

# SEDIBENG WEST 2020



Grade 12 – Term 1 and Term 2

A Study Program for improving Geographical Knowledge ...



## Note to candidate:

### STEPS BEFORE BEGINNING YOUR GEOGRAPHY STUDY PROGRAM:



1. Organise your knowledge for revision: - *sort through your notes and only focus on which topic you have selected. Always determine which topics/sub topics/ areas of content you are less sure of. Develop a Timetable that indicates the topics you are studying and not just Geography*
2. Include other unavoidable academic / work /family commitments, and time for relaxation, or exercise on the timetable. (*Time Management*)
3. Set a revision timetable with realistic goals.
4. Plan your revision as far in advance as possible.
5. Use past papers to get used to the way questions are worded -Get used to the kind of language used in exam questions. Compare the question techniques and mark allocation. (*you must be able to determine an easy question from a difficult question*)
6. Plan and practice paragraph writing using preferred methods. (*when you study write at least five (5) to six (6) points and then verify if these are correct*)
7. Make notes, improve them and structure them meaningfully (*The notes you create for June and Preparatory Examinations will serve as a basis for study materials for the final examination*)
8. Review your notes and think about what was covered in class. (*Always refer back to your notes/source material/textbooks/examination papers and study guides to make sure you have the correct/precise idea about each topic*)
9. You **MUST** rewrite notes as you study in order to improve your writing and remembering skills.
10. You **MUST** underline and highlight important ideas and vocabulary/concepts/terminology in your notes.

### HOW TO USE THE GEOGRAPHY STUDY MATERIAL?

- You must commit to memory as many points as you can remember on the sub topic
- The essential foundations of each question cut across the various topics required in the CAPS so you must be able to apply your answers to the correct questions.
- Always use "geography" key words and "geography" key concepts to remember as many of the points given in this guide.
- **ONCE YOU HAVE COMPLETED REMEMBERING ALL THE POINTS, CONTINUE TO REVISE BY LOOKING AT VARIOUS DIAGRAMS FROM TEXTBOOKS AND PREVIOUS EXAMINATION PAPERS.**



**NOTE TO CANDIDATE: ICONS USED IN THIS GUIDE**

 <p><b>Hints and Tips on WHAT and HOW to study to remember.</b></p>	<p><b>Commit to memory.</b> These are points in a topic that must be remembered for the examination. A simple strategy is the use of neumonics to remember Geographical concepts and terminology e.g.</p> <p>To remember characteristics of associated weather of a Tropical Cyclone during the mature stage:</p> <p>S – <b>Storm surges</b> along coastal regions          G – <b>Gale force</b> winds          T – <b>Torrential</b> rainfall          E – Isobars are <b>evenly spaced and steep</b> in the centre of the pressure system          A – <b>Average temperatures above 26,5 °C</b> in the Mature Stage</p> <p style="text-align: center;"><b>SGTEA</b></p> <p>Now ... Taking all the first letters from the key words above I can form the word</p> <p style="text-align: center;"><b>GATES</b></p> <p>Now ... Repeat the word and try to remember what each letter represents</p>
 <p><b>Useful hints and tips when studying:</b></p>	<p>The terminology lists must be remembered as part of the topic/sub topic. Remember the headings of each topic are important to remember. If you are able to remember the topics and KEYWORDS for each topic, you will be able to organise the information that you are studying into coherent, logical and structured answers during the examination</p>



Let's get started ...

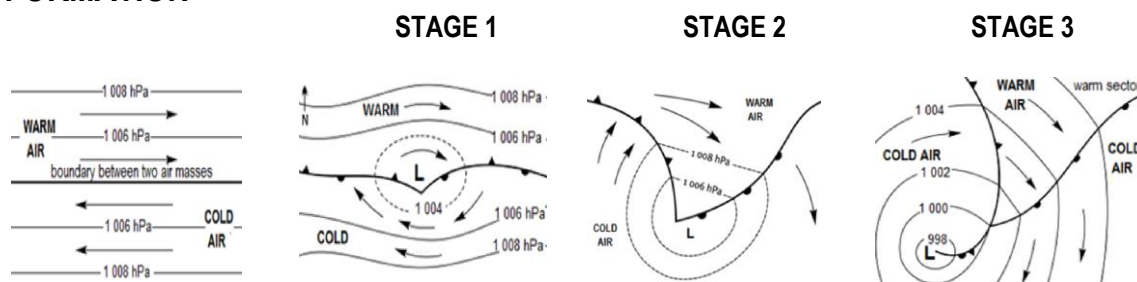
## MID-LATITUDE CYCLONES



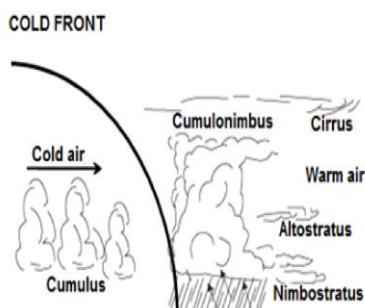
What do you need to know?

