

# “A” LEVEL GEOGRAPHY TERMS AND DEFINATIONS 9156

Physical Geography (Hydrology, Geomorphology, Arid and  
Semi-arid Environment) and Human Geography  
(Population, Migration, Settlement and Urbanisation)

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# **“A” LEVEL GEOGRAPHY TERMS AND DEFINATIONS**

**Revision Guide for GCE Advanced Level**

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# "A" Level Geography

## Physical Geography

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### Chapter 1

## Hydrology

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### Hydrological cycle

- Is the constant flows and exchanges of moisture between the atmosphere, land and water bodies

### Drainage basin

- Is an area that is drained by a river and its tributaries
- A drainage basin has a main stream or channel, which may have its tributaries or minor streams
- The boundary of a drainage basin is defined by a watershed which is an area of highland beyond which precipitation is drained by adjacent basins

### Evaporation

- is the process by which a liquid or a solid is changed into a gas (Ward 1967 )
- Heat energy required to evaporate water from the soil, dams, lakes, seas and oceans is known as latent heat of vaporisation

### Transpiration

- Is the process by which water vapour escapes from the living plants, principally leaves through openings called stomata, and enters the atmosphere
- The process is mainly affected by vegetation type and density, time and the length of the growing season (Waugh 1996) + wind speed

### Evapotranspiration

- This describes water loss through a combination of evaporation and transpiration
- It is the combined evaporation from the soil surfaces and transpiration from plants which can collectively be defined as the transportation of water from the earth back to the atmosphere (Thornthwaite 1948)

### Potential evapotranspiration

- Is the maximum rate of water vapour that can be added to the atmosphere under certain given meteorological conditions
- It combines water loss from vegetated surface as well as directly from the water body or soil
- It is a theoretical concept

**Actual Evapotranspiration**

- Is an exact loss through evapotranspiration measured despite changes in soil moisture or field capacity
- Or it is the actual amount of water vapour present in the atmosphere i.e. humidity

**Field capacity**

- Is when there is enough moisture in the soil for use by plants
- Plants utilise soil moisture through the process of osmosis, transpiration and translocation

**Interception**

- Refers to the capture of raindrops by tree leaves during precipitation
- Varies depending on nature of vegetation and duration of storm water. Reaches the surface due to throughfall and stemflow
- There is primary and secondary interception

**Secondary interception**

- Is when raindrops intercepted in a plant canopy drip and further intercepted by grasses and herbs forming the undergrowth

**Stemflow**

- It describes the flowing of water on plant trunks or stems when continuous interception exceed leaf ....

**Throughfall**

- Is the rain water that falls in between leaves
- Is the process by which wet leaves shed excess water to form water drops that drips through the canopy onto the ground

**Infiltration**

- Is when rain water sinks into the upper layer of soil through soil pores spaces under the influence of gravity

**Infiltration capacity**

- Is the maximum rate at which rain water can be absorbed by a soil in a unit of time (mm/ hr)

**Infiltration rate**

- Refers to the speed of water absorption by the soil in millilitres per second

**Soil antecedent moisture**

- This is the amount of water already available in the soil before rainfall

**Runoff**

- Is the water that leaves the drainage basin by surface routes either as overland flow or channel flow



### **Overland flow**

- Is the movement of water down the surface slope in the form of sheet wash, rills, rivulets and gullies
- Sheet wash form on the upper sections of slopes and cover a wide area like a blanket

### **Through flow**

- Is the lateral transfer of water downslope after infiltration towards channels due to decrease in soil permeability
- Or the lateral subsurface downslope movement of water in saturated soils
- It is also due to gravity

### **Saturation overland flow**

- It describes surface flows which form on saturated soil surfaces usually on lower and gentle slope sections
- Or overland flow formed by failure of rain water to infiltrate saturated soils due to prolonged rainfall

### **Channel flow**

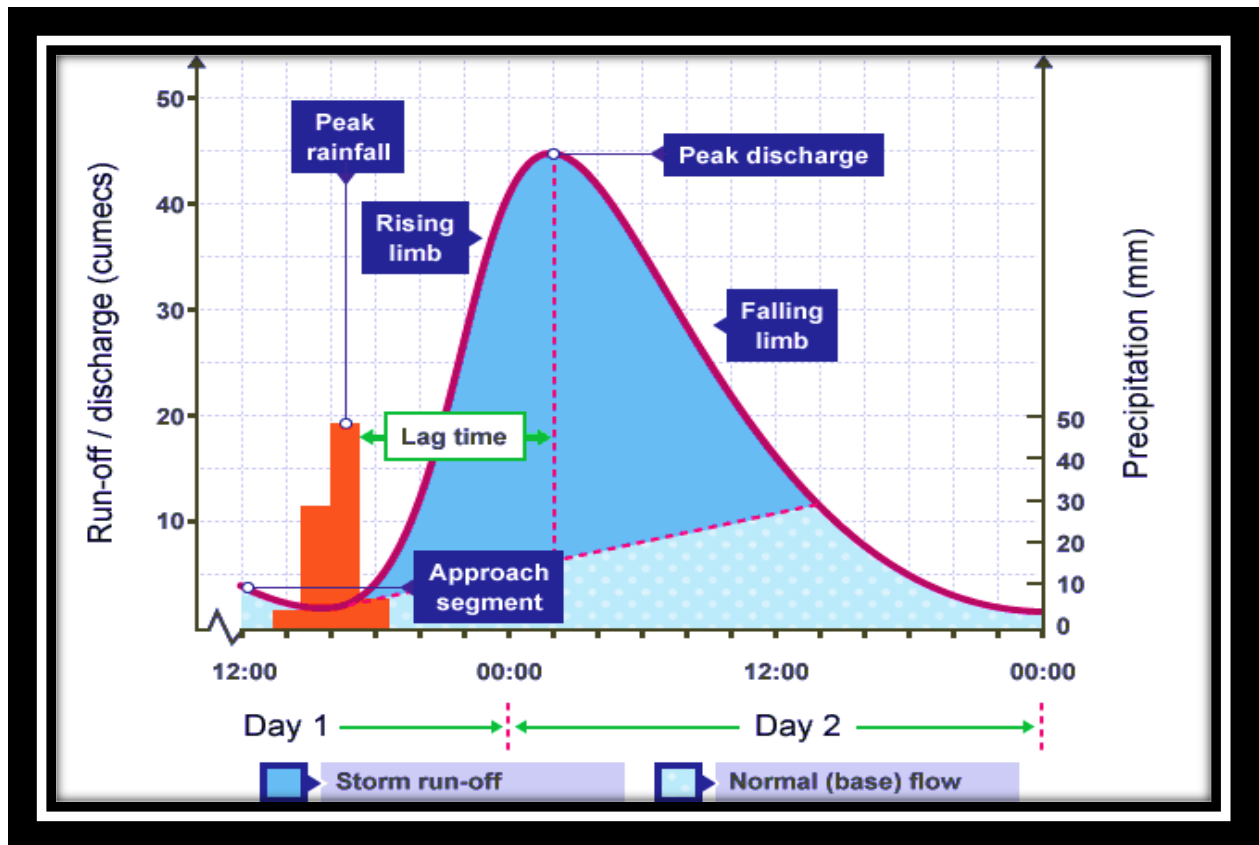
- Is the water concentrated into rivers and streams
- Or is the water that flow along well defined channels e.g. rivers and streams

