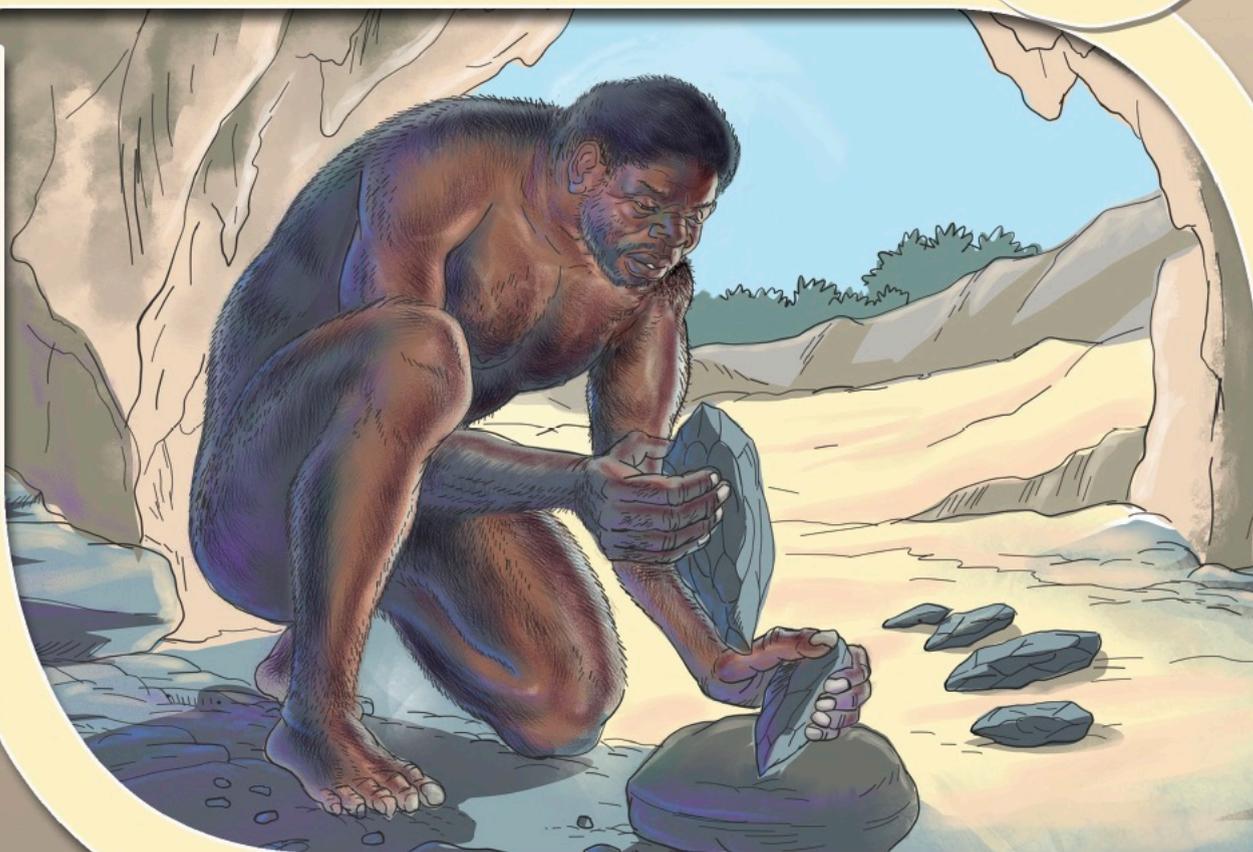


# Social Studies

## Pupil's Book

Standard

7



Tanzania Institute of Education



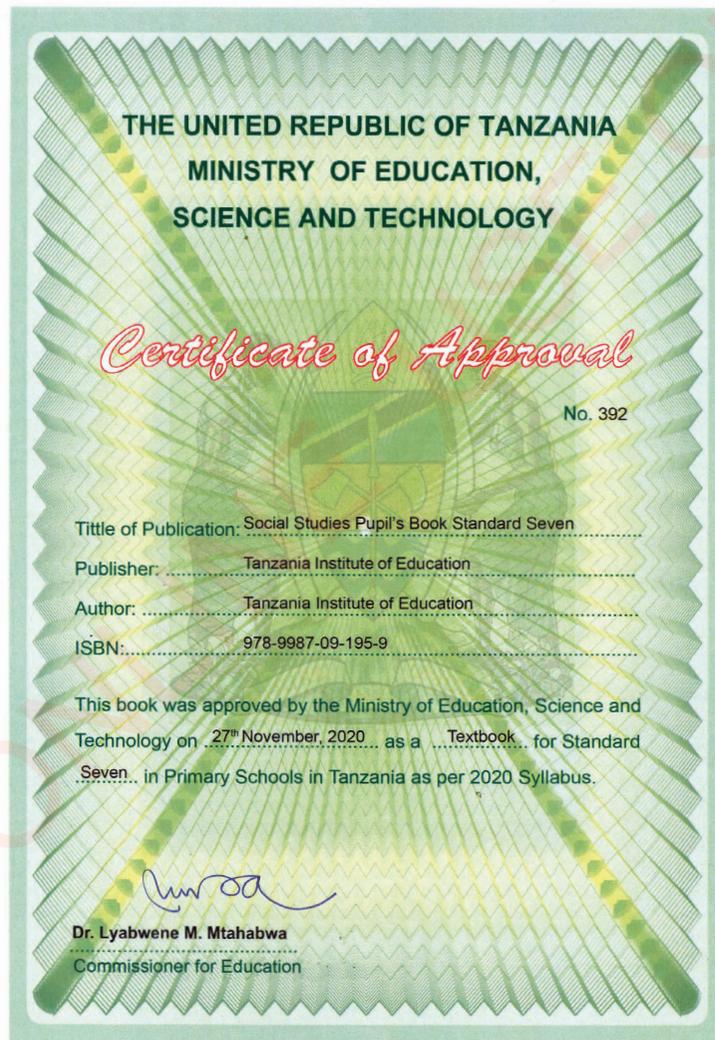
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# Social Studies

## Pupil's Book

### Standard Seven



Tanzania Institute of Education

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Tanzania Institute of Education

P. O. Box 35094

Dar es Salaam

Tel: +255 735 041 170 / +255 735 041 168

Email: [director.general@tie.go.tz](mailto:director.general@tie.go.tz)

Website: [www.tie.go.tz](http://www.tie.go.tz)

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**Designer:** Mr Katalambula Faraji

**Cartographer:** Ms Sauda Kileo

**Photographer:** Mr Chrisant Ignas

**Illustrators:** Mr Fikiri Msimbe and Alama Art and Media Production Limited

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Dr Aneth A. Komba

Director General

Tanzania Institute of Education



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## **Introduction**

This is the fifth book in a series of five textbooks on Social Studies for Primary Schools from Standard Three to Seven. The book is prepared according to the 2020 Social Studies Syllabus for Primary Schools issued by the Ministry of Education, Science and Technology. This book consists of 12 chapters, which are: Natural hazards, Human development and production tools, Climate of Tanzania, Tanzanian traditions and customs, Transportation and cooperation between Tanzania and other countries, and the impacts of the techniques used for the struggle of independence in Africa. Others are Development in post-independence Tanzania, Uses of maps, the Solar system, Population and settlement Economic activities in the East African Community and Entrepreneurship. The book includes passages, illustrations, practical activities, and exercises that enhance learning. You are, therefore, encouraged to do all the activities and exercises in this book together with other assignments provided by your teacher.

# Chapter One

## Natural hazards

### Introduction

*In Standard Six, you learnt about the concept of climate change, global warming and the relationship between human activities and global warming. Similarly, you learnt about the various hazards caused by global warming, their effects and the different measures that are used to deal with the hazards. In addition, you learnt how to control environmental degradation. In this chapter, you will learn to identify natural hazards and how to control their effects. Also, you will learn about fire hazards caused by natural forces, their effects, fire prevention and principles of firefighting and rescue. The competencies gained from this chapter will enable you to identify natural hazards and take appropriate measures to reduce their effects.*

### The concept of natural hazards

Natural hazards are catastrophic events caused by natural forces that occur suddenly or gradually, thus, causing disasters. These hazardous events may be regarded as disasters if their occurrence leads to serious damage and the affected community does not have adequate resources to avoid or recover from the catastrophe. Some of these natural hazards include earthquakes, volcanic eruptions, landslides, tsunamis, fire outbreaks, floods and droughts. Although the floods, droughts and fire outbreaks are natural hazards, they may as well be caused by human activities.

Natural hazards may occur either suddenly or gradually. Some of the natural hazards that occur suddenly include floods, earthquakes, volcanic eruptions, landslide, tsunami, and fire outbreaks. Drought is one of the natural hazards that occur gradually. These hazardous events can occur anywhere depending on the nature of that particular hazard. Other hazards occur repeatedly in the same area. These hazards may cause disasters

such as deaths of people and animals, loss of or damage to vegetation, property, infrastructure, and disease outbreaks. Some of these natural hazards and their effects are as follows:

**Think**

1. An earthquake that has ever happened.
2. Indicators of earthquakes.
3. What to do, to protect oneself during an earthquake.

**An earthquake**

An earthquake is a sudden vibration or shaking that occurs in the upper layer of the earth. This vibration is caused by natural forces from the waves passing within layers of rocks under the ground. When rocks under the earth's surface move towards each other they often cause tension and friction. This process eventually causes a rupture that releases a vibration energy. In turn, this energy causes sudden vibrations in the upper layer of the earth. This is what is called an earthquake. Earthquakes can also be caused by volcanic eruptions and human activities such as nuclear explosions and mining. Earthquake is measured by an instrument called seismometer. Normally, it is difficult to detect signs of prospective earthquakes. This is why they cause serious damage if they occur around settlements. The damage include, deaths and destruction of property.

**Effects of earthquakes**

Earthquakes have various effects on the environment. Although, they last for only a few seconds, earthquakes may cause devastating effects. The effects of earthquakes depend on the magnitude of the quake, strength of the buildings or any other infrastructure, and the geological nature of the area affected by the earthquake. The following are some of the effects of earthquakes:

- (a) Destruction of environment and settlements: When an earthquake occurs, it causes rocks to crack which may result in destruction

of infrastructures such as roads, railways and sports grounds. Earthquakes may also cause collapse of buildings such as schools, hospitals and settlements. For example, Kagera and Katavi Regions in Tanzania experienced earthquakes in 2016 and 2019, respectively. The earthquakes destroyed infrastructure including roads, school buildings, hospitals and settlements;

- (b) **Outbreak of diseases:** Earthquakes can cause damage to sewage systems. The damaged sewage system may discharge waste water that contaminates clean water systems. When human beings use contaminated water for cooking, drinking, bathing and cleaning utensils, they are likely to be affected by waterborne diseases such as typhoid, cholera and diarrhoea. Likewise, earthquakes may cause introduction of dust and toxic fumes into the atmosphere. This condition can lead to eye diseases and respiratory problems;
- (c) **Outbreak of fire:** When earthquakes damage electrical infrastructure, cause volcanic eruption or rock collision, fire may erupt. When that happens, it becomes very difficult to control fire outbreak as fire fighters can hardly reach the affected areas due to the damage of infrastructure;
- (d) **Occurrence of Tsunami:** Earthquakes can cause large waves in the ocean called tsunamis. These waves travel at high speed to the shores where they may cause devastation to human beings, animals and property;
- (e) **Changes in the ocean depths:** Earthquakes may cause the ocean floor to shake, which subsequently results into movement or rupturing of the oceanic floor rocks. This condition can lead to spread of volcanoes that eventually solidify and reduce the depth of the ocean. In addition, an earthquake can cause bed-rocks along the ocean floor to experience tensional forces, develop faults and sink further into the crust. This is likely to increase the depth of the ocean in the affected area; and
- (f) **Death of living things:** Earthquakes have often caused deaths to humans and other living things. When an earthquake occurs, it can destroy buildings and damage infrastructure. When debris falls on people or animals it can cause death. Figure 1 shows some of the effects of earthquake on infrastructure.



