

GAUTENG DEPARTMENT OF EDUCATION  
SENIOR CERTIFICATE EXAMINATION

OCTOBER / NOVEMBER 2005  
OKTOBER / NOVEMBER 2005

GEOGRAPHY SG  
(First Paper: Theory)

TIME: 3 hours

MARKS: 240

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**INSTRUCTIONS:**

- Answer FOUR questions: ONE from Section A  
ONE from Section B  
ONE from Section C  
The FOURTH question may be chosen from ANY of the remaining questions.
  - All diagrams are included in DIAGRAM BOOK 502-2X.
  - Number all questions you are answering down the **centre** of your answer book.
  - Leave a **line open** between parts of your answers to a question.
  - Start each answer to a new question **at the top** of a new page.
  - Do not change the question numbers – number according to the question paper.
  - Do not write in the margins of your answer book.
  - **Encircle** the question numbers that you have answered on the front page of your answer book.
  - Write **clearly** and **legibly**.
  - Where possible, illustrate your answers with labelled diagrams.
  - Credit will be given for insight.
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**SECTION A  
PHYSICAL GEOGRAPHY**

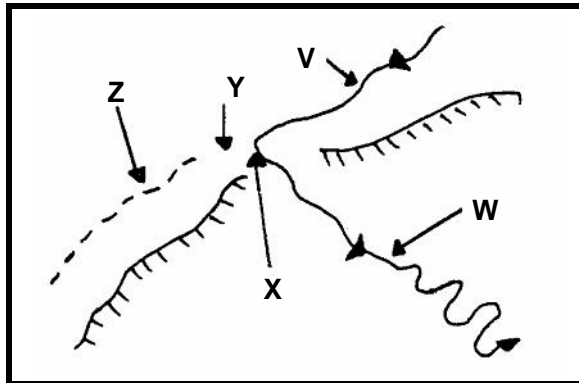
Answer at least ONE question from this section.

**QUESTION 1**

- 1.1 Refer to the synoptic weather map in **Figure 1.1** and answer the questions that follow.
- 1.1.1 Find high-pressure cells **C, D** and **E**.
- (a) Identify high-pressure cells **C, D** and **E**. (3)
  - (b) In which direction does air rotate around these high-pressure cells? (1)
  - (c) List TWO other characteristic air movements associated with these high-pressure cells. (2)
  - (d) Air rotating around high-pressure cell **A** is blowing over a cold ocean. Explain why this will result in dry conditions (low rainfall) along the South African west coast. 2x2=(4)
- 1.1.2
- (a) Identify the fronts labelled **A** and **B** on the synoptic weather map. (2)
  - (b) Find the weather station for Port Elizabeth ahead (east) of front **A**. List the following weather conditions experienced at Port Elizabeth which are typical of berg-wind conditions for this time of year:
    - Temperature
    - Cloud cover
    - Wind direction3x2=(6)
  - (c) Name the natural hazard (danger) associated with the development of berg-winds. 1x2=(2)
  - (d) Give ONE solution to minimise the problems associated with the natural hazard mentioned in Question 1.1.2 (c). 1x2=(2)
  - (e) How are berg-wind conditions terminated (ended)? 1x2=(2)

1.2 **Figure 1.2 A** shows an area in which two rivers are situated on two different levels.

**Figure 1.2 B** shows the longitudinal profiles of the two rivers before river capture / piracy will take place. The diagram below shows the same landscape after river capture / piracy has taken place.



1.2.1 (a) Identify the features of river capture / piracy labelled **V, W, X, Y** and **Z**. Choose from the following list of features:

captor stream, captured / captive stream, wind gap, misfit stream, elbow of capture

5x2=(10)

(b) Explain how the volume of water and the erosive capacity of stream **W** will change after river capture.

2x2=(4)

1.2.2 (a) Identify the **THREE** courses of a river represented by positions **K, L** and **M** in **Figure 1.2 B**.

(3)

(b) Draw transverse (cross-sectional) profiles at each of the positions **K, L** and **M**.

3x2=(6)

1.3 **Figure 1.3** shows an ecosystem which excludes man. **Figure 1.3 B** shows the same ecosystem including man.

1.3.1 Define the term ecosystem.

(1)

1.3.2 Explain why the vegetation in this ecosystem is referred to as a producer.

2x2=(4)

1.3.3 Identify **ONE** consumer in the diagram.

1x2=(2)

1.3.4 Give **ONE** example of a herbivore and a carnivore that you can see in the diagram.

2x2=(4)

1.3.5 What will happen to the amount of energy as it is transferred throughout this ecosystem?

1x2=(2)

**[60]**

**QUESTION 2**

- 2.1 Refer to **Figure 2.1 A** which shows the upper air temperature inversion over South Africa.
- 2.1.1 (a) What is an inversion layer? (2)
- (b) Name the high-pressure cell represented by the arrows marked **D**. (1)
- (c) Briefly explain why the air is subsiding at **D**. 2x2=(4)
- 2.1.2 **Figure 2.1 A** represents summer conditions.
- (a) Give a point of evidence visible on the diagram to support the statement that **Figure 2.1 A** represents summer conditions. 1x2=(2)
- (b) Describe the weather conditions one can experience over the interior of South Africa during the season illustrated in **Figure 2.1 A**. Select THREE from the following options:
- clear skies, rainfall, high temperatures, frost at night,  
lower pressure
- 3x2=(6)
- 2.1.3 Refer to **Figure 2.1 B** showing a valley along the foothills of the KwaZulu/Natal Drakensberg.
- (a) Identify wind **Y** as a katabatic / downslope or an anabatic / upslope wind. (1)
- (b) Does **Figure 2.1 B** represent day or night time? 1x2=(2)
- (c) Give ONE reason for your answer to Question 2.1.3 (b). 1x2=(2)
- (d) Briefly explain how wind **Y** develops. 2x2=(4)
- 2.2 **Figures 2.2 A** and **2.2 B** show the development of a granite dome. An example of such a dome is **Sibede Rock** in Swaziland. **Figure 2.2 C** shows various drainage patterns, one of which is typical of a granite dome structure.
- 2.2.1 Refer to **Figures 2.2 A** and **2.2 B**.
- (a) Identify the igneous rock structure from which a granite dome develops. (1)
- (b) What rock type does this dome consist of? (1)
- (c) How does the igneous rock structure mentioned in Question 2.2.1 (a) become exposed on the earth's surface? 2x2=(4)
- (d) Once exposed on the earth's surface, the granite dome will weather away. Which weathering process, exfoliation or ice shattering, will most likely weather the granite dome away? 1x2=(2)

- 2.2.2 Refer to **Figure 2.2 C**.
- (a) Which ONE of the two diagrams (i) or (ii) shows the drainage pattern typical of a granite dome? (1)
  - (b) Name the drainage pattern typical of a granite dome. (1)
  - (c) Briefly explain why the drainage pattern mentioned in Question 2.2.2 (b) develops at a granite dome. 2x2=(4)
  - (d) Except for Question 2.2.2 (b), mention any TWO other drainage patterns that you have studied. 2x2=(4)
- 2.2.3 The rounded foothills of KwaZulu/Natal are known as the Valley of a Thousand Hills. These foothills are well suited for agricultural activities.
- (a) List TWO physical factors that make these foothills suitable for agriculture. (2)
  - (b) Name ONE agricultural product that is commonly produced in this region. Select from ONE of the following options:  

sugar cane, maize or grapes

 1x2=(2)
  - (c) Give ONE farming method which farmers should introduce in this region to minimise soil erosion. 1x2=(2)
- 2.3 **Figure 2.3** shows how climate influences both the biotic and abiotic soil-forming factors.
- 2.3.1 From **Figure 2.3** identify ONE
- (a) biotic soil-forming factor. (1)
  - (b) abiotic soil-forming factor. (1)
- 2.3.2
- (a) Define the term weathering. (2)
  - (b) What is the end product of weathering? 1x2=(2)
  - (c) Which property (constituent / part) of weathered rock, evident in **Figure 2.3**, is transferred to the soil? 1x2=(2)
- 2.3.3
- (a) What is humus? (2)
  - (b) Why is the formation of humus important for soil? 1x2=(2)
- [60]**

SECTION B  
**SETTLEMENT GEOGRAPHY**

Answer at least ONE question from this section.