(Temperate, Extra-Tropical Cyclones, Depressions)



### STAGES OF FORMATION



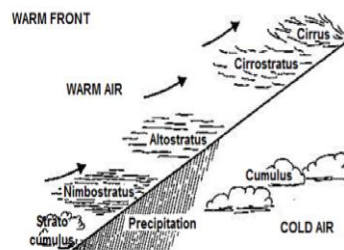
### COLD FRONT CONDITIONS:



### CHANGES IN WEATHER CONDITIONS WHEN A COLD FRONT PASSES OVER A LOCATION:

- Temperature decreases
- Air pressure decreases as the cold front approaches and then increases as the cold sector  arrives.
- Humidity decreases as the cold sector arrives.
- Warm, moist unstable air is intensely uplifted at the steep cold front. The air cools to dew point temperature and condensation occurs to form a dense Cumulonimbus Cloud.
- Thunderstorms and Rain occur.
- Wind Shifts occur. Wind changes DIRECTION.
- In the SW Cape (Southern Hemisphere) the wind changes in an anti-clockwise direction known as backing. (From NW to W then SW and finally S).
- In the Northern hemisphere the wind Veers  (Changes direction in a clockwise direction).

## WARM FRONT CONDITIONS:



## CHANGES IN WEATHER CONDITIONS WHEN A WARM FRONT PASSES OVER A LOCATION:



- Temperature increases
- Air Pressure decreases as the cold front approaches and then increases as the cold sector arrives.
- Humidity increases as the warm sector arrives.
- Warm, moist unstable air is uplifted at the gentle warm front.
- The gentler warm front causes the area affected by the clouds and rain to be greater.
- Cirrus clouds appear first at high level, then Altostratus and then Nimbostratus Clouds which causes Soft, Soaking Rain.

## CONDITIONS FOR THE DEVELOPMENT OF A MID-LATITUDE CYCLONE:



- Two different air masses (warm and cold air masses) meet
- Cold polar easterlies meet westerlies along the polar front


Develop into mid-latitude cyclones because:

- Between 30° - 60° N/S of the equator (frontal zone)
- Warm air mass is uplifted (then displaced)
- Uplift results in condensation
- Increased cloud cover
- Will result in precipitation

## THE ENVIRONMENTAL IMPACT A MID-LATITUDE CYCLONE MIGHT HAVE. (Negative effects)



- Flooding
- Soil erosion

- Destruction of natural ecosystems
- Loss of natural habitat for animals
- Veld fires destroy vegetation
- Destruction  of coastlines
- Damage to coastal dunes
- Loss of agricultural land
- Snow / low temperatures result in loss of livestock
- Destruction of infrastructure
- Destruction of homes

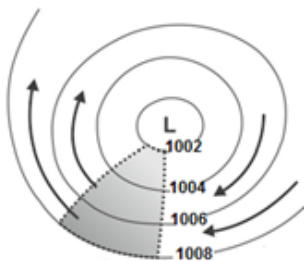
## TROPICAL CYCLONES



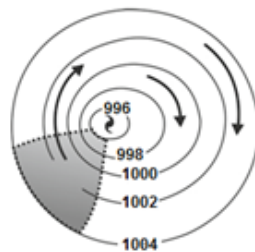
What do you need to know?

### STAGES OF FORMATION

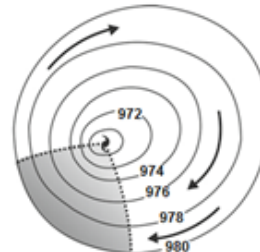
Formative stage



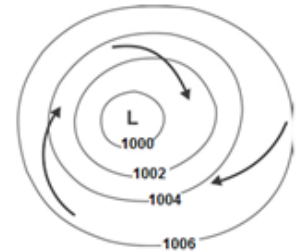
Immature stage



3 Mature stage




Degenerating stage






### FAVOURABLE CONDITIONS FOR THE DEVELOPMENT OF A TROPICAL CYCLONE (FACTORS + EXPLANATION)



- Warm ocean - above 26.5 °C
- Warm ocean - Needed to provide heat energy and moisture
- Rapid/High evaporation rate for condensation to occur
- Condensation - latent heat  to be released
- Located between 5° - 30° north / south of the equator
- Coriolis force is ineffectual at the equator (0° - 5°)
- Air is mostly unstable

## WEATHER CONDITIONS ASSOCIATED WITH THE MATURE STAGE OF TROPICAL CYCLONES:



- Heavy rains (torrential rainfall ) resulting in flooding
- Pollution of water
- Human injuries and possible deaths
- High wind velocity (gale force winds ) damages structures vegetation, crops and livestock
- (storm surges ) waves - Coastal erosion
- Saline (salt water) intrusion of low lying coastal areas

## HOW TRACK THE PATH OF TROPICAL CYCLONES:



- Satellite imagery
- Air radar and remote sensing sounds
- Radar
- Weather reports

## PRECAUTIONARY METHODS

- Listening to forecasts
- Construction of seawalls/ dredged coastal areas
- vacate low ground
- board up windows
- sandbags to reduce coastal flooding
- good communication
- evacuation centres
- clear evacuation routes
- housing on stilts
- strong materials
- storm warden patrols

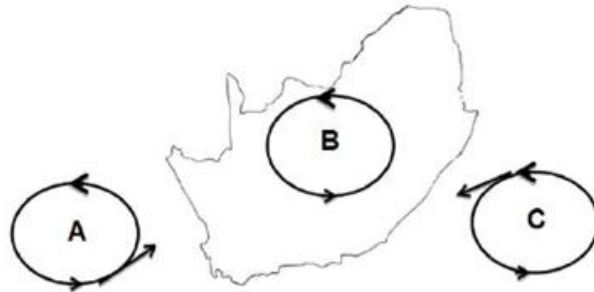
## HOW DO WE KNOW WHEN A TROPICAL CYCLONE HAS REACHED ITS MATURE STAGE?

