MODULE 4: RURAL SETTLEMENT AND URBAN SETTLEMENT

By the end of this module, you should be able to:

- explain the term settlement
- distinguish between site and situation of a settlement
- distinguish between rural and urban settlements
- classify settlements according to size, complexity, pattern and function
- explain how site and situation affect the location of rural settlements
- classify rural settlements according to pattern and function
- explain reasons for different shapes of settlements - round, linear, T-shaped, cross road
- describe land use in urban settlements
- explain the term rural - urban migration
- explain the causes of rural depopulation
- explain the consequences of rural depopulation on people and the economy
- evaluate case study that illustrates effects of rural depopulation and strategies to address them
- evaluate social justice issues associated with rural areas - access to resources, land reform
- explain the origin and development of urban settlements
- describe urbanisation of the world population
- explain how site and situation affect the location of urban settlements
- classify urban settlements according to function (central places, trade and transport, break of bulk points, specialised cities, junction towns, gateway/gap towns)
- explain the concepts of urban hierarchy, central place, threshold population, sphere of influence, range of goods
- differentiate between low and high order functions and services
- differentiate between lower order and higher order centres
- describe the internal structure and patterns of urban settlements (land use zones, concept of urban profile, factors influencing the morphological structure of a city)
- describe and evaluate models of urban structure
- describe changing urban patterns and land use in South African cities
- explain recent urbanisation patterns in South Africa
- explain issues related to rapid urbanisation (lack of planning, housing shortage, overcrowding, traffic congestion and problems with service provision)
- discuss the growth of informal settlements and associated issues
- evaluate case studies of informal settlements from the world and South Africa
STUDY OF SETTLEMENTS

CONCEPT OF SETTLEMENT

A settlement is a place where people live. It may be described as a grouping of people, activities, buildings and communication structures. The most important element in a settlement is the buildings.

SITE AND SITUATION

Several factors affect the location of a settlement. Let us examine the concepts “site” and “situation” of a settlement.

Site: Site refers to the precise terrain (land) on which a settlement is located and its physical characteristics, namely, relief, drainage, climate and nature of soil. The sketch below illustrates factors which may affect the site of a settlement.

![Diagram showing factors affecting the site of a settlement]
**FACTORS THAT AFFECT THE CHOICE OF A SITE FOR A SETTLEMENT**

- **Relief** - high enough to be safe from flooding, low enough to be sheltered from wind
- **Defence** - high enough to be safe from flooding, low enough to be sheltered from wind
- **Water supply** - clean water needed for drinking, cooking and cleaning
- **Fuel** - wood needed to burn for cooking and heat
- **Resources** - timber or rock needed for building
- **Transport** - site on a crossroads, river or the coast make access to other places easier
- **Soil** - deep fertile soil makes farming easier

**Situation:** Situation refers to the location of a settlement in relation to other settlements and relief feature of an extensive area around the settlement.

**State whether each of the following statements refers to site or situation.**

1. Pietermaritzburg is situated in a valley. **Situation**
2. Robertson is located to the south of the Langeberg Mountain range. **Site**
3. The River Thames flows through London. **Site**
4. The Indian Ocean lies to the east of Durban. **Site**

**RURAL AND URBAN SETTLEMENTS**

**RURAL SETTLEMENT**

**URBAN SETTLEMENT**
What is a rural settlement?

A rural settlement is a settlement on a farm. The people engage in a primary economic activity, namely, farming. Farming is carried out on a subsistence level or a commercial level. In subsistence farming, crops are grown and stock are reared for own use. In commercial farming, crops are grown and stock are reared for sale. Since a rural settlement has only one dominant function, it is termed *multifunctional*.

What is an urban settlement?

An urban settlement is a settlement in a town or city. Most of the people are engaged in secondary and tertiary economic activities. An urban settlement is therefore said to be *multifunctional*.

The main difference between a rural settlement and an urban settlement is functional in nature.

**Ruralite:** A person living in a rural area.

**Urbanite:** A person living in an urban area.

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<th>DIFFERENCES BETWEEN RURAL AND URBAN SETTLEMENTS</th>
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<tr>
<td><strong>Rural settlement</strong></td>
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<tr>
<td>settlement on a farm</td>
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<td>predominant economic activity is primary</td>
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<td>(farming); other activities include fishing,</td>
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<td>forestry and mining</td>
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<td>unifunctional settlement</td>
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<td>small population</td>
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<td>low population density</td>
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<td>low building density</td>
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<td>examples include isolated farmstead, hamlet</td>
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<tr>
<td>and village</td>
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<tr>
<td>settlement pattern is dispersed or nucleated</td>
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<td>have few services</td>
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<td>low degree of social differentiation</td>
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Primary economic activities: These are activities whereby people obtain their needs from the surface of the earth. They include farming, fishing, forestry, mining, quarrying and hunting.

Secondary economic activities: These are the manufacturing industries. They process and modify the primary product. In this way the utility and monetary value of the primary product is increased. This sector also includes the construction industry.
Tertiary economic activities: These are the non-producing activities. They ensure the smooth functioning of the primary and secondary activities. Firstly, they refer to the various institutions that render services to the community, for example, hospitals, schools, churches, supermarkets etc. These are known as service industries. They also refer to the various professional jobs, for example, doctors, lawyers, clerks, teachers etc. They also refer to the provision of electricity, water and transport.

Quaternary economic activities: These are highly specialized activities, for example, astronauts, people engaged in AIDS research etc. Globally, few people are engaged in this sector. This sector is not included in the gross domestic product (GDP) breakdown of the economy.

SETTLEMENT CLASSIFICATION ACCORDING TO SIZE, COMPLEXITY, PATTERN AND FUNCTION

Various criteria are used for the classification of settlements. They can be classified according to function (the most important type of economic activity in the settlement), size (the population of the settlement), pattern (the spacing and arrangement of buildings), or complexity (the type and number of services available).

CLASSIFICATION OF SETTLEMENTS ACCORDING TO SIZE

Settlements vary in size. Larger settlements have a larger population size. On the basis of size, the following settlement types may be identified. They are, in descending order of size:

megalopolis → conurbation → metropolis → city → town → village → hamlet → isolated farmstead

SCHEMATIC REPRESENTATION OF SETTLEMENTS ACCORDING TO SIZE
**Isolated farmstead**: The isolated farmstead is the smallest rural settlement unit. It consists of a single farmstead (farmhouse) which is far away (several kilometres) from other farmsteads. An isolated farmstead is represented on a topographical map by means of a small shaded rectangle.

**Hamlet**: A hamlet is larger than the isolated farmstead. It is a loose grouping of a few farmsteads.

**Village**: A village is the largest rural settlement unit. It is a grouping of many farmsteads or huts.
**Town:** A town is the smallest urban settlement.

**City:** A city is larger than a town.

**Metropolis**

A metropolis is a large city surrounded by several towns which are dependent on it. The metropolis is referred to as the “mother city” and the dependent towns are referred to as satellite towns. The towns are related to the metropolis functionally. The area served by the metropolis is known as a metropolitan area. There are three metropoles in South Africa, namely, Durban, Pretoria and Cape Town.

**Conurbation**

A conurbation is a large urban settlement formed when several towns and cities merge as a result of rapid urban expansion, for example, the Witwatersrand conurbation. The towns and cities in a conurbation are linked functionally as well as physically.

**Megalopolis**

A megalopolis is a very large urban settlement formed when several conurbations merge. A megalopolis is found along the eastern United States.

**Note:** The smaller the settlement, the greater the number of such settlements in an area. For example, there will be more towns than cities in a particular region.
CLASSIFICATION OF SETTLEMENTS ACCORDING TO COMPLEXITY

As the size of a settlement increases, a wider range of services is rendered. The services found in a rural settlement are very basic whilst those found in urban settlements are complex in nature.

An isolated farmstead has no services. A small church may be found in a hamlet. Services in a village include church, post office, shops for daily goods, primary school, village hall, barber and butcher.

A town will render a wider range of services than a village. Services in a town include doctor, several churches, cafes, restaurants, hotels, banks, hospital, railway station, bus station, hypermarkets, cinemas, primary school and secondary school. A city will have all the services found in a town. In addition, a city will have highly specialised services such as departmental stores, cathedral, opticians, jewelers, university, international airport, convention centre and sports stadium to host international games.

CLASSIFICATION OF SETTLEMENTS ACCORDING TO PATTERN

A settlement can be classified according to pattern. Pattern refers to the arrangement of buildings in a settlement. The pattern of a settlement may be dispersed or nucleated. In a dispersed pattern, the buildings are far apart. In a nucleated settlement, the buildings are clustered (close together). A rural settlement may be dispersed or nucleated. Urban settlements are nucleated.

CLASSIFICATION OF SETTLEMENTS ACCORDING TO FUNCTION

Function is the most important difference between a rural settlement and an urban settlement. A rural settlement is unifunctional. This means that there is one dominant function. People engage in a primary economic activity. The predominant activity is farming. Other primary economic activities practised in rural settlements are fishing, forestry, mining and hunting.

An urban settlement is multifunctional. This means that there are many functions in an urban settlement. People engage mainly in secondary, tertiary and quaternary economic activities.

FARMING IN A RURAL SETTLEMENT

MANUFACTURING IN AN URBAN SETTLEMENT
RURAL SETTLEMENTS

HOW SITE AND SITUATION AFFECT THE LOCATION OF RURAL SETTLEMENTS

Several factors influence the site and situation of a rural settlement. Sometimes there is one dominant factor that affects the choice of a site for a rural settlement.
**Defence sites**
- Rural settlements have developed in mountainous areas during times of unrest.
- Mountain and hilltop sites are easy to defend, for example, hilltop settlements in Italy.
- Sites inside a meander loop also provide an ideal defence site. The river meander provides protection from three sides.

**Water supply**
- The availability of water is the most important factor influencing the location of a rural settlement.
- Settlements prefer sites in high rainfall areas and along permanent rivers.
- Clean water is essential for drinking, cooking and washing.

**Wet point sites**
- In areas where there is a shortage of water, people settle around a permanent source of water, for example, around an oasis, well or spring.
- Such settlements are known as wet point settlements.

**Dry point sites**
- In some areas water poses a threat, for example, the danger of flooding along a river.
- As a result, settlements are located on higher ground away from the source of water on dry sites.
- Such settlements are known as dry point settlements.
Bridging point
- During ancient times settlements developed at sites where the river was shallow.
- This made it possible for people to cross the river easily.
- Such settlements are known as bridging point settlements or crossing point settlements.

Soil fertility
- Fertile soil is needed for successful crop farming.
- The flood plains of rivers are popular sites for the location of rural settlements.

Type of economic activity
- Soil fertility and availability of water play an important role in the choice of a site for a rural settlement where crop farming is practised.
- Where stock farming is practised, the availability of grazing land is an important site factor.

Availability of fuel
- This is an important site factor for the location of rural settlements in the less economically developed countries.
- Settlements locate in areas where wood is easily available.
- The wood serves as firewood for cooking and heating purposes.

Availability of building material
- This is also an important site factor for people in the less economically developed countries.
- Timber from forests, and stone are used as building material.
- Since the building material is bulky to be transported over long distances, settlements locate close to the source of the building material.

Aspect and shelter
- Aspect refers to the direction in which a slope faces in relation to the rays of the sun.
- Aspect determines the amount of sunlight reaching a slope.
- In the northern hemisphere, rural settlements outside the tropics will prefer a location on the warmer southward facing slope.
- In the southern hemisphere, a location on the northward facing slope is preferred.
- Sites at the foothills of mountains provide shelter from strong or cold winds.
Situational factors that influence the location of settlements

- nearness to the harbour especially where agricultural produce is export orientated
- closeness to urban centre which serves as a market for agricultural produce
- closeness to perennial rivers
- access to transport routes

CLASSIFICATION OF RURAL SETTLEMENTS ACCORDING TO PATTERN AND FUNCTION

CLASSIFICATION OF RURAL SETTLEMENTS ACCORDING TO PATTERN

The pattern of a rural settlement may be dispersed or nucleated. In a dispersed rural settlement, buildings are widely spaced. The isolated farmstead and the hamlet are classified as dispersed rural settlements. In a nucleated rural settlement, buildings are grouped close together. The village is a nucleated rural settlement.

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<th>DISPERSED SETTLEMENT</th>
<th>NUCLEATED SETTLEMENT</th>
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<td><img src="image1" alt="Dispersed Rural Settlement" /></td>
<td><img src="image2" alt="Nucleated Rural Settlement" /></td>
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<td><img src="image3" alt="Dispersed Rural Settlement" /></td>
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ADVANTAGES AND DISADVANTAGES OF DISPERSED AND NUCLEATED RURAL SETTLEMENTS

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from an economic point of view.
- Since the farm is a single continuous unit, machinery can be used on a large scale.
- This reduces the need for manual labour and hence the cost of production.
- Activities such as sowing, ploughing and harvesting are accelerated.
- The farmer is his "own boss". He is, therefore, free to innovate and experiment.
- Since the farmstead is generally centrally located, travelling distance is minimized. As a result labourers are more productive.

ADVANTAGES OF NUCLATED SETTLEMENTS
- The nucleated rural settlement is an advantage from a social point of view.
- The farmer lives and works with other farmers. Hence there is a great deal of social contact and integration.
- The farmers can exchange ideas, skills and information.
- Farmers are able to pool their resources.
- Certain basic services, for example, post office, church, shop etc. are available in a nucleated rural settlement. Therefore the farmer does not have to travel long distances to urban settlements to obtain these services.
- A nucleated rural settlement is an advantage from a safety point of view.

from a social point of view.
- The farmer lives and works in isolation. This can lead to boredom.
- It is a disadvantage from a safety point of view. The farmer has no security during times of unrest.
- There is no exchange of ideas, skills and information between farmers.
- There is no pooling of resources, for example, labour, machinery etc.
- The farmer has to travel long distances to purchase basic commodities.
- Essential services such as medical care and schools are far away.
- There is a lack of security.

DISADVANTAGES OF NUCLATED SETTLEMENTS
- A nucleated rural settlement is a disadvantage from an economic point of view.
- Since the farms are small and scattered, machinery cannot be used on a large scale. Therefore the farmer depends mainly on manual labour. This increases the cost of production.
- A lot of time is spent on travelling. This has a negative effect on production since labourers are less productive.
- The farmer cannot make his own decisions with regard to agricultural practices. He is often bound by group decisions to which he has to conform.

REASONS FOR THE DEVELOPMENT OF DISPERSED AND NUCLATED RURAL SETTLEMENTS

Several factors are responsible for the pattern of a rural settlement. Some of these are physical factors whilst others are socio-economic factors.

Relief
- Dispersed rural settlements generally develop in mountainous areas because arable land is limited.
- Nucleated rural settlements develop on level plains since arable land is abundant.
- Stock farming is the main activity in mountainous areas. Therefore each farmer requires a large piece of grazing land and this results in a dispersed pattern.

Water supply
- In areas where water is readily available everywhere, a dispersed rural settlement will develop.
• In areas where there is a shortage of water, people establish settlements around a source of water, for example, an oasis, well, or spring. Such settlements are generally nucleated and are known as wet point settlements.
• Nucleated rural settlements with a linear shape develop along rivers.

**Soil fertility**
- In areas where the soil is infertile, the yield per hectare is low. Therefore each farmer needs a large plot on which to farm. This results in a dispersed rural pattern.
- In areas where the soil is fertile, the yield per hectare is high. Therefore the farmer can manage on a small plot. These farmers live together in villages and this results in a nucleated pattern.

**Transport routes**
- Nucleated rural settlements develop along transport routes and at cross roads.
- Nucleated rural settlements also develop at bridging points.

**Landownership**
- There are two types of landownership, namely, private ownership and communal ownership.
- Private ownership results in a dispersed rural pattern since each farmer lives and works on his farm. This pattern is common amongst the South African Whites.
- Communal ownership is associated with a nucleated pattern. Since the land belongs to a number of individuals, people live in villages and farm the common land around the village. This pattern is common amongst the South African Blacks.
- With the redistribution of land and the restitution of land in South Africa, the settlement pattern amongst the Blacks is likely to change.

**Political factor**
- In a democratic country, all individuals have the right to own land. This results in a dispersed rural pattern.
- In communist (socialist) countries, everything belongs to the state. People live in villages and farm the land around the village. Communism, therefore, is associated with a nucleated rural settlement pattern, for example, communal farms in Russia and the kibbutz in Israel.

**Religion**
- In certain areas, people belonging to a particular religion prefer to live and work together. This results in nucleated rural settlements.

**Tradition**
- People having similar customs and beliefs live and work together in nucleated rural settlements.
Safety factor

- During times of unrest, people prefer to live in nucleated rural settlements.
- During peaceful times, dispersed rural settlements develop.
- Nucleated settlements developed on hill tops because these sites are easy to defend.
- Nucleated settlements also developed inside meander loops.

Type of economic activity

- Commercial crop farming is usually associated with dispersed rural settlements.
- Subsistence farming is associated with nucleated rural settlements.
- Commercial stock farming is associated with dispersed rural settlements because the farms are very large, for example, the sheep farms in the Karoo.

FUNCTIONS OF RURAL SETTLEMENTS

Rural settlements are unifunctional. The main functions of rural settlements include:
- the commercial production of agricultural goods for the local population, urban markets and for export
- the provision of certain basic services such as church, shop and post office for the rural inhabitants
- rural settlements with a defence site provide security
- rural settlements located at cross roads and bridging points encourage trade
- tourism is also a function of some rural settlements, for example, the vineyards in the Western Cape

REASONS FOR DIFFERENT SHAPES OF RURAL SETTLEMENTS: ROUND, LINEAR, T-SHAPED, CROSS ROAD

Round (Circular or Square)

- Round settlements develop around a permanent source of water, for example, spring, well or oasis.
- Round settlements also develop around a church, village green or market square.
- Many Zulu villages form a circular pattern around a kraal which is centrally located.
- Hill top settlements have a round or square shape.