**Figure 1:** *Some of the effects of an earthquake*

### ***Precautions to be taken to reduce the effects of an earthquake***

It is important to take various precautions to deal with the effects of earthquake. One of the precautions is to provide education on how to prevent or reduce the impact of an earthquake when it occurs. This education should reach people of all ages; children, youths and the elderly, as well as people with special needs. This education should also take into account the source, high-risk areas with a history of frequent earthquakes, effects of earthquakes and ways to deal with them. Earthquake monitoring centres should use the media and various other stakeholders to educate the community on the effects of earthquakes, and measures to reduce such effects. Citizens should be educated on the importance of building houses that can withstand earthquakes. Also, the land use planning department should conduct land use assessment before allocating land to citizens for settlement. In addition, if an earthquake occurs, you are advised to stay away from tall buildings, trees, electrical cables and poles, beaches and along major river banks. If you are indoors, go under a table or bed and cover your head and body with heavy clothing to protect yourself from heavy and sharp objects such as glasses. When the earthquake stops, cry out for help. It is also safe to lie down several metres away from tall buildings or run towards open spaces such as playing grounds and farms.

**Exercise 1**

**Answer the following questions:**

1. List four effects of an earthquake.
2. Briefly explain why earthquake is a natural hazard.

**Volcanic eruption**

Temperature and pressure of the inner part of the earth is extremely high. This extremely high temperature causes melting of rocks surrounding it and turns them into a form of very hot liquid called magma. As pressure increases, magma is forced into the earth's crust through cracks and fissures all the way to the earth's surface. When magma reaches the earth's surface, it is called lava. Magma can also solidify inside the earth's crust.

Volcanic eruption is a process that involves magma getting out of the earth's crust. Volcanoes can eject out of the earth's surface violently or quietly. The nature of eruption depends on the amount of heat and pressure of the rocks in the earth's interior. Magma may be ejected to the earth's surface, spill and flow, then solidify as shown in Figure 2. Volcanic eruption may also emit volcanic ashes that spread into the atmosphere. These ashes contain gases, such as sulphur dioxide, that are dangerous to living organisms. When magma erupts outside the earth's surface and loses gas, it is called lava. Lava may spread in a small or large area and then cools and solidifies. The cooled and solidified lava may form a volcanic mountain or lava plateau.

Volcanic mountains are also found in Tanzania. Some of these mountains have regular volcanic eruptions and are, thus, called active volcanoes. Mount Oldonyo Lengai in Arusha is a good example of active volcanoes. Other volcanic mountains are those that were formed by volcanic eruptions in the past, however, they still indicate signs of eruption in the future. These mountains are called dormant volcanoes. Mount Kilimanjaro in Kilimanjaro Region and Mount Meru in Arusha Region are a good example of dormant volcanoes. Furthermore, there are volcanic mountains called extinct volcanoes. These mountains have no indications of erupting anymore although they did erupt many years ago. An example of such mountains is Mount Rungwe in Mbeya Region.



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**Figure 2:** A volcanic eruption

### **Effects of a volcanic eruption**

When a volcano erupts it causes various effects on living things and the environment in general. Some of these effects include:

- (a) **Loss of biodiversity:** When a volcano erupts, it releases lava that covers the earth's surface. Hot lava can kill living organisms such as animals, humans, plants and micro-organisms that are important for the ecosystem;
- (b) **Health related problems in the respiratory system, eyes and skin:** When a volcano erupts, it emits heavy smoke, dust, and ashes that can cause health problems to living organisms, especially animals and humans. For example, as toxic ashes contact the skin, they can cause the skin to itch and get damaged. When heavy smoke with carbon dioxide spreads and is inhaled by living things, it can affect the respiratory system and even cause death;
- (c) **Destruction of property such as infrastructure and settlements:** When a volcanic eruption occurs, it can destroy infrastructure such as roads,



as shown in Figure 3 (a), railway and spaces including sports grounds, and property, as shown in Figure 3 (b);

- (d) Pollution of water sources: Volcanoes can flow into water sources and distribute toxic chemicals that cause diseases and death to living things such as people, animals, plants and insects. In addition, volcanoes can block water sources leading to water shortages;
- (e) Earthquakes and landslides: Volcanoes are accompanied by shaking of land that can cause landslides and earthquakes;
- (f) Fire hazards: When lava spreads over dry vegetation, it can cause fire outbreak that could burn forests and settlements, as shown in Figures 3 (c) and (d);



(a)



(b)



(c)



(d)

**Figure 3:** *Effects of volcanic eruption*

**Sources:** <https://www.vox.com/2018/5/6/17323626/hawaii-volcano-eruption-2018-kilauea-big-island>  
<https://www.minnpost.com/earth-journal/2012/12/exploring-our-relative-capabilities-predicting-Disasters>  
<http://www.jpl.nasa.gov/>

- (g) Impact on climate: Volcanic ashes and sulphur dioxide that come from the eruption may reduce global temperature by reflecting the incoming solar radiation; but on the other hand, volcanoes can also cause global warming because they block the outgoing solar radiation; and
- (h) Clouds formed by volcanic ashes and dust are dangerous to air transport since they can damage aircraft engines.

Despite the fact that volcanic eruptions have many effects, they also have benefits such as producing fertile soil as well as ejecting minerals like gold and diamonds from the ground. Also, volcanic eruptions can cause occurrence of springs in the land and islands in oceans.

### **Exercise 2**

#### **Answer the following questions:**

Study Figure 3, and then answer the following questions:

- (a) What do you see in the pictures shown in Figure 3(a-d)?
- (b) What precautions do you think the affected community could take to avoid the effects of a volcanic eruption?
- (c) What kind of support is needed to help victims of the incident shown in Figure 3(c)?

### ***Precautions when dealing with the effects of volcanic eruptions***

A volcanic eruption is one of the natural hazards that require care and preparedness before they occur. The government, in collaboration with other stakeholders, should educate the public about the effects of volcanic eruptions. Citizens should be educated about the consequences of establishing their settlements in volcano prone areas. It is recommended that a person should build or establish settlements at least 50 kilometres from volcanic sources. In addition, the responsible authorities should provide early warning of any indication of volcanic eruption before it occurs.

If a volcanic eruption occurs in the area where you live, it is advised that you run far from the volcanic source. It is important to wear a face mask (filter) to avoid inhaling toxic air from heavy volcanic smoke. As you walk

towards a safe area, avoid stepping on puddles or streams flowing from the mountain because you may tread on molten materials or hot water flowing from erupted volcanic mountain. If at the time of volcanic eruption you are inside the house, then remain there until the rescue team arrives at the scene for evacuation.

### Landslide

Landslide is a rapid movement of a large mass of rocks or soil materials down slope due to gravity. The steeper the slope the faster the movement and the gentle slope the slower the movement. Figure 4 shows an example of landslide.



**Figure 4:** *Landslide*

Landslide is caused by various factors, such as volcanic eruptions, earthquakes, heavy rains, and floods. Volcanic eruptions cause shaking and collapsing of the upper layer of the earth's crust. This greatly leads to landslide as shaken soil materials become weaker because of several cracks. In addition, when an earthquake occurs, it weakens the bonds between soil and rocks. The ground becomes weak, so it is easy to collapse. Flooding

also causes landslide as water table rises due to heavy rainfall or melting of ice. When the ground absorbs more water, it increases weight of the soil and decreases its adhesion. Consequently, the soil fails to stick together, which causes landslide. In Tanzania, for the last time the major events of landslide occurred in Same District in Kilimanjaro Region, and Kilosa District in Morogoro Region in 2014.

### **Effects of landslides**

When landslide occurs, it can cause the following effects:

- (a) Damage to infrastructure, properties and settlements: Landslide can destroy and block roads (as shown in Figures 4 and 5). It can also destroy railways, bridges, electric and telephone poles, oil pipelines and drainage structures. This condition may suspend productive activities for a period of time. In addition, when landslide occurs, it can destroy properties and settlements; thus leading into poverty;
- (b) Damage to plants and deaths of animals: When landslide occurs, debris could cover animals and plants in the lowlands. This can lead to animal deaths and damage the vegetation of the particular area; and
- (c) Removal of the top fertile soil layers: Landslide may cause the removal of top fertile soil layers. The affected areas become unproductive and thus affect vegetation and agricultural activities. This condition can lead to lack of adequate food in a particular area.



**Figure 5:** Road damaged by landslide

**Source:** [https://www.123rf.com/photo\\_62062626\\_landslide-on-a-national-road-in-sicily.html](https://www.123rf.com/photo_62062626_landslide-on-a-national-road-in-sicily.html)

**Precautions when dealing with the effects of landslide**

It is important to take various precautions in order to minimize and deal with the effects of landslide. This can be done by planting trees and other plants in open and steep slopes as well as preventing illegal logging and burning of forests. Citizens should avoid construction activities on steep slopes and in valleys. This is because, by doing so, they increase chances of landslide in such areas. In addition, the responsible authorities should provide education about the possible effects of landslide and vulnerable areas. Also, the government should encourage citizens to be vigilant of weather forecast programmes via radio and television and take appropriate measures to avoid possible effects of landslide. Citizens should adhere to the principles of sustainable land use, especially in areas with steep slopes. Every citizen should seek professional advice if they wish to establish settlement and engage in human activities such as mining and agricultural activities on steep slopes. Also, it is recommended to restore forest on surface-mined land by planting trees immediately after mines are closed to minimise chances of landslide.

Once landslide has occurred, you are advised to clear water systems blocked by debris such as mud and other solid waste. This could be done by cleaning the affected area to restore it to its original condition. Remove the mud and soil to restore the original land and the damaged settlements.

**Exercise 3**

**Answer the following questions:**

1. Briefly explain the effects caused by landslide in your area.
2. Which measures should be taken to avoid landslide?
3. How do floods, earthquakes, volcanic eruptions contribute to landslides?
4. Briefly describe indicators that will show you that landslide is likely to occur.
5. Explain the how burning of forests contribute to landslide.



### Activity 1

With the help of teachers, parents, or guardians, identify the natural hazards that occurred in your region by focusing on the following facts:

- (a) the place where it occurred,
- (b) the type of natural hazard,
- (c) its source,
- (d) its effects, and
- (e) how it was dealt with.

## Tsunami

Tsunami is a Japanese word meaning “harbour wave”. Tsunami refers to huge ocean waves caused by earthquakes below the ocean floor or other natural forces such as volcanic eruptions or meteors falling in the ocean. Tsunami is also caused by the displacement of rocks in the ocean floor. Nuclear bombs testing may also cause tsunamis.