- NB: Air Pressure must have dropped and rapidly decreasing to well below 1000 hPa,
- NB: Cumulonimbus clouds would have formed.
- NB: Covers a large area and the symbol denoting the eye is evident

## SUBTROPICAL ANTICYCLONES AND ASSOCIATED WEATHER CONDITIONS

- Draw a diagram that illustrates the air movements of Southern African Anticyclones when they RIDGE over the coastline of South Africa

- Describe the air movement in these pressure systems with the use of a diagram
- Draw and Label on your diagram the weather conditions associated with these pressure systems during summer and winter
- Draw the positional changes of anticyclones and how they affect the weather conditions during summer and winter
- Comment on the "variation" in temperature in the interior and along the coastal areas according to these anticyclones



**STATE THE DIFFERENCE IN THE WEATHER CONDITIONS EXPERIENCED DURING WINTER AND SUMMER OVER THE SOUTH AFRICAN INTERIOR BY REFERRING TO THE ROLE PLAYED BY THE Kalahari High Pressure.**

Summer  
Moist air  
Cloudy  
Rainfall  
No frost  
Small temperature ranges

Winter  
Dry air  
No clouds  
Little/no rain  
Frost at night  
Large temperature range

**EXPLAIN WHY SUNNY CONDITIONS MAY BE INDICATED FOR ALL THE INLAND (Interior) WEATHER STATIONS.**

(Winter conditions)

- Inversion lower than the escarpment
- Warm moist air cannot reach the interior
- Little moisture over interior will reduce condensation
- No cloud formation to block out the sun

**WHY IS THERE A VERTICAL POSITIONAL CHANGE  OF THE INVERSION IN WINTER?**

(Inversion lower than the escarpment) TO SUMMER (Inversion higher than the escarpment) OF GREAT IMPORTANCE TO FARMERS ON THE SOUTH AFRICAN PLATEAU?

- During summer moist air reaches the interior
- Precipitation over the interior
- Rivers filled with water
- Farming can take place



## **NOW MAKE A DETAILED STUDY OF SOUTH AFRICAN BERG WINDS TO COMPARE HOW POSITIONAL CHANGES IMPACT AIR MOVEMENTS.**

- Draw a diagram that illustrates the air movements of a South African Berg Wind
- Label the pressure systems associated with the South African Berg Wind.
- Comment on the "variation" in temperature in the interior and along the coastal area.
- Determine the impact of South African Berg Winds

## **STATE THE DIFFERENCE IN THE WEATHER CONDITIONS EXPERIENCED DURING WINTER AND SUMMER OVER THE SOUTH AFRICAN INTERIOR BY REFERRING TO THE ROLE PLAYED BY THE KALAHARI HIGH PRESSURE.**

### **SUMMER**

- Moist air/
- Cloudy over the interior/
- Rainfall/
- No frost/
- Small temperature range/
- Dry over South Western Cape/

## **EVIDENCE OF SUMMER CONDITIONS ON A SOUTH AFRICAN SYNOPTIC WEATHER MAP**

- South African High further south/
- Western Cape the winter rainfall area is dry/
- Cold fronts (Mid-latitude cyclones) are passing far south of the country/
- Kalahari HP is weak and allows rising convection currents to reach interior/
- Summer rain over interior/
- Clouds over interior/
- Tropical cyclones present/
- Generally high temperatures at weather stations/