### **River discharge**

- is the volume of water passing through a given point in a river per unit area expressed in cumecs i.e. cubic metres per second

### **River hydrograph**

- Is a graph on which variations in river discharge are plotted against time



### Approach segment

- Represents the discharge of a river before the storm. River response at this stage is very minimum because water is temporarily delayed in the drainage basin

### Rising limb

- Representing the rising river level due to increase in discharge
- It is mostly steeper than the recession limb

### Bankfull discharge

- Is the discharge measured when a river is at bankfull stage

### Bankfull stage

- Is a condition in which a river channel fills completely so that any further increase will result in flooding

### Peak discharge

- Is the highest level of water recorded in a river after or during a storm

### Recession limb/ falling limb

- This shows the rate at which the river discharge decreases after the peak discharge of peak flow



**Lag time**

- The interval between the peak rainfall and the peak of the channel discharge

**Base flow**

- Is the horizontal movement of underground water towards rivers
- Is the portion of river volume contributed by ground water inflow
- Or it is the final transfer that takes water from the ground water store to the stream horizontally

**River Regime**

- Is the term used to describe the annual variations in discharge (David Waugh)

**Flashy hydrograph**

- Has steep rising and falling limb and a very high but not sustained peak discharge

**Subdued hydrograph**

- Has a gentle rising and falling limb- low peak discharge

**Groundwater storage**

- Is water stored in the underground zone of saturation

**Percolation**

- Is the further downward sinking of infiltrated water through cracks, fissures or joints under the force of gravity towards the zone of saturation
- The process results in the formation of a groundwater reserve or store

**Primary permeability**

- It describes the seepage of water through rock pore spaces e.g. in rocks like sandstones, limestone and chalk

**Secondary permeability**

- Is the percolation enhanced by the presence of fissures, rock joints, cracks and fault lines e.g. in carboniferous and Jurassic limestone

**Baseflow**

- It is the final transfer that takes water from the ground water store to the stream horizontally

**Aquifer**

- Is the rock that can allow water movement and can store large amounts of water e.g. sandstones

**Aquiclude**

- A rock which cannot hold water (impermeable rock)



## **Watertable**

- Is the uppermost part of the permanent zone of saturation
- It fluctuates with time i.e. seasons

## **Perched watertable**

- Is a pseudo watertable separated from the main watertable by unsaturated rock
- Also is an independent and isolated area of groundwater above the main watertable and separated from it by unsaturated rocks

## **Water balance / water budget**

- Is the balance or equilibrium between the inputs and outputs of the hydrological cycle ( $P=Q+E+S$ )
- It can be positive or negative. When positive is expressed in this formula,  $P > Q + E$
- Negative,  $P < Q + E$

Where P is precipitation

Q is runoff

E is evapotranspiration

S is storage

**Just note:**

Water recharge



# Fluvial processes

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## Fluvial Geomorphology

- Is the study of the various processes and landforms associated with rivers

## Intermittent streams

- Streams which flows seasonally or have discontinuous flow

## Perennial streams

- Streams which flows all year around
- The stream can be exogenous or come from underground water/ recharge from base flow

## River velocity

- Is the channel water speed measured in metres per second using floats and stopwatch

## Hydraulic radius

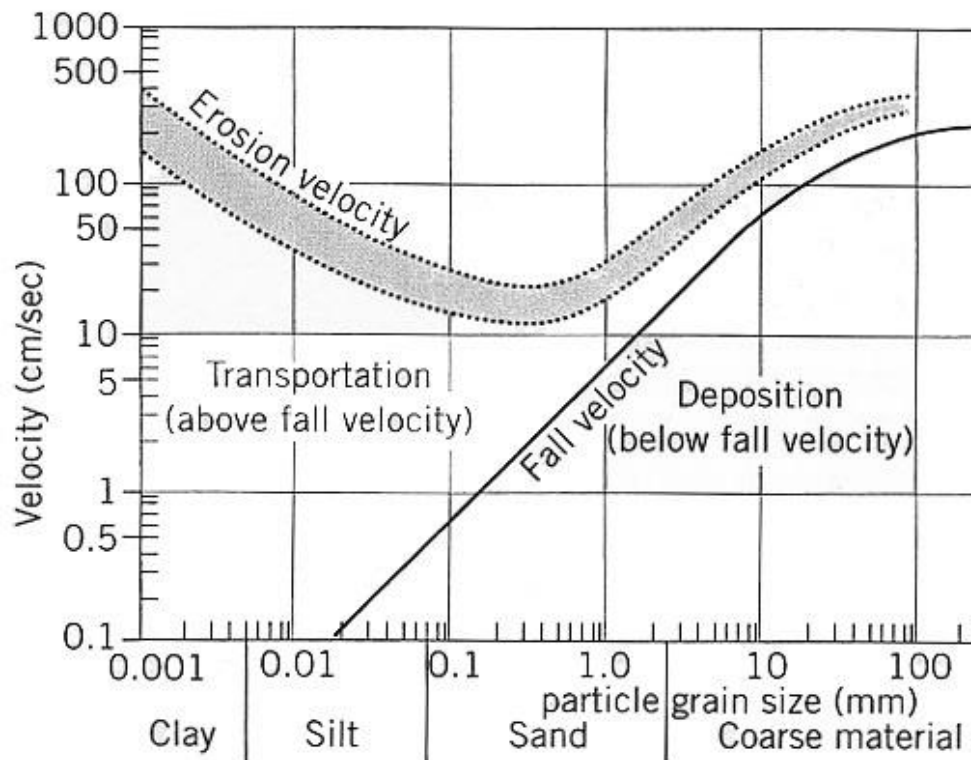
- Is defined as the force required to move particles on a stream bed determined by the fraction of cross sectional area divided by wetted perimeter ( Rubey 1938)
- It refers to the ratio between a river's cross sectional area and the length of channel surface in contact with water