An earthquake or other earth movements cause huge ocean waves which move and spread very fast. When these vibrations occur, they release energy in the ocean floor that causes large waves on the surface of the ocean. The waves begin to travel and increase in strength as they approach the shores. Tsunami waves are powerful and capable of travelling at a speed of 10 to 800 kilometres per hour, and can last for an average of one hour. These waves can reach a height of 10 to 30 metres. The Pacific Ocean in Indonesia and Japan experience frequent tsunamis. The occurrence of major earthquakes beneath the Pacific Ocean is a major source of tsunamis in the region. Figure 6 shows the appearance of tsunami waves.



**Figure 6:** A tsunami wave

Source: <https://www.somagnews.com/tsunami-happen-tsunami>

### **Effects of tsunami**

- (a) Deaths of people in the coastal areas: Tsunami waves significantly affect coastal areas. For example, the largest tsunami in historical records occurred in the Indian Ocean, East Asia, on 26<sup>th</sup> December 2004. The incident affected several countries such as Indonesia, Singapore, Malaysia and India. This tsunami is believed to have caused more than 230 000 deaths in 14 countries. The effects were also felt in East African countries whereby 11 people in Tanzania and 1 person in Kenya lost their lives while swimming in the Indian Ocean;
- (b) Destruction of settlements and infrastructure: Tsunami waves hit beaches and destroy infrastructure, as shown in Figure 7. The most affected properties include residences, hotels and restaurants, tourism centres, and different recreational areas. Also, tsunami destroys transport networks such as roads, railways, ports and airports as well as power houses;
- (c) Flooding and pollution of water sources: This condition is caused by large waves of tsunami that move towards coastal areas and cause floods. Also, stagnant water in settlement areas may cause swamps

that become breeding sites of insects. This situation causes spread of various diseases such as malaria, typhoid, cholera and diarrhoea;

- (d) Destruction of the habitats of living organisms: When a tsunami hits fish-breeding areas such as coral reefs, they destroy and affect their existence. This causes fish and other marine organisms to die; and
- (e) Damaging natural vegetation: Tsunami waves can erode trees and other vegetation. This leads to disappearance of natural vegetation eventually destroying the ecosystem of the affected area which is habitat to various animals.



**Figure 7:** Effects of a tsunami on settlements along coastal areas

**Sources:** <https://www.dw.com/en/climate-induced-sea-level-rise-to-worsen-tsunami-impacts/a-45730449>

### ***Precautions to be taken to reduce the effects of tsunamis***

Tsunami does not occur frequently; nevertheless, it causes serious damages when it occurs. There are some precautions that one must take in order to minimise the impacts of tsunami. One of these precautions is to control enrichment and testing of nuclear bombs and explosives in the ocean. This will help reduce the frequency of earthquakes caused by human activities.

Avoid building or living along coastal areas. If construction takes place along coastal areas, it should follow professional advice about recommended distances from the ocean. The respective authority should give early warnings once signs of tsunami, such as earthquakes and tidal abnormalities, occur. This should go together with educating the public on the effects of tsunami and how to protect themselves. In addition, if tsunami occurs in your area, you are advised to move to high ground areas. By doing so, you would be in a safe area where a rescue team can reach for evacuation. It is also important to avoid swimming in the water streams that lead to the ocean because they may have strong waves which can carry you away.

#### Exercise 4

Answer the following questions:

1. What is tsunami?
2. Explain causes of tsunami.
3. Explain why coastal areas of the Pacific Ocean are frequently affected by tsunami.

#### Fire hazards

Fire is a combustion that produces heat and light. Fire is also described as resulting from a chemical reaction between a combustible substance, oxygen and heat. Fire hazards are materials, substances or actions that increase the likelihood of fire outbreak. Fire hazards can be natural or caused by human activities. Natural fire hazards often occur in dense forests, for example, in the Amazon rain forest in Brazil and in the forests of the East and North-east of Victoria Province in Australia. These hazards occur mainly during dry seasons. Among the sources of natural fires are volcanic eruptions and lightning. These are the most common sources of natural fires in dense forest areas. Another source of natural fire is the intense heat from the atmosphere that helps fire to burn more easily. Lightning and extreme heat causes fires that burn wood dust, dry leaves, and grass. All these nature induced fires usually spread and burn a large area of the forest.

Apart from natural sources, fire hazards are also caused by human activities, such as illegal burning of forests, honey harvesting, hunting, smoking, and

the misuse of gas energy, oil and electricity. Fire caused by human activities often occurs in farms, forests, schools and residential and commercial areas. An example of this type of fire hazard is the one that occurred in 2017 and destroyed the SIDO market in Mbeya Region. It caused a significant loss of life and damage to property and commercial buildings, as shown in Figure 8 (a). Another fire hazard caused by human activities was that which happened in Morogoro Region in 2019 where a fuel tanker overturned and spilled the fuel. As people were fetching the fuel, someone else was trying to vandalise the tanker's battery. The battery sparked and accidentally ignited fire on fuel. Suddenly, the whole tanker exploded along with all fuel being fetch. In that incident more than 100 people died, property was damaged, and the environment was polluted, as shown in Figure 8(b). Another example is the fire that burnt Mihayo Secondary School in Tabora Region in 2018.



(a) SIDO market buildings on fire in Mbeya in 2018



(b) Firefighting operation at Msamvu in Morogoro in 2019

**Figure 8: Effects of fire**

**Source:** *The Fire and Rescue Force of Tanzania*

### Exercise 5

Answer the following questions:

1. Explain how improper honey gathering can lead to fire hazards.
2. How do lightning and extreme heat contribute to fire hazards?
3. Explain how fire hazards occur.

### Effects of fire hazards

Fire is among the most dangerous incidents in the society. The following are the effects of fire hazards to society:

- (a) It causes death and temporary or permanent disabilities to humans and other creatures. For example, fire that occurred in Morogoro in 2019 resulted in the loss of more than 100 people;
- (b) Fire destroys property and infrastructure such as electric poles, oil and gas reserves. For example, fire outbreak that happened in Morogoro in 2019 destroyed property such as motorbikes, bicycles and cars;
- (c) The top layer of soil loses its ability to absorb and retain water for a long time. Fire causes the soil to become dry and develops cracks, thus failing to store water. The ground loses its cohesiveness and thus triggers landslide and floods;
- (d) Increase of carbon dioxide in the atmosphere: When forests burn, they emit carbon dioxide that contributes significantly to the increase of atmospheric greenhouse gases that cause climate change;
- (e) Destruction of wildlife and biodiversity: Wildfires cause extinction of some species and destroy wildlife habitats. For example, frequent fires in Mount Kilimanjaro National Park and other wildlife conservation areas destroy animal habitats and cause deaths to wildlife;
- (f) Fire causes suspension of social services such as schools, airports, and hospitals, thus affecting the whole community; and
- (g) Fire causes unemployment if the workplace is completely burned down. For example, when the Mwanjelwa and SIDO markets in Mbeya Region as well as the Samunge market in Arusha Region were burnt, many people lost their businesses and jobs.

### Principles of firefighting and rescue operations

According to the Fire and Rescue Force Act No. 14 of 2007, the Fire and Rescue Force is responsible for extinguishing fires and saving lives and property, as well as dealing with any non-criminal emergencies. Regulations on firefighting and rescue services were formulated to support the rescue team and the rescued. For a successful rescue, the Fire and Rescue Force

should cooperate with the community. The following are the principles to be followed in order to save lives and property during a fire outbreak:

- (a) Ring bells, push fire alarms or scream loudly for help from other users of the building;
- (b) Get out and call the Fire and Rescue Force's emergency number for further assistance. The emergency call number for Tanzania is 114;
- (c) You can use the available fire extinguishers to start extinguishing the fire as long as they are appropriate for use for the particular type of the fire source;
- (d) Note that, it is important to switch off electricity before starting extinguishing fire whose source is electricity. If it is not possible to switch off the main switch, then use dry sand, a carbon dioxide or dry powder fire extinguisher;
- (e) People who are not involved in firefighting are advised to run to a special open place so that it becomes easier for the rescue team to know their number and where they are placed for evacuation;
- (f) When extinguishing fire, make sure the rear door is kept open so that if you fail to extinguish the fire you can easily escape;
- (g) Once smoke increases, try to crawl while facing downwards to prevent poisonous fumes from getting into your nostrils; and if possible, put on a face filter mask;
- (h) It is not recommended to go back to the burning building if the situation is still unsafe;
- (i) If attempts to get out are completely impossible, close the door and seal the bottom of the door with a damp cloth; and
- (j) Stand near the window and wrap a white cloth to indicate your presence and ask or cry out for help.

**Exercise 6**

**Answer the following questions:**

1. Explain why you should leave the rear door open during firefighting.
2. List four principles to consider when extinguishing fire.
3. Why do you think we are advised to turn off the main electrical switch before extinguishing fire that is caused by electricity?

**How to get involved in preventing fire hazards**

In order to respond effectively to fire hazards, various methods can be used depending on the location and source of fire. You are advised to adhere to environmental regulations and precautions set to avoid causing a fire. Those precautions include avoiding smoking in high-risk areas such as petroleum stations, food warehouses, transportation facilities, and in large forests. Cigarette filters can also cause a fire if they are not properly extinguished and thrown in special containers.

In this regard, we are therefore advised to:

- (a) avoid all electrical and gas equipments which are not properly checked before use.
- (b) avoid using electronic devices of poor quality.
- (c) ensure all repairs and check-ups should be done by trained and professional experts.
- (d) use only the approved electronic devices.
- (e) ensure that electronic devices such as iron, gas cylinder, electric cables, cell phones, radios, televisions and refrigerators are in good conditions before using them.
- (f) inspect regularly the electrical wiring system of the buildings.

Furthermore, it is also advised to take precautions with the uses of candles, battery, and charcoal stoves. We should have protective equipment against lightning, and we should have fire extinguishers and fire alarms. To prevent fire outbreak, farmers are advised not to start fires on their farms and dry grasses when winds are strong.

Education on fire occurrence, prevention and combustion should be provided to the community to make them understand their responsibility in dealing with fire events. Special areas should be set aside for pastoralists to graze their livestock. This may help them stop burning forests as a way to find their pastures. It is also important to educate beekeepers and honey gatherers to avoid using fire. The beekeepers should be trained on the best methods of harvesting honey such as using a bee smoker to repel bees instead of fires that are dangerous to the environment.

Incineration of waste is also a source of fire. It is recommended that waste should be burnt in designated areas, away from flammable materials such as gas, oil, crop pulp and wood dusts. Welding should be done away from flammable materials such as paper, oil, wood and clothes. Similarly, before making charcoal there should be an approval from relevant authorities, as well as provision of adequate education on how to use charcoal making technology. Citizens should be informed of the importance of extinguishing fire after collecting charcoal or cooking. Charcoal fires are slowly extinguished; so it is important to extinguish the remains.

The above recommendations should also be observed in schools. Control the over use of candles and electrical equipment in dormitories or classrooms. Heaters or illegal wiring should be discouraged.



### Activity 2

Read various other sources of information about other methods that can be used to prevent fire outbreaks apart from those mentioned in this book. Then, write the information and present it to the class.

