education

Department:
Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P1

NOVEMBER 2008

MARKS: 300

TIME: 3 hours

This question paper consists of 15 pages and an annexure of 10 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions.
2. Answer ANY THREE questions of 100 marks each.
3. All diagrams are included in the annexure.
4. Number all your answers in the CENTRE of the line.
5. Leave a line between subsections answered.
6. Start EACH question at the top on a NEW page.
7. Number the answers correctly according to the numbering system used in this question paper.
8. Do NOT write in the margins of the ANSWER BOOK.
9. Encircle the numbers of the questions that you have answered on the cover page of the ANSWER BOOK.
10. Where possible, illustrate your answers with labelled diagrams.
11. Write neatly and legibly.

SECTION A: CLIMATE AND WEATHER, FLUVIAL PROCESSES AND STRUCTURAL LANDFORMS

Answer at least ONE question from this section.

QUESTION 1

1.1 Refer to FIGURE 1.1. Four options are provided as possible answers to the following questions. Choose the answer and write only the letter (A – D) next to the question number (1.1.1 – 1.1.5) in the ANSWER BOOK, for example 1.1.6 A.

1.1.1 Identify the cell labelled **G** which occurs between 0° – 30° north and south of the equator.

A Hadley
B Ferrel (mid-latitude)
C Polar
D Equatorial

1.1.2 The area near the equator where the winds die out is referred to as the …

A polar front.
B inter-tropical convergence zone (ITCZ).
C doldrums.
D inter-tropical front.

1.1.3 Winds associated with the ITCZ are …

A southeast trades.
B southeast and northeast trades.
C northwesterlies and southwesterlies.
D polar easterlies.

1.1.4 A force that influences the speed of winds is called the …

A pressure gradient force.
B coriolis force.
C geostrophic force.
D primary force.

1.1.5 Air rises at the equator and sinks at the poles due to …

A divergence at the equator and convergence at the poles.
B divergence at the poles and convergence at the equator.
C surplus heat at the equator and a heat deficit at the poles.
D surplus heat at the poles and a heat deficit at the equator.

(5 x 2) (10)

1.2 Use FIGURE 1.2 which shows the different fluvial processes and characteristics of a drainage basin to assist you to give ONE term for each of the descriptions below. Write only the term next to the question number (1.2.1 – 1.2.5) in the ANSWER BOOK, for example 1.2.6 base flow.

1.2.1 Area where a river gets its water from

1.2.2 Area drained by a river and its tributaries

1.2.3 The point where a tributary meets the main stream

1.2.4 Section of a stream from one bank to the other

1.2.5 High-lying area that separates two drainage basins (5 x 2) (10)

1.3 You are a weather detective and you are asked to investigate some of the changing weather patterns southern Africa has been experiencing recently. Use FIGURE 1.3 to assist you to answer the questions below.

1.3.1 What has been causing the floods in Mozambique over the last few years? (1 x 2) (2)

1.3.2 Give TWO reasons why Favio has been classified as an intense tropical storm. (2 x 2) (4)

1.3.3 'Tropical cyclones are not rare in the southwest Indian Ocean.' State and explain TWO factors that favour the formation of cyclones in this area. (4 x 2) (8)

1.3.4 Explain why tropical cyclones seldom reach the coast of South Africa. (2 x 2) (4)

1.3.5 What does the acronym *radar* in the word 'weather radar' stand for? (1 x 2) (2)

1.3.6 Of what value is a weather radar to the following?

(a) Weather forecasters (1 x 2) (2)
(b) People living close to rivers and coasts (1 x 2) (2)

1.4 Geographers discovered many years ago that heat emissions in urban areas affect the climate. Use your knowledge of heat islands and refer to FIGURE 1.4 to answer the questions below.

1.4.1 Explain what is meant by the term *heat island*. (1 x 2) (2)

1.4.2 Which part of the city is experiencing the highest temperature? (1 x 2) (2)

1.4.3 State TWO ways in which you think people's lives have been changed by the existence of heat islands. (2 x 2) (4)

1.4.4 Give TWO reasons why modern buildings have an effect on heat islands. (2 x 2) (4)

1.4.5 Suggest TWO measures that can be taken to reduce high temperatures in the city centre. (2 x 2) (4)

1.5 Imagine that you are sailing by boat from the source of the river Blea (**K**) to the mouth at **J**. Test your knowledge of fluvial processes and landforms by referring to FIGURES 1.5A, 1.5B and 1.5C to answer the questions below.

1.5.1 Your sail down to the coast is smooth with no obstacles along the way. What type of profile does the River Blea have? (1 x 2) (2)

1.5.2 FIGURE 1.5A shows a cross-section of a valley.

(a) Is the cross-section more likely to match the valley at point **K** or point **J** (FIGURE 1.5B)? (1 x 2) (2)

(b) What is the main type of erosion in this valley and why is this so? (2 x 2) (4)

(c) The cross profile provides a geographer with two useful sources of information. Name the TWO sources. (2 x 2) (4)

1.5.3 Refer to FIGURE 1.5C and meet Albert. Explain to Albert what has happened to the river; why it seems to have moved. (Hint: Refer to meanders, erosion, deposition and ox-bow lakes.) (4 x 2) (8)

1.5.4 Pollution of the River Blea is a major problem. State TWO ways in which this will impact on the lives of the people. (2 x 2) (4)

1.6 FIGURE 1.6 is a sketch of a slope which must be studied before attempting to answer the questions below.

1.6.1 Identify the slope forms/elements labelled **A** and **D**. (2 x 2) (4)

1.6.2 What type of mass movement commonly takes place on slope **A**? (1 x 2) (2)

1.6.3 State TWO characteristics of slope form/element **B**. (2 x 2) (4)

1.6.4 Are all four of the slope forms/elements evident in FIGURE 1.6 always visible in all landscapes? Explain your answer, giving TWO reasons. (3 x 2) (6)

[100]

QUESTION 2

2.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'true' or 'false' next to the question number (2.1.1 – 2.1.5) in the ANSWER BOOK. Refer to FIGURE 2.1.

2.1.1 The weather system illustrated in FIGURE 2.1 is a mid-latitude cyclone.

2.1.2 The front at **A** is the warm front.

2.1.3 The zone marked **B** is the warm sector.

2.1.4 The weather system illustrated in FIGURE 2.1 has reached the occlusion stage.

2.1.5 Easterly winds are experienced at **C**. (5 x 2) 10)

2.2 Refer to FIGURE 2.2 illustrating river capture (stream piracy). Choose the correct terms/letters from those given in brackets to make all the statements below TRUE. Write only the terms/letters next to the question number (2.2.1 – 2.2.5) in the ANSWER BOOK.

2.2.1 Stream (**R**/**S**) is situated higher above sea level.

2.2.2 (Headward/Lateral) erosion will take place at **P**.

2.2.3 **Q** is the (misfit/pirate) stream.

2.2.4 Rejuvenation will take place in river (**Q**/**T**).

2.2.5 Area **U** is known as the (wind gap/elbow of capture). (5 x 2) (10)

2.3 Refer to FIGURE 2.3 showing the position of the three high-pressure cells over southern Africa that have major effects on the weather and climate. Berg wind conditions are experienced in the vicinity of Uitenhage.

2.3.1 (a) Identify the THREE high pressure cells labelled **X**, **Y** and **Z** respectively. (3 x 2) (6)

(b) Which ONE of the three high-pressure cells mentioned in QUESTION 2.3.1(a) is mainly responsible for the different weather conditions experienced over the South African interior during summer and winter? (1 x 2) (2)

(c) State and explain ONE difference in the weather conditions experienced during winter and summer over the South African interior by referring to the role played by the high-pressure cell mentioned in QUESTION 2.3.1(b). (3 x 2) (6)

2.3.2 (a) During which season do berg wind conditions prevail in South Africa? (1 x 2) (2)

(b) Describe the cloud cover and temperature conditions that exist during the occurrence of a berg wind. (2 x 2) (4)

(c) Explain why the weather conditions mentioned in QUESTION 2.3.2(b) exist during the occurrence of a berg wind. (2 x 2) (4)

(d) Name the environmental hazard (danger) that is associated with the development of berg wind conditions. (1 x 2) (2)

(e) Which weather system is responsible for the termination (ending) of berg wind conditions? (1 x 2) (2)

2.4 The South African Weather Service issued the following weather warnings for 26 June 2007. A mid-latitude cyclone was present.

- Gale-force southwesterly winds are expected between Plettenberg Bay and East London, with very rough seas from Lamberts Bay to East London.
- Very cold and windy conditions are expected in the northern parts of the Eastern Cape.
- Snowfalls are expected on the northern high grounds of the Eastern Cape and Lesotho.
- Conditions are favourable for the development and spread of fires over Limpopo, Mpumalanga, Gauteng and the northern parts of KwaZulu-Natal.