## Wetted perimeter

- is the length of channel surface in contact with water from one bank through bed to the other

## Hjulstrom curve

- Is the graph used to determine whether a river will erode, transport or deposite.
- It shows the relationship between particle size and water velocity a river can carry or deposite



### The mean (critical velocity curve)

- Gives the approximate velocity needed to pick up and transport particles of various sizes from clay to boulders. The materials carried by the river (capacity) is responsible for most of the subsequent erosion

### The mean fall (setting velocity curve)

- Shows the velocity at which particles of a given size become too heavy to be transported and will fall out of suspension and be deposited

### River capacity

- Is the total load transported by a river

### River competence

- Is the maximum size of particles that can be transported by a river

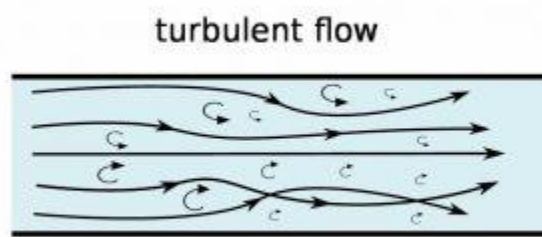
### Laminar flow

- The speed and the direction of flow at any given point are steady or smooth horizontal movement of water
- Is an ideal channel flow in which velocity cannot be affected by channel irregularities which cause eddy motion
- This type of flow is hypothetical and can rarely be identified within most streams



## Turbulent flow

- A series of erratic eddies both vertical and horizontal



- This is the most common one flow

## Helicoidal flow

- A kind of corkscrew motion on the current of a river which usually occurs in meanders

## River source

- Are places where rivers originates e.g. springs, lake, marshes

## Confluences

- Are places where tributaries meet the main river (where two channels meet)

## River mouths

- Is where rivers ends e.g. oceans
- Or where rivers empty their water (oceans, other bigger rivers, seas, marshes, lakes etc.)

## River channels

- Is the distances from bank to another through the river bed

## Erosional processes

### Erosion

- Is the wearing down of the channel

### Headward erosion

- is the process whereby a river cuts back upstream above its original source increasing its length
- This type of erosion can be induced by gullyying and faulting. If the recession continues, the stream may actually notch the ridge which forms the original watershed and so promote river capture

### Vertical erosion

- Is the deepening of the channel by gradual down cutting particularly by abrasion in the upper course



- V-shaped valleys and gorges mainly occur as a result of this process

## **Lateral erosion**

- Is when rivers widens their channels through the undercutting and collapse of banks
- It can be active during flooding

### **1. Attrition**

- Is whereby the bed load collide with each other and the impact may break the rock into smaller pieces which makes them rounded in appearance

### **2. Corrasion/ Abrasion**

- is when the river picks up material and rubs it along its bed and banks, wearing them away
- whereby the river uses its bed load to wear down the river bed and banks
- It describes a process whereby a river load consisting of irregular shaped boulders digs the river bed and rubs against the river banks deepening and widening the channels

### **3. Hydraulic action**

- Describes the sheer force exerted by flowing water on its banks especially against meandering points loosening and removing rock particles
- Water hits against the banks, entering into cracks, fissures and bedding planes and this undermine it i.e. cavitation

### **4. Solution/ Corrosion**

- Is described as a process where river water dissolves soluble minerals constituting rocks on the bed and the banks of a stream especially limestone and chalk with  $\text{CaCO}_3$  or iron stones with iron oxide

## **Transportational processes**

### **1. Suspension**

- Is the transportation of light silt and clay particles above the river bed

### **2. Solution**

- Is the movement of sediments or materials dissolved in water
- Transportation of dissolved minerals by river water seen by colouring of water e.g. milky in limestone

### **3. Saltation**

- Is the bouncing movement of heavier sandy particles which the river can lift from the bed but cannot keep in suspension

### **4. Traction**

- Describes the rolling of large boulders and cobbles on the river bed



## **Deposition**

- Is the falling out of suspended load transported to the river bed

## **River long profile**

- Shows characteristics of a river channel from the source to the mouth

## **Graded river profile**

- Refers to a river whose flow is such that, at any given point there is an equilibrium between materials eroded and material deposited
- A graded profile is concave in shape i.e. forming a smoothly concave profile

## **Baselevel**

- This is the lowest level at which erosion by running water can take place
- It is controlled by the sea level, or lake or long river where a small river empty its water

## **River rejuvenation**

- Is a result of a fall in the base either by sea level falling or if there is an uplift of the land
- Increased or renewal of vertical erosion by river due to uplift of land, sea level fall or increased precepitation

## **Drainage pattern**

- Is the way in which the main river and its tributaries are arranged or aligned in a drainage basin e.g. parallel, trellis, dendritic etc. Depends on geological structure

## **Consequent streams ( main stream )**

- Are those whose course is determined by the original slope of the land

## **Obsequent**

- Flows opposite of the consequent streams especially in rectangular patterns
- Is one whose course flows in the opposite direction of the main/ consequent stream
- It is common in areas which have experienced some river capture and in those with folded structures

## **Subsequent streams**

- Streams which develop after the consequent
- Are controlled by structure e.g. a river following a joint or fault line

## **Resequent streams**

- Flows in the same direction as the main stream but are of a lower order

## **Groups/ classes of drainage pattern**

### **Accordant**

- These are patterns which are related to the underlying structure or which are controlled by relief



- Depends on geological structures e.g. dendritic, trellis etc.