### Exercise 7

Answer the following questions:

**A: Choose the letter of the most correct answer and write it in the box provided.**

1. The following set of factors contributes to the occurrence of a volcanic eruption:
  - (a) Pressure, heat, and lava
  - (b) Cracks, pressure and magma
  - (c) Compression force, lava, and air
  - (d) Compression force, pressure and air
  
2. One of the following methods is not suitable to prevent fire outbreaks
  - (a) Using quality certified equipment
  - (b) Effective use of open fires
  - (c) Public education
  - (d) Using fire during honey extraction
  
3. A movement of rocks or soil materials following a steep slope is called...
  - (a) Earthquake
  - (b) Erosion
  - (c) Landslide
  - (d) Talus creep
  
4. The following factors may cause tsunami except
  - (a) Volcanic eruption

- (b) Meteors falling into the ocean
- (c) Earthquake
- (d) Flooding
5. One of the following is a natural cause of wildfires
- (a) Charcoal making
- (b) Lightning
- (c) Honey gathering
- (d) Traditions and customs

**B: Write TRUE for a correct statement and FALSE for an incorrect statement in the space provided.**

6. A volcanic eruption causes the formation of fertile soil. \_\_\_\_\_
7. Landslide can be prevented by tree planting. \_\_\_\_\_
8. Oxygen is a natural air that, in its absence, fire cannot burn.  
\_\_\_\_\_
9. Charcoal making is the only source of fire in the forest.  
\_\_\_\_\_
10. Increased volume of groundwater due to heavy rainfall or melting ice contributes to flooding. \_\_\_\_\_

**C: Write the correct answer in the spaces provided.**

11. The three natural causes of a tsunami are:
- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_

12. A sudden collapse of rocks or soil following a steep slope with the influence of gravitational force is called. \_\_\_\_\_
13. Name three volcanic mountains found in Tanzania.
- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_
14. List five possible effects of wildfires
- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_
- (iv) \_\_\_\_\_
- (v) \_\_\_\_\_

**D: Answer the following questions**

15. Name one natural hazard that you have heard of or witnessed. Give your answers basing on the following:
- (a) The place where the hazard occurred;
- (b) The source or cause of occurrence;
- (c) How it was dealt with;
- (d) Its negative impact to the community concerned; and
- (e) The lesson you learned from it.
16. Briefly explain the difference between natural and human induced hazards.
17. What do you think are the precautions to take in case of a tsunami in Tanzania?

E. Match the items in **Column A** with their responses in **Column B** by writing the letter of the correct answer in the space provided.

Column A	Answers	Column A
18. Tsunami		(A) natural forces and human activities
19. Ring the bell or alarm		(B) natural fire (C) lava
20. Mount Oldonyo Lengai		(D) large ocean waves caused by underwater earthquakes
21. Lightning and extreme heat		(E) types of hazards (F) dormant volcano (G) increase of carbon dioxide
22. Earthquake and volcanic eruption		(H) Rocks melted by extreme temperatures under the ground (I) TANESCO
23. Effects of fire hazards		(J) active volcano (K) one of the principles of firefighting and rescue in a fire outbreak
24. Magma		

### Vocabulary

Biodiversity	variety of living species on earth, including plants, animals, bacteria and fungi
Ecosystem	interaction of the organisms in their physical environment
Energy	a source of power which generates heat
Lava	molten materials on the earth's surface after a volcanic eruption
Magma	heavy molten materials resulting from melting of rocks due to extreme heat at the inner part of the earth
Rock	solid organic material of the earth's crust
Tensional forces	forces that operate in different directions
Volcanic ashes	hot ashes resulting from volcanic eruption
Vigilant	keeping careful watch for possible danger or difficulties

# Chapter Two

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## Human development and production tools

### Introduction

*In this chapter, you will learn the concepts of tool, Stone Age, Iron Age and Digital Technological Age and their contributions to human development. You will also learn how humans evolved along with their advancements in technology. Similarly, you will learn to compare advantages and disadvantages of the stone tools, the iron tools and the digital technology. You will also learn how discovery and use of iron tools have contributed to economic, social and cultural development. In addition, you will learn the benefits and consequences of using these tools. Competencies to be gained in this chapter will help you analyse the importance of using technology in the development of a society. You will also be able to encourage the use of digital technology in production.*

### The concept of tool

A tool is any device that may be used by human beings to perform their daily tasks. At different times, a human being has been able to design and make tools such as knives, spears, hoes, axes and many others. Work tools can be used for cultivating, cutting, slashing, sculpting, defending, weaving, and hunting. A human being has also been able to design, make and use tools such as baskets, pots and refrigerators for home use. Inventing and making of various tools and instruments have enabled humans to work efficiently and control their environment in order to improve and live a better life. Creativity, design and use of tools thus, are the aptitudes that distinguish the level of development of human beings from other animals. Human development has been changing from time to time partly due to the tools used in production. The kind of raw materials that are used to make the tools are the ones that identify the production age. From that context, we find different periods of human development such as Stone Age, Iron Age and Digital Technological Age.

## The Stone Age

For the first time, humans began to use stones to make tools, and that period is called the Stone Age. They used these tools for hunting, digging up edible roots, picking up fruits for food, as well as making clothes. Thus, the Stone Age began as soon as a human being began to make and use stone tools.

### Exercise 1

Answer the following questions:

1. Briefly describe the following concepts:
  - (a) Tools
  - (b) The Stone Age
2. Identify three uses of tools during the Stone Age.

### Development in the Stone Age

The early human being started to live on earth about 3 000 000 years ago. Human beings began to make their own history on earth from this time. With creativity, humans were able to invent several things to help them address day to day challenges that would limit their development. For example, they designed and developed tools to meet their basic needs such as food, shelter, and clothing. The ability to make and use the right tools distinguishes humans from other animals such as chimpanzees that appeared on the earth about 30 000 000 years ago. History shows that the first human skull was discovered in northern Tanzania, by then Tanganyika, in the Olduvai (Oldupai) Gorge in 1959. The skull was discovered by archaeologists Dr Louis Leakey and his wife Dr Mary Leakey.

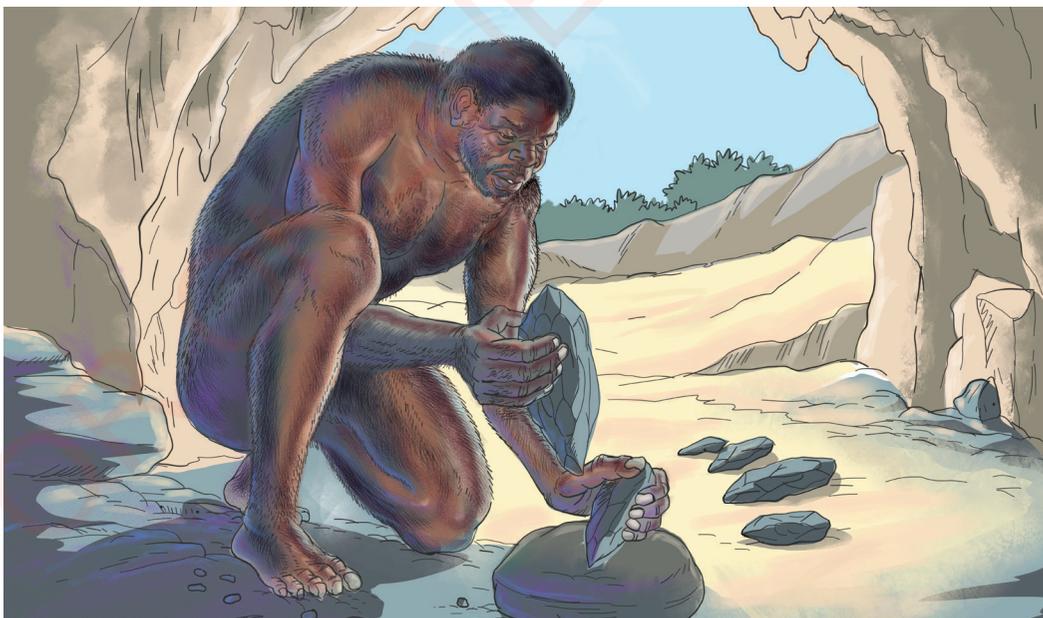
During this period, the earliest humans used stones to make tools. As noted earlier, the use of stones to make tools was known as the Stone Age. Age is a certain period of time in life. The Stone Age is divided into three periods, that is, Early Stone Age, Middle Stone Age and Late Stone Age.

## The Early Stone Age

This period lasted from 3 000 000 years ago to 300 000 years ago when human beings lived in solitude. People were very few and rarely met or interacted. For example, a few people would hunt and kill an animal, eat it up and go back to their own places of residence. They were constantly on the move, searching for food, water, and shelter.

Tools used by the early Stone Age people were temporary and less advanced. For example, a human would pick up a stone or a piece of wood and cut down a fruit. Similarly, humans would use animal bones to dig up edible roots and insects. Finally, they would throw the tools and carry the prey, root or fruit back to their places of residence. These tools were also used to fend off or fight wild animals such as lions and elephants in case they attacked humans.

The Early Stone Age humans resembled chimpanzees or monkeys. Their bodies were fully covered with furs and the head was relatively small compared to the size of their body. They walked using both hands and feet, so they could not carry tools for a long time. As time went on, they began sharpening the stones and carving them to get the different shapes they wanted. Figure 1 shows an Early Stone Age human sharpening and carving stone tools. This enabled them to find small or sharp pieces that matched their goals.



**Figure 1:** *The Early Stone Age man making stone tools*

Figure 2 shows the shapes of some of the Early Stone Age tools.