**QUESTION 3**

3.1 Refer to **Figure 3.1** before answering the following questions.

- 3.1.1 (a) Describe the settlement pattern of the settlement called Hillside as nucleated / clustered or as dispersed / isolated. (1)
- (b) Give a reason for your answer to Question 3.1.1 (a). (1)
- 3.1.2 (a) The shape of the farms in Hillside is rectangular. Give TWO reasons why the farms developed this shape. 2x2=(4)
- 3.1.3 (a) Explain the meaning of the term site. (2)
- (b) The Berg River played an important role in the selection of this specific site for the establishment of Hillside. Explain why this is so. 1x2=(2)
- (c) Water could also be a threat to a settlement. Why is this so? 1x2=(2)

3.2 Refer to **Figure 3.2** before answering the following questions.

- 3.2.1 The centre of the farm is considered to be the ideal site for a farmstead. Give ONE possible reason why the owner of Rocklands did not select a central position for his farmstead. 1x2=(2)
- 3.2.2 The farmer at Rocklands practises mixed farming. What does this mean? 1x2=(2)
- 3.2.3 The farmer at Rocklands lives on his own farm. Give TWO economic advantages that the farmer enjoys for living on his own land. 2x2=(4)
- 3.2.4 Give ONE social disadvantage for the farmer living on his own land. 1x2=(2)

3.3 Refer to **Figure 3.3**. Pine Village and Kingstown are both central places. However, the sphere of influence and range of goods of these two settlements will differ. Explain the meaning of the following terms:

- 3.3.1 Central place (2)
- 3.3.2 Sphere of influence (2)
- 3.3.3 Range of goods (2)

- 3.3.4 (a) To which settlement, Pine Village or Kingstown, would inhabitants of Hillside most likely travel, to buy milk and bread? 1x2=(2)
- (b) Explain your answer to Question 3.3.4 (a). 1x2=(2)
- (c) To which settlement, Pine Village or Kingstown, would inhabitants of Hillside most likely travel, to buy furniture? 1x2=(2)
- (d) Explain your answer to Question 3.3.4 (c). 1x2=(2)
- 3.4 Refer to **Figure 3.4** showing the settlement named Kingstown.
- 3.4.1 Find the CBD of Kingstown.
- (a) What do the letters **CBD** stand for? (3)
- (b) Where is the CBD located? 1x2=(2)
- (c) Why did the CBD start here? 1x2=(2)
- 3.4.2 The urban profile shows a side view of a settlement. The highest buildings are found in the CBD. Why do we find the highest buildings here? 2x2=(4)
- 3.4.3 At present many shops and offices are moving out the CBD to the suburbs.
- (a) What term is used to describe the movement of shops and offices from the CBD to the suburbs? (1)
- (b) Give **TWO** reasons why shops and offices are moving out of the CBD to the suburbs. 2x2=(4)
- (c) Give **TWO** possible solutions to prevent shops and offices from moving out of the CBD to the suburbs. 2x2=(4)
- 3.4.4 There is a large area designated as parks. As land becomes more scarce in or near the CBD, pressure from business builds up to convert this area for business use. Why is it important to keep this bit of land as a park? 2x2=(4)

**[60]**

**QUESTION 4**

- 4.1 Settlements are divided into rural and urban settlements. This classification is based on economic activities taking place at these settlements.
- 4.1.1 (a) What is a settlement? (2)
- (b) With reference to economic activities (primary, secondary and tertiary), distinguish between rural and urban settlements. (2)
- (c) Give ONE example of each of the above-mentioned activities in rural and urban settlements respectively. (3)
- 4.1.2 Many people leave the rural settlements to go and live in urban settlements such as the one illustrated in **Figure 4.1**. This results in rural depopulation.
- (a) Define the term rural depopulation. (2)
- (b) List THREE push factors in the rural areas resulting in rural depopulation. 3x2=(6)
- (c) List THREE pull factors in the urban areas resulting in rural depopulation. 3x2=(6)
- (d) Discuss possible countermeasures that can be introduced to slow down rural depopulation. 2x2=(4)
- 4.2 Many of the newcomers to the city will find employment in industries. Refer to **Figure 3.4** before answering the following questions.
- 4.2.1 Distinguish between light and heavy industries. (2)
- 4.2.2 Give ONE example of a light industry and ONE of a heavy industry. (2)
- 4.2.3 Indicate in which of the zones, **A** or **B**, you will find light industries and in which you will find heavy industries. 2x2=(4)
- 4.2.4 Explain why the industries at **B** are situated far away from the CBD. 2x2=(4)
- 4.2.5 Industries are the main culprits of air pollution in the city. What steps can be introduced to minimise air pollution from factories? 2x2=(4)



- 4.3 Many of the newcomers to the city are not so lucky to find employment. They live on the outskirts of the city in informal (squatter) settlements. Read the paragraph below and answer the questions that follow.

Nokhweni Ngcenge who lives in a squatter camp in Cape Town writes:

**W**aste is a problem in Khayelitsha because the council only comes once a week to take it away. We have no containers to put the waste in, so people have to leave it in the streets. We have heaps of waste. There are toilets, but they're not drained, they're left open and the council doesn't often clean them. Flies go in and out of these toilets and come into our houses. We get diseases because the flies eat waste and sit on our food and our children's bottles. We get sick and our children get diarrhoea.

(Khayelitsha is Cape Town's biggest township. It has very little formal housing. Most residents have to live in tin shacks.)



- 4.3.1 What is an informal settlement? (2)
- 4.3.2 What are the houses in informal settlements made of? (1)
- 4.3.3 Why do these informal settlements develop? 2x2=(4)
- 4.3.4 List any **THREE** problems encountered by the inhabitants of these informal settlements. 3x2=(6)
- 4.3.5 Give possible solutions to make life for the inhabitants of informal settlements easier. 2x2=(4)
- 4.3.6 Many inhabitants of these informal settlements find employment in the informal sector. Give **ONE** example of employment in the informal sector. 1x2=(2)

**[60]**

SECTION C  
SOUTH AFRICAN GEOGRAPHY

Answer at least ONE question from this section.

## QUESTION 5

**The Kalahari**

The area of Kalahari sands encompasses some 2 million km<sup>2</sup> and the range in rainfall throughout this area is considerable. It varies from the scanty, erratic rain of the extreme south to the more tropical conditions in the north. As the quantity and reliability of the rainfall vary, so too does the vegetation. Given these facts, what then is the agricultural potential of the Kalahari?

In all its sprawling vastness and for all the millennia that it has withstood the ravages of time, today the Kalahari and its wildlife face a greater threat to their continued existence than ever before. It is also, ecologically speaking one of the most fragile and delicately balanced ecosystems and, as such, it is quick to succumb to mismanagement and abuse.