### **Discordant**

- Patterns with no relation to geographical structure or which go up against relief or geographical structure

### **Drainage morphometry**

- Refers to the quantitative analysis of the drainage basin

### **Bifurcation ratio**

- Is the ratio between the number of streams of one order and the number of streams in the next highest order

### **Stream ordering**

- Is when comparing drainage basin size

### **Stream frequency**

- Is the number of stream segments of orders per unit area

### **Drainage density**

- Is the average length of streams per unit area
- It is calculated by a formula
- Total length of all streams in basin

$$\text{Total area of the whole basin} = \text{km/km}^2$$

Just note:

### **Bed load**

### **Straight channel**

### **Meandering channel**

### **Braided channel**

### **Waterfalls**

### **Rapids**

### **Meander**

### **Gorges**

### **River Capture**





# Geomorphology

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- Is the scientific study and interpretation of the origin and development of the landforms of the earth

## **Weathering**

- Is the gradual disintegration and decay of rock in a stationary position ( in situ ) on or just below the earth surface resulting in the creation of a layer of debris or waste that may later be removed by transportational agencies

## **Physical weathering**

### **1. Frost weathering**

- Is the breakdown of rocks due to water entering rock crevices or joints in areas where temperatures fall below 0° C. The disintegration of rocks is caused by the fact that water expands by 10% of its original volume as it changes from liquid form to ice usually from 4 °C. This results in block disintegration as freeze-thaw cycle continues

### **2. Pressure Release/Dilatation**

- The removal of the overlying debris which cause the underlying rock to release great pressure and fracture as they recoil upwards resulting in sheet joints especially in igneous rocks

### **3. Thermal expansion/insolation weathering**

- Is induced by the heating of rock surfaces during the day and cooling at night thus resulting in the exfoliation of rocks surfaces. These rocks are subjected to thus heating and cooling are made up of different minerals
- Peeling off of rock surfaces due to heating and cooling of the rock outer layers
- Effective in areas of large diurnal temperature ranges e.g. hot deserts

### **4. Salt Crystallization**

- Is the term applied to the falling off of small rocks particles as a result of stresses caused by salt crystal growth within a rock e.g. in coastal areas where there is a constant supply of saline water in porous rocks
- This process results in granular disintegration

## **Block disintegration**

- Is the breakdown of rock by both chemical and mechanical weathering into large blocks
- The process depends on the existence of joints and bedding planes which can be penetrated by weathering agents such as water and humic acids



## Granular disintegration

- Is the breakdown of rock by weathering processes into constituent minerals or groups of minerals

## Chemical weathering

### 1. Oxidation

- Refers to the addition of oxygen elements to ionise mineral components forming mineral oxides
- Most common action is that between iron and water resulting in rusting

### 2. Carbonation

- Is a chemical weathering whereby there is a reaction between rocks like limestone rocks and weak carbonic acid which came from ( e.g. chalk Dolomite ) industrial carbon dioxide emission, which reacts with raindrops
- Active in limestone where  $\text{CO}_2$  react with calcium carbonate to form calcium bi-carbonate which is soluble in water

### 3. Chelation/ Humification/ Cheluvination

- Organic matter quickly decompose in the presence of high temperatures and rainfall (forming humic acid) which will enter and decompose the rock
- A type of chemical weathering in which humic acid break down minerals and then allow them to be leached from regolith or absorbed by plants

### 4. Solution

- Dissolving of rock minerals in water and removal in solution

### 5. Hydration

- Is when some minerals contained in rocks absorb moisture at different rates and expand, this differential expansion introduces stresses within the rocks and they ultimately disintegrate
- This process is due to wetting and drying e.g. mostly active in seasonally humid areas

### 6. Hydrolysis

- Is a form of chemical weathering involving reactions between water and minerals in igneous rocks and sedimentary rocks e.g. water and feldspar react to produce potassium hydroxide and alumina silicic acid. The end result in residual clay

### *Mass movement*

- Is the downslope movement of regolith under the influence of gravity

## Exhumation/ Etchplanation

- Describes deep weathering followed by exposing of basal surface of weathering by stripping of regolith

**Pediplanation**

- Uplift of land, back-wearing of slopes resulting in development of plain

**Inselbergs**

- Are steep sided isolated hills standing high above surrounding plain
- Rocky hills

**Karst**

- Is a comprehensive term applied to limestone or dolomite areas that possess a high topography peculiar to and dependent upon underground solution and the diversion of surface waters to underground routes

**Interfluves**

- Is a land between two rivers

**Laterite**

- Is a hardened layer of iron stone formation in soils of tropical regions

**Duricrust**

- Is the hard crust on the ground surface formed by accumulation and cementation of salts

**Deep weathering**

- Describes the formation of a deeply weathered layer of saprolite or regolith by sub-aerial chemical weathering processes

**Saprolite**

- Is the fairly weathered rock debris produced by chemical weathering processes which lie in its original place

**Regolith**

- Is the material produced by weathering extending down from the ground surface to bedrock
- Is the term used to describe a deep layer of fine and partially weathered rock debris accumulated over many years of sub-aerial chemical weathering and not necessarily lying in its original position { Mutodi pg. 129} + physical

**Basal surface of weathering**

- Refers to the rising and falling bedrock surface overlain by deeply weathered rock debris on which perhaps the absence of rock joints or adequate aeration prohibits further sub-aerial chemical weathering



# Arid and Semi-arid Environments

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## Desert

- These are areas characterised by deficiencies of water and vegetation as well as having poor soils
- Are areas where annual precipitation is greatly exceeded by water loss through evapotranspiration

## Aridity

- Means dryness and these varies from one desert to another

### There are three classes of deserts

#### 1. Semi-arid areas

- These are areas which receive 250-500 mm per year ( rainfall )
- There is sparse vegetation

#### 2. Arid areas

- Receives 25-250 mm per year
- There are no plants except along rivers and oasis

#### 3. Extremely arid areas

- Receives less than 25 mm per year
- There is no vegetation

### Types of desert landscapes

#### 1. Rocky/ Hamada deserts

- these are areas of bare rock surfaces or polished
- In these areas wind blows up all away fine materials leaving bare rock surfaces e.g. Hamada Homra in Libya