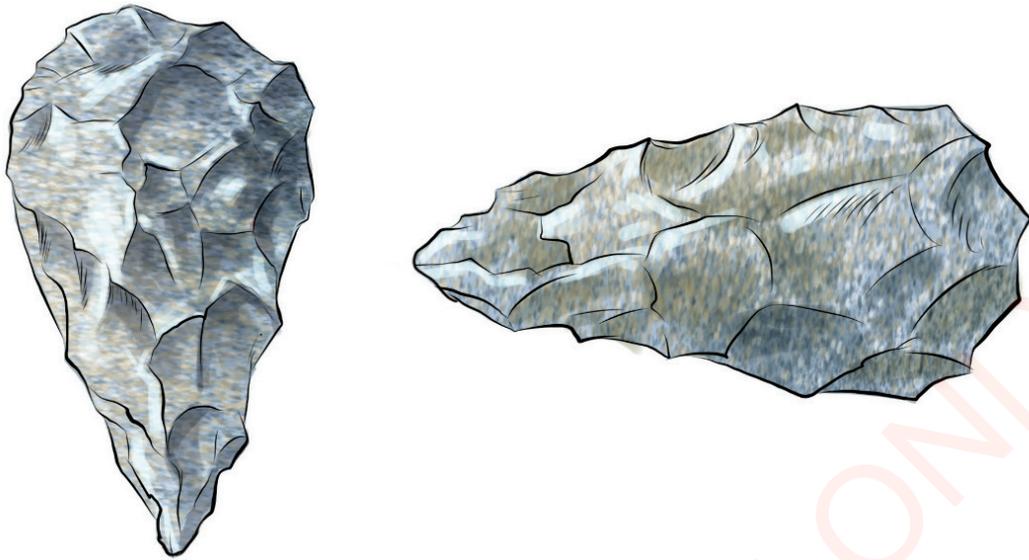


Figure 2: Early Stone Tools



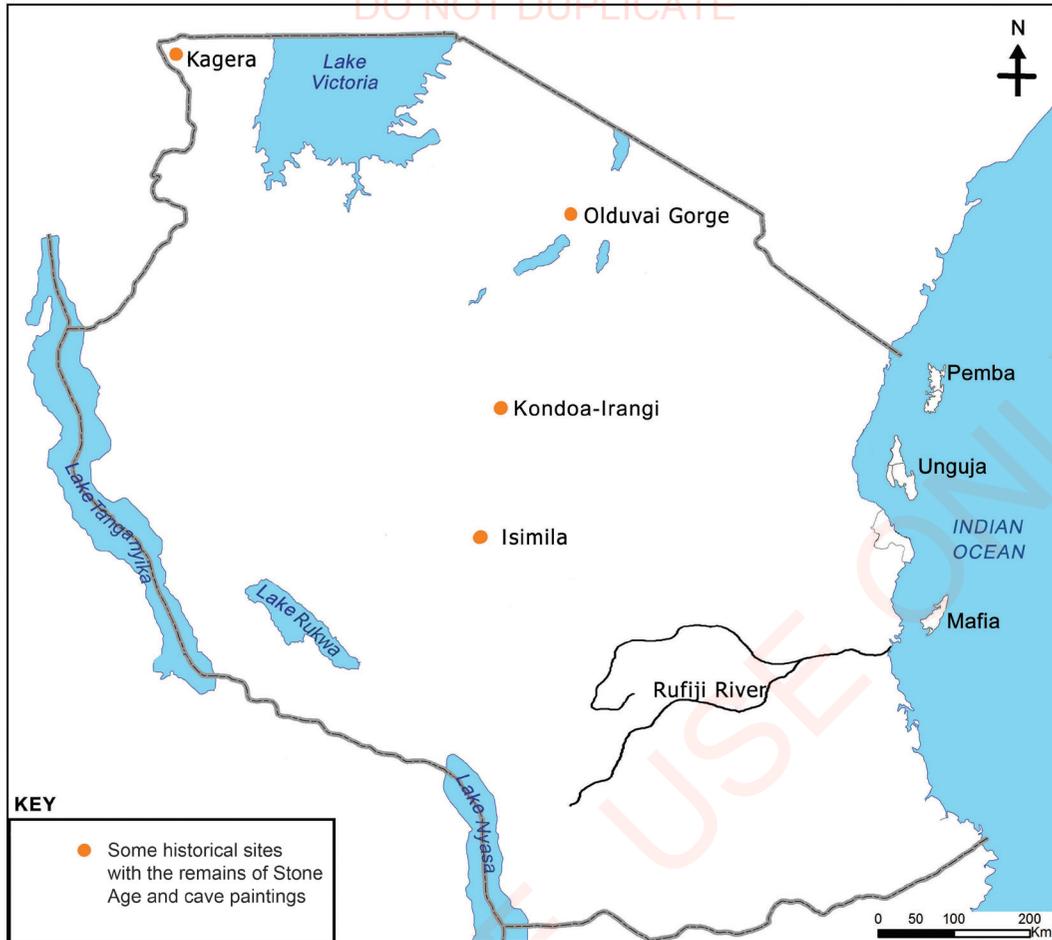
### Activity 1

Examine the picture in Figure 2 then present your answers to the class by answering the following questions.

- Briefly describe how the early humans benefited from using stone tools during the Early Stone Age.
- Identify the challenges encountered by the early humans when using such tools.

### The remains of the Early Stone Age

The archaeological remains of the Early Stone tools have been discovered in many parts of Tanzania. Some of these areas include the Olduvai Gorge in Arusha Region, Figure 3 shows some of the historical sites with fossils and the earliest drawings.



**Figure 3:** Some historical sites with archaeological remains of the Stone Age and cave paintings

Similarly, there are remains of the old cave paintings made by the early humans in various places in Tanzania. The paintings are present today in the Kondoa caves as shown on map in figure 4. It is thought that the drawings served different purposes, including teaching children and young people important issues in the society. For example, the drawings depicted hunting tools, hunting techniques, and animal species in their environment. Figure 4 shows some of the early cave paintings in Tanzania.



Figure 4: Some of the cave paintings in Kondoa-Irangi Tanzania

### Exercise 2

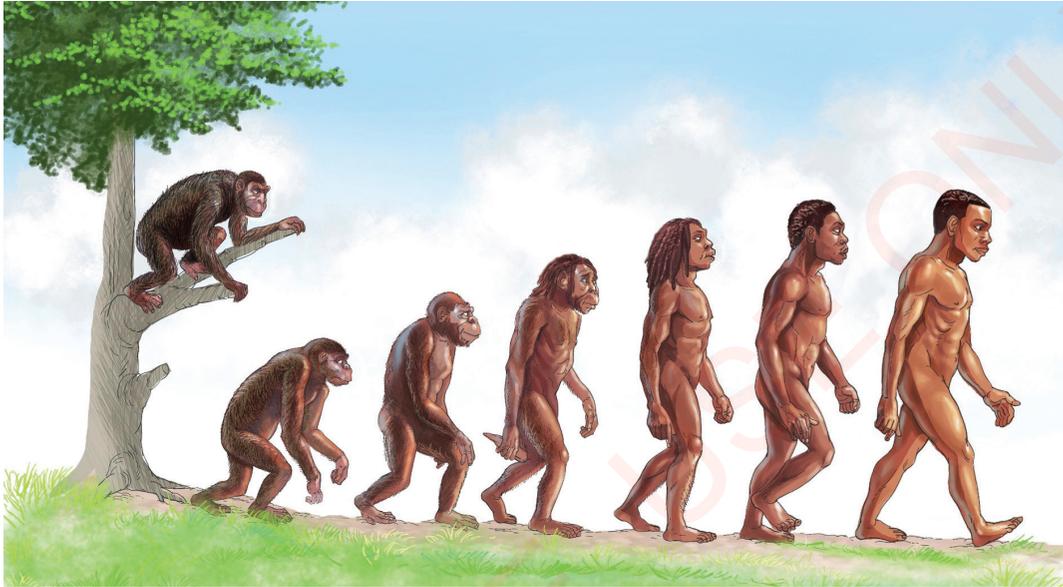
Answer the following questions:

1. Explain the basic differences between the early humans and other animals.
2. How did humans benefit from their body being covered with fur?
3. How do the remains of the early stone tools help you learn about human life?
4. Identify the types of early paintings found in caves in Tanzania.

### The Middle Stone Age

This period lasted from about 300 000 years ago to 50 000 years ago and it was marked by dramatic changes in human life. First, humans improved to walk on their feet. They continued to use hands to make, pick up and hold

things as well as use tools. These changes came along with other important physiological changes including the ability to think and do different things. For example, unlike the four-limbed chimpanzee, the physiological changes enabled the early humans to continue walking vertically on two legs. Thus, they could see prey and enemies from a distance compared to when walking on four limbs. Similarly, they increased their greater ability to think, thus being able to adapt to their environment. Figure 5 shows how the human body or posture has evolved since they started walking on foot.



**Figure 5:** Various stages of human evolution from primates to modern human



### Activity 2

Carefully examine the image in Figure 5 then do the following:

1. Identify two physical differences between the chimpanzee on the tree and the earliest human in front of it.
2. Briefly describe three differences in the early human appearance by comparing the first from the left side and the other first from the right side.
3. Explain the importance of these differences in human life.

Second, the skills and speed of making tools increased. At this point, the early human beings developed and mastered many kinds of tools. The tools got better, more stable and more task specific. Examples of the Middle Stone Age tools include arrows, bows, knives and axes. During this time, humans also began to wear the animal skins and tree barks that were crushed and softened. They, however, continued with nomadic life because they had no permanent settlement. Figure 6 shows examples of the Middle Stone Age tools.

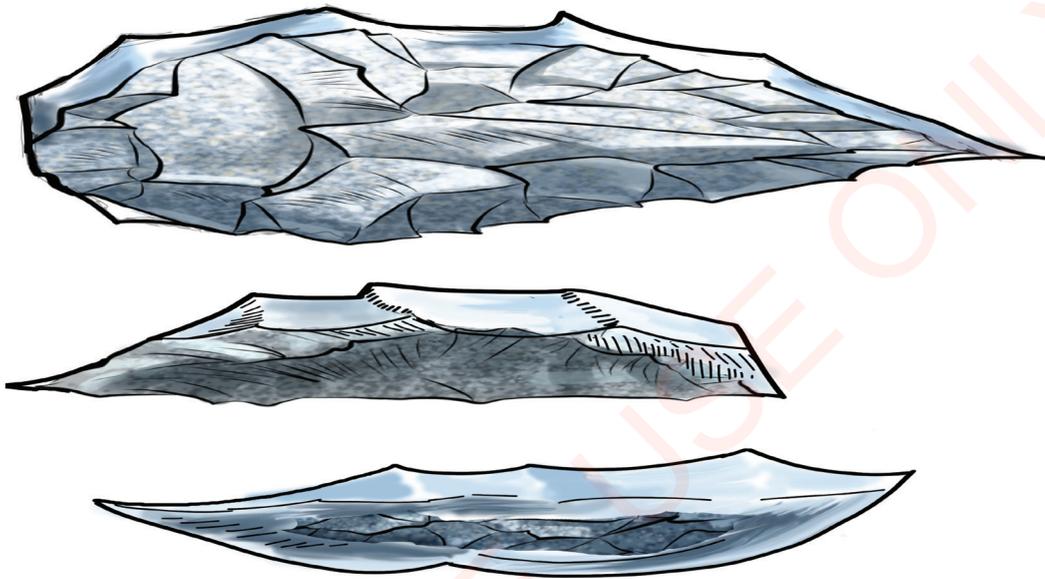


Figure 6: Some Middle Stone Age tools



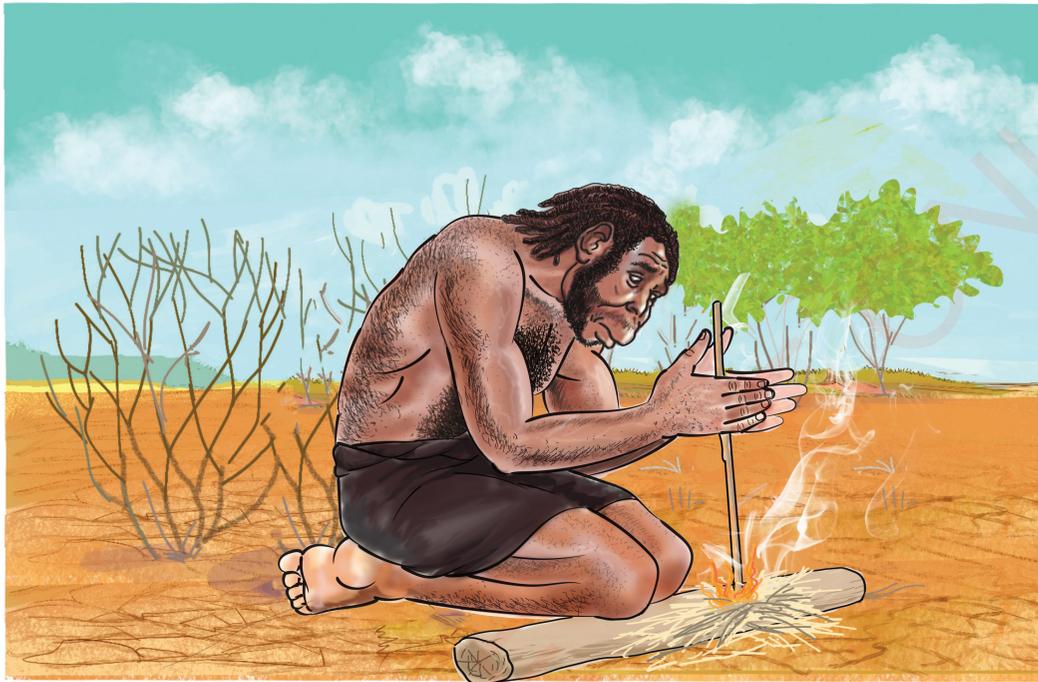
### Activity 3

1. Carefully examine the hand hoe used for farming or gardening then explain how you can improve it to make it more efficient and easier to use.
2. Briefly describe the challenges you faced in the activity.