Adapted from *Kalahari* by Michael Main

5.1 Refer to **Figure 5.1** showing the location of the Kalahari.

- 5.1.1 (a) In which South African province is most of the southern Kalahari located? 1x2=(2)
- (b) Provide the name of the capital city of the province identified in Question 5.1.1 (a). 1x2=(2)
- 5.1.2 (a) Identify the exotic river that flows just south of the Kalahari. 1x2=(2)
- (b) Why is this river referred to as exotic? 1x2=(2)
- (c) Into which ocean does the exotic river flow? 1x2=(2)

5.2 Once again refer to **Figure 5.1**.

- 5.2.1 (a) With which ONE of South Africa's neighbouring countries does the Limpopo River form an international boundary? 1x2=(2)
- (b) Into which ocean does the Limpopo River flow? 1x2=(2)
- 5.2.2 Identify River **X**, a main tributary of the exotic river mentioned in Question 5.1.2 (a). 1x2=(2)

- 5.2.3 After the confluence, the exotic river flows past the town of Prieska. With added water from its tributaries, the exotic river may easily flood.
- (a) What is a flood? 1x2=(2)
- (b) Explain the meaning of the term confluence. 1x2=(2)
- (c) How can the point of confluence result in a flood? 1x2=(2)
- (d) List TWO consequences of flooding for the town of Prieska. 2x2=(4)
- (e) Assume you were appointed as an environmental consultant to address the dangers of flooding. Discuss TWO flood prevention measures. 2x2=(4)
- 5.2.4 Further downstream, in the last stage of the river's cycle, the exotic river plunges down the Augrabies Falls.
- (a) What is the name given to the last stage of the river's course? 1x2=(2)
- (b) It is unusual to find a waterfall in this last stage. In which stage do waterfalls usually occur? 1x2=(2)
- (c) The Augrabies Falls causes the river to become rejuvenated as a result of an increase in gradient of the land. Explain what will happen to the river's velocity (speed) and erosive capacity (ability to erode) at the point of rejuvenation. 2x2=(4)
- 5.3 The economic potential of the Kalahari region is very limited. Dryland farming dominates, which implies no irrigation. Thus farming is totally dependent on annual rains.
- 5.3.1 (a) Is farming a primary, secondary or tertiary economic activity? (1)
- (b) Provide a reason for your answer to Question 5.3.1 (a). 1x2=(2)
- 5.3.2 Why is dryland farming (instead of irrigation farming) more widely practised in this Kalahari region? 2x2=(4)
- 5.3.3 Discuss the reason why dryland farming produces very few crops. 1x2=(2)

- 5.3.4 Overgrazing can cause an environmental imbalance when using dryland farming methods.
- (a) Explain the term overgrazing. 1x2=(2)
- (b) How can overgrazing cause an environmental imbalance? 1x2=(2)
- 5.4 Tourism forms an alternative economic potential, and the establishment of the Kgalagadi Transfrontier Park has contributed favourably to the G.D.P. of the region.
- 5.4.1 (a) Is tourism a primary, secondary or tertiary economic activity? (1)
- (b) Provide a reason for your answer to Question 5.4.1(a). 1x2=(2)
- (c) How does tourism benefit the people of the Kalahari? 1x2=(2)
- 5.4.2 (a) What does the abbreviation G.D.P. stand for? 1x2=(2)
- (b) How does the establishment of the Kgalagadi Transfrontier Park affect the G.D.P. of the province? 1x2=(2)
- [60]**

**QUESTION 6**

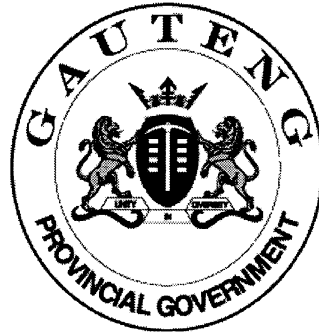
<p><b>Garden of South Africa</b></p> <p><b>KwaZulu/Natal</b> is known for its subtropical, often lush plant life and the gentle beauty of its Midlands region. Its long maritime belt is fringed by the waters of the Indian Ocean, by wide white beaches and, in the north, by patches of indigenous forest and some of the world's highest vegetated dunes. Further to the west are the towering heights of the Drakensberg range, 1 046 km in length and the most prominent segment of South Africa's Great Escarpment.</p>	<p><b>Fact File: KwaZulu/Natal</b></p> <p><b>Area:</b> 92 100 km<sup>2</sup></p> <p><b>Percentage of total area of S.A.:</b> 7,6%</p> <p><b>Population:</b> 9,8 million</p> <p><b>Percentage of total population:</b> 21%</p> <p><b>Main languages:</b> IsiZulu (80%) English (16%) Afrikaans (2%)</p> <p><b>Economic activities:</b> Marine services, tourism, coal, manufacturing, forestry, farming.</p> <p><b>Percentage of total G.D.P.:</b> 15,8%</p> <p><i>(Adapted from: <b>World Atlas for South Africans</b>)</i></p>
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- 6.1 Refer to the introductory paragraph as well as to **Figure 6.1** before answering the questions below.
- 6.1.1 South Africa has three coastlines, the west coast, south coast and east coast. On which of South Africa's coasts is the province of KwaZulu/Natal located? (1)
- 6.1.2 Identify the capital city of KwaZulu/Natal. (1)

- 6.1.3 Name the THREE countries which form international boundaries with KwaZulu/Natal. (3)
- 6.1.4 In which climatic region is KwaZulu/Natal located? (1)
- 6.1.5 What mountain range dominates the relief of KwaZulu/Natal? (1)
- 6.2 Refer to **Figures 6.2 A** and **6.2 B**, showing temperature and rainfall variations for Durban.
- 6.2.1 **Figure 6.2 A** indicates the average daily temperature range in both January and July. The temperature range is the difference between the maximum and minimum daily temperatures.
- (a) What is the average maximum temperature for Durban in January? 1x2=(2)
- (b) What is the average minimum temperature for Durban in January? 1x2=(2)
- (c) Calculate the average temperature range for Durban by subtracting the minimum temperature from the maximum. 1x2=(2)
- 6.2.2 **Figure 6.2 B** shows the monthly rainfall for January and July.
- (a) Which month experiences the highest rainfall? (1)
- (b) What is the name of the ocean current that flows past the coast of Durban? (1)
- (c) Is the ocean current identified in Question 6.2.2 (b) a warm or cold ocean current? (1)
- (d) Explain what the effect of this ocean current is on the rainfall in Durban. 2x2=(4)
- 6.2.3 The high rainfall received in KwaZulu/Natal can support a large variety of natural vegetation.
- (a) Is natural vegetation a renewable or non-renewable resource? 1x2=(2)
- (b) Much of the land use in KwaZulu/Natal is in the form of forestry and farming. Discuss how the natural vegetation has been affected by these economic activities. 2x2=(4)
- (c) Suggest possible solutions to counteract this imbalance in the natural vegetation. 2x2=(4)

- 6.3 The Tugela River is one of the largest rivers in KwaZulu/Natal and forms part of the Tugela-Vaal water transfer scheme. Refer to **Figure 6.3** which shows this water transfer scheme.
- 6.3.1 Into which ocean does the Tugela River flow? (1)
- 6.3.2 The Great Escarpment divides the dams above from the ones below.
- (a) What is an escarpment? 1x2=(2)
- (b) Study the diagram. How many dams form part of the Tugela-Vaal water scheme? (1)
- 6.3.3 Discuss TWO aims of the Tugela-Vaal water transfer scheme. 2x2=(4)
- 6.3.4 During construction, topsoil and the seeds of indigenous vegetation were conserved.
- (a) What is indigenous vegetation? 1x2=(2)
- (b) Explain the meaning of environmental conservation. 1x2=(2)
- (c) Why was this environmental conservation regarded as necessary? 1x2=(2)
- 6.4 The high rainfall and fertile soils of KwaZulu/Natal have acted as “magnets” / pull factors to people. However, as the population density increases, so do the scars on the landscape.
- 6.4.1 Discuss how an increasing population density in KwaZulu/Natal is likely to affect:
- (a) Natural resources 1x2=(2)
- (b) Pollution 1x2=(2)
- (c) Provision of services 1x2=(2)
- 6.4.2 The impact of HIV/Aids is of particular significance.
- (a) How will HIV/Aids affect the labour force in KwaZulu/Natal? 2x2=(4)
- (b) How will this in turn affect the economy of KwaZulu/Natal? 1x2=(2)
- 6.5 KwaZulu/Natal has a very important industrial region in the Durban-Pinetown area.
- 6.5.1 What TWO factors have attracted industries to locate to this area? (2)
- 6.5.2 List TWO types of industries that can be found in the Durban-Pinetown region. (2)
- [60]**
- TOTAL: 240**

