves to reduce on the encroachment of people on forests for other activities like farming. There should also be eviction of encroachers by the forest department.

Use of energy saving stoves-which reduce on the demand for fire wood and charcoal, and hence reduction in forest destruction.

Training of more forest workers such as forest rangers, supervisors and other people to manage the forests in various departments, hence reducing destruction.

Government legislation/ putting up laws against forest encroachment, regulating the issuing of licenses /permits to reduce careless cutting down of trees.

Emphasizing Population control measures such as family planning-to reduce the cutting down of forests for settlement and cultivation in various areas.

FOREST DESTRUCTION/CAUSES OF FOREST DEPLETION IN AFRICA

Deforestation refers to the gradual removal / destruction of forested lands to be converted into other uses.

Rapid population growth which increases the need for settlement and cultivation land thereby encroaching on the forests.

Increasing demand for timber and timber products such as making plywood, furniture, construction, and boat building. There is also increasing demand for fuel wood and charcoal for smoking fish, curing tobacco, and domestic cooking.

Careless felling of trees/ poor harvesting methods leading to a lot of wastage such as non-selective cutting of trees for timber, charcoal, firewood including even the young trees and the general failure to replace the cut down trees.

Low level of power and energy development/ Limited alternative sources of energy in many areas, making people to resort to cutting down forests for charcoal and firewood.

Poor farming methods like shifting cultivation and bush burning for cultivation which ends up destroying the forests.

Increasing need for infrastructural development and industrialization (such as transport networks, schools, hospitals, recreation centers, industries) leading to the

destruction of large forest areas to expand the sites. The process requires large quantities of poles, and timber.

Mining activities in forest areas leading to deforestation hence reducing forest cover especially with use of open cast mining.

Forest/wild fires, especially during the dry season caused by careless smokers, hunters, or cultivators (intentionally or accidentally) hence destroying large areas of forests.

Damage by wild animals such as elephants especially where many of such animals exist in a given area, destroying large forest area.

Pests and diseases which destroy the forest trees such as aphids destroying soft wood trees. There is also cutting down of trees in order to control the pests and diseases.

Government negligence to conserve forest resources such as poor law enforcement against forest encroachers. There is also inadequate funding and high degree of corruption in the forest departments, leading to continued destruction of the forests.

EFFECTS OF FOREST DEPLETION IN AFRICA

Brings changes in local climate by bringing low and unreliable rainfall due to reduced evapo-transpiration. This leads to desert conditions.

Greenhouse effect/ global warming—increased carbon dioxide is released into the atmosphere causing a rise in temperatures.

Decline in agricultural productivity which leads to famine and increasing poverty due to declining crop and animal performance.

Decrease in timber products because of the long regeneration/ maturity period and less reforestation, hence negatively affecting the survival of Africa on timber produce.

Causes severe lack of fuel resources especially in the areas of increasing population thus low standard of living.

Destruction of habitats for wild animals and birds for example monkeys, buffalo, elephants, eagles, cranes—causing extinction/ limiting the tourist potentials in various parts of Africa.

Leads to severe/ massive soil erosion because the ground is left bare. This leads to low crop yields due to reduce soil fertility and poverty due to reduced earnings from farming.

Results into mass wasting (landslides) especially highland areas due to clearing of forests (which would bind soil particles together) –leading to loss of life and property.

Leads to increased incidence of economic refugees such as due to drought and famine which make people to migrate to other areas that are productive.

Increases government expenditure such as through reforestation and afforestation programs, the need to import food to feed the affected people; hence straining the government budget.

Leads to loss of foreign exchange due to importation of forest products to meet domestic demand because of forest depletion.

END