**Linear (Ribbon)**

- Linear villages (also known as “street villages”) develop along a road, railway line, river, river terrace, canal, dyke or natural levee.
- A linear pattern can also develop at the foot of a mountain range.

**T - Shaped**

- T - shaped rural settlements develop where two roads form a T - junction.

**Cross roads**
- Cross road settlements occur at the intersection of roads.
- They are star-shaped.
- They also develop at bridging points.

**LAND USE IN RURAL SETTLEMENTS**

The land use in a rural settlement depends mainly on the type of agricultural activity. Rural land uses include the following.

- Rural settlements provide **housing** for the local people. The provision of housing is a residential land use.
- Larger rural settlements may have the following land uses: church, shop, barber, post office and primary school.
- Some rural settlements have a **dormitory function**. They provide accommodation for migrant workers.
- **Subsistence farming** is associated with small scale farming. Crops are grown and stock are reared for own use.
- **Commercial farming** involves large scale farming. Crops are grown and stock are reared for sale.
- Land in a rural settlement can be used **extensively** or **intensively**.
- In areas where soil is **infertile**, large areas are used for agricultural production since the yield per hectare is low. This is known as **extensive farming**.
- In areas where soil is **fertile**, small farms are needed for agricultural production since the yield per hectare is high. This is known as **intensive farming**.
- In areas where **cattle farming** is the main activity, the following land uses are provided on the farm: stables, stock pens, silos, haystacks, milking sheds etc.
- If **crop farming** is the main activity, there must be **storage space** for the farm produce, and **sheds** for the storage of farm implements and chemicals.
- A vineyard may have a **wine cellar**.

![Subsistence Farming](image1)

![Commercial Farming](image2)
**RURAL SETTLEMENT ISSUES**

**RURAL - URBAN MIGRATION**

The cycle of poverty in rural areas has led to *rural - urban migration*. Rural - urban migration refers to the movement of people from *rural areas* (farm areas) to *urban areas* (towns and cities). People move with the hope of finding a better life in urban areas. Rural - urban migration has resulted in *rural depopulation* and *urbanisation*.

*Rural depopulation:* Refers to the decrease in the population of the rural areas.

*Urbanisation:* Refers to the percentage increase in the population of the urban areas.

The cartoons below depict rural - urban migration.
CAUSES AND CONSEQUENCES OF RURAL DEPOPULATION ON PEOPLE AND THE ECONOMY

CAUSES OF RURAL DEPOPULATION

Rural - urban migration is the result of pull (centripetal) factors operating in urban areas and push (centrifugal) factors operating in the rural areas. Pull factors are positive factors that attract people to towns and cities, for example, permanent jobs. Push factors are negative factors that force people to move out of rural areas, for example, drought.
### Causes of Rural Depopulation

**Push Factors**
- Unemployment caused by drought
- Unemployment caused by the mechanization of agriculture
- Consolidation of farms
- Low production prices
- Rising operation costs
- Lack of medical and health services
- Lack of proper housing, sanitation and piped water
- Low wages
- Few or no schools
- Poverty
- People are displaced as a result of natural disasters such as drought and flood
- Unrest and the lack of security
- Food insecurity
- Limited services
- Inadequate social amenities and facilities
- Reduced agricultural production as a result of soil erosion

**Pull Factors**
- More job opportunities
- Higher salaries and wages
- Jobs are more permanent
- Greater scope for promotion
- Superior social amenities and entertainment ("bright lights")
- Educational facilities (high schools, universities, technicons, training colleges etc.)
- Better housing
- Availability of clean and pure water
- Availability of proper sanitation
- Efficient transport system
- Availability of health and medical services

### Consequences (Effects) of Rural Depopulation

- The population of the rural area decreases. This has caused an uneven distribution of the South African population.
- Certain basic services such as schools and shops close down because of the decrease in population which causes reduced spending.
- Residents have to travel long distances to meet their educational, medical and consumer needs.
- "Ghost towns" develop in rural areas because the rural population is too small to service these towns. This leads to further unemployment.
- Resources in rural areas remain unused and underutilized.
- Agricultural production in the rural areas decreases. This leads to food insecurity.
- There is an ageing of population in the rural areas. This impacts negatively on agricultural production because agriculture is left in the hands of the elderly people. The ageing population also contributes to a decrease in the natural growth of population.
- Decreased population leads to loss of rural bus routes. As a result these roads are no longer maintained.
- The standard of living decreases.
- Rural depopulation leads to serious emotional trauma for the aged left behind by youths.
- Rural depopulation results in the cycle of rural decline as illustrated below.

CASE STUDY THAT ILLUSTRATES EFFECTS OF RURAL DEPOPULATION AND STRATEGIES TO ADDRESS THEM

CASE STUDY - RURAL DEPOPULATION IN LIMPOPO PROVINCE

Limpopo is the northernmost province of South Africa, having international borders with Botswana, Mozambique and Zimbabwe. The southern border of the province neighbours on Gauteng, Mpumalanga and North West. It makes up 10, 2% of the country’s total land area. It is one of the poorest regions of South Africa.

The population of the Limpopo province is 5, 5 million. Women make up 54, 6% of the total population whilst men make up 45, 4% of the population. The youth make up about 40% of the total population. The unemployment rate is 48, 8%. The province experiences large scale rural - urban migration with the result that skilled people leave the province in search of greener pastures. About 250 000 people, mostly aged between 20 - 30 years, have moved to Gauteng which is 200 kilometres away. Most people move to the cities of Johannesburg, Pretoria and Soweto. Another challenge is the large number of illegal immigrants in the province.
WHY DO PEOPLE LEAVE LIMPOPO?

Push factors in Limpopo
- Few houses have electricity.
- Poor job opportunities.
- Lack of money - most people earn less than R1000 a month.
- Most people do not own a TV, computer or cooker.
- Low quality of life.
- Mostly farmers on small farms that do not make much money.
- Rainfall is unpredictable which leads to variations in crop yields.

Pull factors in Johannesburg
- Better job prospects.
- Average earnings of R7000 a month.
- Better quality of life.
- Better schools.
- Better health care.
- Higher ownership of goods such as TV, computer and cookers.

STRATEGIES TO ADDRESS RURAL DEPOPULATION IN LIMPOPO PROVINCE
- Development of irrigation schemes.
- The provision of piped water and proper sanitation.
- Development of country towns so that ruralites do not have to travel long distances to obtain services.
- The system of subsistence farming must gradually give way to commercial farming.
- Establishment of more schools in the rural areas.
- The provision of state subsidies to support agricultural development.
- The consolidation of farm units.
- The resettlement of people in agriculturally suitable areas.
- The development of labour intensive industries at strategic growth points in rural areas in order to create maximum job opportunities.
- Development of the infrastructure.
SOCIAL JUSTICE ISSUES ASSOCIATED WITH RURAL AREAS -
ACCESS TO RESOURCES, AND LAND REFORM

ACCESS TO RESOURCES

South Africa has vast natural resources. During the apartheid era, these resources were mainly accessible to the White minority. The Blacks were located in the so-called homelands where resources were limited. The generally infertile soil in these areas forced people to engage in subsistence farming. This often resulted in food insecurity. The large population densities in these confined areas resulted in the overutilization of resources. In order to ensure that there is social justice in rural areas, the government is undertaking major rural development projects. The development of small scale commercial farming, creation of jobs, the provision of proper sanitation, piped water, electricity, housing, medical and health services are the primary objectives of such projects.
LAND REFORM

"100 years ago on this day the most notorious Land Act of 1913 passed by the all-white Parliament of South Africa came into operation. This act was a culmination of gross injustice against the indigenous people of our land. It is an injustice that is the root cause of the poverty and inequalities that deface our country even to this day."

President Jacob Zuma: 19 June 2013

Poverty is the single greatest burden of South Africa’s people, and is the direct result of the apartheid system. It is estimated that that there are at least 17 million people surviving below the Minimum Living Level in South Africa, and of these at least 11 million live in rural areas. The greatest need, therefore, for developing programmes to meet basic needs, lies in the rural areas. Land is the most basic need for rural dwellers. Access to land is a fundamental human right.

The year 2013 marks 100 years since the Natives Land Act of 1913 was passed in South Africa. The act became law on 19 June 1913 limiting Black land ownership to 7% which later increased to 13% through the 1936 Native Trust and Land Act of South Africa. The act restricted Black people from buying or occupying land except as employees of a White master. It however gave White people ownership of 87% of land and leaving Black people to scramble for a mere 13%.

During the apartheid era land was dispossessed from Black farmers. Blacks were regarded as a source of cheap labour that could be employed on White commercial farms. The plight of millions of Black landless people in the rural areas is now being addressed through the implementation of a national land reform programme. The programme was initiated in 1994 by the African National Congress (ANC) to redress historical injustices. The land reform programme has three aspects: land redistribution, land restitution, and land tenure reform. Land redistribution involves the transfer of agricultural land to Black people who cannot afford it. The land is purchased by the state. Land restitution refers to the transfer of land to Black people who lost land because of apartheid laws and forced removals. Land tenure reform addresses the insecurity of farm workers, labour tenants and people living on land owned by others. The aim of the land reform programme is to alleviate poverty and improve the quality of life of rural people. The land reform programme will result in the emergence of more and more Black commercial farmers.

The ANC pledged to redistribute 30% of White-owned agricultural land to Black farmers by 1999, and to restitute property lost as a result of racist legislation. By 2012, some 7, 95 million hectares had been transferred, only about a third of the 24, 6 million hectares originally targeted. In 1996, two years after the end of apartheid, some 60 000 White commercial farmers owned almost 70% of land classified as agricultural.

The slow progress of land redistribution and high cost of land restitution have been blamed on the principle of “willing seller, willing buyer” (WSWB). In the absence
of compulsion, most landowners have been reluctant to sell to the state. Collusion between sellers, land valuers and government officials - and instances of corruption - have inflated market prices and made purchases very expensive.

WSWB has now been abandoned and replaced by expropriation with “just and equitable” compensation, as is sanctioned by the South African Constitution. It is hoped that this will speed up the process of land reform. Complex legal issues present further obstacles to land reform.

**compensation**: something that is given to a person to make up for a loss

**expropriation**: the forced confiscation of private property

**willing seller / willing buyer**: both the seller and the buyer of the land agree to the terms and conditions of sale
URBAN SETTLEMENTS

THE ORIGIN AND DEVELOPMENT OF URBAN SETTLEMENTS - URBANISATION OF THE WORLD POPULATION

THE ORIGIN AND DEVELOPMENT OF URBAN SETTLEMENTS

- Prior to modern times most settlements were rural.
- The first urban settlements occurred when one member of an agricultural village focused totally on non-primary production activity.
- Cities in ancient times were mostly associated with the formation of the state.
- Urban settlements began approximately 7000 years ago. This was the so-called formative stage. Cities and their states were beginning to develop in the Tigris and Euphrates’ basins, the Indus Valley, the Nile Valley and the great valleys of China.
- The Roman Empire established massive urban centres between 200 BC and 400 AD.
- The industrial city developed in the nineteenth century.
- Present day cities have several functions. Some have a specialised function.
**What is urbanisation?** Urbanisation is a process whereby an increasing percentage of the total population of a region or country lives in urban areas. The table below illustrates this concept.

<table>
<thead>
<tr>
<th>Year</th>
<th>Urban Population</th>
<th>Rural Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>2012</td>
<td>65%</td>
<td>35%</td>
</tr>
</tbody>
</table>

The urbanisation of the world population is taking place at a rapid pace. In 1800, only 2% of the world’s population was urbanized. In 1950, the figure increased to 30%. In 2000, 47% of the world’s population was living in urban settlements. Presently more than 50% of the world’s population is urbanized. By the year 2030, 60% of the world’s population will live in urban areas. It is predicted that by 2050, 64, 1% of the population of the developing world and 85, 9% of the population of the developed world will be urbanized. The graph below shows the urbanisation of the world population.

**PERCENTAGE OF WORLD POPULATION: URBAN AND RURAL**

**Level of urbanisation:** Refers to the percentage of the total population of a country or region that lives in urban areas. Suppose the level of urbanisation for a certain country is 80%. This means that 80% of the total population of the country lives in urban areas whilst 20% lives in rural areas.

**Rate of urbanisation:** Refers to the percentage by which the urban population increases from year to year. Suppose the level of urbanisation for a specific country was 70% in 2000 and 72% in 2012. The rate of urbanisation is 2%.

**Comparison of urbanisation in developed and developing countries**

- In a developing country, the level of urbanisation is low whilst in a developed country the level of urbanisation is high.
- In a developed country, the rate of urbanisation is low whilst in a developing country the rate of urbanisation is high.

**Stages of urbanisation**
The graph below shows the different stages of urbanisation. Countries may be in different stages of urbanisation as shown in the model below.

![Urbanisation Stages Graph](image)

The graph shows that urbanisation in a particular country progresses through three stages.

- An **initial stage** characterized by a low level of urbanisation.
- An **acceleration phase** characterized by a sharp increase in the level of urbanisation.
- A **saturation phase** characterized by a gradual leveling of the urbanisation curve.

**Counter urbanisation:** Refers to the movement of people from major cities to smaller urban settlements and rural areas. Suggest a few reasons for this trend.

**What is urban growth?** Urban growth refers to an absolute increase in the number of urban inhabitants. The table below illustrates this concept.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>URBAN POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>920 000</td>
</tr>
<tr>
<td>2012</td>
<td>964 000</td>
</tr>
</tbody>
</table>

**What is urban expansion?** Urban expansion refers to the physical or areal growth of a town or city. In other words the area covered by a town or city increases in size. Suggest possible reasons for urban expansion.
The sketches below illustrate this concept.
**What is urban sprawl?** Urban sprawl refers to the formless expansion of a residential area on the boundary of an urban settlement. The sketches below illustrate this.
HOW SITE AND SITUATION AFFECT THE LOCATION OF URBAN SETTLEMENTS

Several factors affect the location of an urban settlement. In the past, physical factors played an important role. Today socio-economic and political factors are more important.

PHYSICAL FACTORS

Water supply
- Urban settlements locate near sources of reliable water supply.
- Water is needed for domestic use by the urban dwellers and for industrial activity.

Nature of the soil
- Areas underlain by clay, shale and peat soils are unsuitable for urban development.
- They cause foundations of buildings to shift and walls to crack.

Nature of underlying rocks
- The underlying rock structure must be solid.
- This will provide a firm support for multistoreyed buildings.
- The underlying rock structure must be stable without any faulting, earthquake activity or volcanic activity.

Relief
- Steep slopes are avoided because they are too costly to develop and restrict horizontal expansion.
- Urban settlements locate in areas where ample flat land is available.
- Flat relief facilitates the construction of buildings, roads and railways.

Drainage
- Areas that are prone to flooding are avoided.

Aspect of a slope
- In the northern hemisphere, urban settlements are generally located on the warmer southward facing slopes.
- In the southern hemisphere, settlements are generally located on the northward facing slopes.
**Socio-economic factors**

**Defence**
- This was an important factor in the past.
- Many towns developed on hilltops and mountain tops because these sites are easy to defend.
- Sites inside meander loops and on islands also provide protection.

**Transport routes**
- Urban settlements develop at road junctions, bridging points, near the entrance of mountain passes and along navigable rivers.

**Harbours**
- A location along harbours favours trade.
- Harbour locations favour the import and export of goods.
- Harbour locations also promote tourism.

**Resources**
- The availability of mineral resources such as gold, coal, iron ore and diamonds led to the development of mining and industrial towns.

*The situation of an urban settlement is mainly determined by the nature of its main function. Situation factors include the following:*

- Nearness to water supply.
- Nearness to raw materials.
- Nearness to power supply.
- Nearness to labour.
- Nearness to markets.
- Nearness to harbour.

**Classification of urban settlements according to function: Central places, trade and transport, break of bulk points, specialised cities, junction towns and gateway/gap towns**

All urban settlements are multifunctional. However they can be classified according to their main function.

**Classification of urban settlements according to function**

| Central place | A central place is a town or city that provides urban functions to the surrounding rural area. The surrounding |
Trade and transport settlements

These usually develop along roads, railway lines, canals, navigable rivers and at the junctions of transport routes and rivers. Examples of trade and transport settlements are break of bulk points, junction towns and gateway/gap towns.

Break of bulk points

The most common location for a transport city is at a break of bulk point. This is a point where one type of transport is replaced by another. Towns and cities located along harbours are examples, for example, Durban, Cape Town, Port Elizabeth and East London. At the harbour goods can be loaded from road and rail transport onto ocean transport and vice versa.

Specialised cities

These urban settlements have one dominant (main) function. They include manufacturing cities, mining towns, holiday resorts and dormitory towns. The location of these towns is determined by the presence of natural resources such as fish, minerals, sources of energy, wildlife, attractive and safe beaches. Examples of specialised towns are Newcastle (mining town), Richards Bay (industrial town),
<table>
<thead>
<tr>
<th>Junction towns</th>
<th>Simonstown (military town), St Lucia (holiday resort town) and Sishen (dormitory town).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway / Gap towns</td>
<td>These towns develop at the junction of transport routes and navigable rivers. They also occur at bridging points. De Aar is an example of a junction town located at the intersection of several railway lines.</td>
</tr>
<tr>
<td>Gateway / Gap towns</td>
<td>Transport towns also develop near gateways through a mountain, for example, Worcester. These towns have a high degree of nodality since several transport routes pass through them. They are also known as gap towns.</td>
</tr>
</tbody>
</table>
URBAN HIERARCHIES

THE CONCEPTS OF URBAN HIERARCHY, CENTRAL PLACE, THRESHOLD POPULATION, SPHERE OF INFLUENCE AND RANGE OF GOODS

URBAN HIERARCHY

Urban hierarchy refers to the grading and classification of urban settlements according to size, population and number of functions. On the basis of this, the following urban settlements may be identified. They are arranged in ascending order of size (smallest to largest).

- town
- city
- metropolis
- conurbation
- megalopolis

The sketch below illustrates the hierarchy of urban settlements. The hierarchy has a pyramidal shape.