**SENIOR CERTIFICATE  
EXAMINATION  
*SENIORSERTIFIKAAT-EKSAMEN***



**OCTOBER / NOVEMBER  
*OKTOBER / NOVEMBER***

**2005**

**GEOGRAPHY  
DIAGRAM BOOK  
*AARDRYKSKUNDE  
DIAGRAMBOEK***

**First Paper : Theory  
*Eerste Vraestel : Teorie***

**SG**

**502-2/X**

**8 pages / bladsye**



FIGURE 1.1

FIGUUR 1.1

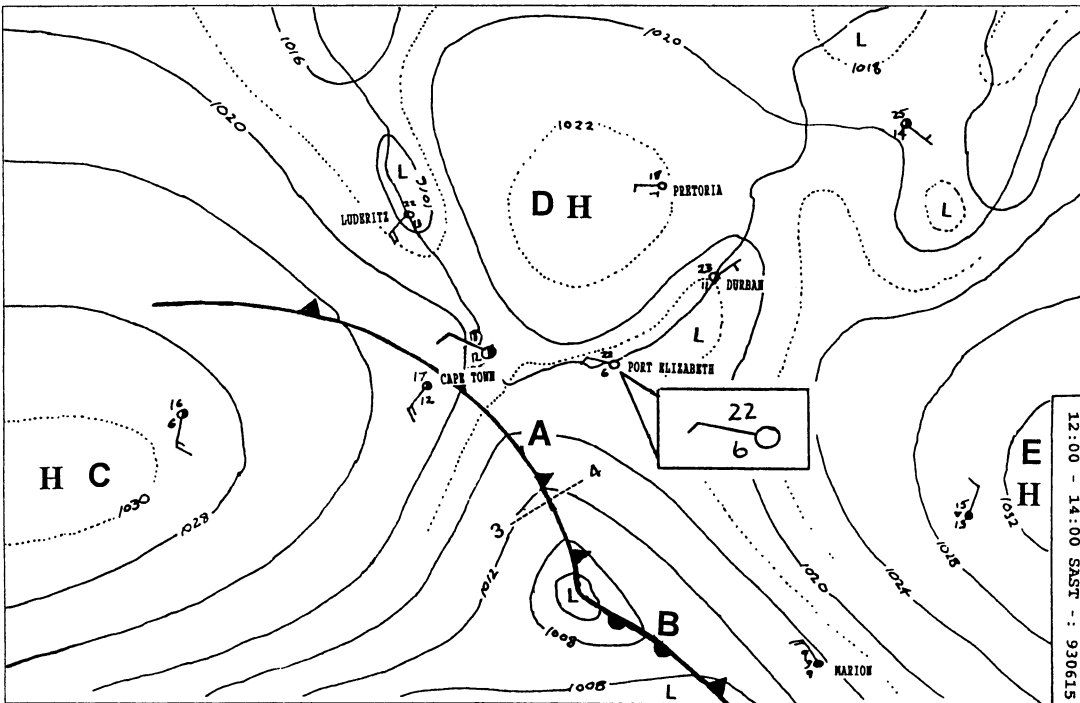


FIGURE 1.2A

FIGUUR 1.2A

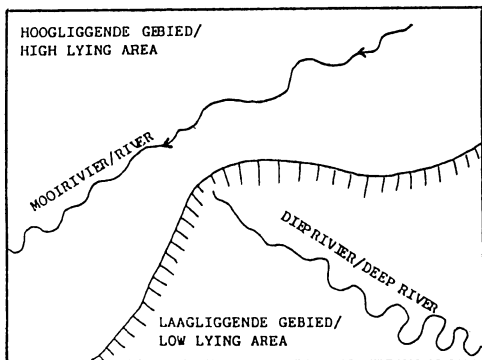


FIGURE 1.2B

FIGUUR 1.2B

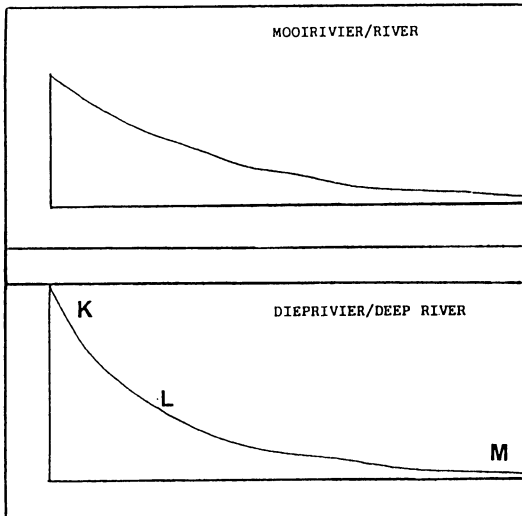