2.4.1 Why is it important for the South African Weather Service to issue these weather warnings? (2 x 2) (4)

2.4.2 Describe the environmental impact this mid-latitude cyclone might have in all the affected regions. (2 x 2) (4)

2.4.3 Imagine you are part of a team sent in to assist people affected by this mid-latitude cyclone, what would your plan of action be? (2 x 2) (4)

2.5 FIGURE 2.5A illustrates a drainage basin. FIGURE 2.5B shows the three river courses associated with a river system. Examine both diagrams carefully.

2.5.1 (a) The drainage basin illustrated in FIGURE 2.5A shows a *low drainage density (coarse texture)*. What does this mean? (1 x 2) (2)

(b) Give TWO possible reasons why this drainage basin has a low drainage density (coarse texture). (2 x 2) (4)

(c) Explain why the two factors mentioned in QUESTION 2.5.1(b) will result in a low drainage density (coarse texture). (2 x 2) (4)

2.5.2 (a) Identify the THREE main river courses labelled **R**, **S** and **T** in FIGURE 2.5B respectively. (3 x 2) (6)

(b) Along which ONE of the three courses labelled **R**, **S** or **T** will flooding most likely occur? (1 x 2) (2)

(c) Explain how the characteristics of the river course mentioned in QUESTION 2.5.2(b) will promote flooding here. (2 x 2) (4)

(d) Flooding along the river course named in QUESTION 2.5.2(b) can be both a blessing and a curse for the people living on the adjacent flood plain. Explain this statement. (2 x 2) (4)

(e) State ONE method that can be introduced to reduce flooding along the river course named in QUESTION 2.5.2(b). (1 x 2) (2)

2.6 FIGURE 2.6 illustrates a type of mass movement that could occur in region **W** in FIGURE 2.5A. This type of mass movement could be dangerous if a road had to be constructed here. Refer to both diagrams before answering the questions below.

2.6.1 Explain the meaning of the term *mass movement*. (1 x 2) (2)

2.6.2 What type of mass movement is illustrated in FIGURE 2.6? (1 x 2) (2)

2.6.3 Why do you think people should be made aware of the dangers of this type of mass movement before road construction starts? (2 x 2) (4)

2.6.4 State TWO methods that can be used to reduce the dangers associated with the type of mass movement mentioned in QUESTION 2.6.2. (2 x 2) (4)

[100]

SECTION B: PEOPLE AND PLACES: RURAL AND URBAN SETTLEMENTS, PEOPLE AND THEIR NEEDS

Answer at least ONE question from this section.

QUESTION 3

3.1 An urban area has different land-use zones and functions. The land value differs in each of these land-use zones. Complete the following descriptions by using the terms provided in the list below. Write only the terms next to the question number (3.1.1 – 3.1.5) in the ANSWER BOOK. Refer to FIGURE 3.1 to assist you.

Central Business District (CBD); transition zone (zone of decay); rural-urban fringe; residential

The same term may be used for more than one answer.

3.1.1 …	Has a mixture of functions such as commercial, residential, hotels, entertainment
3.1.2 …	Commercial zone characterised by high-order functions
3.1.3 …	Land-use zone that covers the largest area in an urban settlement
3.1.4 …	Land-use zone with the highest land value
3.1.5 …	Dilapidated zone around the CBD

(5 x 2) (10)

3.2 Refer to FIGURE 3.2 which illustrates the dual economy of South Africa's farming activities. Choose the correct letter from those given in brackets to make ALL the statements below TRUE. Write only the letter next to the question number (3.2.1 – 3.2.5) in the ANSWER BOOK.

3.2.1 Diagram (A/B) illustrates commercial farming.

3.2.2 Diagram (A/B) will provide food security to South Africa.

3.2.3 Farmers in diagram (A/B) will suffer worse consequences during times of drought.

3.2.4 The implementation of Agenda 21 will be of greater value to farmers in diagram (A/B).

3.2.5 Farmers in diagram (A/B) will make a greater contribution to South Africa's GDP. (5 x 2) (10)

3.3 Refer to the cartoon in FIGURE 3.3. Read little Cal's story of his family moving from the farm to the city.

3.3.1 What term is used to describe the movement of people from farms to cities? (1 x 2) (2)

3.3.2 How is this movement likely to impact on food production in rural areas? Explain your answer. (1 x 2) (2)

3.3.3 Suggest THREE reasons why Cal's dad moved them to the city. (3 x 2) (6)

3.3.4 Why do you think his expectations of the city were not met? (2 x 2) (4)

3.3.5 What is a *shanty town*? (1 x 2) (2)

3.3.6 What does the following statement tell you about Cal's quality of life: 'I've been provided with an excellent education in the streets'? (2 x 2) (4)

3.4 Read the story below and refer to FIGURE 3.4, which is based on the town of Kano in Nigeria.

> People in Kano are cutting down trees and shrubs to meet their demands for fuelwood. About 40 km around Kano has already been stripped of trees. Urban growth has increased pressure on the countryside and city. Farming patterns have been forced to change, where cash crops are grown on soils that are not suitable for them. Subsistence farmers are unable to pay their rent and are forced to leave their land. New landowners are reluctant to farm, as there is a greater demand for money to be made by selling the land for urban development.

3.4.1 What are the TWO main reasons for the removal of the trees around Kano? (2 x 2) (4)

3.4.2 Describe ONE impact of urban growth on farming. (1 x 2) (2)

3.4.3 State THREE negative effects that the removal of the trees will have on the environment. (3 x 2) (6)

3.4.4 Suggest TWO ways in which the local community can be encouraged to stop destroying the trees. (2 x 2) (4)

3.5 Globalisation has resulted in huge challenges being faced by less economically developed countries. Rosa works in a Nike sweatshop. Read her diary entry below and study the map in FIGURE 3.5 to understand this challenge. Answer the questions that follow.

Rosa's diary entry of a day in her life

I can hardly keep my eyes open. I must concentrate or I will end up sewing crookedly and the supervisor will yell at me again. I feel so tired because I worked until 2 am last night. I have to push out the Christmas orders, or they will sack me on the spot.

My shoulders are aching, but there is still an hour to go before I take my toilet break for just 10 minutes. I feel so sad leaving my family and friends in the village. I started working when I was just 16, which was five months ago. My pay is just 280 pesos (R40) for a 12-hour day which is hardly enough to pay my rent and to buy lunch. I promised to send money home.

I hate going to my room which only has 3 bunk beds, which I share with 5 others. There are no chairs or wardrobes and I have to hang my clothes on a nail in the wall. I just climb into the bunk bed, too tired to talk to anyone.

I wish I could give up and go home, but I can't. I must earn because there is no work in the village …

[Adapted from: UK newspapers (2000)]

3.5.1	Explain the meaning of the word *globalisation*.	(1 x 2)	(2)
3.5.2	Nike is a *trans-national corporation*. What do you understand by this?	(1 x 2)	(2)
3.5.3	Where is 98% of Nike's footwear manufactured?	(1 x 2)	(2)
3.5.4	Give TWO reasons why these countries were selected for manufacturing.	(2 x 2)	(4)
3.5.5	A large amount of Nike products are sold in Europe. Suggest ONE reason for this.	(1 x 2)	(2)
3.5.6	The Nike factory that Rosa works in is called a sweatshop. What is a *sweatshop*?	(1 x 2)	(2)
3.5.7	Why is Rosa forced to work in the Nike sweatshop?	(1 x 2)	(2)
3.5.8	Give THREE reasons why globalisation has not improved Rosa's life.	(3 x 2)	(6)

3.6 Study FIGURE 3.6 which is based on food being a scarce resource before you answer the questions below.

3.6.1 On which continent is the highest number of people undernourished? (1 x 2) (2)

3.6.2 Discuss TWO physical factors that have given rise to food insecurity in this continent. (2 x 2) (4)

3.6.3 Discuss TWO socio-economic factors that have given rise to food insecurity in this continent. (2 x 2) (4)

3.6.4 Differentiate between the terms *food insecurity* and *food security*. (2 x 2) (4)

3.6.5 At present the world produces more food than it needs. How is it possible that so many people are still undernourished? (2 x 2) (4)

3.6.6 Genetically modified crops are planted in many parts of the world. What are *genetically modified crops*? (1 x 2) (2)

3.6.7 Name ONE global organistion that will assist to provide less developed countries with food. (1 x 2) (2)

[100]

QUESTION 4

4.1 Many cities are no longer sustainable units. This is as a result of various problems occurring in cities. FIGURE 4.1 illustrates the cycle of deprivation in a city that results in its becoming an unsustainable unit. Use the clues in FIGURE 4.1 to identify the problems resulting in cities becoming unsustainable units. Write only the phrases provided in the list below next to the question number (4.1.1 – 4.1.5) in the ANSWER BOOK.

poor housing; lack of recreation space; lack of qualifications; low income; poor environment

(5 x 2) (10)

4.2 Water is a critical resource in South Africa. Refer to FIGURE 4.2 which illustrates estimated water use in South Africa. Choose the correct terms from those given in brackets to make all the statements below TRUE. Write only the terms to the question number (4.2.1 – 4.2.5) in the ANSWER BOOK.