- As the size of the urban settlement increases, the population and the number of functions also increases.
- The megalopolis is at the top of the hierarchy whilst the town is at the bottom of the hierarchy.
- The smaller the urban settlement, the greater the number of such settlements in a country. For example, there will be more towns than cities in a particular country.
- The smaller urban settlements are closely spaced whilst the larger urban settlements are more widely spaced.
- The larger urban settlements will provide all the functions found in the smaller urban settlements in addition to highly specialised functions. For example, a city will provide all the functions found in a town in addition to a variety of highly specialised functions and services.

**CENTRAL PLACE**

A central place is a **town or city** that provides urban functions to the **surrounding rural area**. The sketch below illustrates the location of central places in relation to the surrounding rural area.

![Central Place Diagram]

**Central place theory**

The central place theory was developed by Walter Christaller. The theory explains the **number, size and distribution** of central places. According to Christaller, central places of the same size would be equidistant from each other, and the surrounding area (**market area**) would take the shape of a **hexagon**. An ideal market area would be a circle because it minimizes the distance from the centre to the edge. Christaller rejected a circular market area because it leads to **gaps** and **overlaps**. Gaps (sketch A) result in areas not served by any central place, whilst overlaps (sketch B) result in areas served by more than one central place. Hexagons (sketch C) fit together without gaps and overlaps. The sketches below illustrate gaps, overlaps and hexagons.

![Gaps, Overlaps and Hexagons Diagrams]
A hierarchy of central places occurs in Christaller's model. The sketch below shows the relationship between smaller and larger central places and their market areas.

A: city  
B: town  
C: village

- The larger the central place, the fewer the number, for example, there are many villages but few towns.
- The larger the central place, the greater the distance between them.
- The larger the central place, the larger the market area.

**Threshold Population**

The threshold population refers to the minimum number of customers required to support a particular function or service so that it operates profitably. If the number of customers falls below the minimum number, then the service will operate at a loss and will have to shut down. Convenience goods such as bread and milk require a low threshold population whilst comparison goods such as furniture and motor vehicles require a large threshold population.

**Suppose the threshold population for a furniture shop is 5000.**

This means that:
- The minimum number of customers required to support this furniture shop is 5000.
- If the number of customers is less than 5000, then the furniture shop will operate at a loss.
- If the number of customers is in excess of 5000, then the furniture shop will make a larger profit.
SPHERE OF INFLUENCE

The sphere of influence refers to the surrounding area from which a business, service or settlement draws its customers. Convenience goods have a smaller sphere of influence than comparison goods. The ideal shape of the sphere of influence would be circular because such a shape minimizes travelling distance from all directions. In reality the sphere of influence is irregular in shape as shown in the sketch below.

![Sphere of Influence Diagram]

The following factors are responsible for an irregular shaped sphere of influence:
- uneven distribution of population
- topographical irregularities
- personal preference
- location along the coast
- political boundaries
- difference in price of items

RANGE OF GOODS

Range is the **maximum distance** a person is prepared to travel in order to obtain a particular service or item. Consumer goods have a small range whilst comparison goods have a bigger range. The factors that determine the range of a particular service are the **price** of the item and the **frequency** at which the item is required. The sketch below illustrates the concept of range. Note that the threshold population is normally found within the range.

![Range Diagram]
DIFFERENCES BETWEEN LOW ORDER AND HIGH ORDER FUNCTIONS AND SERVICES

LOW ORDER GOODS
- Required frequently.
- Are relatively cheap.
- Require a low threshold population.
- Have a small range.
- Have a small sphere of influence.
- Also known as convenience goods such as bread and milk.

HIGH ORDER GOODS
- Required less frequently.
- Are expensive.
- Require a high threshold population.
- Have a big range.
- Have a large sphere of influence.
- Also known as comparison goods such as furniture and motor car.

Apply your theoretical knowledge of threshold population and range to work out the following.
Complete the table below by placing a tick in the appropriate block. In the last column rank the services from highest order to lowest order (1 - 7).

<table>
<thead>
<tr>
<th>Service/Item</th>
<th>High threshold population</th>
<th>Low threshold population</th>
<th>Big range</th>
<th>Small range</th>
<th>Ranking of service/item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Practitioner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart surgeon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groceries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dentist</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analysis of shopping behaviour patterns

[Diagram of city, town, and village with desire line and travel for food]
The following information may be gathered from the above sketch. People generally travel a short distance to purchase food, for example, people living around the village buy their food from the village whilst people living around the town buy their food from the town. This is so because food is a relatively cheap item and is required frequently. However, customer A displays an abnormal shopping behaviour. He does not purchase his food from the nearest service centre but travels a long distance to obtain it. This shopping behaviour may be the result of the following reasons:

- personal preference
- the items may be cheap
- service efficiency
- availability of credit services
- free delivery of goods
- the customer may be commuting with this centre on a daily basis

**NB. A desire line indicates the actual place where a customer obtains a service.**

Let us analyse the following sketch showing distance traveled by customers to purchase clothing.

The following information may be gathered from the above sketch. People generally travel a longer distance to purchase clothing. None of the customers purchase clothing from the village. This is so because clothing is a high order service and is therefore not available in the village. People travel a greater distance to purchase clothing because it is required less frequently and is an expensive item. Most of the people purchase their clothing from the city because:

- a wider range of clothing is available
- city stores stock the latest range of clothing
- availability of superior quality clothing
- prices are cheaper because of competition between stores

**LOWER AND HIGHER ORDER CENTRES**

Low order centres provide low order goods and services. These centres require a small threshold population and have a small range. They occur in larger numbers.

High order centres provide high order goods and services. These centres require a large threshold population and have a big range. They occur in smaller numbers since
they service a large area. The graph below shows the hierarchy of functions and services.
URBAN STRUCTURE AND PATTERNS

INTERNAL STRUCTURE AND PATTERNS OF URBAN SETTLEMENTS
Urban land use means that the land in a town or city is used for different purposes or functions. Each functional area is known as a land use zone.

**Categories of land use zones**

The four important land use zones in an urban settlement are: commercial zone, residential zone, industrial zone, and transitional zone.

**THE COMMERCIAL ZONE**

Various types of commercial zones occur within a major urban settlement. The sketch below illustrates these.

---

**Central Business District (CBD):** This is the commercial heart of the city.

**Outlying Business District (OBD):** These are located at important street junctions or in areas where the population density is exceptionally high. Only the CBD is larger and more important than the OBD. The OBD serves a relatively large area. They offer both low and high order goods.

**Isolated Store Clusters:** These consist of a few small shops and are found in most residential areas. The clusters provide low order convenience goods.

**Commercial Ribbon Development:** These refer to shops that develop along important transport routes in a linear manner. The shops depend mainly on passing trade.

**Neighbourhood Shopping Centre:** This is a planned shopping centre. It houses a large number of shops under one roof. It is situated some distance away from the CBD in the sub-urban area.
Regional Shopping Centre: This is also a planned shopping centre but is far larger than the neighbourhood shopping centre. They are often located outside the built-up area.

THE CENTRAL BUSINESS DISTRICT

THE CBD OF JOHANNESBURG

- The CBD is the commercial heart of the city.
- It is centrally located.
- Roads from different directions converge in the CBD.
- It is the zone of maximum accessibility.
- It is the zone with the tallest buildings (As one moves away from the CBD, the height of buildings decreases).
- Land in the CBD is used intensively (What is the meaning of this?).
- Land in the CBD is very expensive.
- The building plots are small.
- It is the zone with the highest building density (This means that the buildings are very close to one another. As one moves away from the CBD, the building density decreases).
- The CBD has a large day population because:
  - A large number of people work in the CBD.
  - It is the main shopping area in a town or city.
  - It is the main entertainment centre.
  - A large number of informal traders are found in the CBD.
- The two major problems in the CBD are traffic congestion and pedestrian congestion.
- It has a grid iron street pattern.
- Retail concerns are found in the core of the CBD whilst wholesale concerns are found on the fringe of the CBD.
- The CBD renders the following functions: retail, wholesale, entertainment, accommodation, administrative and financial
- D is a **middle class residential zone** because it occupies an intermediate (middle) position.

### CHARACTERISTICS OF THE RESIDENTIAL ZONE

<table>
<thead>
<tr>
<th>HIGH INCOME</th>
<th>MIDDLE INCOME</th>
<th>LOW INCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
</tbody>
</table>

- The building plots are large.
- The houses are large with different architectural designs.
- The housing density is low. (This means that the houses are widely spaced.)
- Located far away from the CBD.
- Located far away from heavy industries.
- Large open spaces with gardens are found between the houses.
- Recreational facilities are adequate.
- Occupy land with good view site, for example, land along the coast, elevated land etc.
- Residential area with the highest land value.
- Generally has a planned irregular street pattern.

- Occupy an intermediate location.
- Houses are of medium size with different architectural designs.
- Many people live in duplexes or semi-detached dwellings.
- Residential area with medium land value.
- Street pattern may be grid iron or planned irregular.

- The building plots are small.
- The housing density is high.
- All the houses have the same architectural design.
- Houses are small and appear in rows.
- Located close to the CBD.
- Very little open space between the houses.
- May be located close to heavy industries.
- Recreational facilities are inadequate.
- Often occupy land that is unattractive or undesirable
- Residential area with the lowest land value.
- Generally associated with grid iron street pattern.

---

**INFORMAL HOUSING (SQUATTER SETTLEMENTS)**

![Image](image4.png)
Informal settlements develop as a result of shortages in formal housing. These shanty towns develop on the boundary of urban settlements. The dwellings are constructed from plastic, tin, cardboard, timber etc. In most informal settlements, basic services such as piped water, electricity and toilets are not available. A large number of these squatters occupy land illegally. This phenomenon is typical of Third World countries. The following factors are responsible for the emergence of squatter settlements.

- unemployment
- poverty
- unrest in rural areas
- droughts and floods
- warfare

THE TRANSITIONAL ZONE

- Located on the fringe (edge) of the CBD.
- Buildings are old and dilapidated. It is therefore referred to as the zone of decay.
- There is also social and moral decay in this area, namely, overcrowding, unemployment, crime, prostitution etc.
- There is a mixture of different functions in this zone, namely, low class residential, light industrial and commercial. It is therefore referred to as a mixed zone.
- There is also an intermingling of different racial groups.
- As the CBD expands into this zone, the old buildings are demolished and replaced by new structures. This process is known as invasion and succession. The mixed functions are replaced by more and more commercial functions. As a result the transition zone is also referred to as a zone of change.
- The land value is fairly high since it is located close to the CBD.
- High density housing - mainly terraced.
- Few amenities found in this zone.
- Rental is cheap.
- This zone is also known as the blight zone, twilight zone or inner city.
THE INDUSTRIAL ZONE

Types of industrial zones: There are two types of industrial zones in an urban settlement, namely, heavy industrial zone and light industrial zone.

Location of industrial zones: Heavy and light industries occupy specific locations within an urban area. The sketch below illustrates this.

- A on the sketch represents a light industrial zone since it is located close to the CBD.
- B on the sketch represents a heavy industrial zone since it is located far away from the CBD.

<table>
<thead>
<tr>
<th>CHARACTERISTICS OF THE INDUSTRIAL ZONE</th>
<th>HEAVY INDUSTRY</th>
<th>LIGHT INDUSTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![Heavy Industry Image]</td>
<td>![Light Industry Image]</td>
</tr>
<tr>
<td>Consume large quantities of heavy and bulky raw material.</td>
<td>Located in or near the CBD.</td>
<td></td>
</tr>
<tr>
<td>Located far away from the CBD.</td>
<td>Buildings may be multi - storeyed.</td>
<td></td>
</tr>
<tr>
<td>Located far away from the high income residential zone.</td>
<td>Occupy less ground space.</td>
<td></td>
</tr>
<tr>
<td>Buildings are mostly single storeyed and elongated.</td>
<td>Factories are generally small.</td>
<td></td>
</tr>
<tr>
<td>Buildings occupy large ground space.</td>
<td>Depend mainly on road transport.</td>
<td></td>
</tr>
<tr>
<td>Some buildings have a saw - tooth roof.</td>
<td>Consume less water, less power, and fewer raw materials.</td>
<td></td>
</tr>
<tr>
<td>They cause noise and air pollution.</td>
<td>Sometimes located near a low class residential area - easy access to labour.</td>
<td></td>
</tr>
<tr>
<td>Factories have chimneys.</td>
<td>Do not cause noise and air pollution.</td>
<td></td>
</tr>
<tr>
<td>Depend mainly on rail transport.</td>
<td>Produce goods that are light.</td>
<td></td>
</tr>
<tr>
<td>Consume a lot of water and electricity.</td>
<td>Occupy land that is expensive.</td>
<td></td>
</tr>
<tr>
<td>Occupy land that is relatively cheap.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
THE RURAL - URBAN FRINGE

The rural - urban fringe is a zone on the boundary of an urban settlement where there is an intermingling (mixing) of urban and rural functions. Functions in this zone include agriculture, heavy industrial, airports, landfill sites, golf course, sewerage disposal works, bypasses and park and ride sites. The photograph below shows the rural - urban fringe.

FACTORS THAT INFLUENCE THE LOCATION OF LAND USE ZONES

Several factors influence the location of land uses in an urban settlement.

ACCESSIBILITY
- Accessibility refers to the ease with which one place can be reached from another.
- Commercial functions are located in the city centre (CBD) because they require a high degree of accessibility.
- Commercial functions also develop at road junctions and along important transport routes.
- The degree of accessibility decreases as one moves away from the city centre. Therefore functions that do not require high degrees of accessibility are located far away from the city centre, for example, industrial, residential, waste disposal etc.

LAND VALUES
- The highest land value occurs in the city centre.
- Commercial functions are located here because they can afford the high land value.
- Land value decreases with distance from the city centre.
- Functions that cannot afford the high land value are located away from the city centre, for example, residential, recreational and heavy industrial.
- Land value is also high at road junctions and along important transport routes. These areas also attract commercial functions.
- Land with good view site is expensive and is therefore occupied by high class residential.

**SPECIALISED REQUIREMENTS**
- Different functions have different specialised requirements.
- The specialised requirement for commercial functions is accessibility.
- Specialised requirements for high income residential zones include: land with good view site, a location away from the CBD, a location away from the heavy industrial zone.
- Specialised requirements for heavy industrial development include: flat cheap land, access to rail transport, power, raw materials and water.

**COMPATIBILITY**
- Certain functions attract one another whilst other functions repel each other.
- Land uses that attract each other can exist side by side whilst land uses that repel each other are located far away from each other.
- The CBD and the heavy industrial zone are highly incompatible and are therefore located far away from each other.
- Similarly the high class identical zone and the heavy industrial zone are not compatible.

**PLANNING**
- In a planned city, the various land use zones display a logical distribution.
- In cities that are unplanned, the land use zones display a haphazard pattern.
- In South Africa, planning was also influenced by government policy. This resulted in residential segregation based on ethnic differences.

**CENTRIFUGAL FORCES**
- These forces cause certain functions to move away from the city centre and locate on the outskirts.
- They include push factors such as traffic congestion and high land values in the city centre, and pull factors such as cheap land and clean air on the outskirts of the city.

**CENTRIPETAL FORCES**
- These forces attract certain functions to a particular part of the city.

They include:

**Functional magnetism**
- Functions already established in a certain part of a city or along a street attract other similar functions.
- This leads to functional agglomeration, for example, the clustering of clothing shops along a particular street.
- Agglomeration is of mutual benefit to all businesses.

**Functional prestige**
- A particular part of a city or a street becomes famous for a specific function.
• This function attracts more and more similar functions.

**Functional convenience**

• People live in residential flats near the CBD because they are close to jobs, shops, entertainment etc.
• The location of schools within residential areas is another example of functional convenience.

**CONCEPT OF URBAN PROFILE**

Urban profile refers to the side view of a town or city. It shows the height of buildings in an urban settlement.

![Urban Profile Image](image)

• The urban profile is **pyramidal** in shape.
• The apex of the pyramid corresponds with the CBD.
• The tallest buildings are found in the CBD because land is used intensively. This means that the buildings expand vertically.
• The height of buildings decreases with distance from the CBD because land is used extensively. This means that the buildings expand horizontally.

**FACTORS INFLUENCING THE MORPHOLOGICAL STRUCTURE OF A CITY**

Urban morphology refers to the **external appearance** of an urban settlement i.e. the **form** and **structure** of an urban settlement. The **elements** of urban morphology include: shape, street pattern, urban profile, density of buildings, age of buildings, architectural design of buildings, and morphological regions.

**SHAPE OF URBAN SETTLEMENTS**

Urban settlements display a variety of shapes.
<table>
<thead>
<tr>
<th>SHAPES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
</table>
| **STELLAR (STAR) SHAPE** | - The city originated at the road junction.  
- Later it expanded along roads in a linear manner thus assuming a star shape.  
- Examples of urban settlements with a star shape are Palma Nuova and Stellenbosh. |
| **CIRCULAR SHAPE** | - A circular shape is regarded as ideal because it minimizes travelling distance to the CBD from all directions.  
- In this instance, the city originated at the road junction.  
- Later it expanded in a linear manner along the roads forming a star shape.  
- At a later stage, the city expanded laterally causing an infilling of the gaps between the transport routes.  
- As a result, the star shape was modified to a circular shape.  
- Flat land will favour the development of a circular shape.  
- A circular shape also results when there is a focal point in the middle.  
- Examples of cities with a circular shape are London, Paris and Kimberley. |
| **SEMI - CIRCULAR SHAPE** | - Settlements that have a coastal location generally develop a semi-circular shape.  
- This is so because they cannot expand in a seaward direction, for example, Durban. |
| **LINEAR SHAPE** | - A linear shape develops where a town or city is located between two physical features, for example, the town of Paarl is situated between a mountain range and a river. |
| **IRREGULAR SHAPE** | The following are some of the factors that lead to an urban settlement having an irregular shape: |
STREET PATTERN

Towns and cities display different types of street patterns. The street pattern is also known as the ground plan.