FIGURE 1.3

FIGUUR 1.3

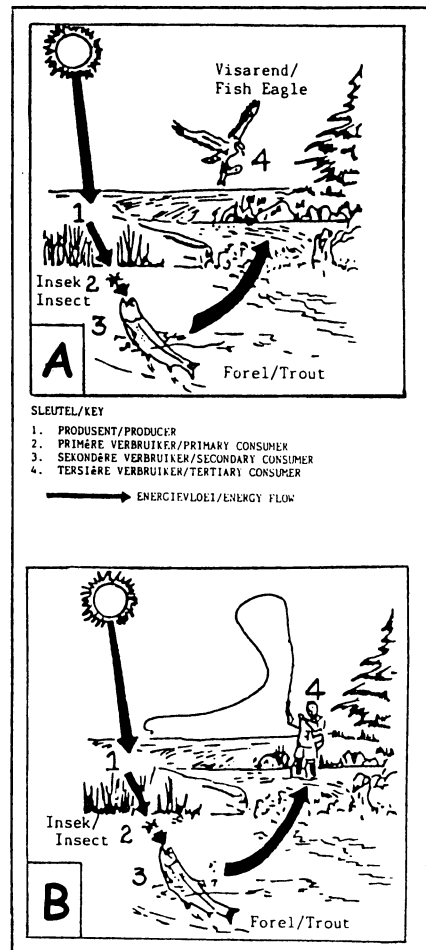




FIGURE 2.1A

FIGUUR 2.1A

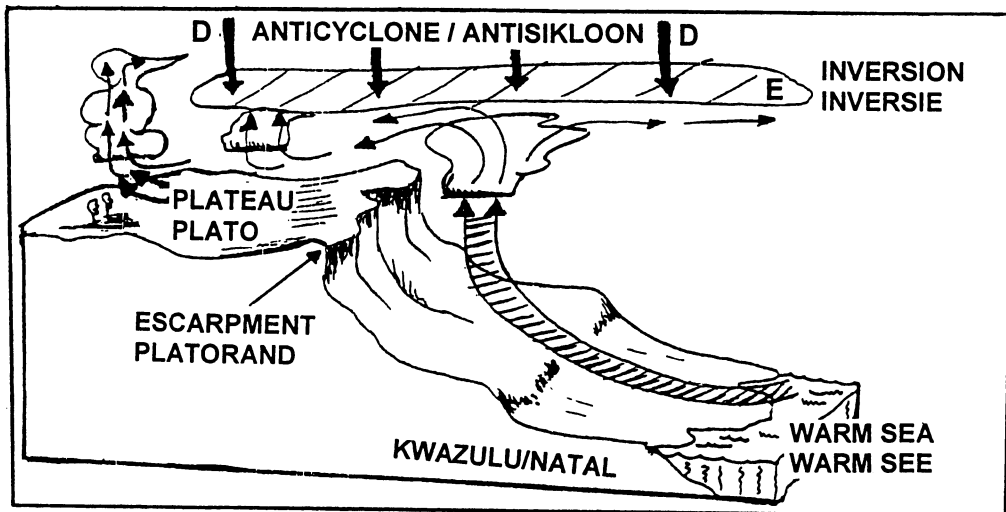


FIGURE 2.1B

FIGUUR 2.1B

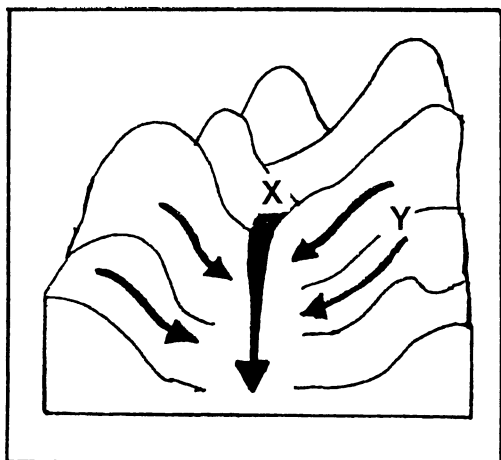


FIGURE 2.2A

FIGUUR 2.2A

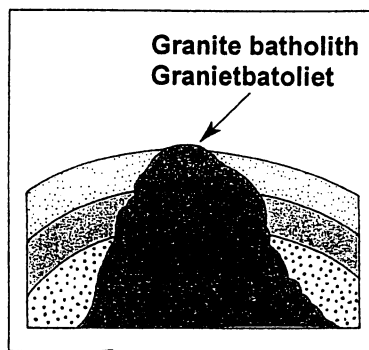


FIGURE 2.2B

FIGUUR 2.2B

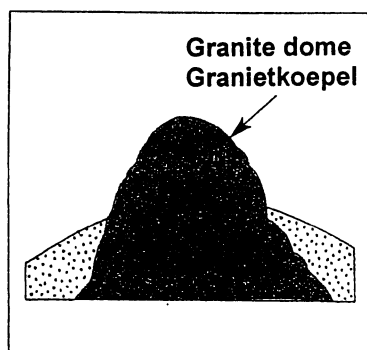


FIGURE 2.2C

FIGUUR 2.2C

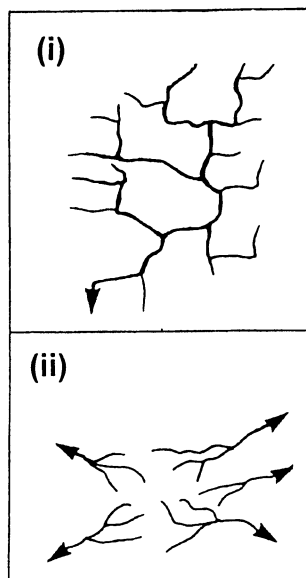
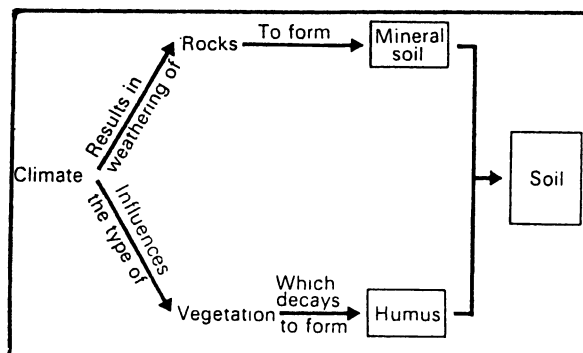
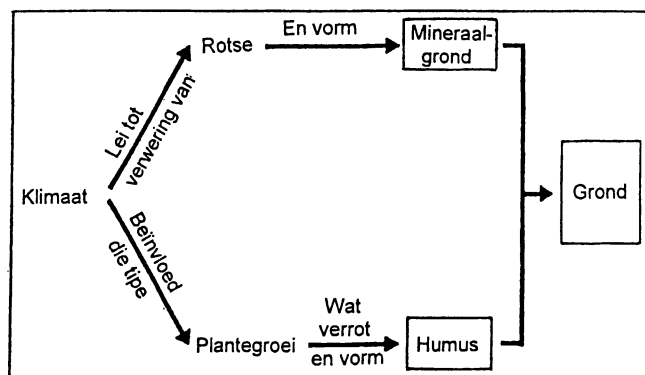