4.2.1 Most water in South Africa is used for (agricultural/domestic) purposes.

4.2.2 It is projected that the largest increase in water use from 1970 to 2010 will be for (mining and industry/domestic) purposes.

4.2.3 The increase in water use in South Africa is mainly as a result of an increase in (population/rainfall) in South Africa.

4.2.4 The projected use of water for (mining and industry/maintenance of ecosystems) has hardly changed from 1970 to 2010.

4.2.5 The missing projected date in FIGURE 4.2 is (2030/2020). (5 x 2) (10)

4.3 Refer to FIGURE 4.3, which shows an urban settlement – Senzinani – and the land-use zones typical of an urban settlement.

4.3.1 Residential areas are classified according to income. Read the following advertisements that appeared in a major newspaper. The names of the residential suburbs were changed and do not refer to any specific residential suburb in South Africa.

SHONA:	**ROSA:**	**VIOLET:**
Spacious 2½-bedroom flat, excellent condition, lovely kitchen, intercom/security system, under-cover parking. Prime position, close to primary school. Private sale. R150 000 or nearest offer.	3 bedrooms, lounge/diningroom, 1½ bathroom, kitchen, outside buildings and large stand. R300 000, negotiable.	House for sale. R950 000 not negotiable. 4 bedrooms, 2 lounges, sunroom, TV room, study, 2 toilets, guest toilet, 2 full bathrooms, diningroom, kitchen, scullery. Large grounds.

(a) Match each of the advertisements with one of the places (**D**, **E**, **F** or **G**) in FIGURE 4.3. (3 x 2) (6)

(b) Give a reason for each of the choices you made in QUESTION 4.3.1(a). (3 x 2) (6)

(c) Explain the difference in building density, visible in FIGURE 4.3, which exists between low- and high-income residential areas. (2 x 2) (4)

4.3.2 Refer to the power station north of the CBD illustrated in FIGURE 4.3.

(a) State the TWO physical factors that resulted in the choice of a site for the power station. (2 x 2) (4)

(b) With reference to FIGURE 4.3, what environmental problem has resulted from mining activities around Senzinani? (1 x 2) (2)

(c) With reference to FIGURE 4.3, what environmental problem do the inhabitants of the middle-income residential area northwest of Senzinani experience? (1 x 2) (2)

(d) Give TWO possible solutions to the problem mentioned in QUESTION 4.3.2(c). (2 x 2) (4)

(e) Give ONE reason why heavy industries such as the power station and cement factory are located on the outskirts of cities. (1 x 2) (2)

4.3.3 Refer to the CBD located in the centre of the settlement illustrated in FIGURE 4.3. The following headline (freely translated) appeared in the *Beeld*:

SHARP INCREASE IN NUMBER OF EMPTY OFFICES IN CBD

(a) What process is being referred to in the headline? (1 x 2) (2)

(b) State TWO factors responsible for this process. (2 x 2) (4)

(c) Discuss TWO factors that would attract office workers to work in offices away from the CBD. (2 x 2) (4)

(d) State ONE location to which many new offices would migrate. (1 x 2) (2)

(e) With reference to urban renewal projects, describe what can be done to reverse the process identified in QUESTION 4.3.3(a). (2 x 2) (4)

4.4 Industries make a great contribution to South Africa's GDP. South Africa's industries are centralised in four core industrial areas.

4.4.1 Name South Africa's largest industrial area. (1 x 2) (2)

4.4.2 Briefly discuss any TWO factors that promoted industrial development in South Africa. (2 x 2) (4)

4.4.3 Briefly discuss any TWO factors that are currently restricting industrial development in South Africa. (2 x 2) (4)

4.4.4 Of what importance is industrial growth for the development of South Africa's economy? (2 x 2) (4)

4.4.5 Various strategies (measures) have been introduced to decentralise industrial development in South Africa. Name TWO incentives that could convince an industrialist to move his/her industry out of a centralised location. (2 x 2) (4)

4.5

One of South Africa's key industrial policies remains its commitment to fostering sustainable industrial development in areas where poverty and unemployment are at their highest. This objective is carried out through the Spatial Development Initiatives (SDI), which focus high-level support in areas where socio-economic conditions require concerted government assistance and where inherent economic potential exists. Certain SDIs are beyond the confines of South Africa's borders where the economic needs of the strategy dictated that the SDI includes part of a neighbouring country. The **Wild Coast Initiative** is one example of an SDI and is a 280 km stretch of Indian Ocean coastline in the Eastern Cape. This SDI is mainly an agri-tourism initiative based in the largely undeveloped Wild Coast of the Eastern Cape. About eleven investment tourism infrastructure, seven forestry and fourteen agricultural projects have been announced.

4.5.1 What are the key objectives of an SDI? (2 x 2) (4)

4.5.2 Give ONE possible reason why the Wild Coast was selected as an SDI. (1 x 2) (2)

4.5.3 Name ONE primary activity that the Wild Coast Initiative is focusing on. (1 x 2) (2)

4.5.4 Explain why such a large emphasis is placed on tourism infrastructure in the Wild Coast Initiative. (2 x 2) (4)

4.5.5 What steps must be put into place to ensure that no socio-economic injustices are done to the local inhabitants of the Wild Coast? (2 x 2) (4)

[100]