<table>
<thead>
<tr>
<th>CHARACTERISTICS OF A GRID IRON STREET PATTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The streets criss cross at right angles.</td>
</tr>
<tr>
<td>- The streets are parallel to each other.</td>
</tr>
<tr>
<td>- It has a focal point.</td>
</tr>
<tr>
<td>- It is associated with traffic congestion.</td>
</tr>
<tr>
<td>- It is the most common street pattern.</td>
</tr>
<tr>
<td>- Street blocks are rectangular in shape.</td>
</tr>
<tr>
<td>- Shops and other buildings are located on either side of the streets.</td>
</tr>
<tr>
<td>- It is a regular, planned street pattern.</td>
</tr>
<tr>
<td>- Examples of urban settlements with this pattern are Durban, Cape Town, Pretoria and Johannesburg.</td>
</tr>
</tbody>
</table>

**ADVANTAGES OF A GRID IRON STREET PATTERN**

- It minimizes travelling distance from one point to another.
- It facilitates shopping since shops are located on either sides of the street.
- It is an easy plan to lay out.
- It is easy to extend on this plan at a later stage.
- The pattern yields rectangular building plots.
- Easy to find your way around.

**DISADVANTAGES OF A GRID IRON STREET PATTERN**

- It is associated with traffic congestion.
- The pattern is monotonous.
- It causes wastage of travelling time and fuel.
- It causes frustration on the part of the driver.
- Accidents occur at intersections.

<table>
<thead>
<tr>
<th>CHARACTERISTICS OF THE RADIAL CONCENTRIC STREET PATTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>- In a radial concentric pattern, streets radiate in all directions from a central point.</td>
</tr>
<tr>
<td>- Streets also encircle the central point.</td>
</tr>
<tr>
<td>- It is also known as a cobweb pattern.</td>
</tr>
<tr>
<td>- It is a planned street pattern.</td>
</tr>
<tr>
<td>- A prominent building, for example, a church or a market square was found in the centre.</td>
</tr>
<tr>
<td>- The pattern enabled people to converge at the centre, for example, London, Paris and Queenstown.</td>
</tr>
</tbody>
</table>
ADVANTAGES OF THE RADIAL CONCENTRIC STREET PATTERN
- Equal access to city centre from all directions.
- It is an attractive pattern.

DISADVANTAGES OF THE RADIAL CONCENTRIC STREET PATTERN
- Associated with traffic congestion because of the numerous four-way intersections.
- Street blocks are irregular in size.
- Construction costs are very high.

IRRREGULAR STREET PATTERN
- This pattern is associated with lack of planning or hilly terrain.
- The street blocks are irregular in shape and size.
- The streets are winding.
- The streets are narrow.
- There is no focal point.
- There is no order with respect to the direction of the streets.
- Windhoek is an example of a town with this pattern.

PLANNED IRREGULAR STREET PATTERN
- The planned irregular street pattern is a relatively new street pattern.
- It is characterized by several T-junctions.
- It is generally found on the outskirts of old towns.
- In some areas the pattern conforms to the hilly topography.
- Richards Bay and Vanderbijl Park are towns with this street pattern.

ADVANTAGES OF THE PLANNED IRREGULAR STREET PATTERN
- It ensures the free flow of traffic.
- It minimizes travelling time and saves on fuel.
- Not monotonous.

DISADVANTAGES OF THE PLANNED IRREGULAR STREET PATTERN
- Easy to get lost.
- Street blocks are irregular in size and shape.
- Difficult to extend streets.

LINEAR STREET PATTERN
- The linear street pattern consists of one major street joined by several cul-de-sacs.
- A cul-de-sac is a short street with a dead end.
- This pattern is generally found in the residential areas.
Several models have been developed to explain the distribution of land uses within an urban settlement. Note that a model is a simplification of reality. It attempts to explain certain general principles. However, a model is seldom duplicated in reality. The following land use models attempt to explain the distribution of land uses in an urban settlement.

**THE CONCENTRIC ZONE MODEL**

- This model was developed by Burgess.
- According to this model, the various land use zones occupy **concentric circles** around a **circular CBD**.
- As a result of lateral expansion, each zone will encroach into the next zone. This process is known as **invasion and succession**.
- The five land use zones in the model are: the CBD, transition zone, low income residential, middle income residential, and the commuters’ zone (high income residential).
- The low income residential zone is found close to the CBD whilst the high income zone is located further away on the outskirts.

**Evaluation of model**

- It is impossible for any town or city to have a perfectly circular CBD.
- The model makes no provision for commercial decentralization.
- The model does not consider all land uses. It is therefore a limited model.
- The location of the low income residential zone and the high income residential zone is typical of the more economically developed countries (MEDCs).
THE SECTOR MODEL

- This model was developed by Hoyt.
- The sector model is a modification of the concentric zone model.
- The CBD is centrally located and is circular in shape.
- The various land use zones occupy sectors which are wedged between transport routes. The sectors radiate from the city centre.
- The low income residential areas are located adjacent to the industrial areas - people are close to jobs.
- The high income residential area is located on the opposite side away from the industrial and low income residential areas.
- The middle income zone is usually located on either sides of the high income sector.

Evaluation of model

- It is impossible for any town or city to have a perfectly circular CBD.
- This model does not consider commercial decentralization.
- In reality residential zones do display a sectorial pattern.

THE MULTIPLE NUCLEI MODEL

- This model was developed by Harris and Ullman.
- According to this model a town or city develops around several focal points called nuclei. For example large tracts of flat land away from the CBD will attract industries.
- The various land use zones display a cellular pattern.
- Low income areas are located close to the CBD and industrial areas.
- High income areas are located far away from the CBD and industrial areas.
- Middle income areas occupy an intermediate position.
- Residential suburbs and industrial suburbs develop on the outskirts of the city.
Evaluation of model

- It is the only model that makes provision for commercial decentralization.
- It takes into account the various factors that affect the location of land use zones.
- This model is applicable to the modern day city with slight modifications.

THE MODERN AMERICAN - WESTERN CITY

- The multiple nuclei model best describes the general distribution of land uses in the American - Western city.
- The place of residence and employment are sharply divided.
- The various land use zones are well defined and sharply divided.
- Commercial functions are decentralized.
- A well defined transition zone is located around the CBD.
- Wealthier people live far away from the CBD.
- The concentric zone model and the sector model are applicable to cities of the more economically developed countries (MEDCs). In these cities, the low income areas are located close to the CBD whilst the high income residential areas are located on the outskirts of the city.

THE THIRD WORLD CITY

The land use model of a city in the less economically developed countries differs from that of the more economically developed countries. The sketch below illustrates this.
Central business district: The CBD is the focal point of the city and is centrally located.

Industry: Industrial zones develop along roads and railways.

High quality housing: Consist of luxury flats or large detached houses. Located close to the CBD and along main roads.

Poor quality housing: Located further away from the CBD. Consists of older informal housing. Usually more permanent housing which has been improved over time.

Shanty town settlements: Recent informal housing located on the outskirts of the city. Houses are of poor quality, often self-built from scrap, wood, metal, cardboard and plastic.

THE SOUTH AFRICAN CITY

The South African city has certain distinctive characteristics in respect of the distribution of the residential land use zones. As a result of the apartheid policy, different areas were set aside for the different racial groups. The White residential areas were located close to the CBD. The Indian, Coloured and Black residential areas were located far away from the CBD. The residential areas for the different racial groups were separated by physical barriers such as rivers, transport routes and buffer zones. With the dismantling of apartheid, all people have the right to choose where to live.
MODEL OF A SOUTH AFRICAN APARTHEID CITY

IN INDIAN

WHITE

INDIAN

IN INDIAN

WHITE

BLACK

COLOURED

Employment/Industrial Areas

Homeland Boundary

CBD

Buffer Strip

Transport Barrier

Homeland Boundary

Black

Black
CHANGING URBAN PATTERNS AND LAND USE IN SOUTH AFRICAN CITIES

The internal structure of South African cities has been strongly influenced by the government’s apartheid policies. Since the dismantling of apartheid, major changes are taking place within the South African apartheid cities. Some of the changes are explained below.

*Changes in residential pattern*

- During the apartheid period, there was residential segregation based on racial differences.
- The repeal of the Group Areas Act will result in the movement of Blacks, Indians and Coloureds closer to the city centre. The White suburbs would experience less mixing.
- The high level of poverty has resulted in an increased demand for cheap rental accommodation.
- Informal settlements which were previously found on the outskirts of the city are developing closer to the city centre.
- In many cities, low cost housing projects have been developed to meet the needs of the low income groups.
- The high crime rate has resulted in the development of gated communities on the outskirts of cities. In the past such areas were mainly occupied by wealthy Whites. Recently an increasing number of people from the other racial groups are also living in these areas, mainly for security reasons.
- There is also evidence of filtering in certain areas. Filtering is the movement of people with a lower income to residential areas previously occupied by wealthier people. This leads to changes in the social nature of residential areas.
- Many golf estates have developed recently. These are exclusive residential suburbs located adjacent to golf courses. These estates provide a high level of security.

**Golf Estate**

**Urban renewal**

- Large scale inner city renewal is taking place in major cities such as Durban, Johannesburg and Cape Town.
- Old houses and businesses in the CBD and inner city are renovated and modernized by the wealthier people. This process is known as gentrification. This causes displacement of the lower income people.

**Gentrification - Before and After**

- A large number of slums have been cleared and people have been relocated in low cost housing schemes.
- Old buildings that have historical, cultural or architectural importance are not demolished completely. The front structure of the building is retained and new structures are built behind the original façade. This process is known as facadism.
- **Invasion and succession** occurs where original functions are replaced by new functions. This usually occurs when the CBD expands into the inner city. The old buildings in the inner city are renovated or demolished and replaced by new buildings. The new structures are occupied by new functions such as estate agents, insurance agents, attorneys and doctors. Invasion and succession also refers to the process by which one group replaces another in a particular neighbourhood.

**Changes in commercial functions**

- The high crime rate and high land value has caused certain commercial functions to move out of the CBD.
- **Commercial decentralization** has led to the development of shopping malls, neighbourhood shopping centres and regional shopping centres in the suburban areas.
- There has been an increase in **informal trading** especially in the city centre since trading laws have been relaxed. Informal trading has had a negative effect on small time businesses in the CBD. In some cities informal trading has been controlled to a certain extent by the establishment of stalls and markets.
URBAN SETTLEMENT ISSUES

RECENT URBANISATION PATTERNS IN SOUTH AFRICA

Urbanisation in South Africa is taking place at a rapid pace. The proportion of people living in urban areas increased from 52% in 1990 to 62% in 2011. Presently about 67% of South Africa’s population lives in urban areas. In 2011, 40% of the population lived in South Africa’s eight largest cities. Of these, 8, 6% lived in Johannesburg and 7, 2% in Cape Town.
The post - apartheid freer movement of people and the employment opportunities in cities are the major causes of this trend. Urbanisation, and the migration trends associated with it, is a powerful force reshaping South Africa’s environment, economy, lifestyles and livelihoods.

The following are some changes that have taken place in urban areas as a result of recent urbanisation.

Urban sprawl: This refers to the formless and uncontrolled expansion of residential areas on the outskirts of urban settlements.

Access to services: A greater number of urban dwellers now have access to proper housing, piped water, electricity and proper sanitation. This means that cities are now becoming more sustainable. The transport network and access to public transport has been greatly improved to cater specifically for those that live far away from place of work.
**Rural - urban fringe:** The rural - urban fringe is being occupied by more and more urban functions. Cheap land, reduced crime rate, reduced congestion and pollution are some of the factors that attract people and business to the rural - urban fringe.

**New towns:** “New towns” are developed in order to ease the housing shortage in existing towns and cities. Employment is also provided within new towns. This prevents unnecessary commuting with the major cities. New towns are generally self-sufficient in respect of the availability of services. They also service the immediate surrounding area. Bridge City situated 17 kilometres from the Durban city centre is an example. It services the communities of Phoenix, Inanda, Ntuzuma and KwaMashu.

**Urban densification:** Densification means making more efficient use of limited urban space (horizontal space and vertical space). This is done by building houses closer together, extending single - storeyed structures vertically, and developing high - rise flats. As a result of densification, cities will be able to accommodate more people. Large scale urban densification is taking place in Cape Town.

**Edge cities:** An edge city is a large commercial centre offering a mixture of employment, shopping malls, entertainment centres, hospitals, schools, domestic airports etc. It is located on the outskirts of the major city close to major transport routes and mainly serves the suburban area. An edge city has developed its own political, economic, and commercial base independent of the central city.

**Eco - cities (green cities):** Increased urbanisation has resulted in the production of more waste and pollutants within cities. Eco - cities are human settlements that respect the natural environment. The aim of eco - cities is to eliminate all carbon waste, to produce energy from renewable resources, and to incorporate the environment into the city.

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**URBAN ISSUES RELATED TO RAPID URBANISATION: LACK OF PLANNING, HOUSING SHORTAGE, OVERCROWDING, TRAFFIC CONGESTION AND PROBLEMS WITH SERVICE PROVISION**

Rapid urbanisation in South Africa has resulted in several problems. Some of these are explained in the table below.
<table>
<thead>
<tr>
<th>URBAN ISSUE OR PROBLEM</th>
<th>POSSIBLE SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LACK OF PLANNING</strong></td>
<td>Incompatible functions must be segregated.</td>
</tr>
<tr>
<td>• Leads to intermingling of different functions.</td>
<td>• Urban planning must be sustainable.</td>
</tr>
<tr>
<td>• This causes disorder and chaos in the urban</td>
<td>• Provision must be made for the anticipated</td>
</tr>
<tr>
<td>areas.</td>
<td>influx of people from the surrounding rural</td>
</tr>
<tr>
<td>• Lack of planning leads to uncontrolled urban</td>
<td>areas.</td>
</tr>
<tr>
<td>expansion (urban sprawl).</td>
<td>• Transport development must take into</td>
</tr>
<tr>
<td>• This results in loss of valuable agricultural</td>
<td>consideration the ever increasing volume of</td>
</tr>
<tr>
<td>land.</td>
<td>traffic.</td>
</tr>
<tr>
<td>• Lack of planning leads to urban decay in the</td>
<td>• The relocation of functions that are</td>
</tr>
<tr>
<td>inner city.</td>
<td>incompatible.</td>
</tr>
<tr>
<td>• Lack of planning results in an unplanned</td>
<td>• The development of a green belt around the city will</td>
</tr>
<tr>
<td>irregular street pattern which is</td>
<td>prevent uncontrolled urban</td>
</tr>
<tr>
<td>associated with traffic congestion.</td>
<td>expansion.</td>
</tr>
<tr>
<td></td>
<td>• Old buildings in the inner city can be</td>
</tr>
<tr>
<td></td>
<td>demolished and rebuilt or they can be</td>
</tr>
<tr>
<td></td>
<td>renovated.</td>
</tr>
<tr>
<td><strong>HOUSING SHORTAGE</strong></td>
<td>Urban municipalities must ensure that the</td>
</tr>
<tr>
<td>• The ever increasing urban population has</td>
<td>provision of housing is sustainable.</td>
</tr>
<tr>
<td>resulted in severe housing shortages.</td>
<td>• The provision of low cost housing to people</td>
</tr>
<tr>
<td>• This has resulted in the development of</td>
<td>living in informal settlements.</td>
</tr>
<tr>
<td>informal settlements on the outskirts of</td>
<td>• Involvement of private - public partnerships</td>
</tr>
<tr>
<td>cities.</td>
<td>in housing development.</td>
</tr>
<tr>
<td>• Basic services are not available in informal</td>
<td>• Urban densification will result in the creation</td>
</tr>
<tr>
<td>settlements.</td>
<td>of more accommodation.</td>
</tr>
<tr>
<td></td>
<td>• The government is also encouraging self -</td>
</tr>
<tr>
<td></td>
<td>help housing schemes. The people build their</td>
</tr>
<tr>
<td></td>
<td>own houses using local materials and local</td>
</tr>
<tr>
<td></td>
<td>labour from the community. These low cost</td>
</tr>
<tr>
<td></td>
<td>housing projects are subsidized by the</td>
</tr>
<tr>
<td></td>
<td>government. Local authorities can provide</td>
</tr>
<tr>
<td></td>
<td>equipment so that people can manufacture</td>
</tr>
<tr>
<td></td>
<td>building blocks locally and cheaply.</td>
</tr>
<tr>
<td><strong>OVERCROWDING</strong></td>
<td>Informal trading can be controlled by the</td>
</tr>
<tr>
<td>• Overcrowding is a major problem in cities.</td>
<td>establishment of stands and markets.</td>
</tr>
<tr>
<td>• Rural - urban migration is the main cause of</td>
<td>• The decentralization of commercial functions</td>
</tr>
<tr>
<td>this.</td>
<td>will reduce the number of people coming into the</td>
</tr>
<tr>
<td>• People migrate to urban areas in search of</td>
<td>CBD.</td>
</tr>
<tr>
<td>employment.</td>
<td>• The development of new towns will reduce</td>
</tr>
<tr>
<td>• Those that are unemployed engage in</td>
<td>overcrowding in the major cities.</td>
</tr>
<tr>
<td>informal trading.</td>
<td>• Large scale rural development projects will</td>
</tr>
<tr>
<td>• Overcrowding is associated with unhygienic</td>
<td>reduce rural - urban migration.</td>
</tr>
<tr>
<td>living conditions, high crime rate,</td>
<td></td>
</tr>
<tr>
<td>congestion, and an increase in pollution.</td>
<td></td>
</tr>
<tr>
<td><strong>TRAFFIC CONGESTION</strong></td>
<td>Make streets one way.</td>
</tr>
<tr>
<td>• Rapid urbanisation has resulted in an increase</td>
<td>Construct by - passes to divert traffic away from the</td>
</tr>
<tr>
<td>in the volume of traffic in cities.</td>
<td>built up area.</td>
</tr>
<tr>
<td>• More cars, buses, trains, mini - bus taxis,</td>
<td>• Decentralize commercial functions.</td>
</tr>
<tr>
<td>motor cycles, bicycles and trucks are</td>
<td>• Develop new towns and edge cities.</td>
</tr>
<tr>
<td>moving into cities.</td>
<td>• Introduce underground transport, for example, tube</td>
</tr>
<tr>
<td>• The road networks and the grid iron street</td>
<td>trains.</td>
</tr>
<tr>
<td>pattern in the CBDs of most cities cannot</td>
<td>• Synchronize robots to accelerate flow of</td>
</tr>
<tr>
<td>cope with the increased volume of traffic.</td>
<td>traffic.</td>
</tr>
<tr>
<td>• This has led to serious traffic congestion</td>
<td>• Stagger working hours in order to reduce</td>
</tr>
<tr>
<td>especially during the peak periods (early</td>
<td>traffic.</td>
</tr>
<tr>
<td>to late night).</td>
<td></td>
</tr>
</tbody>
</table>
morning and late afternoon).