#### 2. Stony/ Reg deserts

- As the name implies it is a stone covered plain which is bare, flat consisting of a layer of tight packed gravel over laying sand
- It is formed by wind erosion which removes the fine surface materials leaving behind coarse pebbles which became cemented by mineral solutions brought up by capillary action

#### 3. The Erg/ Sandy deserts

- These are areas of dune fields which are characterised by undulating dune landscape



- These are areas of sand/ sand seas, formed by deposition e.g. Calanscio sand sea (Libya) Great sand sea ( Egypt )

#### 4. Bad lands

- These are bare dry uplands areas which are dissected by deep gullies
- Produced by occasional heavy rainfall which is insufficient to support adequate protective vegetation cover
- These are areas of low agricultural potential hence the name bad lands e.g. South Dakota ( USA )

#### 5. Mountain deserts

- These are highly dissected plateau and wadi landscapes e.g. Grand. Canyon Landscape ( USA) and Ahaggas mountains in Sahara

## Desert Geomorphology

### Weathering in deserts

- Most weathering processes in desert are dominantly physical

#### 1. Salt crystallisation

- Is active in deserts because of active capillary action which brings salts to the surface and also because of high evaporation rates

#### 2. Thermal shattering

- This due to large temperature range

#### 3. Ice wedging /frost shattering

- Ice wedging operates in joints whilst frost shattering in porous rocks
- Operates in desert uplands where there is frequent relief rainfall and, mist which provides the water of the process
- Temperature in deserts frequently fall below 0°C

#### 4. Dirty wedging

- It is the same with ice wedging
- It is active because of high wind transportation and deposition of soils and also high day time temperatures allows joints to expand and open up

## Wind Action

### Wind domains

- are areas in which wind action is active/ dominant



## Aeolian erosion

### 1. Abrasion

- The sand blasting effect of sand and rock fragments been transported by the wind on rock outcrops
- It takes place on rock outcrops and it is effective near ground surface - undercutting rock outcrops to create rock pedestals
- This is the sand blasting of desert surfaces by the transportation of sand and silt through siltation

### 2. Attrition

- This is down seizing of rock particles being transported by the wind due to constant knocking against each other

### 3. Deflation

- This comprises the lifting and transportation of loose materials which are fine and light. The process is selective as it concentrate on finer materials, leaving heavy materials such as pebbles strewn over the ground, creating what is generally called a desert pavement.
- A continuous process may results in deflation hollows

## Wind transport

### Saltation

- Is the transportation of rock and sand particles in a series of intermittent hops and leaps in the direction of the wind

### Surface creeping/ drifting or traction

- The rolling and sliding of large rock fragments along the desert surface

## Desert Landforms

### Yardangs

- Are narrow, streamline ridges that are usually three to four times larger than they are wide
- Softer rocks is eroded faster than harder rocks, so ridges of hard rocks are created

### Zeugen

- Are long block-shaped ridges of rocks
- There are formed in areas where a layer of hard rock sits above a layer of softer rock
- If cracks formed in the hard rocks due to weathering processes such as frost shattering, the wind can erode through the cracks and into softer rock beneath by abrasion
- Again the softer rock is eroded more than the harder rock, and ridges ( zeugen ) are formed



## Rivers in arid regions

### 1. Exogenous rivers

- These are rivers with sources outside of the desert which pass through the desert e.g. Nile, Colorado

### 2. Endoreic

- These are rivers which flow into inland lakes
- They do not enter water into seas e.g. Jordan to the Dead sea

### 3. Ephemeral rivers

- These are streams which flow only after a rainstorm and can generate high discharge because of poor infiltration on the cracked desert soils

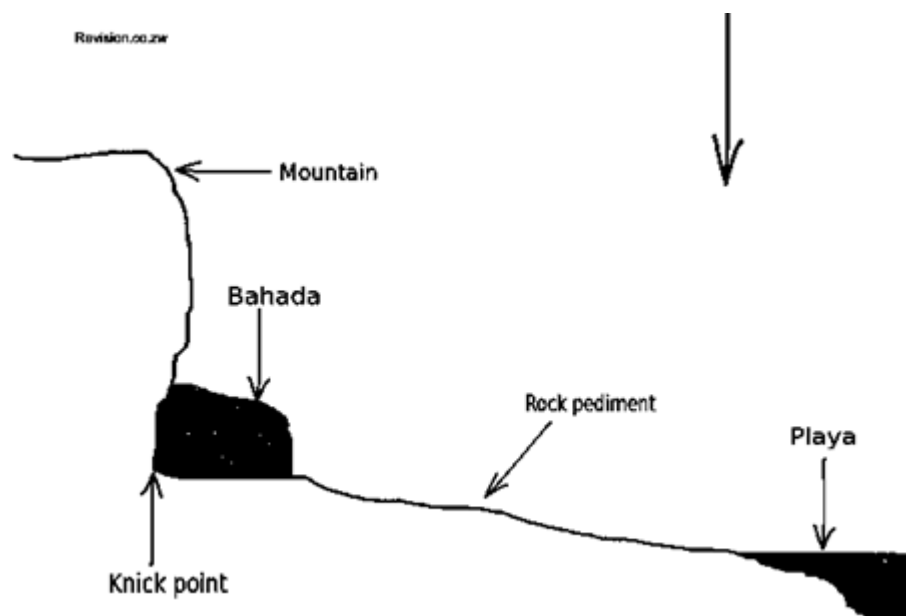
## Fluvial landforms

### Wadis

- These are deep steep sided, flat flowed dry river channels

### Desert piedmont zone

- Is a zone separating desert mountains, plateaus and residual uplands from the broad plains of erosion and deposition





## Features of desert piedmont zone

### 1. Mountain Front

- Is a high and steep slope (  $25-90^{\circ}$  ) which raises suddenly from the gentler slope
- Slopes below this slope is retreating without loss of angle
- it is a boulder controlled slope
- weathered materials is washed rapidly to the slope base

### 2. Knickpoint

- This is a very sharp break in profile which separates the steep mountain front from the rock pediment
- Abrupt break in profile between the mountain front and rock pediment