GRAND TOTAL: 300

FIGURE 1.1 **FIGUUR 1.1**

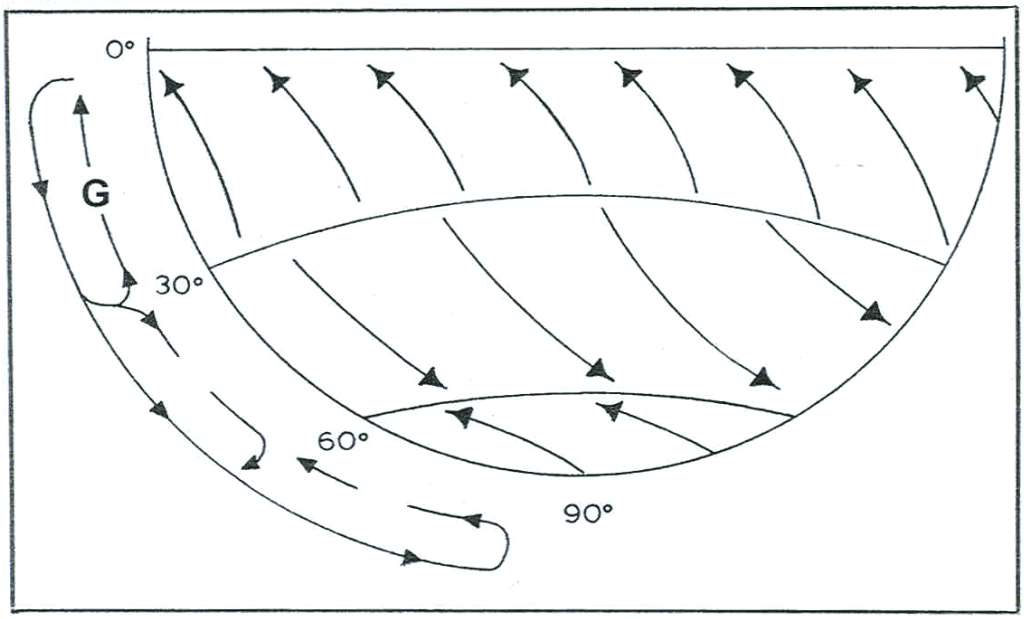


FIGURE 1.2 **FIGUUR 1.2**

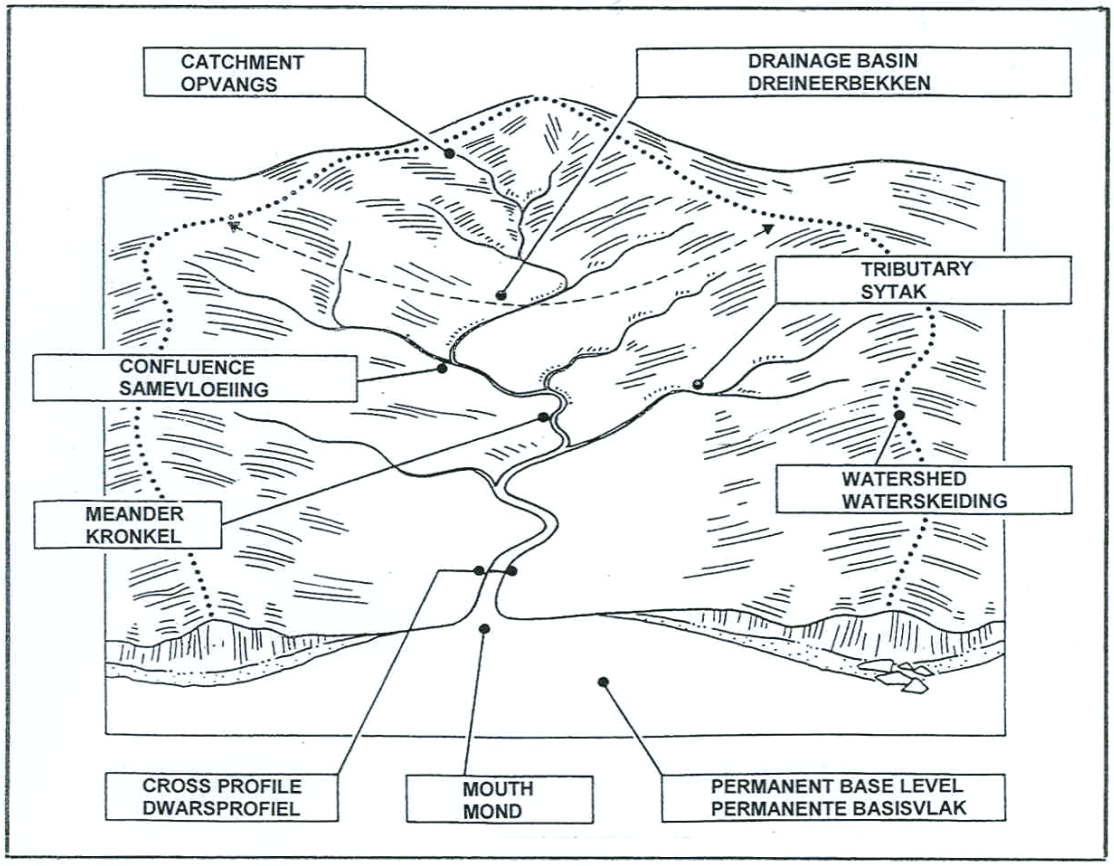


FIGURE 1.3

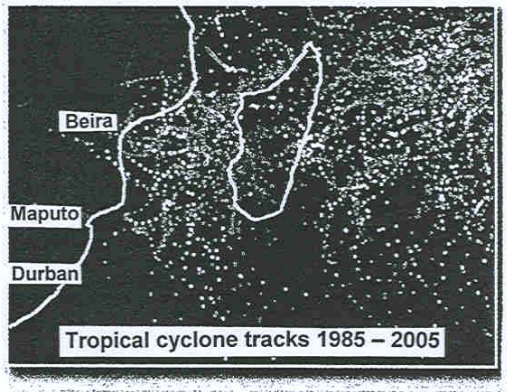
WHY SUCH FLOODS?

Adapted from Liesl Dyson
(University of Pretoria)

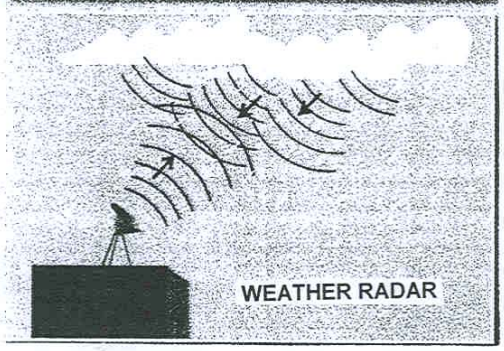
The Mozambican floods that killed some 40 people and displaced 280 000 were caused by tropical cyclone Favio, which made landfall on the coast on 22 February 2007. The eye in the centre of the cyclone is a relatively calm area where the atmospheric pressure is lowest. The minimum pressure that occurred during Favio's lifetime is estimated to have been 930 hPa. This very low pressure caused Favio to be fierce enough to be classified as an 'intense tropical cyclone'. A tropical cyclone is 'intense' when the surface winds' strengths are 110 – 210 km/h.

Tropical cyclones are not rare in the southwest Indian Ocean. About 10 occur every year during the summer season, but most frequently between January and February. The statistics show that a tropical cyclone does not make landfall in Mozambique every year, and seldom invades the coast of South Africa – the last time was in 1984, when cyclones Demoina and Imboya caused heavy rainfall over the north coast of KwaZulu-Natal.

In February 2000, tropical cyclone Eline moved in over Mozambique and was responsible for widespread heavy rainfall and flooding. In many ways Eline and Favio are comparable.

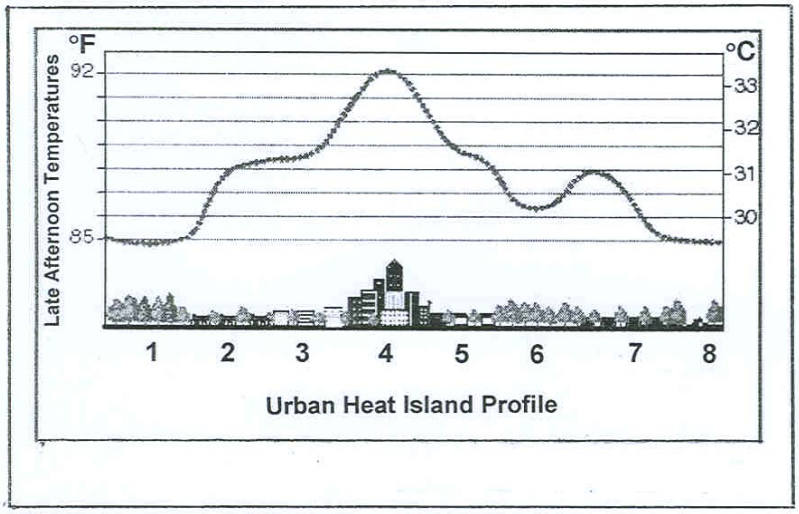


Tropical cyclone tracks 1985 – 2005



After the devastating floods in 2000, the Mozambique weather service acquired two weather radars (radar is the acronym for radio detection and ranging) to provide better information. The radar transmitter sends out high-frequency radio waves in pulses. Radar is useful to weather forecasters for locating rain and hail and for identifying severe storms and heavy rainfall. Once they see the potential for heavy rainfall, they issue warnings and people are advised to vacate dangerous areas.

FIGURE 1.4



Urban Heat Island Profile

1 - Rural
2 - Suburban Residential
3 - Commercial
4 - Downtown
5 - Urban Residential
6 - Park
7 - Suburban Residential
8 - Rural Farmland