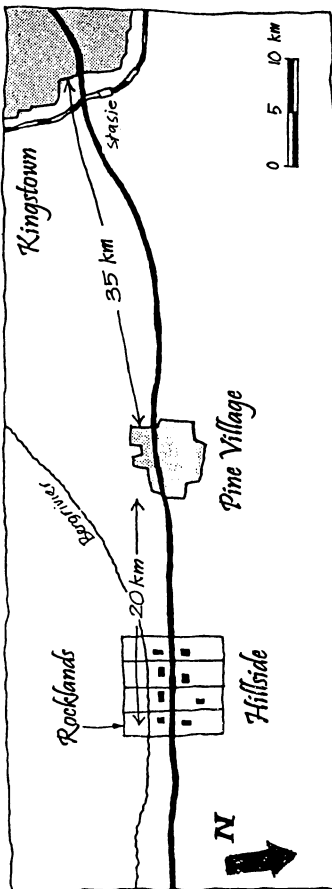
FIGURE 2.3



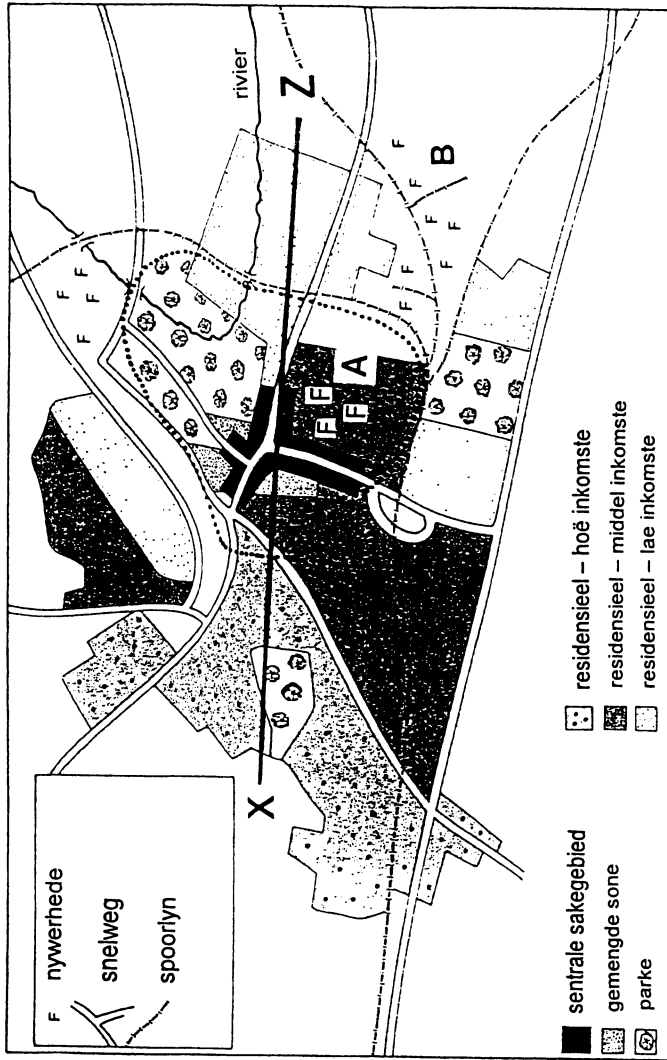
FIGUUR 2.3



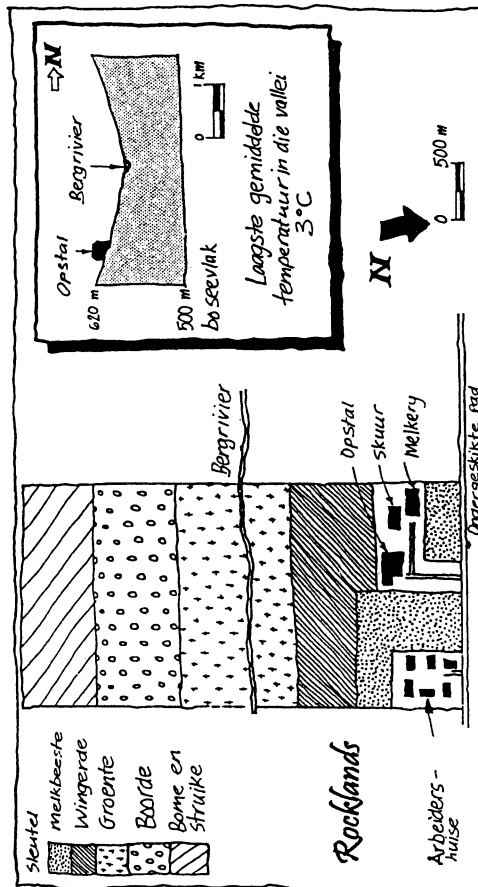
FIGUUR 3.1



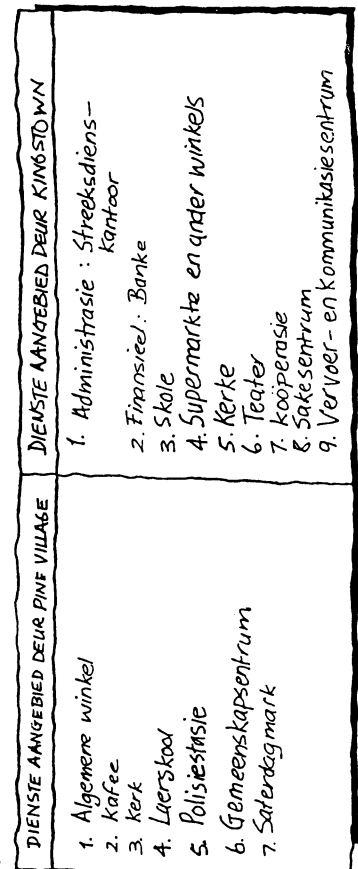
FIGUUR 3.4

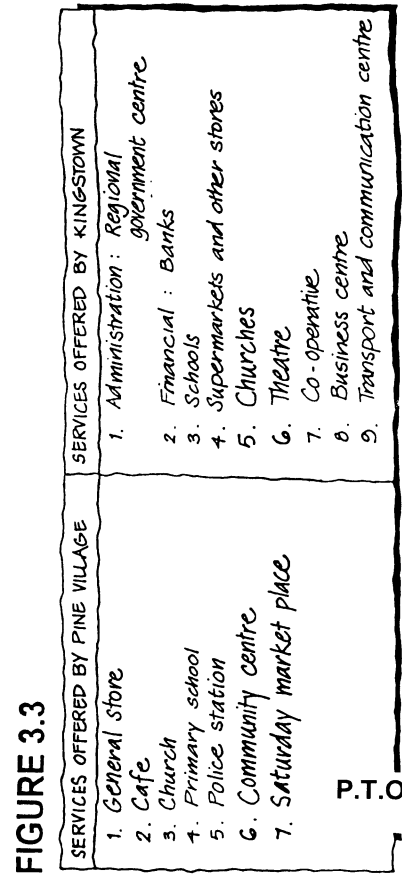
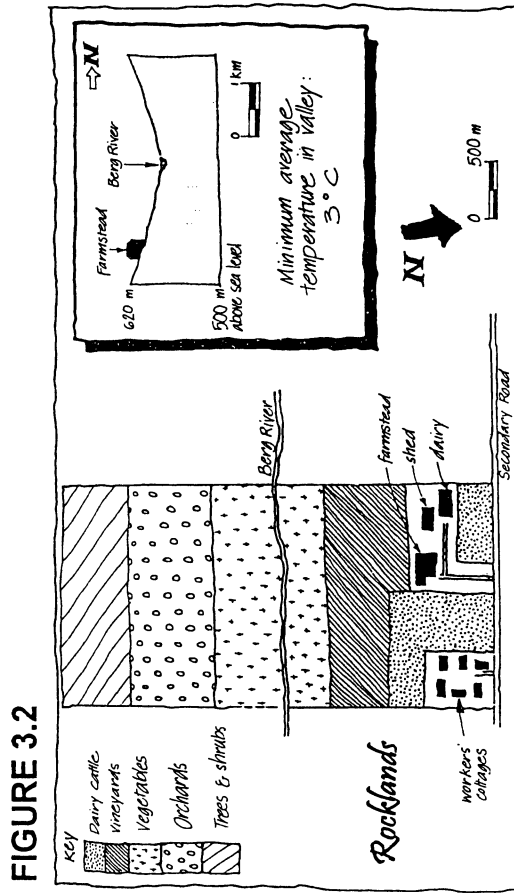
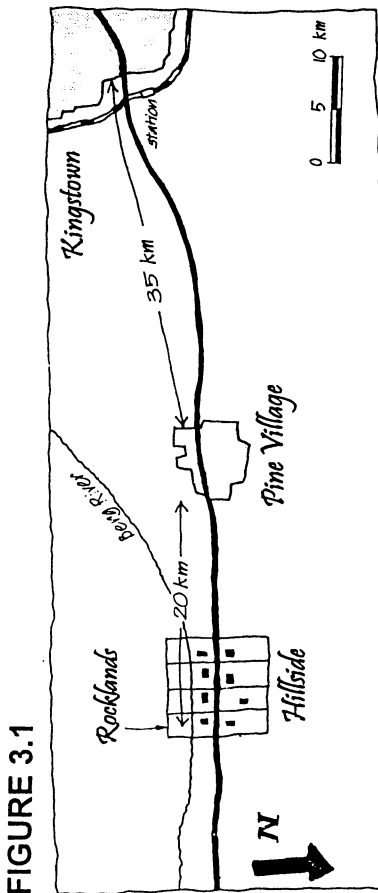