### 3. Rock pediment

- It is concave with slope angles ranging from  $7^{\circ}$  on the upper part and only about half a degree on its lower margin
- It is a rock platform covered by a thin veneer layer of sediments

### 4. Peripediment

- Is a broad zone of fine alluvial fans deposits laid down by sheet floods
- These deposits can be very thick in areas of centripetal drainage

### 5. Bajada

- These are series of alluvial fans which had merged on the knickpoint

### 6. Playa / intermittent lake

- These are shallow ephemeral intermittent saline lakes found after a rain storm at the lowest point of the pediment

## Desertification

- Simply means the encroachment of desert-like conditions into formerly productive land

Just note:

## Sustainable utilization





# Human Geography

## Population

### Population

- Is the total number of people living in an area, country or region

### Population growth rate

- Is the speed at which a population grows per year and expressed as a %

### Population density

- Is the number of people per unit area

Number of people

Area = people/km<sup>2</sup>

### Population distribution

- simply refers to how people are spread out across the world, country and region
- This is closely aligned to population density

### Population change

- Is brought about by changes in fertility rate, birth rate, migration, death rates and maternal mortalities

### Demography

- Is the study of population and its changes and patterns over time

### Fertility rate

- Is the number of births per year per 1000 women at child bearing age group
- This refers to women who are between 15-44 years age group

### Birth rate

- This is a number of live births per thousand of the total population
- Expressed as Number of live births( in a given year) \* 1000

Total population in a country 1

### Death rate

- Is the number of deaths per thousand of population during a given year



- Can be expressed as 
$$\frac{\text{Number of death \#}}{\text{Total population}} \times 1000$$

### **Fertility**

- A broad term that covers all aspects of reproductive performance of a population
- It is that actual reproductive performance of women in the child bearing age
- Measured by crude birth rate, general fertility rate and age specific birth rate

### **Mortality**

- It refers to death rates pertaining to a population
- Frequency of deaths
- It is measured by crude death rates, life expectancy and age specific death rates and sex specific death rates
- Infant + adult maternal mortality, and natal mortality, neo natal

### **Neo-natal mortality**

- Is the statistical rate of infant death during the first 28 days after live birth
- It is the death of a newborn

### **Pre-natal mortality**

- The number of natal deaths plus the number of deaths of infants younger than 7 days of age per 1000 live births

### **Infant mortality**

- The number of deaths of children younger than one year of age per 1000 live births per year

### **Male mortality rate**

- Is the number of male who die per 1000 in a population per year

### **Maternal mortality**

- The number of women who die during or after delivering child per 1000 of the total population
- It can be calculated according to socio-economic groups

### **Overall population growth**

- Is the total increase in the number of individuals in a population

### **Morbidity**

- Is the frequency of disease in a population
- The prevalence of disease in a particular percentage of the population

### **Natural increase**

- It is the positive change in the number of people if birth rate is higher than death rate



- Total number of births minus total number of deaths in a particular year

### Population structure

- Is the composition of population by age and sex
- It is best shown by means of age pyramid
- It also include the life expectancy of the population and the median age

### The age structure

- Shows the number of people in the total population found in in each age group

### The sex structure

- Shows the proportion of male-female numbers in the total population

### Doubling time

- Is a time it takes a population of a country to double its size
- It is obtained by using the formula  $70 / \text{percentage of growth rate}$

### The median age

- This is the age which divides the population in two, with half population below the age and half above the age

### Life expectancy

- Is the average number of years which a person in a particular group is expected to live
- There is high life expectancy in MEDCs and low life expectancy in LEDCs
- It is approximately 40 years in LEDCs and 65 MEDCs

### Fecundity

- This is the biological capacity of women to bear children in a population
- Or it is the reproductive potential of women to bear children in a population

### Dependency load

- This is the number of people who are economically inactive who are supported by the economically active population
- This category of population is in the age group between 0-15 years and those above 65 years

### Dependency ratio

- This is the proportion of non-working population for every 100 workers
- It is the number of people who rely on the working population when expressed as a ration to the working population
- For developed countries the ratio is between 50-70 while in developing countries are over 100 for every 100 workers
- In LEDCs there is high dependency ratio of children and less old age while in MEDCs there is high dependency ratio of old aged population than young population.
- It is calculated as follows

$$\frac{P(0 - 14 \text{ years}) + P(65^+ \text{ years})}{P(15 - 64 \text{ years})} \times 100$$



P( 15 – 64 years )

1

Where P is population

### **Elderly population/ Ageing population**

- Is a characteristic of countries in stage 3 and 4
- It is a population with an increasing proportion of elders above 65 years old

### **Sex ratio**

- This is the relationship of male and female proportion in the total population
- It is the number of males per 1000 females in a population
- The world's average sex ratio is about 105 males per 100 females
- It is calculated as:  $\frac{\text{Male}}{\text{Females}} \times 100$

Females

**NB:** Male births always exceed female births but at old age females outnumber males

### **Population pyramid**

- Is a graph which describes the age and sex distribution of a country's population

### **Progressive Population pyramid**

- Is an age-sex structure that is wide at the base but narrow/tapered at the top/apex
- They indicate a youthful population and rapidly growing population, typical of LEDCs
- It has a high potential to grow

### **Regressive population pyramid**

- Is an age-sex structure which is bulging at the middle but fairly narrow at the base, indicating an ageing population
- It is typical of MEDCs and very low potential to grow

### **Population explosion**

- This is a rapid expansion of population in an area or a sudden increase of population caused by a sudden increase in birth rate
- This is associated with geometric increase in population

### **Population growth**

- Refers to any natural change in population resulting from the natural increase
- This natural increase may occur when there is excess of births over deaths
- It can also result from a high net migration

### **Zero population growth**

- This is a situation whereby the death rate exceeds the birth rate i.e. population decline
- Those who die will not be replaced by those who are born
- This is associated with stage 5 of the demographical model

**Replacement level/ rate**

- Is a situation where there is sufficient number of children born to balance the number of people who die
- When women bear at least 2.1 children

**Census**

- Is the numeration of population in a country

**Dejure**

- This is the counting of people who live in a given place regardless of their physical presence
- This has a problem that it leads to over enumeration