<table>
<thead>
<tr>
<th>SERVICE PROVISION</th>
<th>ACCESS TO CLEAN DRINKING WATER IS A BASIC HUMAN RIGHT. PIPED WATER SHOULD BE MADE AVAILABLE AT STRATEGIC POINTS IN INFORMAL SETTLEMENTS AND LOW INCOME RESIDENTIAL AREAS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Many urban dwellers mainly from the low income group do not have access to basic services such as piped water, proper sanitation, electricity, solid waste removal and proper housing.</td>
<td>- The electrification of residential areas and the subsidization of the cost of electricity for low income groups.</td>
</tr>
<tr>
<td>- Urban municipalities are failing to cope with the above problems.</td>
<td>- The provision of solid waste removal facilities for people in informal settlements.</td>
</tr>
<tr>
<td>- People in informal settlements live in unhygienic conditions.</td>
<td>- The subsidization of public transport.</td>
</tr>
<tr>
<td>- People in informal settlements sometimes walk several kilometres because they cannot afford public transport.</td>
<td>- Enlist the assistance of non-governmental organisations to speed up the process of service delivery.</td>
</tr>
<tr>
<td></td>
<td>- Urban municipalities must ensure that monies allocated for provision of services are properly utilized.</td>
</tr>
</tbody>
</table>

**THE GROWTH OF INFORMAL SETTLEMENTS AND ASSOCIATED ISSUES: CASE STUDIES FROM THE WORLD AND SOUTH AFRICA**

The rapid growth of the urban population in the less economically developed countries (LEDCs) has created a severe shortage of formal housing. This has led to the development of informal settlements on the outskirts of urban settlements. These settlements are unplanned and lack basic services such as proper sanitation, piped water, electricity, social amenities, recreational facilities and proper roads.

**Informal settlements** are areas where people are given permission to live whereas **squatting settlements** are areas where people are living illegally. Informal settlements are also known as **slums**. In Brazil they are referred to as **favelas**.

**CASE STUDIES FROM THE WORLD AND SOUTH AFRICA**
APPLICATION OF GIS BY GOVERNMENT AND THE PRIVATE SECTOR

- GIS information assists town planners in planning for the provision of services.
- Assists with disaster management.
- Crime mapping to target vulnerable areas. More police can be deployed in these areas.
- Monitoring of transport routes and traffic congestion so that appropriate measures can be taken.
- Management of natural resources.
- Location of land uses in an urban settlement.
- Identification of areas with fertile soil and water availability in order to expand the agricultural sector.
- Identification of catchment areas of schools. This will assist in determining whether more schools should be built.
- Identification of areas that are in need of retail outlets.
- Identification of potential industrial sites.
- Identification of safe routes for the movement of troops.
- Establishment of links between the source of diseases and areas of prevalence.
- Assessing the impact of development on the environment.
- Identification of risk factors is important to insurance companies.
- Identification of areas that experience frequent climate hazards.
MODULE FIVE

ECONOMIC GEOGRAPHY OF SOUTH AFRICA
MODULE 5: ECONOMIC GEOGRAPHY OF SOUTH AFRICA

By the end of this module, you should be able to:

- explain what is meant by economic activity
- differentiate between primary, secondary, tertiary and quaternary economic activities
- evaluate economic sectors’ contribution to the South African economy with respect to value and employment
- interpret statistical and graphical information relating to South Africa’s economy
- evaluate contribution made by agriculture to the economy of South Africa
- explain the role of small-scale farmers and large-scale farmers
- identify main products produced for local market and export market
- discuss factors that favour and hinder agriculture in South Africa
- explain the term food security
- explain the importance of food security in South Africa
- explain factors that influence food security in South Africa
- examine case studies related to food security in South Africa
- evaluate contribution made by mining to the economy of South Africa
- explain the significance of mining to the development of South Africa
- discuss factors that favour and hinder mining in South Africa
- undertake case study of one of South Africa’s main minerals
- evaluate contribution made by the secondary and tertiary sectors to the economy of South Africa
- distinguish between different types of industries
- discuss factors influencing industrial development in South Africa
- identify the four main industrial regions in South Africa
- discuss factors influencing the location of industrial regions
- identify the main industrial activities in each industrial region
- make an overview of apartheid and post-apartheid industrial development strategies
- explain concept of Industrial Development Zones (IDZs)
- undertake case studies of two Spatial Development Initiatives (SDIs)
- discuss issues associated with industrial centralisation and decentralisation
- explain concept of informal sector employment
- discuss characteristics of informal sector employment
- discuss challenges facing South Africa’s informal sector
**STRUCTURE OF THE ECONOMY**

**What is an economic activity?** These are activities that people engage in, in order to earn a living. Economic activities may be classified as primary, secondary, tertiary or quaternary. These activities contribute to the economy of a country.

**ECONOMIC SECTORS (PRIMARY, SECONDARY, TERTIARY AND QUATERNARY)**

These terms have been discussed in Module 4.

**ECONOMIC SECTOR'S CONTRIBUTION TO THE SOUTH AFRICAN ECONOMY: VALUE AND EMPLOYMENT**

**VALUE**

The various sectors of the economy contribute to the **gross domestic product** (GDP). The GDP refers to the total value of goods and services produced within a country in one year. Developed countries have a higher GDP than developing countries.

**GDP per capita** refers to the value of all goods and services produced in a country in one year, divided by the population of the country. Developed countries have a higher GDP per capita than developing countries.

The GDP of South Africa was worth 384.31 billion US dollars in 2012. Since 2009, South Africa has been ranked 26th in the world in terms of GDP.

The table below shows the breakdown of South Africa’s GDP for 2011,

<table>
<thead>
<tr>
<th>Economic Sector</th>
<th>Contribution to GDP (%)</th>
<th>Sub - sectors</th>
<th>Contribution to Sector (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>7.7</td>
<td>Agriculture</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mining</td>
<td>5.4</td>
</tr>
<tr>
<td>Secondary</td>
<td>18.5</td>
<td>Manufacturing</td>
<td>15.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Construction</td>
<td>3.2</td>
</tr>
<tr>
<td>Tertiary</td>
<td>73.8</td>
<td>Retail</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transport and Communication</td>
<td>9.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Financial</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Personal Services</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Taxes</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electricity</td>
<td>10.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>
The primary sector makes the smallest contribution (7.7%) to the GDP. The tertiary sector makes the greatest contribution (73.8%) to the GDP. The contribution made by the primary sector is likely to decrease in the future because the secondary and tertiary sectors are expanding at a faster rate.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>GDP, SUS BILLION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>80.547</td>
</tr>
<tr>
<td>1985</td>
<td>57.273</td>
</tr>
<tr>
<td>1990</td>
<td>111.998</td>
</tr>
<tr>
<td>1995</td>
<td>151.117</td>
</tr>
<tr>
<td>2000</td>
<td>132.964</td>
</tr>
<tr>
<td>2005</td>
<td>246.956</td>
</tr>
<tr>
<td>2010</td>
<td>363.655</td>
</tr>
<tr>
<td>2015</td>
<td>510.937</td>
</tr>
</tbody>
</table>

The above table shows that the GDP of South Africa has increased from 1980 to 2010. The projected value of the GDP for 2015 is $510.937 billion. The GDP showed a reduction in value during the periods 1980 - 1985 and 1995 - 2000. Note that the value of the GDP is the combined total of the contribution made by the primary, secondary and tertiary economic sectors.
- There are great variations in the contribution made by the different provinces to the national GDP.
- Gauteng makes the greatest contribution (34.5%) to the GDP of South Africa.
- A significant contribution is made by Kwa-Zulu Natal (15.7%) and Western Cape (14.2%).
- Limpopo, Mpumalanga, Eastern Cape, Northern Cape, Free State and North West make a relatively small contribution to the GDP.
- The Northern Cape makes the smallest contribution (2.2%) to the GDP.

**EMPLOYMENT**

The various sectors of the economy provide employment to the **economically active population** (labour force) of a country. The economically active population is that part of the population that is employed or looking for employment. In the less economically developed countries (LEDCs), most of the people are employed in the **primary sector**. In the more economically developed countries (MEDCs), most of the people are employed in the **tertiary sector**. As a country progresses economically, a greater proportion of the labour force is employed in the secondary and tertiary economic sectors.

South Africa has a labour force of more than 18 million people (this includes those either working or available to work and actively seeking work). Of these, about 13.5 million are employed. With an unemployment rate of around 25%, South Africa's biggest challenge is the creation of jobs (2012 figures). South Africa has an excess of unskilled labour.
The table below shows the employment of the labour force in the various sub-sectors of the economy.

### EMPLOYMENT BY SUB-SECTORS OF THE SOUTH AFRICAN ECONOMY: 2011

<table>
<thead>
<tr>
<th>SUB - SECTORS</th>
<th>THOUSAND</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>13 124</td>
<td>100</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1 735</td>
<td>13.2</td>
</tr>
<tr>
<td>Mining</td>
<td>282</td>
<td>2.1</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>93</td>
<td>0.7</td>
</tr>
<tr>
<td>Utilities (electricity, gas and water)</td>
<td>1 043</td>
<td>8.0</td>
</tr>
<tr>
<td>Construction</td>
<td>2 944</td>
<td>22.4</td>
</tr>
<tr>
<td>Trade</td>
<td>777</td>
<td>5.9</td>
</tr>
<tr>
<td>Transport</td>
<td>1 704</td>
<td>13.0</td>
</tr>
<tr>
<td>Finance and other business services</td>
<td>2 831</td>
<td>21.6</td>
</tr>
<tr>
<td>Community and social services</td>
<td>1 117</td>
<td>8.5</td>
</tr>
</tbody>
</table>

- The mining sub-sector employs a very small percentage (2.1%) of the labour force. This sub-sector has experienced numerous strikes in the recent past. The labour force employed by this sector is likely to decrease in the future as a result of the exhaustion of minerals and the closure of marginal mines.
- Agriculture is an important backbone of the South African economy but employs a relatively small percentage (4.6%) of the labour force.
- The manufacturing sub-sector employs a relatively large percentage (13.2%) of the labour force. The number of people employed in this sub-sector is likely to increase significantly as a result of industrial expansion.
- The sub-sectors trade, and community and social services together employ 44% of the labour force.

### DISTRIBUTION OF LABOUR FORCE BY ECONOMIC SECTORS: 2011

- The primary sector employs a relatively small percentage (6.7%) of the labour force.
- A greater percentage (21.2%) is employed by the secondary sector.
• The tertiary sector employs the largest percentage (72.1%) of the labour force.

USE OF STATISTICAL AND GRAPHICAL INFORMATION

Statistics (figures) and graphs are important because they enable one to analyse and interpret data (information). They enable us to make comparisons, identify past and present trends, and predict future trends. They also assist governments in planning, for example, the provision of schools, housing, old-age homes and other services. The activities that follow are based on statistical and graphical information. You must acquire the ability to interpret the statistics and graphs.
AGRICULTURE

CONTRIBUTION OF AGRICULTURE TO THE SOUTH AFRICAN ECONOMY

- The labour force employed by agriculture and its contribution to the economy are declining because the secondary and tertiary sectors are expanding more rapidly. However, it is an important backbone of the economy. The value of agricultural
production in South Africa was R148 235 million in 2011, while the contribution to the GDP was approximately R63 billion.

- Agriculture provides food to a rapidly growing population. Maize farming is particularly important since it is the staple food of the majority of the population.
- Agriculture provides employment to a large sector of the population. Hence it contributes to the economy in the form of salaries, wages and taxes.
- South Africa is self-sufficient with regard to certain agricultural products. The country is a major producer of wheat, maize, sugar cane and a wide variety of fruits.
- A large percentage of the maize is fed to animals. Maize farming, therefore, supports stock farming even in times of drought.
- A large percentage of agricultural products is exported. Agriculture, therefore, stimulates the import-export trade of the country. It enables foreign capital to flow into the country. South Africa exports more food than it exports.
- Agriculture has stimulated industrial development. Numerous factories process locally produced agricultural raw material. Stock farming has led to the development of meat processing industries and textile industries. Sugar cane farming in Kwazulu-Natal has led to the establishment of sugar mills and sugar refineries. Numerous fruit canning factories occur in the Western Cape since it is an important fruit farming region. These industries in turn provide numerous job opportunities. Maize and wheat farming in particular are highly mechanized. This stimulated the development of industries that manufacture farm machinery. Agriculture stimulated the development of chemical industries (fertilizer factories and factories that manufacture weed killers, insecticides and pesticides).

- Agriculture stimulated transport development and the development of irrigation schemes such as the Orange River Project and the Vaal-Hartz irrigation scheme. Since the eastern part of the country is the major agricultural section, the area has a denser transport network. Hence agriculture played a significant role in improving the infrastructure of the country.
THE ROLE OF SMALL - SCALE FARMERS AND LARGE - SCALE FARMERS

South African agriculture is made up of two categories of farmers - the subsistence farmers in the former homeland areas and the large - scale commercial (mainly white) farmers.

Small - scale farming

Small - scale farming is the production of crops and livestock on a small piece of land without using advanced and expensive technologies. Production is mainly for household consumption. It contributes very little to the economy as a whole. This type of farming is usually characterized by intensive labour, mainly women, children and the elderly. Traditional farming methods are used. There is limited use of fertilizers and other chemicals. Supply of produce to the local and surrounding markets is limited. The productivity of small - scale farmers is decreasing because of rural - urban migration and insufficient government support with rural infrastructure, marketing facilities, finance and agricultural expertise. Small - scale farming in South Africa has great potential for increased productivity. However some small - scale farmers engage in commercial production, for example, the large number of small - scale sugar cane farmers in Kwa- Zulu Natal. Small - scale farming is important because:
it contributes to food security
it is a source of household income when a surplus is produced
it is a source of employment
government assistance in the development of small-scale farming will reduce rural-urban migration
it can reduce rural poverty

Large-scale farming

Large-scale farming refers to commercial farming. Commercial farming involves the production of crops and livestock for sale. Produce is sold to the local market and overseas markets. The farm units are large and the land is mainly used extensively. It involves the use of machinery, fertilizers, insecticides, pesticides, weed killers and irrigation. Large-scale farming is important because:

- it contributes to the gross domestic product
- it earns the country foreign income
- it has enabled the country to become a net exporter of food
- it provides employment to a large number of people who live in the rural areas - currently contributes about 10% to formal employment
- it provides food to the people of South Africa
- it contributes to food security
- it provides raw material to the food processing industries

MAIN PRODUCTS PRODUCED: HOME MARKET, EXPORT MARKET

DISTRIBUTION OF MAIN AGRICULTURAL PRODUCTS

Agriculture
- Grain (corn and wheat) and livestock
- Grazing and some mixed farming
- Sugar cane
- Marginal or no agricultural use
- Cotton
- Fruit
- Peanuts
- Tobacco
- Vegetables
- Vineyards
South Africa has a variety of climates. As a result, a wide range of agricultural products is produced. These include animal products (meat, poultry, ostrich and wool), field crops (maize, wheat and sugar cane) and horticulture (fruit, vegetables and flowers). Products are sold at the home market and export markets. The home market is the local market or domestic market i.e. South Africa. Export markets are foreign markets that purchase produce from South Africa, for example, China and Brazil. The following is an overview of the main agricultural products.

**Livestock farming**

Livestock farming is the largest agricultural sector in South Africa. The livestock sector includes mainly cattle, sheep, poultry, pigs and ostriches.

**Dairy farming** is practised throughout South Africa near the main urban centres. The dairy industry employs about 60 000 workers.

South Africa produces 85% of its meat requirements. The local demand is greater than production. Therefore meat has to be imported into the country. Cattle farming mainly occurs in the eastern part of the country where rainfall is higher.

Sheep farming mainly occurs in the drier western parts of the country. Sheep farming is a source of meat and wool.

South Africa’s poultry and pig farms are more intensive than the extensive sheep and cattle farms. They are found near the metropolitan areas of Gauteng, Durban, Pietermaritzburg, Cape Town and Port Elizabeth. Poultry is South Africa’s largest single agricultural product.

South Africa is responsible for about 65% of world sales of ostrich products – leather, meat and feathers.

**Wheat**

Wheat is grown in the Western Cape, Free State and Mpumalanga. Production fluctuates because of unreliable rainfall and drought. South Africa produces about 2.3 million tons of wheat each year. Since 1989, the area under wheat cultivation has steadily decreased. This has resulted in a decrease in production. Therefore South Africa has to import wheat in order to meet the local demand. The table below shows how the area under wheat cultivation, and wheat production have decreased over the years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Area (hectares)</th>
<th>Production (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 / 2011</td>
<td>558,100</td>
<td>1,430,000</td>
</tr>
<tr>
<td>2011 / 2012</td>
<td>604,700</td>
<td>1,849,830</td>
</tr>
<tr>
<td>2012 / 2013</td>
<td>560,000</td>
<td>1,680,000</td>
</tr>
</tbody>
</table>
The graph below shows how the import of wheat has increased over the years.