FIGUUR 3.2



FIGUUR 3.3





P.T.O. / b.o

**FIGURE 3.4**

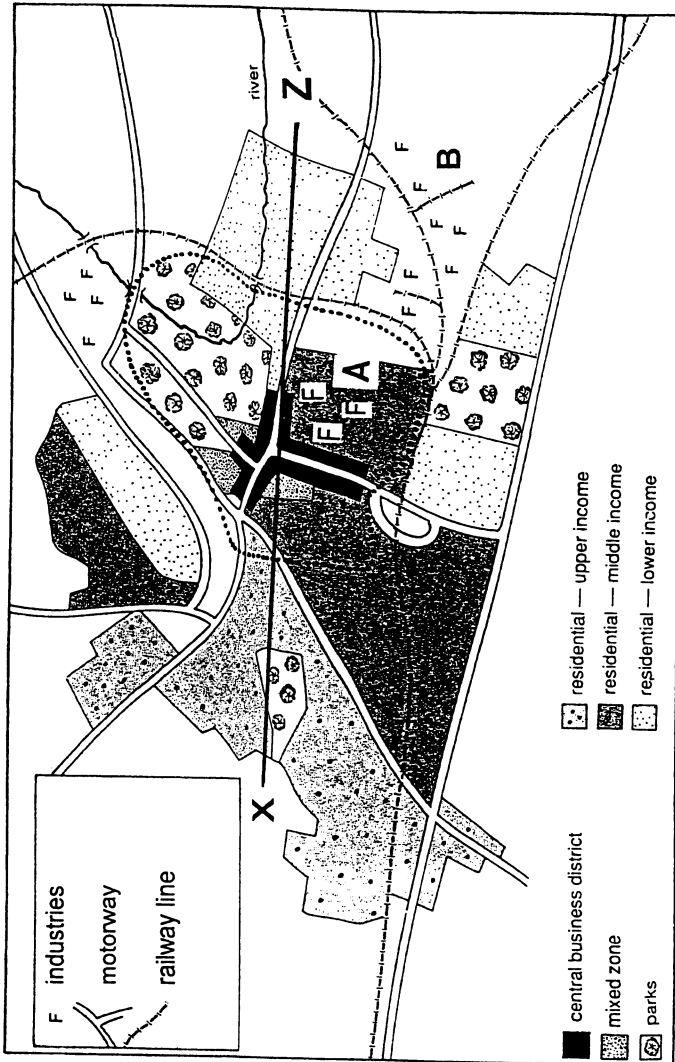
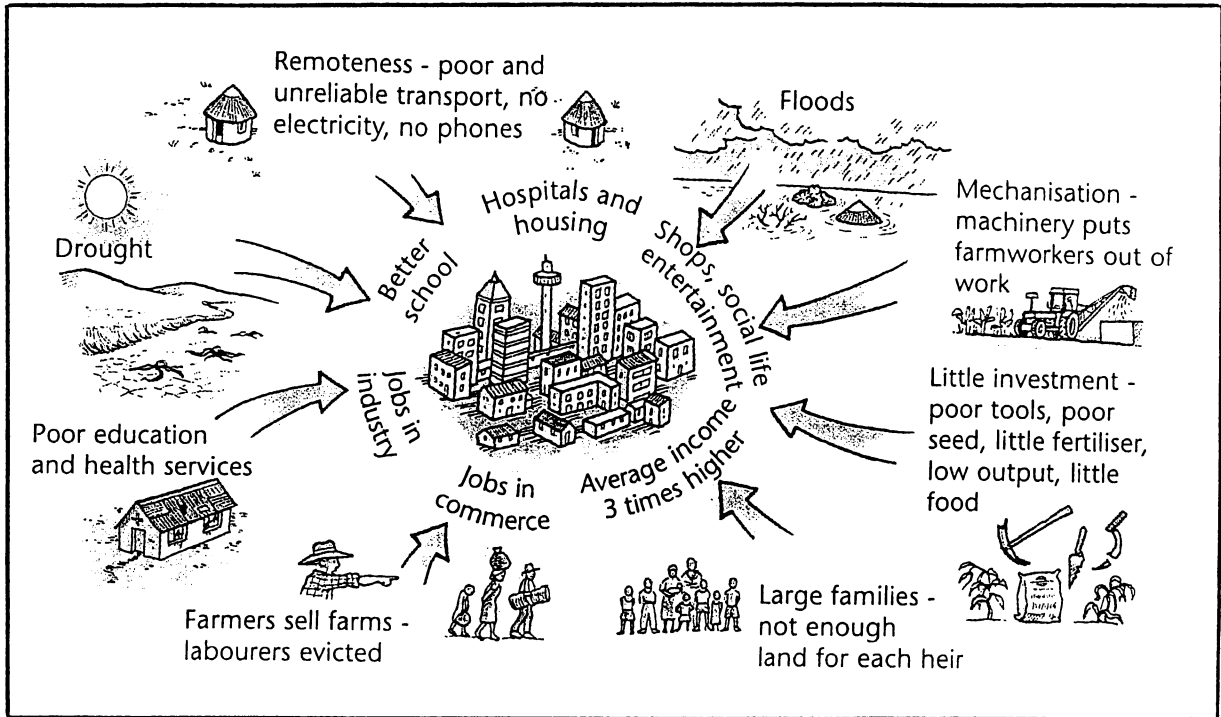