### The discovery of fire

By the end of the Middle Stone Age, when human improved their stone tools, they discovered fire. Fire emerged when stones were crushed and rubbed

against each other in the process of sharpening and shaping. The process produced sparks and fire was made. Over time, humans developed various skills and techniques for making fire. One of the methods was to chop two dry sticks, one serving as a skewer, which is called *ulindi* and the other was a sliced piece called *uwimbombo*. Figure 7 shows how fire was made during the Middle Ages.



**Figure 7:** *The early human making fire by skewering the dry wood*

### ***The importance of the discovery and use of fire***

Discovery and use of fire brought great progress in human life. For example, humans began to roast meat and other types of food stuff to make them soft before eating, instead of eating them raw. They also burnt grass to clear the environment and chase away the dangerous wild animals. During the Middle Stone Age, humans lived in caves. Thus, fire enabled them to light up and warm inside the caves. In addition, the discovery and use of fire enabled them to survive in the cold parts of the world. Later, fire helped to make glue, which was used to tighten the heads of arrows or handles of spears.



Furthermore, humans began to put handles on some of their stone tools such as axes, spears and arrows. Handles enabled them to use the tools more efficiently than with those without handles. Figure 9 shows a human being carrying tools with handles.



**Figure 9:** Some of the Late Stone Age tools with handles

The Late Stone Age settlements have been discovered in various caves along rivers and lakes. The settlements show remains of tools such as big rounded stones for cereal grinding, animal traps and large animal bones of elephants and giraffes. It is believed that the animals were hunted with wooden arrows.



### Activity 5

Examine pictures of the stone tools in Figure 6 and compare them with the stone tools in Figure 8. Then, do the following:

1. Explain the differences between the two groups of stone tools.
2. Present the differences in a class discussion.

***The onset of pastoralism***

The presence of different and better tools during the Late Stone Age enabled humans to perform various tasks that helped them to adapt to their environment. Among the successes of the Late Stone Age tools was the introduction of animal husbandry and bird keeping in human habitats. Those activities increased humans' access to food and clothing because they easily got meat, skin and milk. In addition, dog was one of the first animals to be domesticated by the early humans. Thus, pastoralism reduced human dependence on wildlife and wild birds for their livelihood.

***The beginning of agriculture***

One of the results of pastoralism at the end of the Last Stone Age was the establishment of permanent settlements. Humans would go to the wild searching for food then returning to their homes. Having permanent settlement encouraged the growing of food crops around the habitats. The introduction of animal husbandry and crop cultivation was, therefore, one of the most revolutionary events in human life. Some of the impacts of agricultural and pastoral revolutions in human development by the end of the Late Stone Age include:

- (i) Human beings were able to get enough food and surplus. Thus, they stopped spending too much time on hunting and gathering of animals, birds, roots, and fruits;
- (ii) Because they were assured of food provision, reproduction increased and this stimulated population growth;
- (iii) Living together encouraged the emergence of language as an important tool for communication among community members;
- (iv) Increase in population resulted in cooperation which stimulated the emergence of leadership in the respective communities;
- (v) Adequate food supply gave early humans ample time to spend on art and crafts, such as, pottery, blacksmithing, sculpture and weaving.
- (vi) This marked the beginning of the division of labour based on sex and age group such as the youth and the elderly; and
- (vii) Communities began to have various productive groups such as

fishermen, farmers, potters, sculptors, blacksmiths, weavers and herders. This situation enabled community members to exchange goods to meet demand on the product they did not produce. This marked the beginning of trade among community members and the surrounding community.

### Comparison of developments in the Stone Age periods

In each phase of the Stone Age, humans undertook important stages of development. This depended heavily on their ability to adapt to the environment to improve their lives and their ability to reason. Reasoning ability increased as they adapted to their environment and interacted with other human beings. The following table compares the differences in the levels of human development in the Early, Middle and Late Stone Age.

The Early Stone Age	The Middle Stone Age	The Late Stone Age
<ol style="list-style-type: none"> <li>Humans began to make and use tools. The tools were crude, scarce and for temporary use. This marked the beginning of human history.</li> <li>Humans practiced nomadic life whereby they moved long distances in search for food and shelter.</li> <li>They lived in caves, forests and along river valleys.</li> <li>They obtained food by digging edible roots, picking up fruits, catching insects, hunting birds, animals and collecting eggs.</li> </ol>	<ol style="list-style-type: none"> <li>Humans improve to walk on two legs.</li> <li>They made better and different stone tools.</li> <li>They discovered how to make fire.</li> <li>They made clothes by softening animal skin and crushing tree barks.</li> </ol>	<ol style="list-style-type: none"> <li>Humans made better stone tools for specific uses.</li> <li>They started animal husbandry and food crop cultivation.</li> <li>They established permanent settlements.</li> <li>Division of work was based on gender, age and the ability of people.</li> <li>Artists and artisans began to emerge among the community members.</li> </ol>

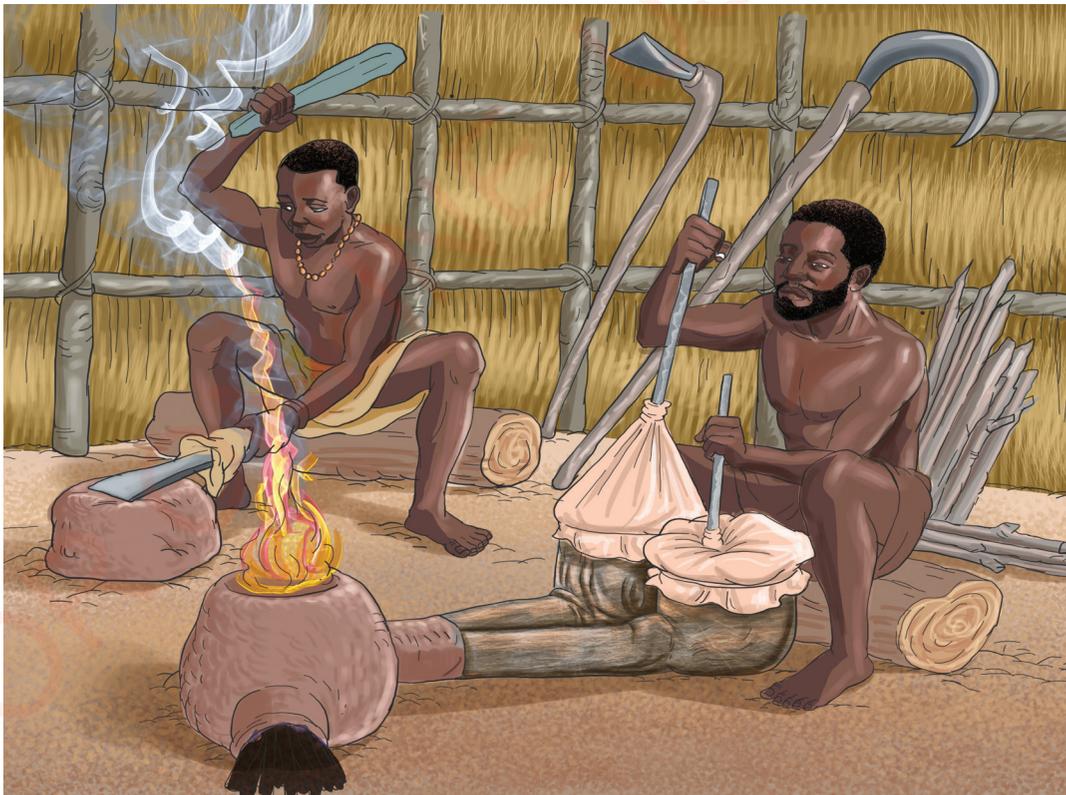
**Exercise 4**

Answer the following questions::

1. Briefly explain the relationship between domestication of animals and the establishment of permanent settlements in the Late Stone Age.
2. Explain how agriculture changed human life.
3. Outline reasons as to why the late stone humans exchanged goods that they produced.

**The Iron Age**

The Late Stone Age was followed by the Iron Age. This era began 3 500 years BCE and continues to this day. It was during this era that human beings discovered iron and made iron tools. The soil containing iron ore was heated to high temperatures until molten metal and slag was produced. The molten metal was collected in special containers and later cooled, coagulated and moulded to make iron tools. Figure 10 shows blacksmiths in the process of making iron tools.



**Figure 10:** Blacksmiths in the process of making iron tools

### Types of iron tools and their uses

Iron tools were stronger, better and more durable than Stone Age tools. Some of the tools that were made included axes for cutting down trees, chopping meat and for security. Other tools were spears for hunting and for protection from enemies. Arrows were used to hunt large and small animals and birds. In addition, sickles were made for pruning and clearing areas for cultivating and planting various crops. Also, knives were made for slaughtering animals and cutting meat. Moreover, hoes were made for digging the farms, roots and soil to trace moles. Some of these tools are shown in Figures 11 (a) and 11 (b).



Figure 11 (a): Some old iron tools without handles

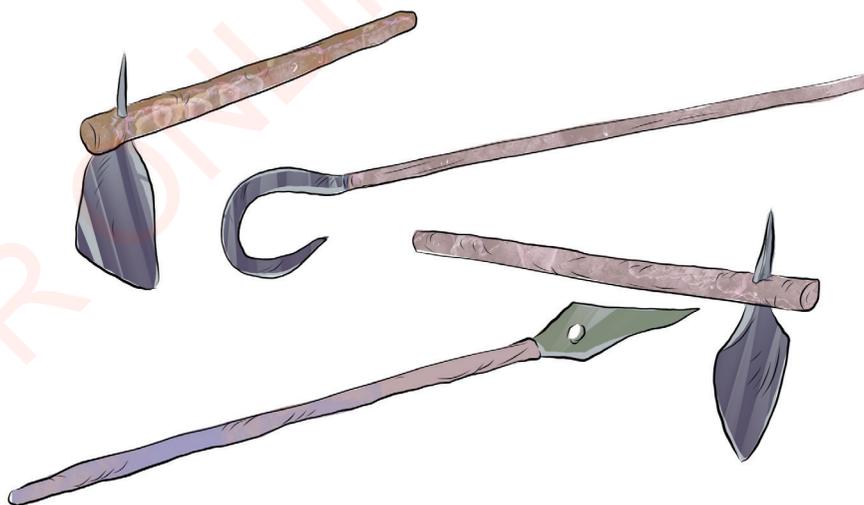


Figure 11(b): Some old iron tools with handles



### Activity 6

1. Draw a two-column table in your exercise book. Column A should be titled "Iron Tools". Column B should be titled, "their use".
2. List individual tools in column A and their use in column B.