## **EVIDENCE OF WINTER CONDITIONS ON A SOUTH AFRICAN SYNOPTIC WEATHER MAP**

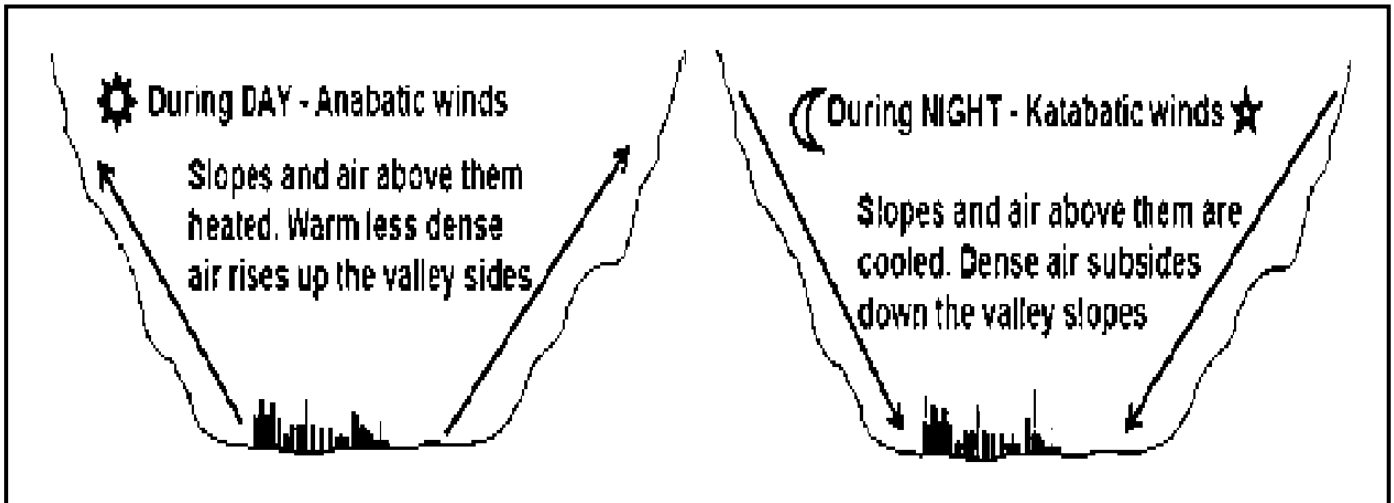
- Dry air (*refer to weather stations on a synoptic weather map*)
- No clouds over interior (*refer to weather stations on a synoptic weather map*)
- Little or no rain over interior (*refer to weather stations on a synoptic weather map*)
- Frost at night (*refer to symbols used on a synoptic weather map*)
- Large temperature range
- Rainfall over South Western Cape

## **MORE EVIDENCE OF WINTER CONDITIONS ON SOUTH AFRICAN SYNOPTIC WEATHER MAP**

- South Atlantic HP further north
- Western Cape experiences rainfall
- Clouds over South Western Cape

- Cold fronts (Mid-latitude cyclones) passing over the country
- Kalahari HP strengthens and dominates the interior
- Dry over the interior
- No clouds over interior
- Generally low temperatures at weather stations

## VALLEY CLIMATES



---

---

---

---

---

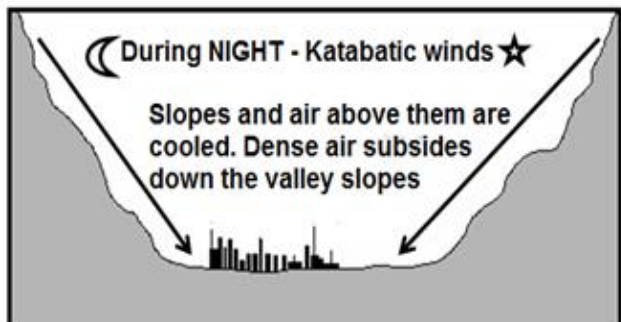
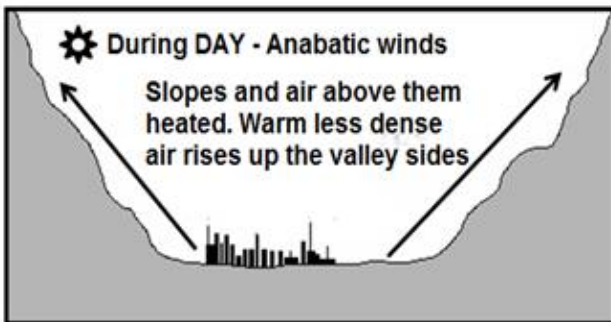
---

---

---

---

---





## URBAN HEAT ISLANDS





What do you need to know?

### THE HUMAN IMPACT OF HEAT ISLANDS.

- Trapped pollutants could result in respiratory problems
- Use of air-conditioners because of higher temperatures
- Deterioration  of buildings
- More renovation of buildings such as frequent painting
- Unpredictable rainfall 
- Increase in health problems/examples related to heat island
- Increase in stress/discomfort
- Movement to suburbs/counter-urbanisation

### THE EFFECT MODERN BUILDINGS HAVE ON HEAT ISLANDS.

- Modern buildings are made of a lot of glass/steel which results in the
- Multiple reflection  of heat
- Buildings create a greater surface area  which absorbs/reflects heat
- Buildings are made of concrete which absorbs/reflects more heat
- Tall buildings trap heat as wind cannot disperse the heat
- More air conditioners/heaters
- More buildings therefore less vegetation to play cooling role

## GEOMORPHOLOGY



What do you need to know?