FIGURE 4.1



FIGUUR 4.1

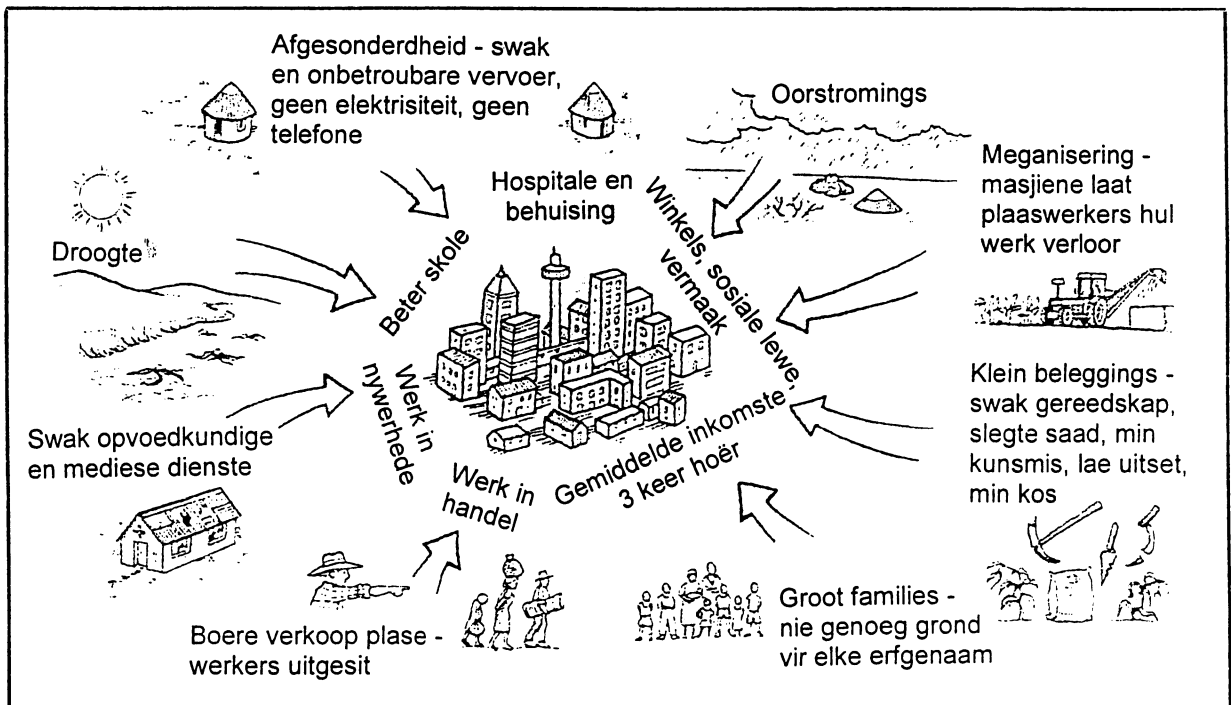


FIGURE 5.1

FIGUUR 5.1

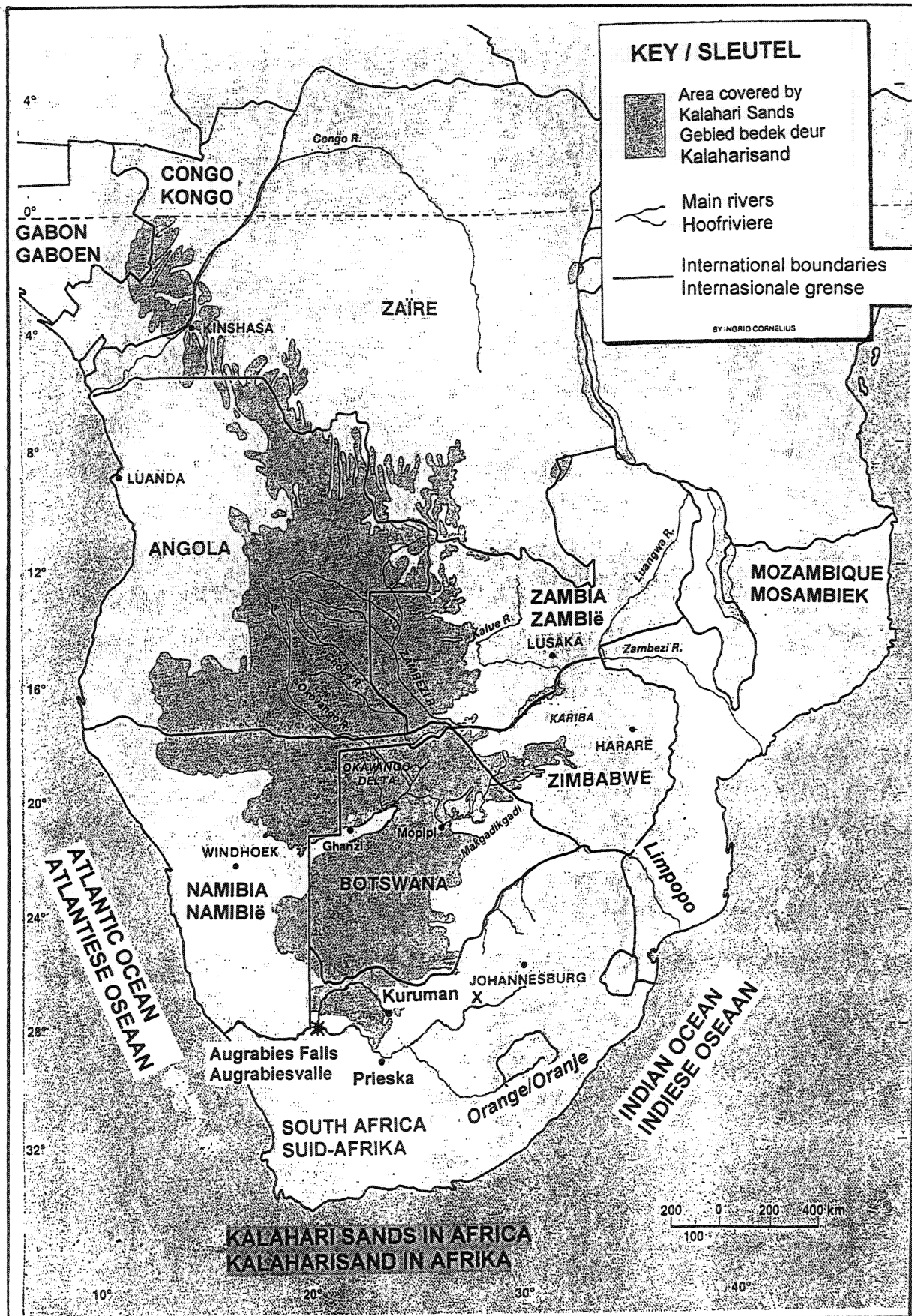
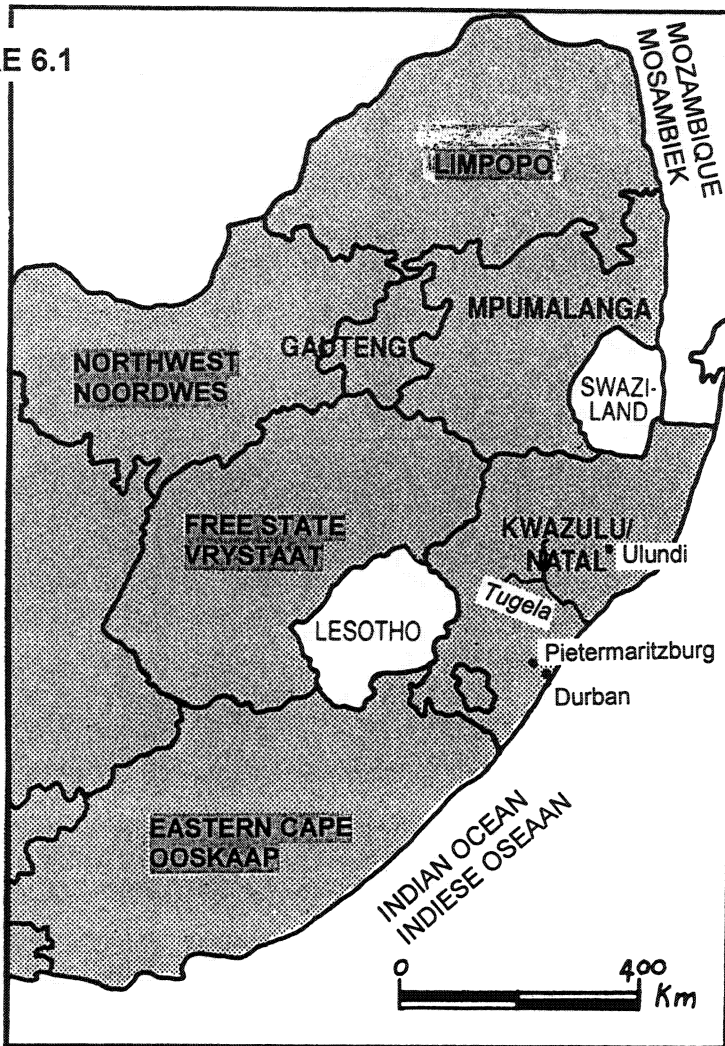


FIGURE 6.1



FIGUUR 6.1

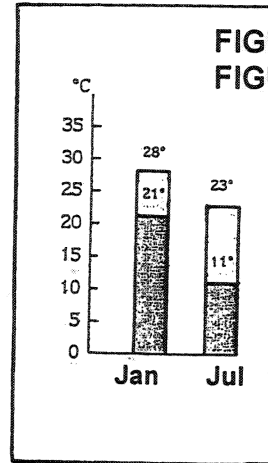


FIGURE 6.2A  
 FIGUUR 6.2A

Average daily temperature  
 Gemiddelde daaglikse temperatuur

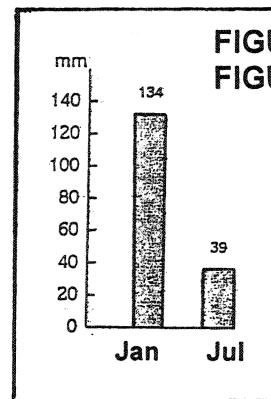
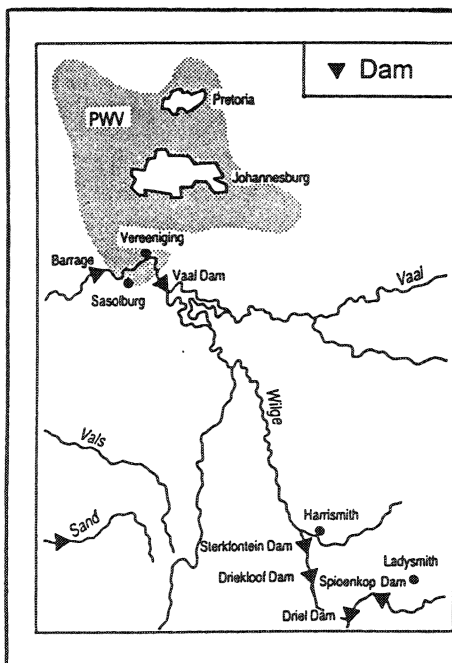


FIGURE 6.2B  
 FIGUUR 6.2B

Rainfall  
 Reënval

FIGURE 6.3



FIGUUR 6.3