**Defacto**

- This is the counting of people who are physically present at a specified place

**Vital Registration/ Rate**

- Is the collection of population information on important events
- These vital events include births, deaths, divorce, marriages, adoption and also information in fertility
- This information is important because it is used for the social and economic organisation of the country like education, voting, state support and inheritance

**Population Registers**

- These are raw demographic data banks
- They are used for administrative and statistical purposes
- They are used for identification of people, control of election raw for military service also

**Carrying capacity**

- Is the maximum number of population either of people, plants, and animals which an environment can sustain

**Sustainable development**

- Is the development that meet the needs of present generation without compromising the needs of the future generation

**Overpopulation**

- Is a state whereby there are too many people relative to resources and technology available to maintain an adequate standards of living
- Is an ill-balance between the population of a country and the available resources such that the former cannot be adequately supported by the latter

**Underpopulation**

Refers to the population that is too small to fully utilize the resources which are available

Low standard of living



### **Optimum population**

- Is a theoretic state in which the number of people, when working with all the available resources will produce the highest GDP per capita i.e. the highest standard of living
- Resources= Population resulting high quality of life

### **GDP (Gross Domestic Product)**

- This is the total output of goods and services produced in a country when valued at market place

### **Population ceiling**

- Refers to the point where a population will equal to the carrying capacity
- It is also saturation level where population will be equal to carrying capacity

### **Multi-racial societies**

- It is a plural society, whereby the population includes at least one ethnic minority
- Is a society or community which is composed of people of different races and culture
- Heterogeneous in nature, made up of people of different races

### **Ethnicity**

- Is vertical division in a society where a group which is part of a larger population possesses a distinct culture of its own
- Determined by origins, language, colour, culture and belief occupy a common environment

### **Racial Segregation**

- Due to historical, social, political factors resulting in isolation and disadvantaging of a minority
- Discrimination based on colour of skin
- Unequal access to opportunities like education, health, employment, civic responsibilities

Just note;

### **Population-resource ratio**

### **Youthful population**



# Migration

---

## **Migration**

- Is the movement of people from one place to another which involves a permanent change in residence for a period of at least one year
- It can be internal or external

## **Circulation**

- Is a short term temporal, repetitive movement of people on a daily basis for work or school
- It also involves seasonal movement of labour or nomads

## **Commuting**

- refers to daily movements to and from places of work
- Is when a person lives in one community and works in another

## **Mobility**

- Is the ability to move/ migrate or frequency of movements
- Refers to all forms of population movements in terms of patterns, processes and causes
- It involves a movement from a home basis while migration involves permanent change of residents

## **Involuntary migration/ forced migration**

- This is when people are willing to move from one place to another
- This movement is without choice e.g. refugees

## **Voluntary migration**

- The migrant is migrating by choice

## **Internal migration**

- These are population movements within the same country and involves relatively short distances
- Is mainly characterised by rural to urban migration in LEDCs and In MEDCs, it is mainly from urban to smaller towns or to urban margins in a process called suburbanisation

## **International/ external migration**

- Movements of people which involves crossing of a country's political boundaries
- This movement affects total population of a country
- It is mostly associated with the young and most advanced people who have better economic aspiration
- It is also associated with refugees and slaves
- It involves greater distances



### **Migration balance**

- Is the difference between the number of emigrants and immigrants

### **Net migration loss**

- Is therefore a process where more people are lost as emigrants when compared to immigrants e.g. those who go to South Africa from Zimbabwe

### **Net migration gain**

- Is a process whereby more immigrants come in the country than those who are lost as emigrants

### **Place utility**

- Usefulness or the importance of a place
- It refers to accessibility of place or location
- If the place is good or advantageous, the place is said to possess positive utility and people are likely to remain in that place and also the opposite is true

### **Return migration**

- Is the movement of migrants to the places of their origins (put example)





# Settlement Studies

## Settlement

- Is a place where people dwell on a more or less permanent basis and is marked by various forms of shelters

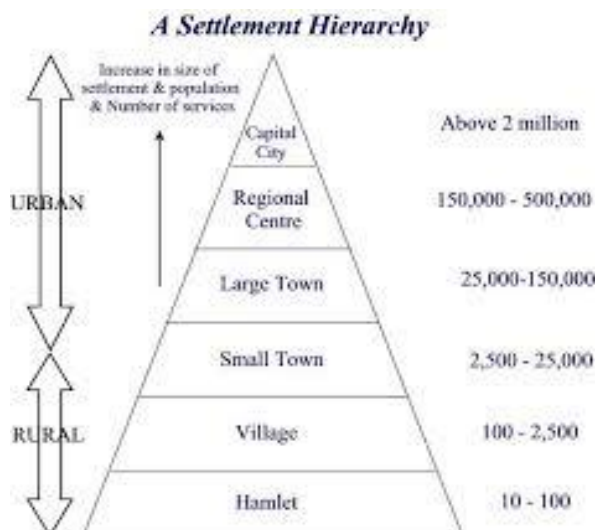
## Settlement situation

- Describes the location of a settlement relative to its surroundings e.g. rivers, roads, railway and uplands

## Settlement site

- Describes the characteristics of the actual point at which a settlement is located and was of major importance in the initial establishment and growth of a village or town

## Settlement hierarchy



- is a way in which settlements are ranked into an order based upon their population or functions (Christaller).

## Central place

- Is a settlement that provides goods and services to the area around it
- Central places vary in size from a small village to conurbation
- This clearly depends on the number and variety of goods and services it provides for the people who reside there and the area around (Michael Carr pg. 123)

## Sphere of influence

- Can be referred to as the urban field or hinterland
- It is the area that is under economic social and political influence of a central place
- Its size vary according to the order of goods and services provided by central place

## Range

- Is the maximum distance that people are prepared to travel for a particular good or service
- It is governed by the value of the good

## Threshold

- Is the minimum number of people required to support a particular service
- Is the minimum number of people needed to support a good or service outlet established at a central place (Michael Carr pg. 123)



- The higher the order of goods and services the larger the threshold population

### Central functions

- These are activities that provide goods and services from central places to local people and also to the people from the wider surroundings of the central places

### Periphery

- This form the bulk of communal areas
- These are outskirts
- They are also remote