## Advantages of iron tools

Iron tools had a lot of benefits for the early human being. Some of the benefits include:

### (a) *Expanding agricultural activities*

The effectiveness of iron tools enabled humans to expand agriculture by slashing bushes, cultivating land and planting crops in larger areas. In addition, people began raising livestock such as cattle, goats and sheep as well as birds such as chickens and ducks.

### (b) *Population growth and community leadership*

Agricultural expansion contributed to food security as humans were able to produce various kinds of crops. So, people became healthy, reproduced and reduced the premature deaths of children caused by malnutrition. This situation led to the expansion of the community, hence, they need to introduce leadership system in the community.

### (c) *Emergence of artisans and artists*

Having been assured of food, people had extra time to do other works. Thus, craftsmen and artisans emerged who produced working tools that were used by producers. For example, potters made pots and jars. Another group include weavers who made mats and baskets for household uses. Figures 12 and 13 show weavers and potters at work.

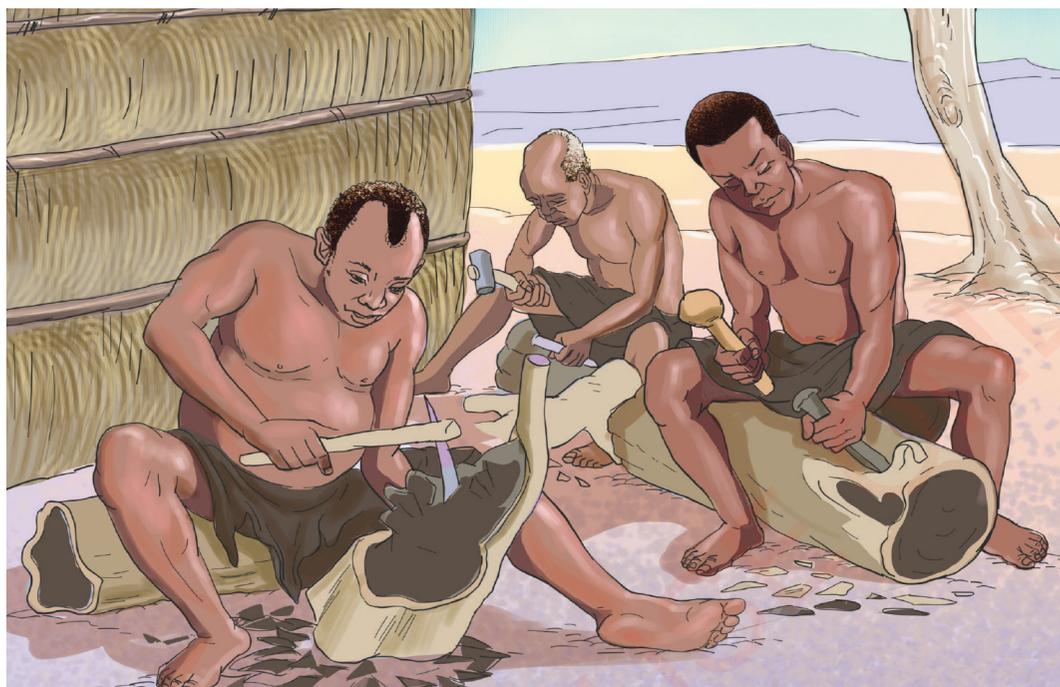


**Figure 12:** Weavers making various tools



**Figure 13:** Early Potters moulding pots with clay soil

Similarly, there emerged artisans who made farmers' hoes, spears and knives for hunters and milling tools for various household uses. Figure 14 shows the early sculptors at work.



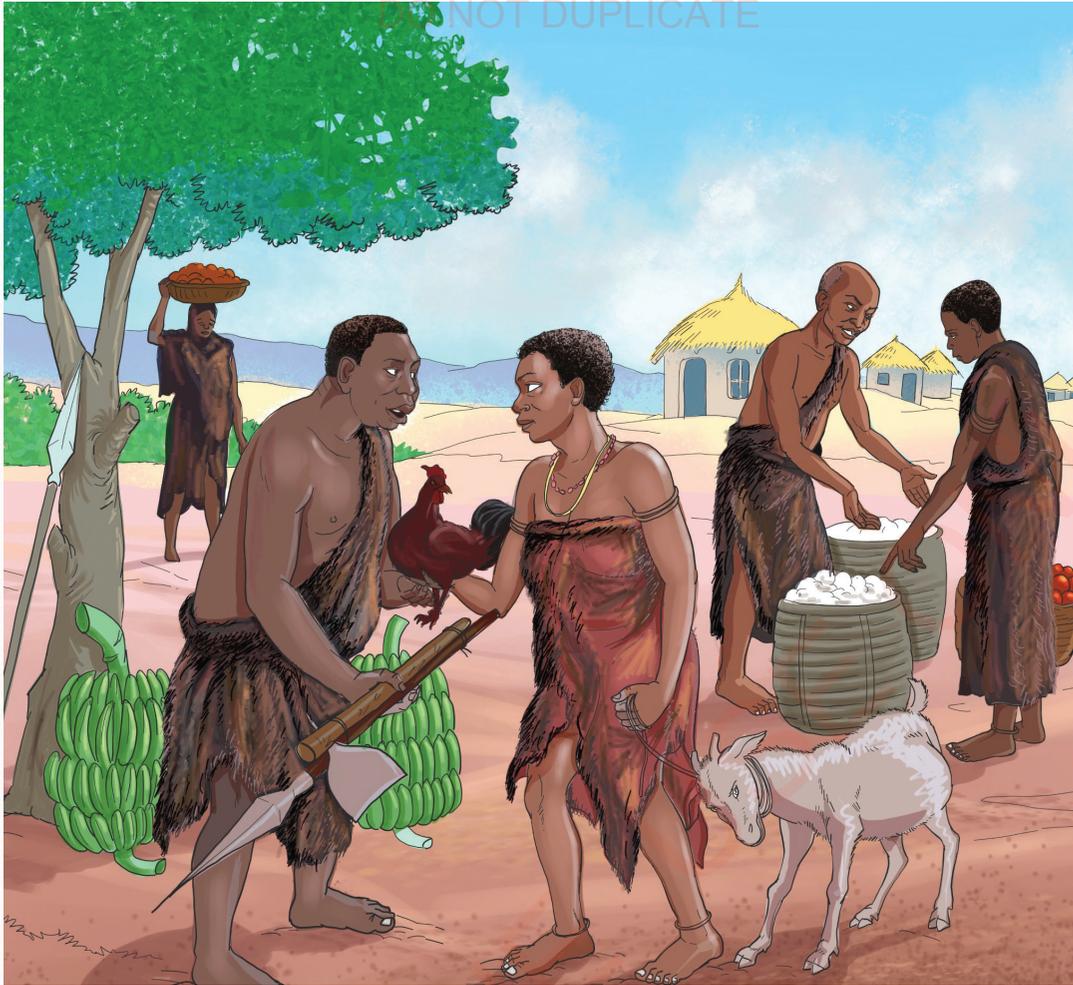
**Figure 14:** Early sculptors carving various tools

*(d) Emergence of the division of labour and responsibilities in the household and in the society*

The increase in productive activities in the household stimulated the need for division of labour based on gender, age and peer groups. Men, performed difficult tasks such as hunting, clearing fields, cultivating, and protecting families or communities. Women, on the other hand, performed household chores such as cooking, raising children and caring for the elderly and the sick. Girls helped their mothers while boys grazed animals and helped their fathers.

*(e) The beginning of the exchange of goods*

Surplus production of different types of goods and farm produce within and outside communities stimulated the need for exchange of goods to meet their own needs. This was the beginning of a community-based trading. Figure 15 shows community members in the market.



**Figure 15:** *Early people in the market*

**(f) Cultural change**

Developments resulting from the use of iron tools contributed to the changes in the culture of the respective communities, especially changes in dressing and language.

**(i) Clothing**

Early humans improved leather and bark clothes and they better covered and adorned themselves. They also protected themselves from the cold. In some communities the artisans crushed and softened the barks of special trees and made clothes for the community members. Figure 16 shows

the early ruler and his bodyguards wearing leather and bark clothes. This improved human clothing different from the previous eras.



**Figure 16:** *Leather and bark clothes used by the early Tanzanian communities*

(ii) *Language*

As communities expanded and relationships improved, different languages emerged to facilitate communication. Similarly, exchange of goods led to the emergence and growth of various languages.

**Exercise 5**

**Answer the following questions:**

1. Mention three indicators showing that iron tools were better than stone tools.

2. Write **TRUE** for the correct statement and **FALSE** for the incorrect statement and give reasons to support your answer in the space provided.

(a) Strength of the iron tools did not support agricultural development. \_\_\_\_\_

Reasons: \_\_\_\_\_

(b) Sufficient food supply stimulated population growth. \_\_\_\_\_

Reasons: \_\_\_\_\_

(c) During the Iron Age, it was not necessary to have division of labour and responsibilities in the household. \_\_\_\_\_

Reasons: \_\_\_\_\_

(d) Lazy people were the ones who exchanged goods. \_\_\_\_\_

Reasons: \_\_\_\_\_

(e) Languages simplified communication. \_\_\_\_\_

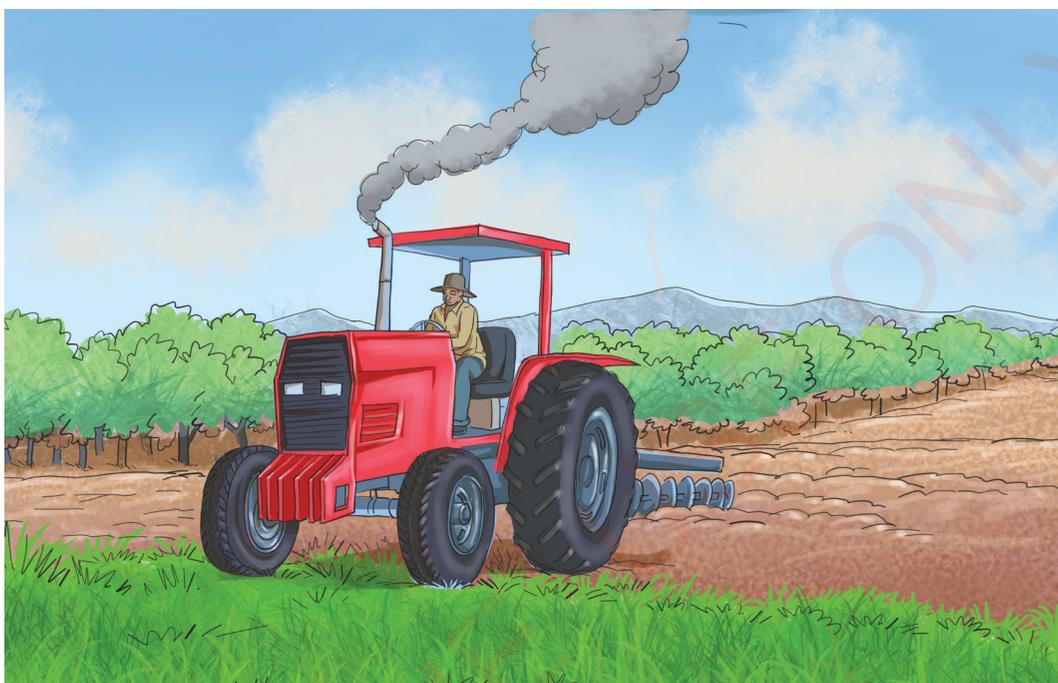
Reasons: \_\_\_\_\_

### The Digital Technological Age

So far, we have seen the changes of human development linked to the development of tools that enabled them to work and produce wealth. We have seen the Stone Age during which humans made tools out of stone and used them for various activities. The period was divided into three namely, the Early Stone Age, the Middle Stone Age and the Late Stone Age. The second era is the Iron Age during which humans improved the tools that contributed to the improvement of their lives.