FIGURE 1.5A FIGUUR 1.5A

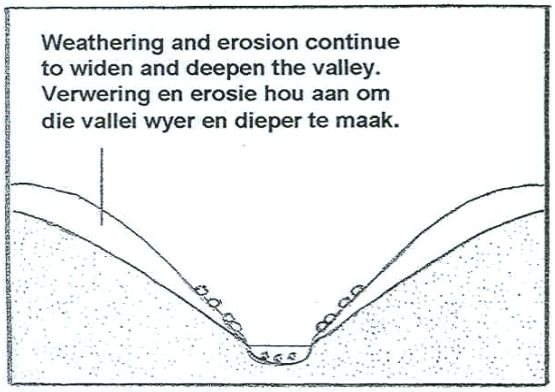


FIGURE 1.5B FIGUUR 1.5B

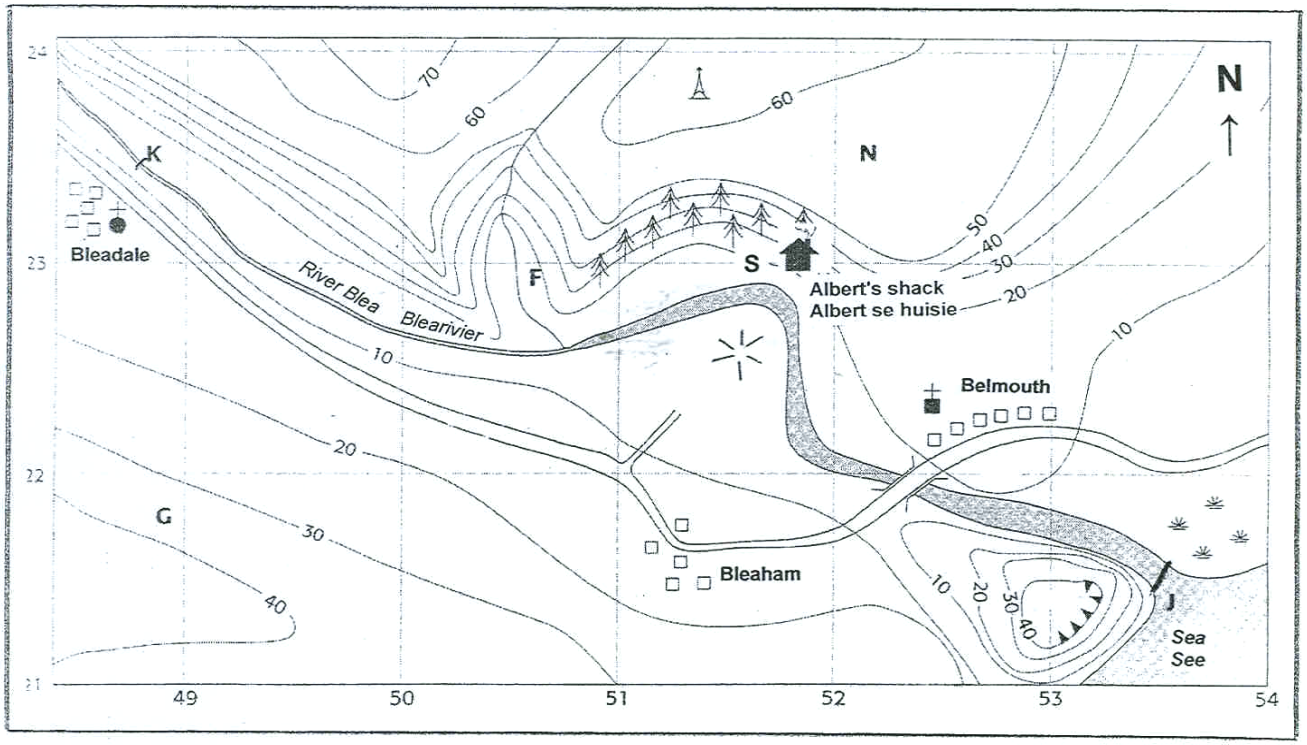


FIGURE 1.5C FIGUUR 1.5C

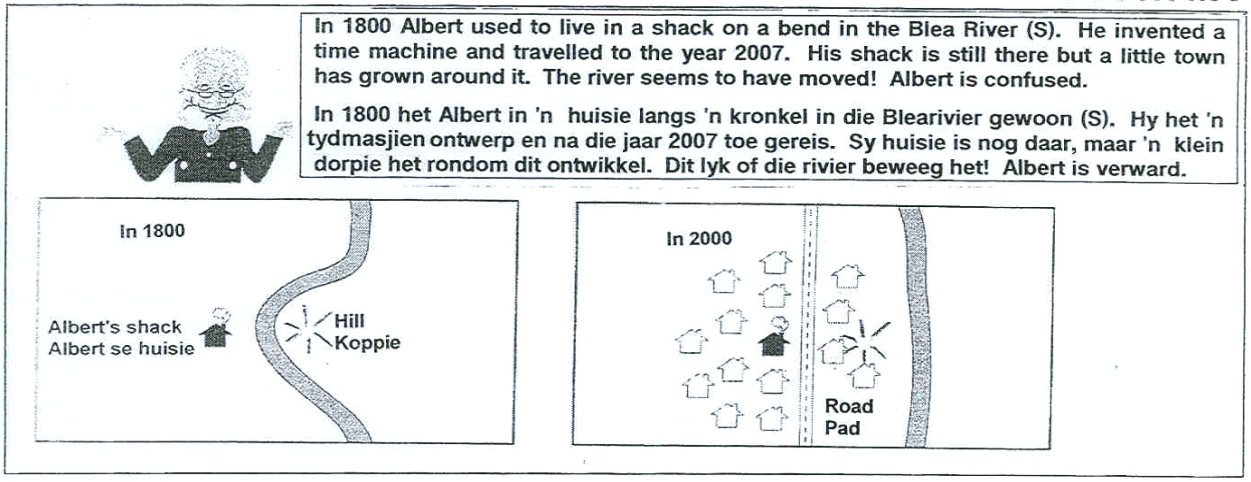


FIGURE 1.6 FIGUUR 1.6

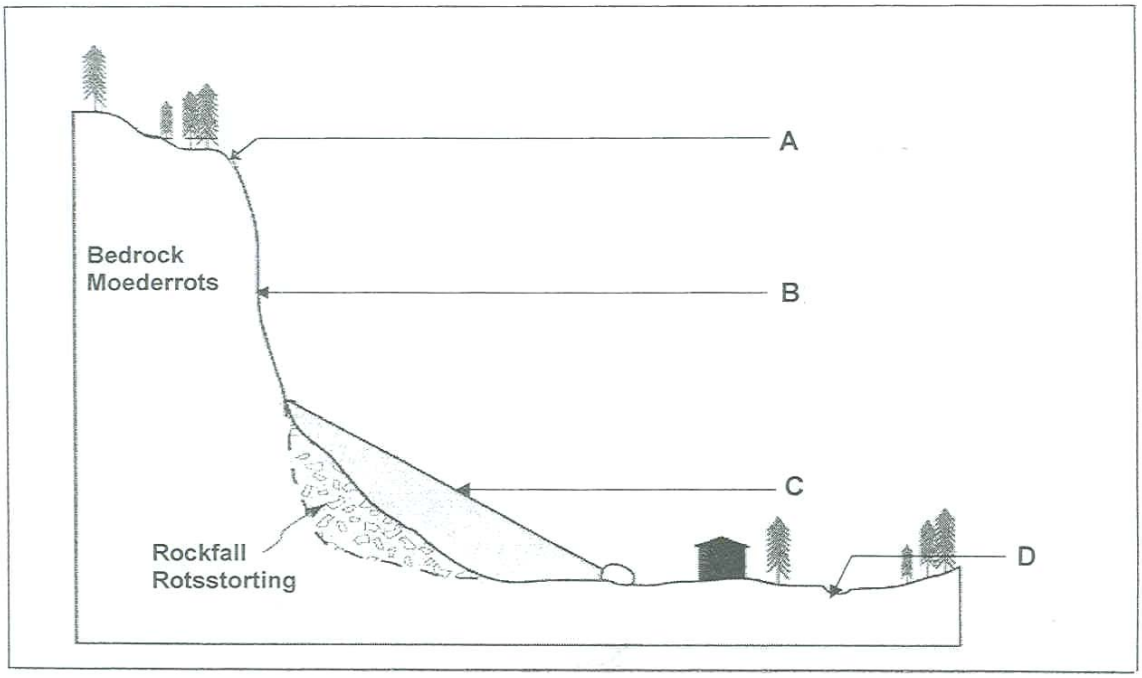


FIGURE 2.1 FIGUUR 2.1

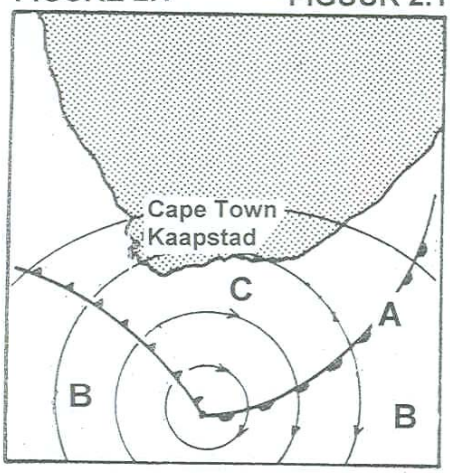


FIGURE 2.2 FIGUUR 2.2

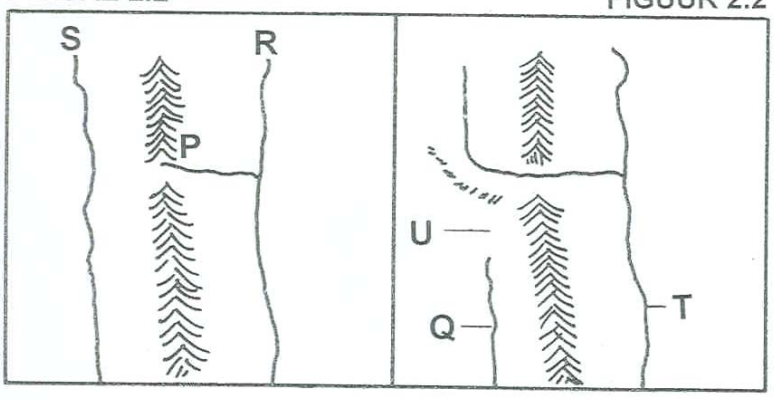


FIGURE 2.3 FIGUUR 2.3