### Settlement pattern/ morphology

- Shape arrangement of dwellings
- Is the relative site of each building in a settlement
- It is also a pattern or shape of villages and small towns e.g. isolated, dispersed, nucleated patterns

### Nearest neighbour analysis

- A statistical test to describe the pattern of a settlement whether it is a dispersed pattern or a nucleated

### Rank size rule

- Is a model which states that the population size of a given city tends to be equal to the population of the largest city divided by the rank of the given city e.g. USA cities
- Formula  $P_r = P/r$
- Where  $P_r$  – population of city ranked  $r$

$P$ - population of the largest city

$r$ - rank of the city  $r$

### Reilly gravity model

- Attempts to predict the degree of interaction between two places ie predicting movements between two places

### Binary distribution

- This is where a couple of cities of similar size dominate the upper end of the hierarchy ie where there are two very large cities of almost equal size within a country dominating economically, socially, politically etc.
- For example, Madrid and Barcelona in Spain

Toronto and Montreal in Canada

Harare and Bulawayo in Zimbabwe



## Urban Primacy / Primate city

- Are the largest city or town in a country is well over twice the size of another so much that the primate city dominates the urban system in terms of its population size and its political administrative and economic importance

## Squatter settlement

- These are shanty towns or pathetic shelters built with whatever material is available or the shift dwellings
- Settlements on undesignated locations
- They are normally found or located on the periphery of cities or land that is not economically used e.g. derelict land in the city e.g. Epworth

Hopely farm ( Harare )

## Conurbation

- This is an area of urban development. Normally it results from the merging of originally separated towns e.g. Tokyo and North East American sea board

## Slum settlements

- Refers to older houses deteriorating or decaying because they are under serviced and dilapidated
- They are at valuable land adjacent to the CBD
- Slums are acute in third world countries and they are mobile in USA referred to as ghettos

## Gentrification

- Is a process which occurs in a certain inner city areas where old, substandard housing is bought and modernised and occupied by middle class or wealthy families (Michael Carr)
- Old dilapidated houses in the city are bought and renovated by the rich and professional and value high
- Done for purposes of prestige e.g. Manchester

## New town

- A completely free standing urban centre planned on the periphery of a city in response to the redistribution of population and services. It is self-contained society and economically well balanced

## Satellite towns

- Is a planned small urban settlement located near a large city for purpose of accommodating people who work in the large city

Just note:



**Functional zone**

**Rural-urban interaction**

**City centre**



# Urbanisation

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- Is the process whereby an increasing proportion of the country's population lives towns and cities
- It is a process whereby more people in country now live in urban areas
- It is also a process whereby the rural setup is changing taking up urban characteristics

## **Fringe belt/ Urban fringe.**

- Is the zone of transition between the built up area of the city and the surrounding country side Is the transitional zone between urban and rural areas

## **Suburbanisation phase**

- Is defined as decentralisation of people employment and services from the inner and central areas of cities and their relocation towards the margins of built up areas

## **Inner city**

- Is a decaying part of a city where there are dilapidated obsolete buildings with multiple occupation and industries are moving out
- is also known as the twilight zone. It is typically found next to the CBD and has mainly terraced houses in a grid like pattern. ... Unemployment and other socio-economic problems have led to periods of unrest in many **inner city** areas, e.g. Toxteth in Liverpool

## **Over urbanisation**

- Is a situation whereby urbanities are too many and urbanisation is presenting a problem
- Too many people than the town can provide with jobs, houses and services
- This is due to pull and push factors e.g. war, drought slow economic growth

## **Urban sprawl**

- Is the uncontrolled outward physical growth of cities or towns
- The outward spread of urban areas encroaching onto rural landscape
- Takes up land that was used for agriculture
- Rural land loses its original features e.g. Dema/Seke

## **Urban renewal**

- Is a process of giving old parts of the town especially buildings a face uplift

## **Reurbanisation**

- When after a clear period of decline the population of a city in particular the inner area begins to increase and investment starts to increase

**Counter urbanisation**

- Is a process of population decentralisation as people move from large urban areas to smaller urban settlements and rural areas
- Is the movement of people from urban areas to rural areas and it is a characteristic of developed countries

**Cycle urbanisation**

- Stages of urban change from the growth of a city to counter urbanisation through reurbanisation

**Pirate urbanisation**

- Is whereby urban areas have what is called informal settlements, in LEDCs is mainly due to rural-urban migration
- Or simply creation of squatter settlements

**Urbanism**

- Is the tendency of people to lead increasingly urban ways of life

**Green belts**

- Are areas of open and low density land use surrounding existing settlements where further urban extension is to be strictly controlled
- Is a section of undisturbed vegetation belt around the city in which no building activity is allowed. The city cannot expand beyond this ring. Within the green belt, only parks and golf courses are allowed

**Urban growth**

- Absolute increase in physical size and total population of urban areas

Just note:

**Urban decay****Urban decline****Green field site****Brown field site**



# ENVIRONMENTAL MANAGEMENT

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## **Pollution**

- Contamination of the earth/ atmospheric system to such an extent that normal environmental process are adversely or negatively affected

## **Air pollution**

- Contamination of the land by gases and particulate matter
- Is when the atmosphere has long been regarded as a dumping ground for gaseous and particular waste

## **Land pollution**

- This describes rubbish dumps, spoils heaps and contaminated land

## **Land degradation**

- Reducing quality of land
- Can be dereliction or contamination of land

## **Dereliction**

- Is when land or buildings is so damaged by industrial or other developments that it is incapable of beneficial use without treatment or rehabilitation

## **Contaminated land**

- This is common in most industrial regions associated with industrial gas waste, scrape yards, military and waste disposal sites

## **Global warming**

- Is the increase of atmospheric temperature around the earth due to greenhouse gas effects which prevent escaping of heat to outer space
- It is associated with greenhouse gases
- Carbon dioxide, methane gas, nitrous oxide are pollutants which stimulates the global temperatures

Just note:

## **Water Pollution**

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## Noise Pollution





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**NCUBE PATRICE**



This revision guide is so helpful to candidates who are ready for their GCE Advanced final examination.

It is also helpful to those who are craving for definitions on the topics listed in the front cover of this book.

“A” Level Geography it’s all about knowing terms and their definitions for you to be able to answer a question and also been able to allocate case studies

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