Fruit

Fruits, including grapes for wine, contribute about 40% to agricultural export earnings in some years. There is an excellent market for fresh fruits in Europe because the fruits mature during the northern hemisphere’s winter. Deciduous fruits, including apples, pears and peaches are grown mainly in the Western Cape and Eastern Cape, where cold winters and dry summers provide ideal conditions for the crops. Pineapples are grown mainly in the Eastern Cape and KwaZulu - Natal. Sub-tropical fruits especially bananas, avocados, mangoes, litchis and pawpaws are grown in Mpumalanga, Limpopo, Eastern Cape and KwaZulu - Natal. Citrus is produced mainly in the Western Cape. More than 50% of citrus production is exported.

Grapes are produced mostly in the Western Cape. A large percentage of the grapes is used locally by the wine industry. The wine industry is well established in South Africa. South Africa produces about 3.5% of the world’s wine and is the eighth largest wine producer in the world. South Africa’s wine exports increased from 22 million litres in 1992 to more than 350 million litres in 2011. The wine industry employs about 60 000 people.

Maize

Maize is South Africa’s most important crop. It is the staple food of the majority of the people, a source of livestock feed, a raw material for the food processing industries, and an export crop. Maize is mainly grown in North West, Mpumalanga, Free State and KwaZulu - Natal. Maize production provides at least 150 000 jobs in years with good rainfall. Maize production exceeds 10 million tons in good years. Local consumption of maize is about 8 million tons. The surplus is exported.

Sugar cane

The main area of sugar cane production is KwaZulu - Natal. 75% of South Africa’s sugar cane is produced in this province. Sugar cane is also grown in Mpumalanga under irrigation when rainfall is inadequate. There are approximately 29 130 registered cane growers in South Africa. Of these more than 27 580 are small-scale growers producing 8% of the total crop. Large-scale growers (approximately 1 550)
produce approximately 85% of the total sugar cane crop. Milling companies, with their own sugar estates, produce approximately 7% of the crop.

Sugar cane is the second largest crop grown in South Africa. The production is about 2.2 million tons of sugar per year earning about R8 billion in revenue. Sugar is one of South Africa’s largest agricultural exports. Sugar is exported to markets in Africa, Asia and the Middle East.

The sugar industry provides employment to over 79 000 people in the rural areas. The graph below shows the amount of sugar that is consumed by the local market, and the amount that is exported.

![Graph showing sugar production in million tons from 2006 to 2012.]

The graph below shows the gross income earned from South Africa’s major agricultural products.

![Bar chart showing gross income from major products in 2011/12 compared to 2010/11 (July to June).]
FACTORS THAT FAVOUR AGRICULTURE IN SOUTH AFRICA

**Climate:** South Africa experiences a wide range of climates. As a result a variety of crops is produced. Since the frequency of frost is low, there is a longer growing season. The frost that occurs on the Highveld in winter is beneficial to maize farming since it helps to kill insect pests. It also provides the soil with ground water.

Crops require high temperature in order to flourish. Heat is essential for photosynthesis. Summer temperatures in South Africa are relatively high. This is suitable for the cultivation of most crops especially maize and sugar cane. As a result of the high temperatures, South African maize has low moisture content. Therefore it can be stored for long periods in grain elevators. High temperatures also favour the formation of sucrose in sugar cane and fruits.

The high winter rainfall and dry summers in the Western Cape favour the cultivation of a variety of fruits in this region. There are good summer rains on the plateau and coastal belt of KwaZulu - Natal (500 mm - 700mm).

**Relief:** The flat nature of the plateau and undulating relief has favoured crop farming and livestock farming. Machinery can be used on a large scale and this reduces the need for manual labour.

**Trade:** There is a great demand for agricultural products both locally and overseas. There is a great demand for fruits by European markets especially since they experience winter during the South African summer. Locally there is a great demand for maize since it is the staple food of the majority of the population. Wheat and maize products are consumed on a large scale by the entire population. There is a great demand for sugar cane by the locally based sugar mills. Urbanisation and an improvement in standard of living have caused an increased demand for meat. There is a great demand for agricultural products by the food processing industries.

The harbours, international airports and well - developed road and rail infrastructure promote trade. South Africa’s trade agreements with the EU and US promote international trade. The dismantling of apartheid has also favoured increased international trade.

**Research:** As a result of research, several hybrid seeds and genetically modified seeds have been developed. These seeds are adapted to particular climatic and soil conditions and have a higher yield per hectare. They are also more resistant to disease such as leaf blight. Several varieties of sugar cane have been developed by the sugar experimental station at Mount Edgecombe in KwaZulu - Natal.

**Irrigation:** Several irrigation schemes have been developed to assist farmers in the drier areas. These include the Orange River project and the Vaal - Hartz scheme.

**Land ownership:** The number of commercial farming units is likely to increase as a result of land redistribution and land restitution. This will impact positively on gross agricultural production. Consolidation of small farms has increased yields.
**Farmer attributes:** The qualities of the farmer play an important role in agricultural production. Commercial farmers are progressive. They keep in touch with the latest trends and developments by attending lectures, seminars, workshops etc. and by reading agricultural journals and magazines. As a result, gross agricultural production on commercial farms is high.

**FACTORS THAT HINDER AGRICULTURE IN SOUTH AFRICA**

**Climate:** Rainfall is the most important factor affecting agriculture in South Africa. Rainfall in South Africa is low and unreliable. Only the eastern half of the country receives a rainfall of more than 500mm. Rainfall decreases from east to west. Hence, yield per hectare also decreases from east to west. Rainfall is unreliable and drought occurs frequently. Drought reduces gross agricultural production and certain types of food have to be imported.

Floods destroy agricultural produce. Hailstones occur especially on the Highveld causing widespread destruction. Maize fields are flattened and tobacco leaves perforated. In the south Western Cape, thunderstorms associated with mid - latitude cyclones damage fruits. Hailstones also injure livestock. Sometimes crops are destroyed by excessively high temperatures caused by climate change.

As a result of the low rainfall, crop production depends heavily on irrigation. About 50% of South Africa’s water is used for irrigation. Irrigation water is wasteful and expensive.

**Soils:** Only 7% of land is arable in South Africa. The soils are generally deficient in phosphates and nitrates. These must be added to the soil in the form of fertilizers which increases the cost of production. Soil exhaustion is a problem especially on the Highveld and coastal belt of KwaZulu - Natal because of monoculture (maize and sugar cane respectively). In many areas, especially the former homeland areas, soils are thin and infertile because they have been overused.

Soil erosion is taking place at an accelerated pace especially in subsistence farming areas because of incorrect methods of farming. The loss of the fertile top soil causes a lowering of production. Soil erosion has also caused a deterioration of the natural veld thus reducing the carrying capacity of the veld. This impacts negatively on livestock production.

**Relief:** Certain parts of South Africa are characterized by hilly relief with steep slopes. Machinery cannot be used in these areas. This increases cost of production since farmers have to depend on manual labour. This is evident on some sugar cane farms in KwaZulu - Natal where manual labour is employed to cut and load sugar cane.

**Insect pests and disease:** Much damage is caused to crops and fruits by insect pests and diseases. Stalk borers attack both maize and sugar cane. Locusts and commando worms destroy maize plants. Crops are also affected by root and stem rot.
The blow fly, intestinal parasites and diseases kill many livestock. Stock also suffer from foot and mouth disease. Avian flu is a threat to ostrich farming.

**Trade:** Price fluctuations of agricultural products at international markets cause uncertainty. Many countries such as the USA and European Union countries subsidise agricultural production. This makes it uneconomical for South Africa to sell agricultural products to these countries.

**Subsistence farming:** Subsistence farming impacts negatively on gross agricultural production. Subsistence farmers are often bound by customs and traditions and use primitive methods of farming. As a result, yield per hectare is low. Most subsistence farmers possess extremely small farms and are very poor. This is a major problem facing the development of commercial agriculture among them.

**THE IMPORTANCE OF FOOD SECURITY IN SOUTH AFRICA: INFLUENCING FACTORS**

Food security means that agricultural production must be aimed at meeting the food needs of all people within a country. All people must have access to affordable, sufficient, safe and nutritious food at all times to maintain a healthy and active life. A household is considered food-secure when its occupants do not live in hunger or fear of starvation. Access to food is a basic human right. Food security is an important issue in South Africa since a large number of people are unemployed and live in poverty. It is estimated that 12 million South Africans have insufficient access to food.

**Food insecurity:** Refers to the lack of access to food which leads to starvation and related diseases.

**FACTORS INFLUENCING FOOD SECURITY IN SOUTH AFRICA**

- A large number of people practise **subsistence farming.** This results in no surplus being available for the lean years.
- Food is destroyed by **droughts, floods, fires, insect pests and disease, tropical cyclones** etc.
- Accelerated **soil erosion** caused by high surface run-off and incorrect methods of farming such as overcultivation, monoculture, cultivation in marginal areas, overstocking etc.
- **Lack of security** and the **high crime rate** cause people to abandon their farms.
- **Large scale rural-urban migration** has caused a decrease in agricultural production.
- **High food prices** are not affordable by the poor.
- **High rate of unemployment and poverty** means that people do not have money to buy food.
- **Monies allocated for job creation and agricultural development are mismanaged.**
- **HIV and Aids** has caused a decrease in agricultural production.
- **The rapid increase in population** has resulted in a decrease in agricultural land.
- Poor soils lead to poor crops.
- Uneconomical farm units.

Scientists believe that genetically modified (GM) foods can meet the demands of the developing nations in the future.

**What are genetically modified (GM) foods?**

The term GM food is used to refer to crop plants created for human and animal consumption using the latest molecular biology techniques. These plants have been modified in the laboratory to produce desired traits such as increased resistance to herbicides or improved nutritional content. The most common modified foods are derived from plants: maize, oil and wheat. GM crops have been widely adopted in the United States. They have also been extensively planted in Argentina, Brazil, South Africa, India and China. GM foods can provide increased food security for growing populations.

**Advantages of GM foods**

- have greater pest resistance
- have greater herbicide tolerance
- are more resistant to disease
- have a higher level of cold tolerance
- are resistant to drought
- have a higher nutritional value
MINING

Mining involves the extraction of minerals from the earth. South Africa has large mineral wealth and is a world leader in mining. South Africa is the world’s biggest producer of platinum, manganese, chrome and vanadium. It is also one of the leading producers of gold, diamonds, coal and iron ore. There is considerable potential for the
discovery of other world-class deposits in areas yet to be explored. The map below shows the location of the main mines.

![Map of South Africa's minerals](image)

The table below shows South Africa’s position in respect of world mineral reserves and production.

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Reserves %</th>
<th>Rank</th>
<th>Production %</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimony</td>
<td>6.4</td>
<td>4</td>
<td>3.2</td>
<td>7</td>
</tr>
<tr>
<td>Chrome</td>
<td>72.4</td>
<td>1</td>
<td>38.7</td>
<td>1</td>
</tr>
<tr>
<td>Coal</td>
<td>6.1</td>
<td>8</td>
<td>4.5</td>
<td>5</td>
</tr>
<tr>
<td>Copper</td>
<td>1.4</td>
<td>14</td>
<td>0.7</td>
<td>16</td>
</tr>
<tr>
<td>Fluorspar</td>
<td>16.7</td>
<td>2</td>
<td>5.0</td>
<td>4</td>
</tr>
<tr>
<td>Gold</td>
<td>40.1</td>
<td>1</td>
<td>11.1</td>
<td>5</td>
</tr>
<tr>
<td>Iron ore</td>
<td>0.9</td>
<td>9</td>
<td>2.8</td>
<td>7</td>
</tr>
<tr>
<td>Lead</td>
<td>2.1</td>
<td>7</td>
<td>1.4</td>
<td>11</td>
</tr>
<tr>
<td>Manganese</td>
<td>80.0</td>
<td>1</td>
<td>13.3</td>
<td>1</td>
</tr>
<tr>
<td>Nickel</td>
<td>8.4</td>
<td>5</td>
<td>3.1</td>
<td>9</td>
</tr>
<tr>
<td>Platinum</td>
<td>87.7</td>
<td>1</td>
<td>59.3</td>
<td>1</td>
</tr>
<tr>
<td>Titanium</td>
<td>18.3</td>
<td>2</td>
<td>19.8</td>
<td>2</td>
</tr>
<tr>
<td>Uranium</td>
<td>7.2</td>
<td>5</td>
<td>1.6</td>
<td>11</td>
</tr>
<tr>
<td>Vanadium</td>
<td>31.0</td>
<td>1</td>
<td>48.0</td>
<td>1</td>
</tr>
</tbody>
</table>

- South Africa has the world’s largest reserves of chrome, gold, manganese, platinum and vanadium.
- South Africa is the world’s largest producer of chrome, manganese, platinum and vanadium.
CONTRIBUTION OF MINING TO THE SOUTH AFRICAN ECONOMY

The relative contribution of mining to South Africa’s gross domestic product (GDP) has decreased over the past 10 to 20 years because of the rapid expansion of the secondary and tertiary sectors. Mining still remains a cornerstone of the economy, making a significant contribution to economic activity, job creation and foreign exchange earnings. Mining and its related industries are critical to South Africa’s socio-economic development. It acts as a magnet for foreign investment in the country.

The graph below shows the percentage earnings from all South African mines.

![Percentage earnings on all South African mines](image)

- Mining is one of the most important pillars supporting the economy of South Africa. In 2011, mining contributed 8.8% to the GDP.
- The mining sector is an important source of employment. It therefore contributes to the economy in the form of salaries, wages and taxes. Currently the mining sector provides employment to over one million people. Approximately R89 billion was spent on salaries and wages in 2011.
- The mining sector is an important earner of foreign exchange since a large amount of minerals is exported. Mining therefore stimulates the import - export trade of the country. It has enabled foreign capital to flow into the country. It has enabled the country to purchase consumer goods that are not manufactured locally. In 2011, mining exports earned the country over R282 billion. South Africa also exports processed minerals.
- The profits earned by the mines are taxed. The country earns millions of rand in the form of taxes from the gold mines alone. This money is used directly in the interests of the country. In 2011, the mining sector paid R25.8 billion in direct corporate tax.
In 2011, the mining sector paid R5.5 billion in royalties to the government for the extraction of the minerals.

SIGNIFICANCE OF MINING TO THE DEVELOPMENT OF SOUTH AFRICA

- The discovery of gold and diamonds led to the influx of skilled immigrants into the country. This skilled labour force later played an important role in stimulating industrial development in the country because of their technical expertise.
- Mining plays an important role in the generation of electricity. Mining “fuels” the South African economy. Coal is the most important source of energy (thermal power) in South Africa. At present coal provides over 90% of our electricity. This is so because other sources of energy are limited. Coal is therefore regarded as South Africa’s “Black Gold”. Coal is responsible for about 30% of the country’s liquid fuel production.
- By the end of 2011, South Africa’s mining industry was the largest contributor by value to Black Economic Empowerment (BEE) in the economy.
- Mining has contributed to industrial development. Iron ore mining has led to the establishment of iron and steel industries. The iron and steel industry, in turn, stimulated the development of ancillary industries that use iron and steel. Coal is used to smelt the iron ore in the blast furnaces. Coal mining has led to the establishment of oil from coal plants. The mines use a lot of explosives. This led to the establishment of explosives factories. Gold mining has led to the development of cyanide (a chemical used in the gold extraction process) factories. Since mining is highly mechanized, several industries manufacturing mining equipment have been established.
- Mining has stimulated the development of the forestry industry since mines use a lot of props.
- Mining has contributed to the development of transport in South Africa, in particular, the rail network. A railway line has been established from Mpumalanga to Richards Bay for the export of coal, and from Sishen to Saldanha for the export of iron ore. The railway lines are today also being used by the manufacturing industries. Mining accounts for about 50% of the value of Transnet’s rail and ports.
- As a result of mining, several new towns have been established especially in the Free State and Gauteng. Mining, therefore, speeded up the process of urbanisation in South Africa.
- Mining activities attract large numbers of people. This, in turn, created an increased demand for agricultural products.
- Mining has stimulated the development of harbours. Certain harbours were developed primarily for the export of specific minerals, for example, Richards Bay for coal and Saldanha for iron ore.
- Mining activities have attracted foreign investment to South Africa. Mining accounts for about 20% of foreign investment.
- Mining provides capital for reinvestment and new developments.
- In 2011, the mining sector contributed about R1.3 billion to community development.
• In 2011, the mining sector spent about R4.1 billion on skills development. During that year, 3178 employees completed learnership programmes funded by the mining companies.

• In 2010, the mining industry provided 10 224 students with bursaries and study assistance.

• The mining industry provides a substantial healthcare base and helps provide care to mine employees and their families.

• It has helped provide access to housing and community services.
FACTORS THAT FAVOUR AND HINDER MINING IN SOUTH AFRICA

FACTORS THAT FAVOUR MINING IN SOUTH AFRICA

Depth of minerals

- Mineral deposits are found relatively close to the surface of the earth in many areas.
- This makes mining relatively easy and cheap since vertical shafts do not have to be used.
- Where minerals occur just below the surface, open pit mining is practised, for example, iron ore mines in Phalaborwa and Sishen.

Thickness of seams

- Coal and iron ore seams are relatively thick.
- As a result mechanical cutters can be used.
- This accelerates the rate of production and reduces the cost of production.

Quality of mineral

- Coal, gold, diamonds and iron ore are of a very high quality.
- Since minerals have a high metal content, there is little wastage.
- As a result profits are high even if minerals are transported over a long distance.
- KwaZulu - Natal, for example, is famous for its high quality coking coal (anthracite).

Mineral reserves

- South Africa has vast reserves of minerals.
- As a result production is high.
- South Africa has the world’s largest reserves of chrome, gold, manganese, platinum and vanadium.

Nature of rocks in mines (geology)
The rocks found above the mineral deposits are very strong. This reduces the need for roof props. As a result, cost of mining is reduced. Mine accidents are minimized.

**Markets (Demand)**

- There is a great demand for minerals both by local and overseas markets. This has impacted positively on mineral production.
- Locally there is a great demand for coal by Sasol for the manufacture of oil and by Iscor for smelting the iron ore. Iscor uses a large amount of iron ore for the manufacture of iron and steel. Escom uses a lot of coal for the manufacture of thermal power.
- There is a great demand by overseas markets for minerals such as coal, iron ore, manganese and platinum.
- There is a great demand for strategic minerals by the USA. This demand has increased significantly with the lifting of sanctions and the dismantling of apartheid.