### DRAINAGE SYSTEMS IN SOUTH AFRICA

---



---



---

**IMPORTANT CONCEPTS: (COMPLETE THE FOLLOWING DEFINITIONS)**

**Drainage Basin:** \_\_\_\_\_

**Catchment Area:** \_\_\_\_\_

**River System:** \_\_\_\_\_

**Watershed:** \_\_\_\_\_

**Tributary:** \_\_\_\_\_

**River Mouth:** \_\_\_\_\_

**Source:** \_\_\_\_\_

**Confluence:** \_\_\_\_\_

**Water table:** \_\_\_\_\_

**Surface run-off:** \_\_\_\_\_

**Ground Water:** \_\_\_\_\_

**Permanent River:** \_\_\_\_\_

**Periodic River:** \_\_\_\_\_

**Episodic River:** \_\_\_\_\_

**Exotic River:** \_\_\_\_\_

**Drainage Pattern:** \_\_\_\_\_

**Examples of Drainage Patterns:** \_\_\_\_\_

**Drainage Density:** \_\_\_\_\_

**River Profile:** \_\_\_\_\_

**Laminar Flow:** \_\_\_\_\_

**Turbulent Flow:** \_\_\_\_\_

**River Grading:** \_\_\_\_\_

**River Rejuvenation:** \_\_\_\_\_

**Superimposed Drainage Pattern:** \_\_\_\_\_

**Antecedent Drainage Pattern:** \_\_\_\_\_

## THE PROCESS OF RIVER CAPTURE

- Stream on lower level erodes headward
- Stream eroding head ward cuts through the watershed
- Water of stream on a higher flow level is captured
- Water of stream on higher level diverted to stream on lower level

## CHARACTERISTIC FEATURES OF RIVER CAPTURE / STREAM PIRACY:

- Captor river (Pirate stream)
- Misfit stream
- Wind gap
- River gravels
- Elbow of capture

## PHYSICAL AND ENVIRONMENTAL IMPACT OF RIVER CAPTURE/ STREAM PIRACY ON THE MISFIT STREAM


### PHYSICAL IMPACT

- Stream will lose its source of water/
- Will be too small for its valley/
- Misfit stream/
- River will dry up/


### ENVIRONMENTAL IMPACT

- Agriculture will be affected negatively because of lack of water/
- Cultivated lands only at elbow of capture/
- No industrial activity because of lack of water/
- Food production will decrease/
- Less income from agriculture and industrial activities/
- Negative influence on economy/

## (REFER TO THE FORMATION OF MEANDERS, ACCELERATED (FASTER) EROSION, DEPOSITION AND OX-BOW LAKES)

- A meander is a bend along the course of a river
- After heavy rainfall the water is fast flowing and cuts/erodes into the outer bank (undercut slope) of a river
- Meander neck  is reduced
- Water is slow moving on the inner bank (slip-off) resulting in deposition
- After a period of time when the river cannot negotiate the bend, it will cut through the meander neck (cut off the loop), forming an ox-bow lake
- Stream will now follow a straight path
- River will start to meander again
- The meandering river migrates

## METHODS THAT CAN BE INTRODUCED TO REDUCE FLOODING ALONG THE RIVER COURSE

- Small catchment dams in upper course to release water at intervals into the main stream
- Large flood control dams in lower reaches
- Raise river banks (levees) artificially 
- Line rivers with cement to reduce friction and increase velocity
- Increase gradient by cutting through meander necks to increase velocity
- Increase vegetation
- prevent deforestation

## WHY A STREAM CAN REJUVENATE ITSELF

- Increased precipitation
- Increase in volume of water
- Stream capture
- Reduction in vegetation increases run-off
- Drop in sea-level
- Isostatic uplift of land

## WHY IT IS IMPORTANT TO MANAGE DRAINAGE SYSTEMS PROPERLY:

- Control flooding
- Decrease soil erosion
- Maintain groundwater levels
- Important source of fresh water
- Preserve aquatic / river ecosystems

# FLUVIAL GEOMORPHOLOGY

Rivers usually originate in high-lying areas and flow downhill toward the sea.

As they flow, the river will carve channels into the landscape. These channels then become the pathway for all future water to follow as it flows toward the sea.

The channels may change over time, as they are eroded.

A river has three stages: Upper Course, Middle-Course and Lower Course

## THE BASE LEVELS OF EROSION .....

## LONGITUDINAL PROFILE OF A RIVER

### UPPER COURSE


- Slope is STEEP – river flows fast
- Erosion is the main process here

- Downward Erosion dominates over Lateral Erosion
- Valley is Steep V-Shaped (2 -3 times deeper than wide)
- Waterfalls are common here

#### MIDDLE COURSE

- Slope is less steep – and the river flows slower
- Erosion still dominant, but deposition also occurs at a smaller rate
- Lateral erosion dominates
- Valley now has a wide U – shape
- As wide as it is deep

#### LOWER COURSE

- Slope is gentle and the river flows very slowly
  - Slow flow of the river leads to DEPOSITION on a large scale
  - River channel is very wide
  - River meanders
  - Many depositional landforms occur e.g. Ox-bow lakes, meander scars, deltas etc.
- 

# RURAL and URBAN SETTLEMENTS

## RURAL SETTLEMENTS



What do you need to know?

CLASSIFY  Settlements as RURAL or URBAN.

What do you understand by the term CLASSIFICATION?

---



---



---

We look at their functions (or activities):

What do you understand by the term FUNCTION?

---



---



---

Terminology (UNIFUNCTIONAL Vs MULTIFUNCTIONAL)

RURAL SETTLEMENTS are *unifunctional*, focusing mainly on Primary activities, like Farming, Mining, Fishing, Hunting or Forestry.

URBAN SETTLEMENTS are *multi-functional*, focusing on Secondary (Industries) and/or Tertiary activities, (Services)

WHAT IS THE **SHAPE** OF A SETTLEMENT?