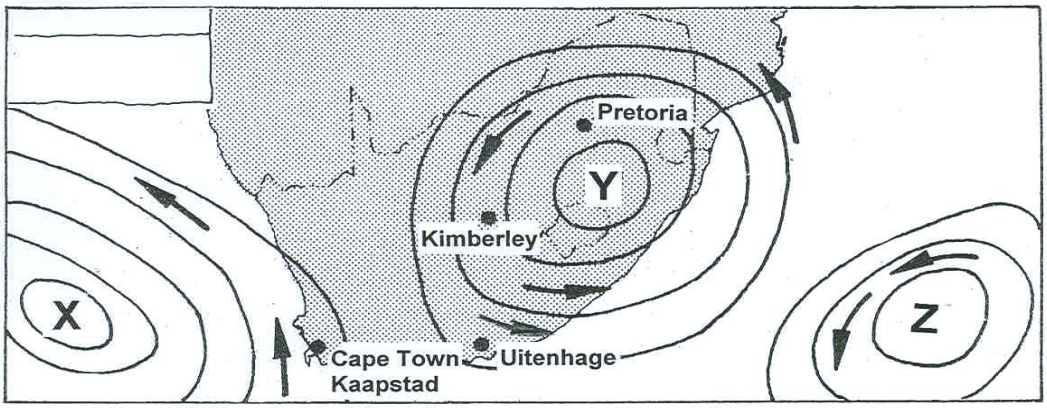


FIGURE 2.5A FIGUUR 2.5A

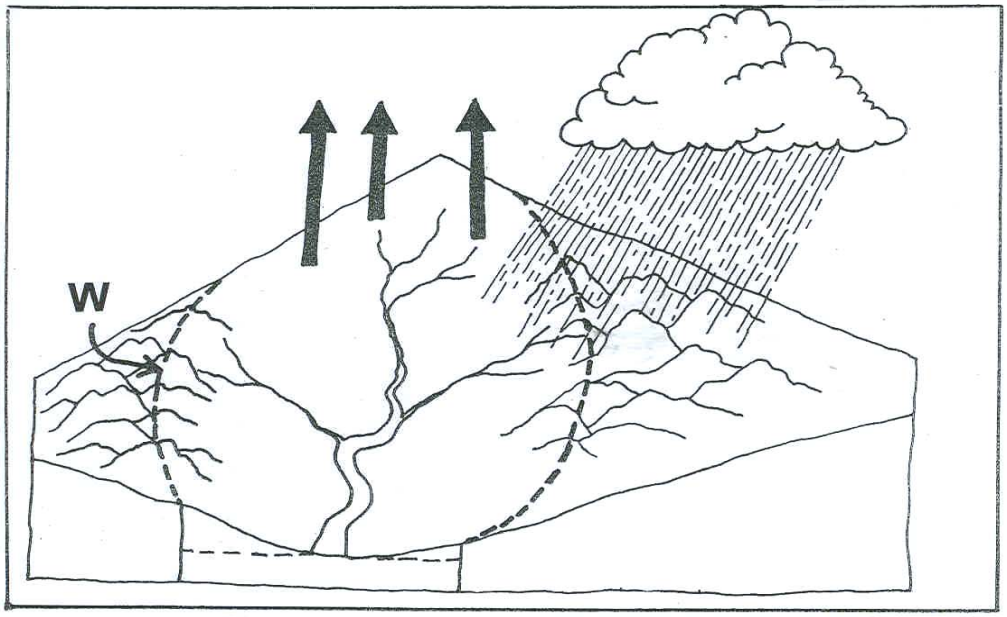


FIGURE 2.5B FIGUUR 2.5B

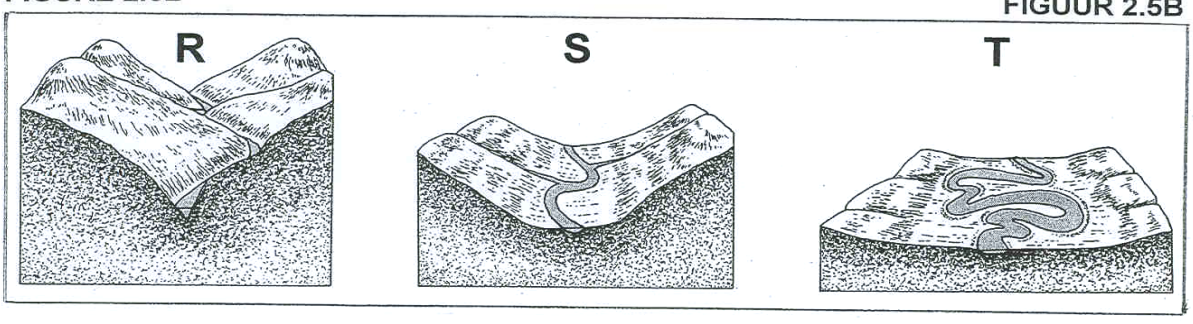


FIGURE 2.6 FIGUUR 2.6

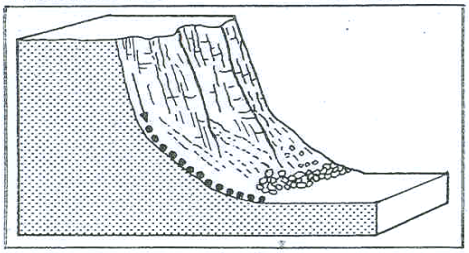
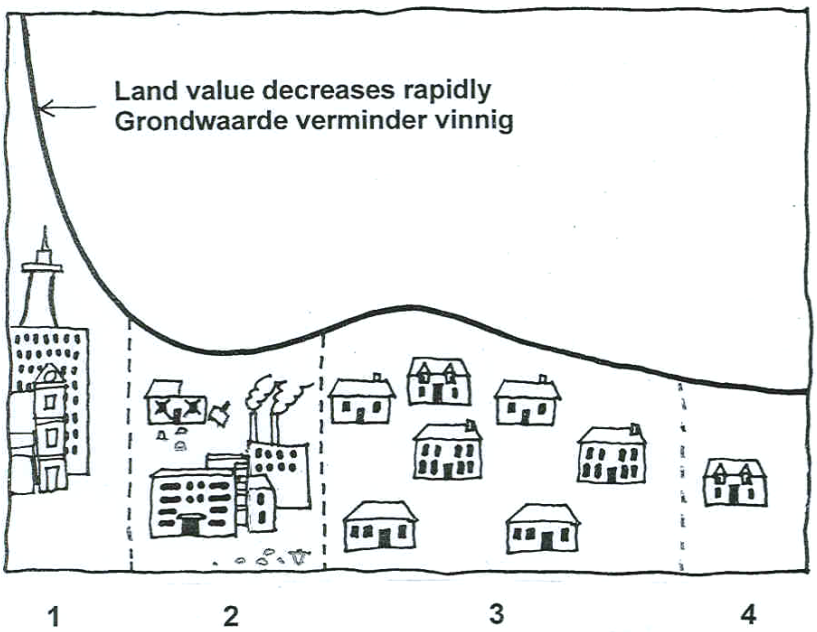


FIGURE 3.1 FIGUUR 3.1



1 - CBD/SSK
2 - Transition zone
Oorgangsone
3 - Residential
Residensieel
4 - Rural-urban fringe
Landelik-stedelike oorgangsone