**Geothermal gradient**

- The geothermal gradient (temperature increase with depth) is small. Therefore mining can take place at great depths. This increases gross mineral production. The slight temperature change makes working conditions favourable. The cost of cooling the mines is therefore lower.

**Power**

- Mines consume a lot of power. Most of the power is generated from coal and is therefore relatively cheap. This also reduces the cost of mineral production.

**Labour**

- South Africa has a large labour force. The mines employ a large number of unskilled and semi-skilled workers.

**Infrastructure**

- The mines are served by an excellent network of roads and railways. Well developed harbours facilitate the export of minerals.
Beneficiation

- The government is encouraging local processing of minerals.

FACTORS THAT HINDER MINING IN SOUTH AFRICA

Depth of minerals

- In certain areas minerals occur at great depths, for example, the coalfields of northern KwaZulu - Natal.
- Vertical shafts have to be used in these areas, and this increases the cost of production.

Thickness of seams

- In certain areas, for example, the coalfields of northern KwaZulu - Natal, the seams are thin.
- It is therefore uneconomical to use mechanical cutters in these mines.
- These mines depend largely on manual labour which increases the cost of production.

Mineral reserves

- Minerals are non-renewable.
- Once minerals in a mine are exhausted, the mine has to close down.
- The closure of mines impacts negatively on the economy.

Labour

- The mines employ a large number of migrant workers.
- The migrant labour force is erratic (unstable) and new labourers have to be recruited all the time.
- Labourers frequently demand for higher wages and often resort to strikes if their demands are not met.
- Mine strikes affect production adversely.
- About R15 billion in production and sales was lost due to mine strikes in 2012.
- Mine disruptions have a negative impact on foreign investments.
- Large wage increases cause the closure of marginal mines.
- HIV / AIDS has caused the loss of experienced mine workers.

Mine hazards
- Flooding, faulting and fires cause much damage.
- Sections of mines have to be closed down and this decreases production.
- In the Carletonville area a specific problem is sinkholes.
- Some miners contract respiratory disease as a result of inhaling mine dust.
- South African mines have a poor track record in respect of mine safety.

**Nationalisation of mines**

- Uncertainty over nationalisation is affecting investors' willingness to get involved in mining ventures in South Africa.

**Fluctuating prices**

- The price of minerals fluctuates, depending on world supply and demand, and political and social factors.
- This is one of the most important factors affecting gold production.
- The fluctuating gold price makes it difficult for the industry to plan for the future.
- A low gold price causes a decrease in production and the closure of marginal mines.

**Water**

- Water has created a problem for mining in two ways.
- The presence of underground water makes mining below certain levels impossible and dangerous. Several miners have drowned as a result of underground water. Pumping the underground water out of the mine adds to the cost of production.
- Mines use a lot of water in the mining operation itself and in processing. The increasing shortage and cost of water are potential problems for some mines.

**Distance**

- Most of the valuable minerals are found in the interior of South Africa.
- The cost of transporting the minerals to the coast is high.
- This increases the price of export minerals. South Africa is therefore faced with competition from other countries.
- The great distance from the coast also raises the cost of importing machinery and equipment for the mines.

**Pollution**

- Acid mine drainage causes pollution of water.
- Dust from mines causes air pollution.
- Mine dumps cause land pollution and degradation of the environment.
CASE STUDY OF COAL MINING IN SOUTH AFRICA

Coal is an important mineral in South Africa. South Africa produced over 255 million tons of coal in 2011. Three quarters of the coal is consumed domestically. South Africa is one of the seven largest coal-producing and one of the top five coal exporting countries.

CONTRIBUTION OF COAL MINING TO THE SOUTH AFRICAN ECONOMY

- Coal makes a significant contribution to the gross domestic product (GDP) of South Africa.
- More than 25% of the coal is exported. Coal is South Africa’s third largest source of foreign exchange.
- Provides employment to a large number of people. It therefore contributes to the economy in the form of salaries, wages and taxes. The coal mining industry employs about 58 000 people.

CONTRIBUTION OF COAL MINING TO THE DEVELOPMENT OF SOUTH AFRICA

Coal is the main source of energy in South Africa. At present coal provides over 90% of our electricity. Coal is therefore regarded as South Africa’s “Black Gold”.
- About 30% of liquid fuel used in South Africa is derived from coal.
- A large number of households in South Africa depend on coal as their primary energy source for cooking, lighting and heating.
- Coal mining has contributed to industrial development in South Africa. Coal is used to smelt the iron ore in the blast furnaces. Coal mining has led to the development of oil from coal plants. Coal mines use a lot of explosives. This led to the development of explosives factories. Coal mining has contributed to the development of industries that manufacture mining equipment.
- Coal mines use a lot of props. This stimulated the expansion of the forestry industry.
- Since coal is a bulky raw material, it has stimulated the development of rail transport.
- Several new towns have been established as a result of coal mining.
- Coal mining has contributed to the development of the harbour at Richards Bay.
FACTORS THAT FAVOUR COAL MINING IN SOUTH AFRICA

- South Africa has large coal reserves. This makes possible large scale production.
- Coal deposits are found relatively close to the surface of the earth in many areas. This makes coal mining relatively easy and cheap. Most coal production in South Africa (about 53%) is from open-cast mines.
- Coal seams in many areas are relatively thick. As a result mechanical cutters can be used. This reduces the cost of production.
- Coal is of a high quality. KwaZulu-Natal, for example, is famous for its high quality coking coal (anthracite).
- The rocks above the coal seams are relatively strong. This reduces the need for roof props and mine accidents are minimized.
- There is a great demand for coal both by local and overseas markets. This has impacted positively on coal production. Locally there is a great demand for coal by Sasol for the manufacture of oil and by Iscor for smelting the iron ore. Escom uses a lot of coal for the manufacture of thermal power.
- The geothermal gradient is small. Therefore coal mining can take place at great depths.
- Coal mines use a lot of power. Thermal power is cheap since coal is cheap.
- South Africa has a large labour force. Therefore labour for the coal mines is readily available.
- The coal mines are served by an efficient rail network.

FACTORS THAT HINDER COAL MINING IN SOUTH AFRICA

- Although South Africa has vast reserves of coal, coal is a non-renewable resource. At the present rate of consumption, the known coal reserves will only last for another 200 years.
- Several coal mines have been abandoned by their owners. Many of these mines have not been rehabilitated before being abandoned and are a major cause of water and air pollution. Acid mine drainage from coal mines leads to water pollution. The largest contributor to coal derived air pollution is household coal usage (65%), followed by industry (30%) and electricity generation (5%).
- In certain areas coal deposits occur at greater depths, for example, the coalfields of northern KwaZulu-Natal. Coal mining is expensive in these areas.
- The coal seams in northern KwaZulu-Natal are thin. As a result the mines depend largely on manual labour which increases the cost of production.
- Labour strikes and demand for higher wages impact negatively on coal production.
- Flooding, faulting and fires cause much damage.
- Coal mines consume a lot of water. Water is a scarce commodity in South Africa.
- There is a great distance between the coalfields and the export harbour of Richards Bay. This increases the cost of export coal.
- Coal mining causes soil erosion, destruction of wild life habitat and degradation of the environment.
SECONDARY AND TERTIARY SECTORS

CONTRIBUTION OF SECONDARY AND TERTIARY SECTORS TO THE SOUTH AFRICAN ECONOMY

During the early stages of development, South Africa’s economy was dominated by primary economic activities. Today the secondary and tertiary sectors are the main contributors to the economy. The contribution made by secondary sector has steadily decreased over the years. This does not mean that the secondary sector is becoming less important. The contribution made by the secondary sector has declined because of the rapid expansion of the tertiary sector. The tertiary sector makes the greatest contribution to the GDP of South Africa.
TYPES OF INDUSTRIES

Heavy industries: These industries generally use bulky machinery, consume large quantities of raw materials and usually cause a lot of air and noise pollution, for example, sugar mills and iron and steel factories.

Light industries: These industries generally use light weight machinery, consume relatively small quantities of raw materials and are usually free of nuisance qualities such as noise, smoke, smell and dirt. A textile industry is an example of a light industry.

Raw material orientated industries: These industries are found near the source of raw material, for example sugar mills are found in the coastal belt of KwaZulu - Natal.

Market orientated industries: These industries are found near the market, for example the dairy industry and bakeries.
Footloose Industries: These industries are not dependent on any specific locational factors. A particular type of foot industry can occupy different locations in an urban complex, for example the textile industry and manufacture of jewellery.

Ubiquitous industries: These industries are found everywhere. They mainly refer to market orientated industries such as bakeries and butchers.

Bridge industries: These industries are neither raw material orientated nor market orientated but occupy an intermediate (middle) position. They are located at break - of - bulk points where one type of transport is replaced by another. Bridge industries are mainly located at harbours.

Labour intensive industries: These industries depend largely on manual labour for their functioning, for example textile industries.

Capital intensive industries: These industries use expensive machinery on a large scale. They do not depend much on manual labour.

FACTORS INFLUENCING INDUSTRIAL DEVELOPMENT IN SOUTH AFRICA

There are several factors that favour and hinder industrial development in South Africa.

Raw Materials

- South Africa is richly endowed with raw materials that stimulate industrial development.
- The country has vast reserves of iron ore, coal, manganese, chrome, platinum etc.
- The range of climates has enabled the country to produce a variety of agricultural products which serve as raw material for the food processing industries.
- The country has vast reserves of coal which is the most important source of energy.
- Forestry provides raw material for the timber industry, for example, the manufacture of furniture.
- Fishing also provides raw material for the food processing industry.

Labour supply

- South Africa has a large supply of semi - skilled and unskilled labour.
- There is a serious shortage of skilled labour and entrepreneurs.
- Constant demand for higher wages, labour strikes and union action add to cost of production.
- Loss of skilled labour as a result of emigration to other countries impacts negatively on industrial development.
- The high incidence of HIV and AIDS impacts negatively on industrial production and the availability of skilled labour.
Transport Infrastructure

- The country has a good road and rail network which facilitates the assembly of raw materials and the distribution of manufactured goods.
- Well developed harbours and international airports also support the manufacturing industry.

Political Intervention

- The government has done much to promote industrial development in South Africa.
- Escom, Iscor and Sasol are state ventures.
- The introduction of Spatial Development Initiatives (SDIs) and Industrial Development Zones (IDZs) has stimulated industrial expansion.
- The government has actively encouraged industrial decentralization to ease congestion and reduce pollution in the core areas.
- Environmental impact studies restrict industrial development in certain areas.

Competition

- South Africa is faced with increasing competition from the technologically advanced countries.
- The country is located far away from the markets of Western Europe and the United States.
- As a result export products to these countries are more expensive.
- Some countries such as China are able to supply certain items to South Africa at a low cost. This hinders the local development of these industries.

Trade

- South Africa has a large population which creates a local market for manufactured goods.
- However a large number of people have a low purchasing power.
- The lifting of sanctions and the dismantling of apartheid has impacted positively on international trade.
- The country is favourably located in respect of trade with the rest of Africa. However the African countries have a low purchasing power.

Energy

- Industries, especially heavy industries, use a lot of power.
- Power is relatively cheap since it is derived from coal.
- Industries have special agreements with Eskom for the provision of cheap electricity.
- However there are global restrictions on the emission of greenhouse gases.
- Other sources of power are not readily available in South Africa.
- Heavy industries in particular consume a lot of water.
- Most of the heavy industries are located in the eastern part of the country where rainfall is higher.
- The Western Cape is dominated by light industries since they use less water.
- Water shortage is a critical factor in South Africa.

**SOUTH AFRICA'S INDUSTRIAL REGIONS**

Industries in South Africa are concentrated in four core areas. This phenomenon is known as **industrial centralization**. The four core industrial areas are Gauteng (PWV), Durban - Pinetown, Port Elizabeth - Uitenhage and the South Western Cape. Gauteng is the most important core industrial area followed by Durban - Pinetown, South Western Cape and Port Elizabeth - Uitenhage. The four major industrial areas make up 6% of the area of the country, yet house over 75% of South Africa's industries. The map below shows the location of the four core industrial areas.

![Map of South Africa showing core industrial areas](image)

1. Gauteng (PWV)
2. Durban - Pinetown
3. Port Elizabeth - Uitenhage
4. South Western Cape
<table>
<thead>
<tr>
<th>Core Area</th>
<th>LOCATIONAL FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAUTENG (PWV)</td>
<td>Raw materials: This area is richly endowed with mineral resources. Large deposits of iron ore are found nearby at Sishen, Thabazimbi and Phalaborwa. This stimulated the development of the iron and steel industries. Large deposits of coal are found in this area. Coal is used to generate thermal power and to smelt the iron ore. Chrome and copper are found nearby. This area is also rich in agricultural raw material especially maize.</td>
</tr>
<tr>
<td></td>
<td>Market (Demand): The PWV area is the most densely populated region of South Africa. An added advantage is that the people in this area have a high purchasing power. This creates a great demand for manufactured goods. There is a great demand for explosives by the coal and gold mines. There is a demand for cyanide by the gold mines. The agricultural sector makes a demand for farm machinery, pesticides, insecticides, weed killers and fertilizers. It has a good location with regard to overseas markets. Although situated in the interior, the PWV has direct rail links with the harbours of Cape Town, Richards Bay, Durban and Maputo. This facilitates the import of raw materials and the export of manufactured goods.</td>
</tr>
<tr>
<td></td>
<td>Labour: Since this is the most densely populated area of the country, a large labour pool is readily available. This labour force was initially attracted by the gold mines but is now employed by the industries. A large labour force is obtained from the neighbouring countries and also from the township of Soweto. In addition there is a large concentration of educational institutions in the area, for example, universities, colleges, technicons and research institutes. As a result skilled labour is readily available.</td>
</tr>
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<td></td>
<td>Power: Large reserves of coal are found in this area. As a result thermal electricity is readily available. This stimulated in particular the development of heavy industries. Since electricity is transmitted over a short distance, it is cheap.</td>
</tr>
<tr>
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<td>Water: The area receives adequate rainfall (eastern part of the country). Water is obtained from the Vaal Dam. The water in this dam is supplemented by water pumped from the Tugela River (TUVA Scheme) and the Lesotho Highlands Water Project. The ready availability of water also stimulated the development of heavy industries.</td>
</tr>
<tr>
<td></td>
<td>Transport: The area has an excellent transport network. It has the highest rail and road density in the country. Johannesburg is the focal point of all transport routes. This facilitates the assembly of raw material and the dispatch of manufactured goods.</td>
</tr>
<tr>
<td></td>
<td>Relief: This area is situated on the plateau where the land is flat. This facilitates the construction of roads, railways and building structures.</td>
</tr>
<tr>
<td>DURBAN - PINETOWN</td>
<td>Harbour: The presence of the harbour at Durban has led to the development of two types of industries: firstly industries that process imported raw material (especially chemical industries) and industries that export manufactured goods. There is a concentration of bridge industries in this area. Durban is South Africa’s busiest harbour.</td>
</tr>
<tr>
<td></td>
<td>Labour: This is the most densely populated region in Kwazulu - Natal. Therefore labour is readily available. Abundant labour is obtained from townships such as Umlazi, Kwa Mashu, Chatsworth and Phoenix.</td>
</tr>
<tr>
<td></td>
<td>Markets: Since this area is densely populated, there is a sound local market. Hence there is a great demand for locally manufactured goods and this also stimulates the local economy.</td>
</tr>
</tbody>
</table>
stimulated production. Because of the coastal location, this area has an excellent situation with regard to overseas markets. The coastal location favours the import of raw materials and the export of manufactured goods.

**Raw material:** This area is richly endowed with agricultural raw materials, especially sugar cane and sub-tropical fruits. Large reserves of coal are found nearby in northern KwaZulu-Natal. As a result, thermal electricity is relatively cheap. This stimulated the development of heavy industries. It is also a major producer of timber.

**Transport:** This area has an excellent transport network. It has a high road and rail density which facilitates the assembly of raw material and the export of manufactured goods. It has access to ocean transport. It also has direct road and railway links with the PWV area.

**Relief:** The area is located on flat land. This facilitates the construction of transport routes and factories.

**Water:** This area has a better water supply than the other industrial regions. It lies in the wetter eastern part of the country. It also lies within close proximity of perennial rivers.

<table>
<thead>
<tr>
<th>SOUTH WESTERN CAPE</th>
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<tbody>
<tr>
<td>Accounts for 14% of industrial production.</td>
</tr>
<tr>
<td>It is the third largest industrial region in South Africa.</td>
</tr>
</tbody>
</table>

**Harbour:** The presence of the harbour at Cape Town has facilitated the import of raw material and the export of manufactured goods. There is a concentration of bridge industries in this area. It has an excellent situation with regard to overseas markets.

**Labour:** This area is densely populated. Therefore skilled and unskilled labour is readily available.

**Market:** The dense population provides a sound local market. The area has an excellent situation with regard to overseas markets.

**Relief:** The flat nature of the land facilitates infrastructure development.

**Raw material:** This area is rich in agricultural raw materials and sea products. The Mediterranean climate favours fruit farming. This has led to the development of food processing industries in the area. However, the area has a shortage of mineral raw material.

**Water:** This area receives high winter rainfall. However, the water supply is insufficient for the development of heavy industries.

**Power:** There is no coal in this area. The area depends mainly on nuclear power, which is expensive. This is another reason why this area is dominated by light industries.

<table>
<thead>
<tr>
<th>PORT ELIZABETH - UITENHAGE</th>
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<tbody>
<tr>
<td>Accounts for 8% of industrial production.</td>
</tr>
<tr>
<td>It is the fourth largest industrial region in South Africa.</td>
</tr>
</tbody>
</table>

**Harbour:** The presence of the harbour at Port Elizabeth has facilitated the import of raw material and the export of manufactured goods.