---



---



---

A settlement can be formed in the following shapes ... NB Observe these on Topographical Maps and Diagrams (Round, Linear, Star-shaped or T-shaped)

We also look at which factors caused shape, e.g.:

Were there Cultural (man-made) factors, like roads or railways?  
OR were there Physical factors like Rivers, Mountains or the Sea?



## WHAT IS THE SETTLEMENT PATTERN?

---

---

---

(Is it *Nucleated* or *Dispersed*)

## WHAT ARE THE ADVANTAGES & DISADVANTAGES OF EACH SETTLEMENT PATTERN?

---

---

---

### NUCLEATED PATTERN

#### ADVANTAGES:

- Help available in times of ill-health, war, unrest etc.
  - Social benefits, like networking and sharing ideas.
  - Farmers need less capital as they can share implements.

#### DISADVANTAGES:

- All farmers have to agree on farming methods (if communal)
- Farms are often fragmented and too small for mechanization.
- If soil erosion sets in, all farmers are affected

### DISPERSED PATTERN

#### ADVANTAGES:

- Farmers can make their own decisions. (Economic advantage)
- They can introduce their own soil conservation measures or mechanization.
- They are able to work harder to make more profit.

#### DISADVANTAGES:

- There is a lack of social contact
- Farmers can't rely on community for help / help is far away.
- Require a great deal of capital to keep farm running.

### RURAL DEPOPULATION

- What is it?
- Why does it occur – PUSH & PULL factors?
  - What effect does it have on the Rural areas AND then on Urban areas?

## RURAL DEVELOPMENT STRATEGIES

Land Reform as a Policy and its related programs (Land Restitution, Land Tenure etc.)

### **PULL FACTORS (Centripetal forces): (Towards the urban areas)**

- Higher paying jobs (employment)
- Better housing and services
- Higher standard of living
- Better social life (entertainment)
- Better education
- Availability of jobs

### **PUSH FACTORS (Can also be referred to as Centrifugal forces):**

(Away from the rural areas)

- Natural disasters such as floods and droughts in rural areas
- Lack of services in rural areas
- Poor infrastructure in rural areas
- Lack of jobs (employment) and low salary on farms
- Lack of entertainment in rural areas
- Crime in rural areas (Stock Theft/Murder etc.)

## REASONS FOR COUNTER-URBANISATION

**(Movement of people in the direction of the rural area – outskirts of the urban area)**

- Not able to get a job
- Not able to get decent home
- Standard of living was lower
- Experience hunger
- Experience poverty / low wages
- Could not afford to send children to school
- High crime rate

## PHYSICAL FACTORS THAT RESULTED IN THE CHOICE OF A SITE

- Close to river
- Open space
- Direction of prevailing winds
- Away from CBD
- Away from residential areas

## WHAT ENVIRONMENTAL PROBLEM HAS RESULTED FROM MINING ACTIVITIES?

- Sinkholes/subsidence of earth
- Air pollution
- Destruction of natural vegetation

- Accelerated soil erosion
- Loss of valuable agricultural land
- Creation of mine dumps
- Land and water pollution

## REASONS WHY HEAVY INDUSTRIES SUCH AS A POWER STATION AND CEMENT FACTORY ARE LOCATED ON THE OUTSKIRTS OF CITIES.

- Air pollution
- Noise pollution
- Bad odours/smells
- Dangerous activities
- Cheaper land / large space
- Bulk transport facilities

## URBAN SETTLEMENTS

*(words indicated in bold and underlined must be included for the concept to be correct)*



### Urbanisation:

the **process** by which an **increasing percentage** of the population is living in *urban* settlements.



### URBAN GROWTH:

The **natural increase** of the number of people living in urban areas



### URBAN EXPANSION:

An **increase in the physical area** over time (e.g. new buildings and infrastructure)



### URBAN PROFILE:

The **view** of an urban area **from the side** to indicate the different heights of buildings and different land uses. (2)



### Site:

the **actual physical** ground on which a settlement is located



### Situation:

the location of a settlement in **relation to the surroundings**.



### Centripetal Forces:

forces which tend to **keep the functions in the city centre**, attracting people to the city centre.



### Centrifugal Forces:

forces that encourage **the migration of functions from the city centre** to the periphery (edge)



### Centralization:

when a central location is chosen mainly for **accessibility**, e.g. JHB due to convergence of transport links.



### Decentralization:

**the movement of functions to an area outside the CBD** due to high rents, urban decay, crime, etc.



### Urban Sprawl:

The **uncontrolled expansion** of the urban area



### Urban Decay:

usually in the oldest part of the city, where **buildings in the transitional zone become dilapidated** due to age, poor maintenance and sub-economic conditions.

(These are found in some parts of the Transitional Zone)



### Urban Renewal:

projects undertaking the **remodeling or renovation** of (Gentrification) buildings/structures in areas where urban decay has set in.