FIGURE 3.2 FIGUUR 3.2

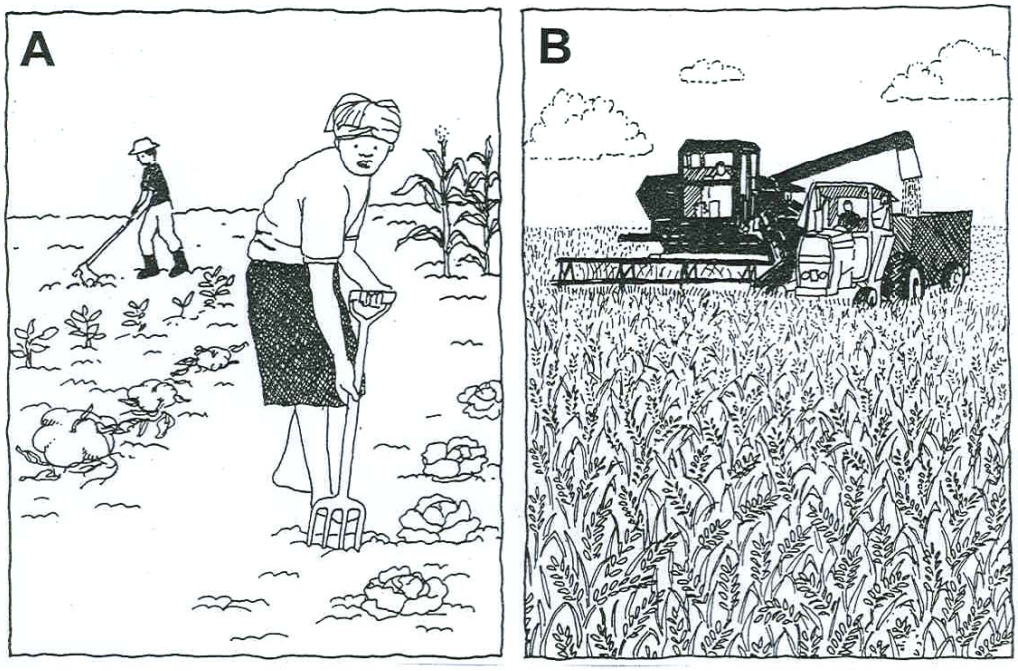


FIGURE 3.3

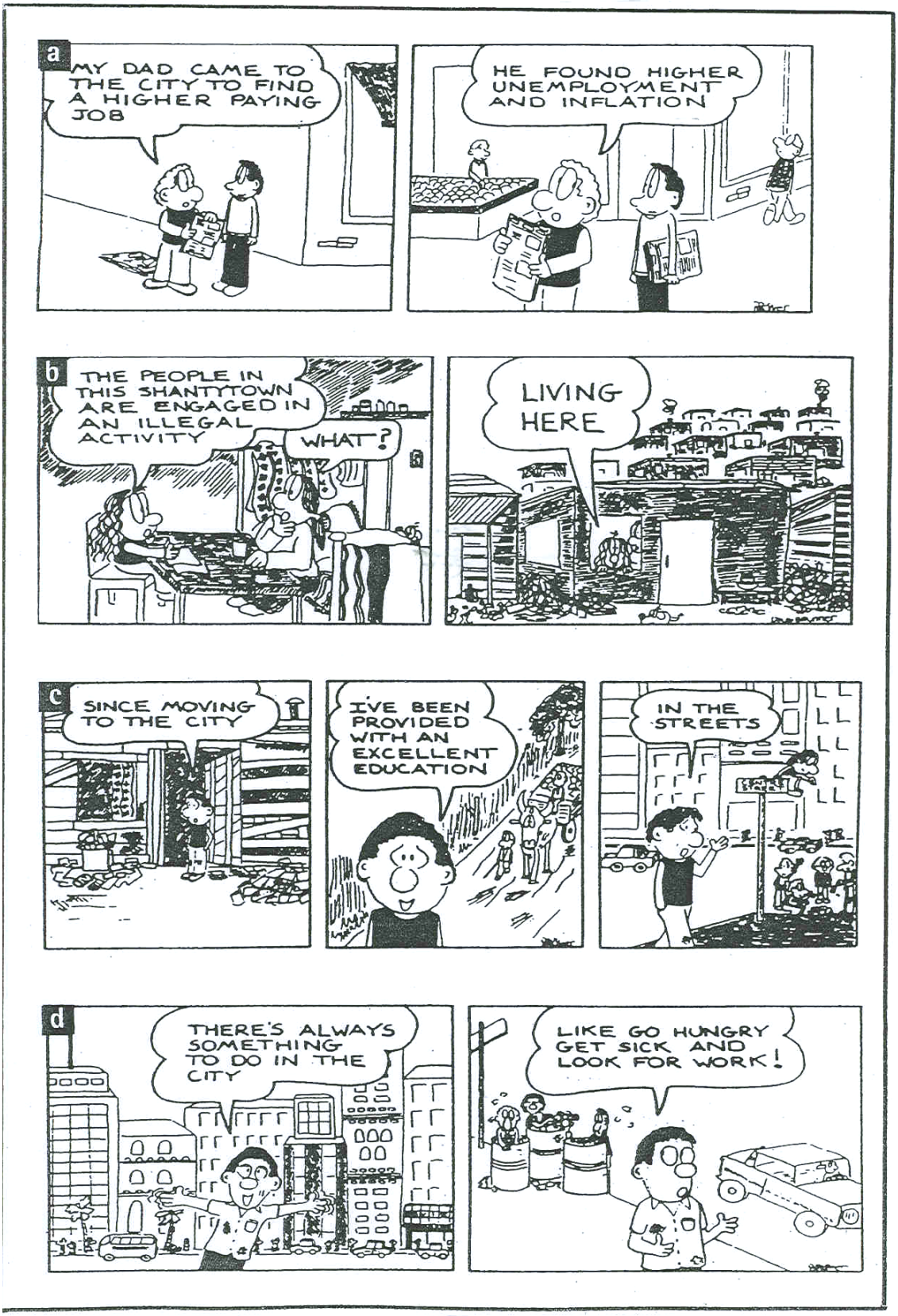

a
MY DAD CAME TO THE CITY TO FIND A HIGHER PAYING JOB
HE FOUND HIGHER UNEMPLOYMENT AND INFLATION
b
THE PEOPLE IN THIS SHANTYTOWN ARE ENGAGED IN AN ILLEGAL ACTIVITY
WHAT?
LIVING HERE
c
SINCE MOVING TO THE CITY
I'VE BEEN PROVIDED WITH AN EXCELLENT EDUCATION
IN THE STREETS
d
THERE'S ALWAYS SOMETHING TO DO IN THE CITY
LIKE GO HUNGRY GET SICK AND LOOK FOR WORK!

FIGURE 3.4

Fuelwood crisis, Nigeria

INPUT
People's demand for fuelwood → **PROCESS**
Collecting fuelwood → **OUTPUTS**
Removal of trees.
Loss of protection to the topsoil by tree roots and canopy.
Loss of soil moisture.
Loss of organic matter in the soil.