**Transport:** The area has an excellent transport system that facilitates the movement of raw material and manufactured goods.

**Relief:** The area is located on fairly flat land.

**Labour:** The area is densely populated. Therefore labour is readily available.

**Water:** The area is located in the wetter eastern part of the country.

**Market:** Favourably located in respect of local and overseas markets.
**Coega project:** The development of the Coega project in this region has stimulated industrial expansion through local and foreign investment.

## MAIN INDUSTRIAL ACTIVITIES IN THE FOUR CORE INDUSTRIAL AREAS

<table>
<thead>
<tr>
<th>CORE AREA</th>
<th>MAIN INDUSTRIAL ACTIVITIES</th>
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<tbody>
<tr>
<td>Gauteng</td>
<td>• Iron and steel</td>
</tr>
<tr>
<td></td>
<td>• Metal processing and engineering (eg. manufacture of mining equipment and agricultural machinery)</td>
</tr>
<tr>
<td></td>
<td>• Chemical industries (eg. manufacture of fertilizer, chemicals, cyanide, explosives, oil - from - coal plant)</td>
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<tr>
<td></td>
<td>• Motor assembly (BMW, Ford and Nissan)</td>
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<tr>
<td></td>
<td>• Manufacture of vehicle parts and accessories</td>
</tr>
<tr>
<td></td>
<td>• Textiles</td>
</tr>
<tr>
<td></td>
<td>• Food processing and beverage</td>
</tr>
<tr>
<td>South Western Cape</td>
<td>• Food processing (canned fruits, jam, canned fish, wine)</td>
</tr>
<tr>
<td></td>
<td>• Textiles, clothing and shoe factories</td>
</tr>
<tr>
<td></td>
<td>• Furniture</td>
</tr>
<tr>
<td></td>
<td>• Metal processing and engineering</td>
</tr>
<tr>
<td></td>
<td>• Manufacture of paper and paper products</td>
</tr>
<tr>
<td></td>
<td>• Ship repair works</td>
</tr>
<tr>
<td></td>
<td>• Oil refineries</td>
</tr>
<tr>
<td>Durban - Pinetown</td>
<td>• Chemical industries (manufacture of paint, industrial chemicals, fertilizers and explosives)</td>
</tr>
<tr>
<td></td>
<td>• Paper and pulp factories</td>
</tr>
<tr>
<td></td>
<td>• Sugar refineries</td>
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<tr>
<td></td>
<td>• Oil refineries</td>
</tr>
<tr>
<td></td>
<td>• Ship repair and shipbuilding</td>
</tr>
<tr>
<td></td>
<td>• Motor industry dominated by Toyota</td>
</tr>
<tr>
<td></td>
<td>• Textiles and footwear</td>
</tr>
<tr>
<td></td>
<td>• Food processing</td>
</tr>
<tr>
<td>Port Elizabeth - Uitenhage</td>
<td>• Assembly of motor vehicles</td>
</tr>
<tr>
<td></td>
<td>• Manufacture of tyres</td>
</tr>
<tr>
<td></td>
<td>• Motor spares industry</td>
</tr>
<tr>
<td></td>
<td>• Textile and leather goods</td>
</tr>
<tr>
<td></td>
<td>• Shipping</td>
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</tbody>
</table>
STRATEGIES FOR INDUSTRIAL DEVELOPMENT

OVERVIEW OF APARTHEID AND POST - APARTHEID
INDUSTRIAL DEVELOPMENT STRATEGIES

DURING APARTHEID

• During the apartheid era, Blacks were allocated designated areas called homelands eg. Transkei, Venda, Ciskei, Lebowa etc. These homelands had very few job opportunities and most of the people lived in poverty.

• Industrial development was concentrated in four core areas, namely, Gauteng, Durban – Pinetown, South Western Cape and Port Elizabeth - Uitenhage. These industries were operated by Whites.

• In 1960, the apartheid government introduced the policy of industrial decentralization. Industrial decentralization involved the establishment of new industries outside the core areas in the periphery or rural areas. It also involved the transfer of existing industries from the core areas to the periphery areas. Industrial decentralization had two components, namely, the establishment of border industries and the establishment of growth points within the homelands.
- A border industry is an industry located in a White area adjacent to a homeland. Examples of border industries are Isithebe and Hammersdale.
- A growth point is a specifically selected decentralized area where major infrastructure requirements are provided for industrial growth. (NB. Infrastructure refers to water supply, power supply and transport routes on which industrial development is based.)
- Several growth points were established in the homelands during the apartheid era. These growth points were run by White enterprises. Since Whites were not allowed to own land within a Black homeland, the land and buildings were leased to them for a fixed period. At the end of this period, the White industrialist had to hand over the concern to a suitable Black industrialist. As a result this policy met with little success. Examples of growth points are Butterworth, Madadeni and Esikhfeni.
- In order to encourage industrial decentralization, the apartheid government offered several incentives. These included:
  - loans offered at low interest rate
  - housing subsidies provided for White personnel
  - provision of training for labourers
  - granting of tax concessions to industrialists
  - provision of water and electricity at low cost
  - awarding of price preferences and tender preferences to industrialists
- These incentives were withdrawn in the 1990s. This led to job losses since many factories had to close down.
- The government’s decentralization policy was a failure because it did not address the needs of the poor Blacks living in the homelands. The main purpose of the decentralization policy was to prevent the influx of Black workers into the core areas, and to exploit cheap labour in the homelands.

**POST-APARTHEID**

After the democratic elections of 1994, several economic and social measures were introduced to address issues of job creation, poverty and the provision of services such as housing, access to clean water, proper sanitation and electricity. These measures include:

**THE BASIC NEEDS APPROACH**

The basic needs approach is based on the principle that all individuals have a right to a minimum acceptable quality of life. In order to achieve this, the following needs have to be met: jobs, food, land, housing, water, electricity, sanitation, education, telecommunications, transport, a clean and healthy environment, health care and social welfare.

**THE RECONSTRUCTION AND DEVELOPMENT PROGRAMME (RDP)**

The Reconstruction and Development Programme was launched in 1994. The aim of the RDP is to improve the quality of life of all people in South Africa. Five major programmes underpin the RDP. They include:
- Meeting basic needs.
- Development of human resources.
- Building the economy.
- Democratising the state and society.
- Implementing the process of reconstruction and development.

GEAR (GROWTH, EMPLOYMENT AND REDISTRIBUTION)

GEAR is an economic reform policy that was adopted in 1996. It is a macroeconomic strategy aimed at uplifting the entire nation. The objectives of the GEAR strategy include the following:
- A competitive fast-growing economy which creates sufficient jobs for all work seekers.
- A redistribution of income and opportunities in favour of the poor.
- A society in which sound health, education and other services are available to all.
- An environment in which homes are secure and places of work are productive.

BLACK ECONOMIC EMPOWERMENT (BEE)

- During the apartheid era, Blacks were excluded from participation in the economy.
- With the introduction of BEE, more and more Blacks are participating in the economy of South Africa.
- BEE aims to address the injustices of the past.

ACCELERATED AND SHARED GROWTH IN SOUTH AFRICA (Asgi - SA)

Asgi - SA was introduced to stimulate economic growth and halve poverty and unemployment by 2014.

CONCEPT AND DISTRIBUTION OF INDUSTRIAL DEVELOPMENT ZONES (IDZs)

The government’s IDZ programme was launched in 2000. An IDZ is located close to a harbour or an international airport. An IDZ aims to:
- promote the competitiveness of the manufacturing sector
- encourage the development of export-oriented manufacturing industries
- encourage the processing of local resources for export
- attract foreign and local investment
- promote economic growth
- create employment

An IDZ is found within an SDI (Spatial Development Initiative). A total of eight IDZs have been identified (See map). As of 2012, three IDZs were fully operational: Richards Bay, East London and Port Elizabeth (Coega). In addition further sites have been identified and are being developed. The Coega IDZ has been the most successful project. Certain concessions are granted to industrialists operating within
The IDZs have an excellent infrastructure. The map below shows the industrial development zones.

**INDUSTRIAL DEVELOPMENT ZONES**

![Map of South Africa showing industrial development zones](image)

**SPATIAL DEVELOPMENT INITIATIVES (SDIs)**

SDIs were introduced in 1996. An SDI programme is a short-term, focused programme of strategic activities, or interventions to facilitate investment-led growth. A key requirement of SDI is to focus on areas that are underdeveloped but have potential for growth. These areas are referred to as corridors. The corridors extend across parts of South Africa and, in some instances, into our neighbouring countries. There are ten underdeveloped corridors in South Africa. They include Saldanha SDI, Fish River SDI, Wild Coast SDI, Richards Bay SDI, Lebombo SDI, Maputo Development Corridor, Rustenburg (Platinum SDI), Trans-Kalahari Transport Corridor (Coast to Coast SDI), Phalaborwa SDI and KwaZulu-Natal SDI.

SDIs are usually linked to one or more natural resources such as minerals, agriculture, energy, tourism or forestry which act as an anchor and stimulus for development.

**SDI OBJECTIVES**

- To generate sustainable economic growth and development in relatively underdeveloped areas that have potential for growth.
- To create long term and sustainable employment for the local people of the SDI area.
- To maximize private sector investments.
- To exploit the spin-off opportunities that arise from this relative crowding-in of private and public sector investment for the development of Small Medium Micro Enterprises (SMMEs) and the empowerment of the local communities.
- To exploit the SDI areas underutilized locational and economic advantages for export orientated growth.
- To develop the infrastructure of underdeveloped areas.
ISSUES ASSOCIATED WITH INDUSTRIAL CENTRALISATION AND DECENTRALISATION

INDUSTRIAL CENTRALISATION

Industrial centralisation refers to the concentration of industries in a few core areas. In the case of South Africa, industries are concentrated in four core areas. Industrial centralisation is also known as industrial agglomeration.

ADVANTAGES OF INDUSTRIAL CENTRALISATION

- The core areas have a well-developed transport network.
- There is a large labour pool.
- There is a large domestic market.
- Raw materials are readily available.
- The core areas have an adequate water supply.
- Industries can share certain facilities.
- There is a concentration of skilled artisans in the core areas.
- Cost of production is reduced.
- Financial services are readily available in the area.

PROBLEMS RESULTING FROM INDUSTRIAL CENTRALISATION

- Leads to an overconcentration of people and industries in the core areas. It has contributed to an uneven distribution of the South African population.
- It has led to regional imbalances in the provision of services such as housing, electricity, piped water, proper sanitation, health, education etc.
- Traffic congestion has been accelerated.
- The core areas are vulnerable during a war or in the event of a natural disaster.
- Centralisation leads to an imbalance in the level of economic development and the distribution of wealth. Leads to the neglect and decline of the outlying rural areas.
- Resources in the core areas are overutilised.
- Has led to rural-urban migration and its associated problems.
- There has been an increase in air, water and land pollution in the core areas.
- Increase in unemployment in the outlying rural areas.
- Leads to housing shortages and the development of slums in the core areas.
INDUSTRIAL DECENTRALISATION

Industrial decentralisation refers to the establishment of new industries outside the core areas (in the periphery or rural areas). The following are some of the measures that have been implemented by the government to achieve this:

- By the establishment of growth points. A growth point is a specifically selected decentralized area where major infrastructure requirements are provided for industrial development.
- By the establishment of deconcentration points. A deconcentration point is an area adjacent to the core area. Industrialists are encouraged to locate in these areas in order to ease the congestion in the core areas.
- During the apartheid era, industries were located in White areas adjacent to Black homelands. These industries were referred to as border industries. The main purpose of border industries was to prevent the influx of Black workers into the core areas.
- Since 1994, several Spatial Development Initiatives (SDIs) and Industrial Development Zones (IDZs) were created in order to stimulate economic growth in the underdeveloped rural areas. Some of the SDIs and IDZs have been highly successful, for example, the Coega IDZ, Richards Bay IDZ and the Maputo Development Corridor.

ADVANTAGES OF INDUSTRIAL DECENTRALISATION

- Promotes the economic development of the underdeveloped areas.
- Stems the flow of migrant workers to the core areas.
- Resources in the periphery areas are utilized to generate wealth.
- Outlying areas gain as a result of the development of infrastructure.
- It reduces regional imbalances in the level of development and prosperity.
- Reduces congestion and pollution in the core areas.
- There is less pressure on resources and services in the core areas.
- Spatial Development Initiatives and Industrial Development Zones are making a significant contribution to skills development and job creation.
- Labourers do not have to travel long distances to work.
INFORMAL SECTOR

CONCEPT AND CHARACTERISTICS OF INFORMAL SECTOR EMPLOYMENT

CONCEPT OF INFORMAL SECTOR EMPLOYMENT

FRUIT AND VEGETABLE STALL

SALE OF CRAFT WARE

In many large cities of the world, particularly in developing countries, there is not enough work in the formal sector for everyone. The informal sector of the economy includes a variety of jobs which are undertaken by individuals and over which there is little or no official control. The informal sector is made up of two categories. Firstly there are workers who are self-employed, for example street vendors, car guards, hairdressers, owners of plaza shops and taverns etc. Secondly a large number of informal workers are employed by other individuals and companies, for example, casual workers, domestic cleaners etc.

CHARACTERISTICS OF INFORMAL SECTOR EMPLOYMENT

- Most of the informal traders are women.
- The income of people employed in the informal sector is not taxed.
- Street vendors and vendors trading in other areas do not pay any rental.
Informal traders are able to market their produce at a cheaper rate than that of the formal sector.

Informal trading impacts negatively on the turnover of formal sectors that provide the same service. For example, it is far cheaper to buy a particular item from an informal trader than purchasing the same item from a curio shop.

The labour force of the informal sector that is employed by other people, for example, casual workers, is not protected by law. They can be exploited by people who pay them very low wages. However, in the case of domestic workers and farm labourers, a minimum wage has been fixed by the government. Employees are obligated to register such workers.

The increased number of street vendors in the CBD of towns and cities offer stiff competition to small time businesses in the CBD. Such businesses may have to close down or relocate.

They occupy pavements along streets thus interfering with the smooth movement of pedestrians. This contributes to increased pedestrian congestion and creates an unpleasant shopping atmosphere.

Sometimes conflicts arise between informal traders and owners of retail outlets since informal traders occupy space illegally.

They cause excessive littering which places an extra burden on local municipalities.

Some informal traders sleep at their trading site at night.

The preparation of fast foods over open fires increases levels of pollution.

Informal traders do not belong to trade unions.

They do not have any fringe benefits such as pension or medical aid.

Black South Africans make up the majority of informal traders.

A large number of informal traders are unskilled.

Working hours are long, and incomes are low and irregular.

The contribution of the informal sector is not included in the gross domestic product (GDP).

**REASONS FOR HIGH INFORMAL SECTOR EMPLOYMENT IN SOUTH AFRICA**
The rate of unemployment in South Africa is abnormally high. During the first quarter of 2013, the South African labour force totalled 18,222,000. Of these 10,325,000 were employed by the formal sector whilst 3,297,000 were employed by the informal sector. The number of people unemployed was 4,601,000. The graph above illustrates this.

The following are the main reasons for the high informal sector employment in South Africa.

- During the apartheid era, Blacks were not allowed to participate in the economy of the country. They had limited access to jobs in the formal sector. As a result they had to engage in informal trading in order to survive.
- The rate of unemployment in South Africa is very high (25%). The formal sector does not have sufficient jobs for the labour force. This also forces people to engage in informal trading. The informal sector serves as a buffer between employment and unemployment.
- The education offered to Black South Africans during the apartheid era was of an inferior quality. The education system did not provide them with the necessary skills for formal employment in the secondary and tertiary sectors of the economy. Informal trading was their only means of survival.
- As a result of poverty, a large number of Blacks were unable to attend schools. This resulted in the creation of a large unskilled labour force that could not be absorbed by the formal sector.
- Rigid regulatory and licensing requirements encourage small entrepreneurs to go informal.
- The democratization of South Africa has led to the opening up of the economy to world trade. Some local industries in South Africa were not able to compete with international counterparts, such as China where labour is relatively cheap and labour regulation is much less rigid. Several industries closed down and others cut down on production. This led to unemployment and retrenchment. Many of these workers joined the informal sector.
- Labour laws in South Africa make it very difficult to dismiss or retrench workers. Furthermore, the hiring of workers has to comply with racial and gender quotas. Most workers are also pressured to join a trade union. In order to avoid these problems, many workers are employed by businesses as “self-employed contractors”. Many of these contractors do not register as employed and don’t register for tax.

CHALLENGES FACING SOUTH AFRICA’S INFORMAL SECTOR

The informal sector is a very important component of the South African economy but is faced with several challenges.

- There is a high rate of illiteracy amongst informal traders.
- They have difficulty with accommodation. Many commute between rural areas and the city to do street trading.
- Lack of access to credit facilities.
- Low level of entrepreneurial and technical skills.
- Informal traders are harassed by public authorities. Sometimes their stock is confiscated.
- Lack of health and safety standards. Many informal traders work in very dangerous environments with little or no protection.
- Workers in the informal sector earn a very low wage. They have no job security. Many workers are exploited.
- Some employers deliberately operate informally to avoid paying taxes and a minimum wage. Such workers are deprived of employee benefits such as Unemployment Insurance Fund, medical aid, pension, bonuses, and paid leave.
- Street vending impacts negatively of formal shop owners.
- Many informal traders are from neighbouring African countries. This leads to xenophobia.

The following are some measures that have been or may be introduced to address issues of informal trading.

- Informal traders must be protected.
- They should be allocated permanent structures in specifically designated areas where they can trade without being a threat to the formal sector.
- Vendors that specialize in the making and selling of handicrafts, curios and other artifacts should be located in areas that are frequented by tourists.
- Informal trading can be formalized to a certain extent.
- Credit facilities should be made available to informal traders.
- Provision of public toilets and bins for the disposal of litter.
- Provision of skills training particularly for women who make up the majority of street vendors.
- Introduction of a permit and license system.
- Imposition of fines for operating without a permit, for littering and for trading in illegal areas.