## NB

The rate of urbanisation is much higher in Developing countries than in Developed Countries

## FACTORS INFLUENCING LOCATION OF URBAN SETTLEMENTS

Settlements do not simply establish without reason. They are located in certain places for certain reasons, e.g.:

- Human factors such as historical, social, political, economic factors, etc.
- Physical factors such as relief, drainage, water supply, type of soil, etc. could determine location

## FUNCTIONS OF URBAN SETTLEMENT

- To classify a settlement as Rural or Urban look at the function of the settlement.
- Rural Settlements are Unifunctional (usually one dominant function, a Primary activity)

- Urban settlements are Multi-functional (usually offer Secondary, Tertiary & Quaternary functions)

#### QUARTENARY FUNCTIONS:

- Specialized services relating to Research, Law, IT and training, etc.)

### TYPES OF URBAN SETTLEMENT



Central Places: are accessible & provide (urban) goods & services to the surrounding rural population



Trade & transport cities: established for trade & transportation, e.g. East London (harbour town)



Break-of-Bulk points: established at a point where mode of transport is changed, e.g. Durban, where goods are moved from trains to ship



Specialized Cities: towns that specialize in a particular activity, e.g. Sishen (mining town), or Stellenbosch (University Town)



Junction Towns: developed at transport junctions like river road or rail crossings, e.g. De Aar (road-rail junction)



Gateway/Gap Towns: towns that arose at Gaps in physical structures like mountain ranges, e.g.: Worcester at the opening of the Hex River mountain pass.

Important to remember that functions of settlements can change over time e.g., Johannesburg, started as mining town, but mines are closing and it is now a major centre of business, finance & industry)

### CENTRAL PLACE THEORY

To understand the distribution & size of settlements we can look at theories like Christaller's Central Place Theory

Christaller noticed that towns in Northern Germany displayed a regular pattern of distribution.

He came up with the theory that there are certain reasons for this:

- people want convenience & cheapest price when buying something
- distance means travelling costs, so people want to minimize travelling when going to buy something
- Businesses aim to maximize profits, and establish themselves in a position where this is most likely.

Real-life conditions reveal the following:

- Goods you need every day and buy at local convenience stores are called low-order goods
- The more expensive, specialized items you need less frequently and are obtained at larger centres, they are called high order goods.

## TERMS ASSOCIATED WITH THE CENTRAL PLACE THEORY



**Central Place:** an urban settlement that provides goods & services to the surrounding rural community



**Threshold Population:** the minimum number of people required to support a business



**Range:** the max distance a consumer is willing to travel to buy something from a Central Place



**Sphere of Influence:** (Market Area): the area from which a business draws its customers.

## URBAN HIERARCHIES



**Low-Order Centres:** places with small threshold population, few services and mainly low-order services.



**High-Order Centres:** places with big threshold population, offering many services and many high-order, as well as low-order services.



**Low-order Services** are things/services that we need virtually every day, e.g. daily groceries, take-aways, hairdressers, dry-cleaners, etc.



**High Order Services** are those we need only periodically, e.g. Legal services, banking, medical, etc.

## STRUCTURES , SHAPES & PATTERNS IN URBAN SETTLEMENTS

1. **SHAPES**  
Circular, Linear, Cross-roads
2. **STREET PLANS**  
Grid-Iron, Irregular, Radial

## URBAN LAND-USE (Functional zones)

### CBD – Tallest buildings

- Very expensive land (land values highest here that's why people build up and not sideways)
- demand for land is very high here, as it is most accessible part of city
- and has highest concentration of clientele
- transport routes converge here

## TRANSITION ZONE

- Pockets of mixed urban land use that surrounds the CBD (Can be wholesale commercial/light industrial)

- Buildings run-down
- Plots are still very valuable
- Area of mixed functions – retail, residential, commercial, even light industry

## RESIDENTIAL

High-income residential:

- Large plots,
- Far away from CBD & Industrial areas,
- Close to parks and recreational facilities
- Excellent view

Middle-Income residential:

- found in the suburbs just beyond CBD.
- Medium-size,
- Single-standing properties,
- schools & shopping centres close by.

Low-Income Residential:

- Generally, flat
- very small houses around
- inner city- areas (in zone of decay) or
- near Industrial Areas,
- or outlying areas like the RDP houses / Gap Housing in SA

## INDUSTRIAL ZONE

What are the characteristics of Industrial Zones:

Light Industrial:

- usually found in the transition zone
- easy access to CBD
- do not produce much noise or smoke  
E.g.: jewelry, printed paper, woodworkers
- Planned Industrial Estates:
  - located on low-cost land
  - along railway / Highway routes
  - Products like sweets, cosmetics, etc.

Heavy Industrial:

- located on large tracts of level, cheap land,
- near transport routes
- This is because they generate lots of noise and pollution.  
E.g. Iron & Steel industries

## **A FUNCTIONAL ZONE WITHIN AN URBAN SETTLEMENT - Informal Settlement:**

- Open spaces in the city that have been illegally occupied.
- Generally, near rivers or highways and also near a suburb so residents have access to shops.
- Poorest people live here
- they are plagued by crime, substance abuse,
- lack of sanitation,
- flooding, fires, etc.
- congestion - rescue vehicles cannot reach people etc.