FIGURE 3.5

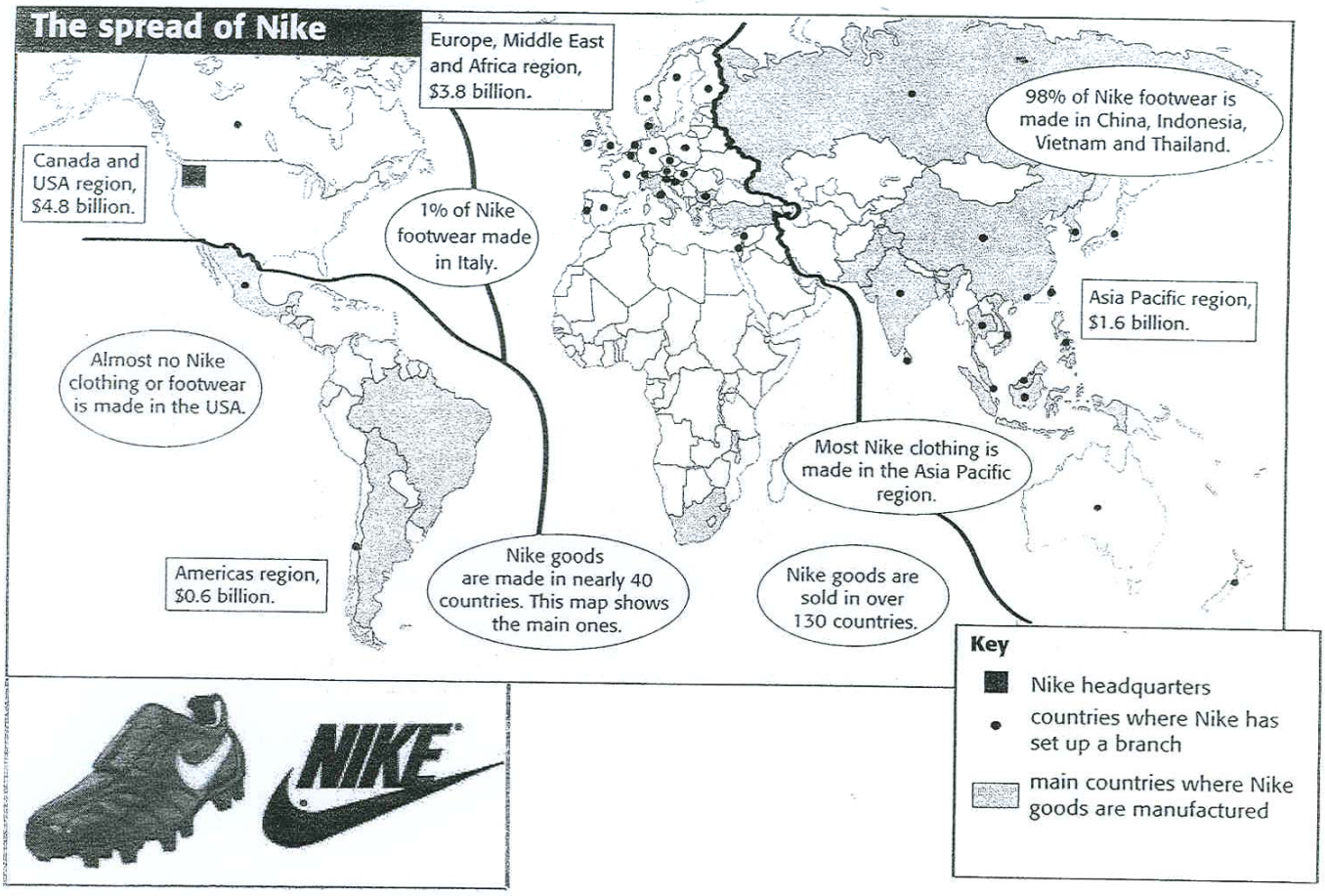


FIGURE 3.6 **FIGUUR 3.6**

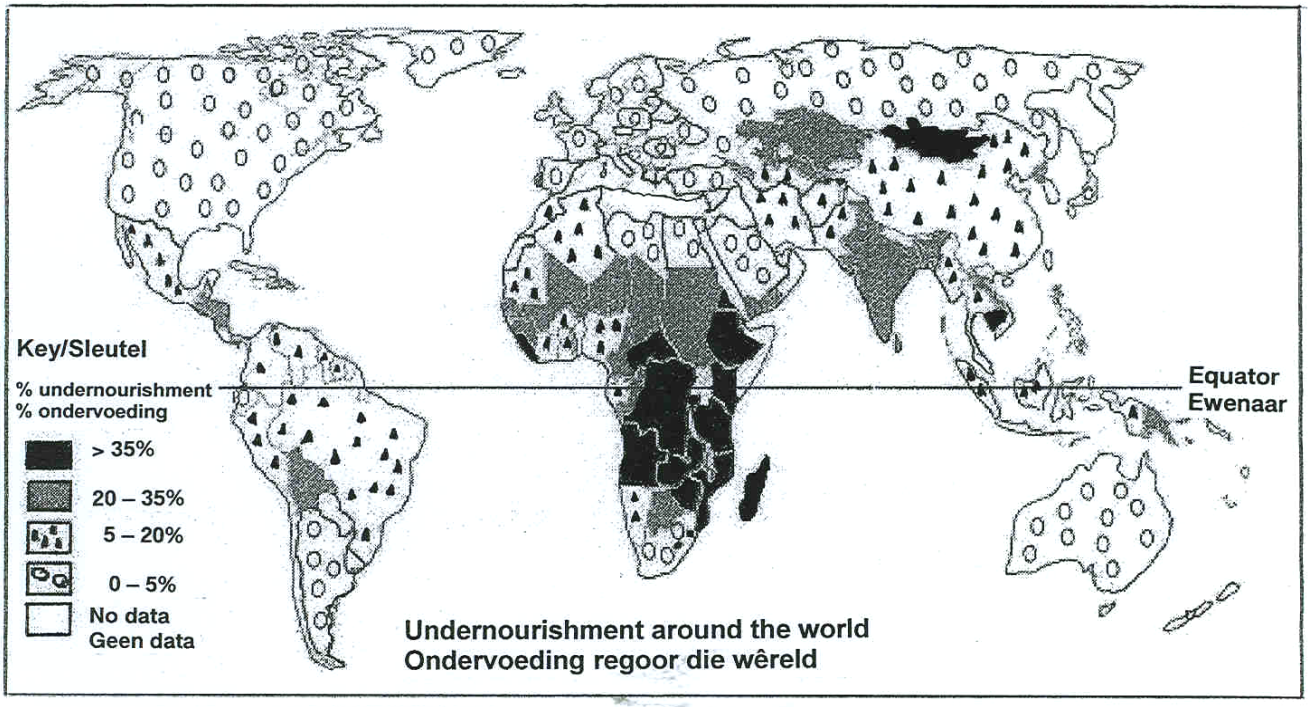


FIGURE 4.1 **FIGUUR 4.1**

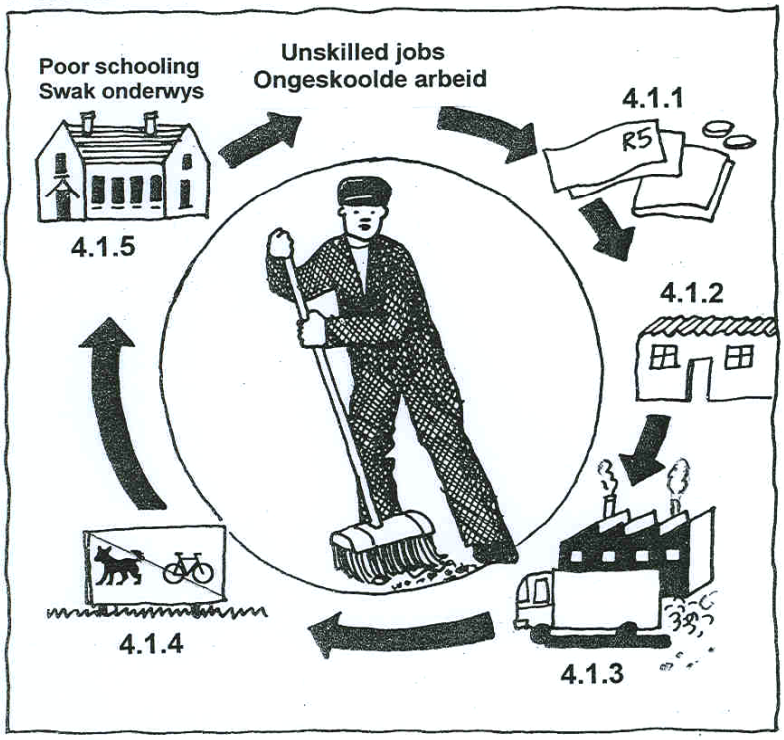


FIGURE 4.2 **FIGUUR 4.2**

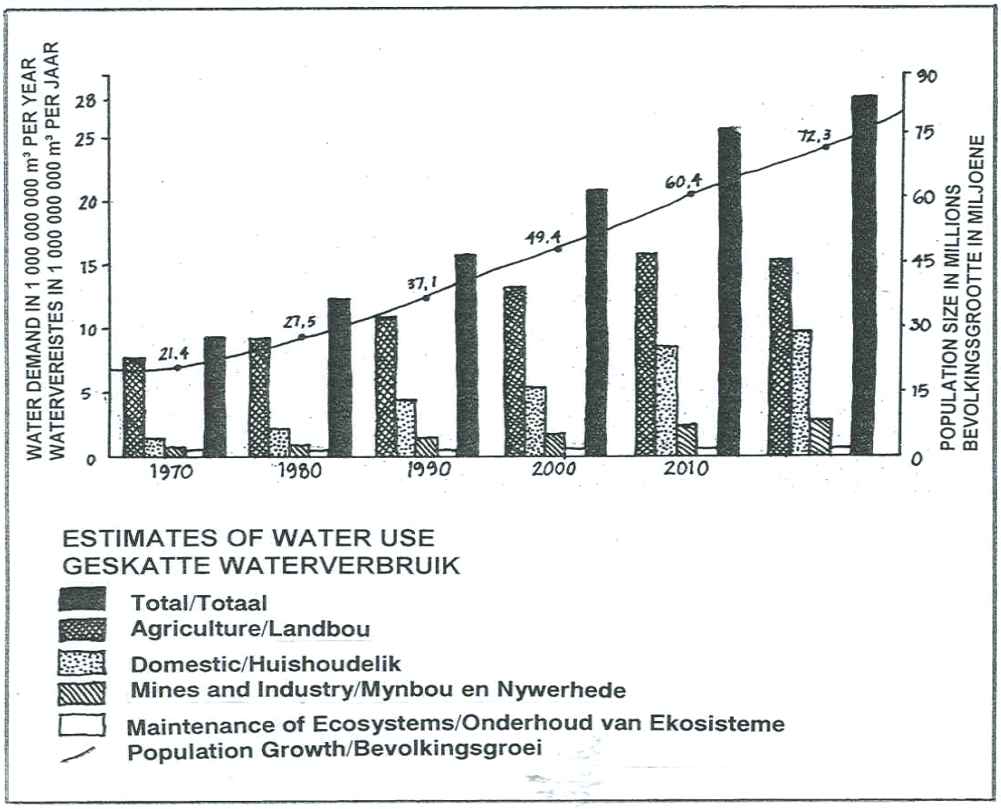


FIGURE 4.3 **SENZINANI** **FIGUUR 4.3**