## **A FUNCTIONAL ZONE FOUND AT THE OUTER LIMITS OF THE URBAN AREA - RURAL-URBAN FRINGE: A land use found on the outskirts of the urban area with mixed land functions.**

- found on the outskirts of the city
- Mixture of functions
- may contain high & low-income residential
- land is mostly very cheap here, so
- functions requiring lots of space are located here,
- e.g. Airports, cemeteries, golf courses, sewerage works, etc

### URBAN PROFILE

This refers to the side-view (sky-line) of the city.

Tallest at CBD and heights drop as you move away from CBD

## **URBAN PROBLEMS**

### **TRAFFIC CONGESTION**

Be able to discuss:

Nature of the problem of Traffic congestion

What causes Traffic congestion in most urban centres?

### **SOLUTIONS**

- improve public transport systems
- subsidies for public transport and make it safer & more reliable
- restrict private vehicle access to city centre
- build more parking lots on periphery of CBD & shuttle commuters in
- encourage commuters to travel in lift clubs

### **POLLUTION**

Be able to:

- Name and describe some other forms of pollution as found in urban areas



- Name some causes of Air pollution
- Discuss solutions to Air pollution

## SOLUTIONS

- stricter enforcement of vehicle emission-control
- recycle waste
- increase 'pollution-policing"

## FORMAL HOUSING SHORTAGES IN URBAN SETTLEMENTS

### Solutions

- regulate rural-urban migration
- increase drive to build more low-cost / Gap housing
- rehabilitate street children and house homeless people in shelters

## URBAN DECAY (Can occur in both the CBD and the Transitional zone)

### Solutions

- introduce more laws to control landlord's obligations to tenants
- City to enforce property maintenance laws
- Stricter control over dumping & littering
- Stricter control over abandoned building & vehicles
- More security patrols and cameras to limit vandalism, drug trafficking, prostitution, etc.

# SUSTAINABILITY

## WHAT IS SUSTAINABLE DEVELOPMENT?

Development that meets the needs of the present generation without compromising the ability of future generations to meet their needs.

## PRINCIPLES OF SUSTAINABLE DEVELOPMENT

- Link local issues to global impacts
- Use Multi-sectoral approach
- Show concern for the future
- work within the ecological limits

## EFFECTIVE IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT:

- Always consult local community when planning
- Use local labour
- Ensure sufficient funds to complete projects
- Empower locals to SUSTAIN and manage project on their own afterwards.

## DISTINGUISH BETWEEN A LOW-ORDER FUNCTION AND A HIGH-ORDER FUNCTION.

(Adapted from Christaller theory)

- Low order: Needed on a daily basis and has a small sphere of influence, small range and small threshold population
- High order: Needed with greater intervals and has a large sphere of influence, large range and large threshold population

## **WHY IT IS IMPORTANT FOR AN URBAN SETTLEMENT TO SLOW DOWN THE MOVEMENT OF PEOPLE FROM RURAL AREAS?**

- Avoid overcrowding
- Minimise traffic congestion
- Pressure on resources
- Avoid pollution
- Unemployment in the city
- Lowering living standards
- Informal settlements could develop
- Prevent increase in crime
- Prevent development of social problems
- To prevent urban decay

## **SUSTAINABLE STRATEGIES TO MAINTAIN EXPANSION OF URBAN SETTLEMENTS**

- Urban renewal projects
- Improve the appearance of the city e.g. Tree Planting (greening projects)
- Upgrade network system
- Access to water and sanitation
- Improve policing
- Establishment of municipal regulations to control the following: illegal waste disposal, illegal street vendors, air and noise pollution

## **URBAN PLANNING:**

- Plans for the creation of green belts
- Control and reduce infectious diseases
- Proper placement of sewage and drainage systems
- Reduce chemical and physical hazards
- Progress in relation to a more sustainable use of resources
- Future planning must be safety in mind

## **EFFECTS OF RURAL-URBAN MIGRATION ON RURAL TOWNS**

- Services close down
- Infrastructure deteriorate
- Fewer job opportunities
- Towns become economically stagnant
- Develop into ghost towns

## REASONS WHY YOUNG, ACTIVE POPULATION LEAVE RURAL AREAS (PUSH FACTORS ONLY)

- Poor service delivery
- Poor infrastructure
- Poor employment opportunities
- Employment opportunities pay poorly in rural areas
- Mechanization of farming
- Uneconomical farming units
- Farming costs are increasing
- Low standard of living
- Droughts
- Declining soil fertility
- Few entertainment facilities

## WHY ARE WOMEN IN THE RURAL AREAS VULNERABLE?

- Lack of social services e.g. medical and education
- Cultural bias to using condoms
- Women in rural areas have inferior status to men
- Increased domestic responsibilities
- Must farm the land
- Becomes only breadwinner
- Must take care of sick and orphans
- Women lack decision-making power
- They cannot secure land rights

## CHALLENGES THAT CITIES FACE DUE TO RAPID URBANISATION:

- Traffic congestion
- Growing informal settlements
- Pollution
- Crime levels increasing
- Pressure on service delivery
- Inadequate services
- Poverty

# INFORMAL SETTLEMENTS



What do you need to know?

What is an informal settlement?

Where are informal settlements located in the Urban Settlement?

What are the challenges of Informal Settlements in the Urban Settlement?

What are possible solutions to reduce the growth and development of informal settlements.