This section covers the third era called the Digital Technological Age. This is the era of soft, fast and complex technologies in human history. It is also considered as an improved Iron Age marked by the invention of computer and making of various machines which include industrial machineries and automotive engines such as trains, ships, aircraft, tractors, and office

machines to simplify work. The Digital Technological Age has given humans the ability to produce large quantities of goods in a very short time. It has also facilitated transportation. This age of machines and digital technology has made it easier for humans to do things. The age of machines and computer has enabled humankind to discover many various kinds of modern technologies. Figure 17 illustrates the modern agricultural activity that uses a tractor.



**Figure 17:** *Modern farming using tractor*

The benefits of tractor farming include ploughing a large area, sowing large amount of seeds in rows, harvesting large sizes of crops quickly and, thus, saving time. Ploughing using a tractor, however, has serious disadvantages that include land compaction and high levels of smoke in the air. Mechanised farming, thus, contributes to land pollution and environmental degradation.

### **Modern production tools**

Despite the use of modern technology, today there are numerous types of production tools that are used differently and with different functions. Examples of such tools are hand tools and those pulled by animals.

(a) *Manually operated tools*

This group includes common tools such as machetes, axes, hoes, hammers and saws. These tools have strengths and weaknesses. One advantage of the tools is that they are affordable in terms of cost and are easy to use. However, the shortcomings include their slow performance. For example, cultivating a field with a hand hoe takes longer and the farmer becomes exhausted. Similarly, cutting down trees with a normal saw is tedious and time consuming. This is different from cutting down trees using a chainsaw that uses liquid fuel such as petrol or diesel. Figures 18 and 19 present the types of saws.

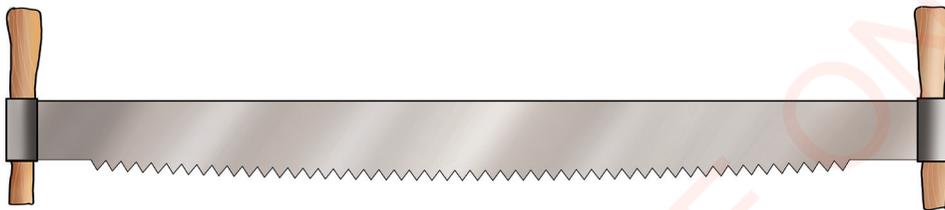


Figure 18: Common hand saw

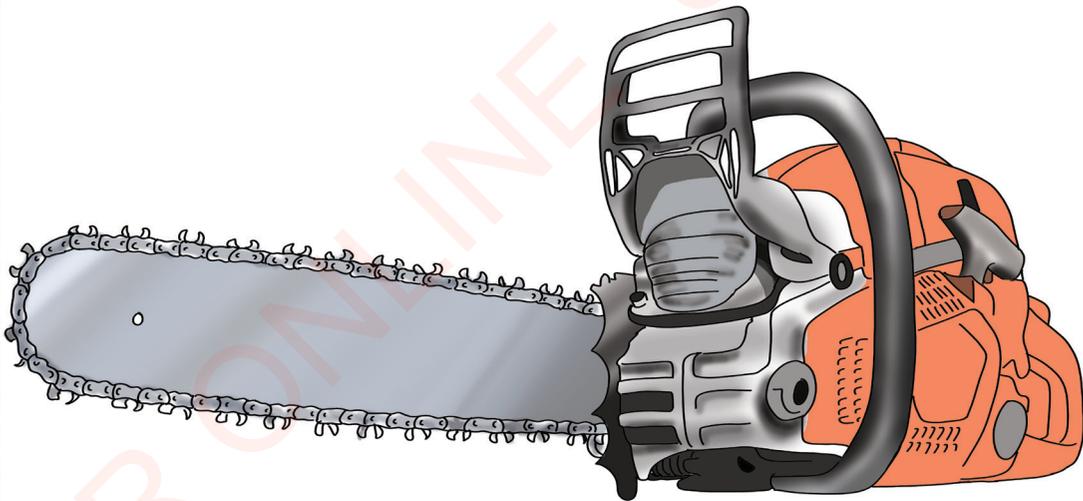


Figure 19: Chainsaw

(b) *Animal pulled tools*

These tools include ploughs, carts and wheelbarrows. The use of these tools is extensive and has many advantages. For example, a plough is used for ploughing, a cart is used for carrying goods and people and a wheelbarrow is used to carry things. Figure 20 shows a person transporting pineapples in a donkey-pulled cart.



**Figure 20:** *Donkey and cart used for work*

There are various limitations in using these tools. The limitations include carrying fewer goods compared to those carried by trucks. Similarly, animals become tired, especially when they carry heavier loads than their ability. Owners of these animals usually beat them up to make them walk faster or pull the load harder, an act that is contrary to animal rights.

### **Advantages and disadvantages of using modern tools**

As we have seen above, the use of modern tools has both positive and negative effects. The following table provides more explanations:

A. HAND TOOLS	B. ANIMAL-PULLED TOOLS	C. MACHINE TOOLS
<b>Advantages</b>	<b>Advantages</b>	<b>Advantages</b>
<ol style="list-style-type: none"> <li>1. They are easy to find and use.</li> <li>2. They are cheap</li> <li>3. Easy to maintain</li> </ol>	<ol style="list-style-type: none"> <li>1. Simplify load-carrying functions.</li> <li>2. Facilitate cultivation, planting and harvesting.</li> <li>3. Facilitate transport and transportation of people and goods.</li> </ol>	<ol style="list-style-type: none"> <li>1. Work faster with right standards.</li> <li>2. Save time.</li> <li>3. Mass production of goods in a short time</li> </ol>
<b>Disadvantages</b>	<b>Disadvantages</b>	<b>Disadvantages</b>
<ol style="list-style-type: none"> <li>1. Little work is done</li> <li>2. Users get very tired.</li> <li>3. Little is produced</li> </ol>	<ol style="list-style-type: none"> <li>1. They have better carrying capacity of goods than humans but not the same as that of cars or trucks.</li> <li>2. Animals get tired and suffer.</li> <li>3. The owner has to keep supervising the animals at work.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contribute to air and soil pollution.</li> <li>2. Cause soil compaction.</li> <li>3. Damage natural vegetation and water sources.</li> </ol>



### Activity 7

Reflect on the advantages and disadvantages of using each type of modern tools above, then do the following:

1. Name two other benefits for each type of tools.
2. Mention two other effects for each type of tools.
3. Present your answers during a class discussion.

**Exercise 6****Answer the following questions:**

1. Briefly describe the features that distinguish humans from chimpanzees.
2. Write **TRUE** for a correct statement and **FALSE** for an incorrect statement in the space provided, then give reasons.
  - (a) During the Early Stone Age the human was lonely.  
\_\_\_\_\_
  - (b) Reasons: \_\_\_\_\_
  - (c) The Early Stone Age tools were durable and used for a long time. \_\_\_\_\_
  - (d) Reasons: \_\_\_\_\_
  - (e) During the Early Stone Age humans and chimpanzees were almost similar. \_\_\_\_\_
  - (f) Reasons: \_\_\_\_\_
  - (g) The early paintings in the caves are full of historical teachings.  
\_\_\_\_\_
  - (h) Reasons: \_\_\_\_\_
3. Mention four benefits that the early societies had for having artisans and artists.
  - (a) \_\_\_\_\_
  - (b) \_\_\_\_\_
  - (c) \_\_\_\_\_
  - (d) \_\_\_\_\_
4. Choose the most correct answer and then write its letter in the box provided.
  - (i) Humans started to walk straight during the \_\_\_\_ Stone Age
    - (a) Middle

- (b) Old
  - (c) Iron
  - (d) Late
- (ii) Humans discovered fire by skewering a dry piece of stick on a dry wood; the two tools were known as:
- (a) *mitiki* and *uwimbombo*
  - (b) *ulindi* and *mnazi*
  - (c) *mwanzi* and *ulindi*
  - (d) *uwimbombo* and *ulindi*
- (iii) During the Early Stone Age, human beings got food by:
- (a) cultivating food crops
  - (b) raising animals and birds
  - (c) picking up fruit, hunting animals and digging roots
  - (d) fishing marine fish
- (iv) The first animals to be domesticated by humans were:
- (a) cattle
  - (b) cats
  - (c) dogs
  - (d) goats

5. Fill in the table the positive and negative points of using cars and motorcycles in transport and transportation.

<b>Positive points of using cars and motorcycles</b>	<b>Negative points of using motorcycles and cars</b>
1. Travels fast and saves time.	1. Engine smoke pollutes the air.
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

### Vocabulary

**Fossils** the old remains of animals, plants or artefacts that can be excavated for archaeological and heritage purposes

**Special** something unique or specific

# Chapter Three

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## Climate of Tanzania

### Introduction

*In Standard Six, you learnt about the meaning of weather and the elements of weather which are temperature, atmospheric pressure, precipitation, humidity, cloud cover and sunshine. Also you learnt how to measure those elements of weather and describe seasons of the year. In this chapter, you will learn about the concept of climate and the factors that affect climate of Tanzania. You will also learn about the climate zones of Tanzania and their characteristics. In addition, you will learn to link each climate zone with its respective economic activities. Moreover, you will learn about climate change and its effects on daily activities in the respective zone. The competencies gained from this chapter will help you to plan and carry out activities based on the climatic conditions of the respective area.*

### The concept of climate

Climate is an average weather condition of a place observed and recorded over a long period of time, normally 30 years or more. Climate is based on elements that are recorded every year. Weather has several elements such as temperature, rainfall, sunshine, wind, humidity, cloud cover, and atmospheric pressure. The average of each element is calculated and then divided by the years in which those records were taken. The value obtained is used to describe the climate of the area. Climate is closely related to weather because weather is the atmospheric condition of a place observed and recorded over a short period of time, for example hourly, daily, weekly or monthly. Thus, any change of weather condition over a long period of time causes climate change in a particular area.

Different places on the earth's surface experience different temperature and rainfall. This situation leads to the presence of different climates in different areas. Also, there are areas with similar climatic conditions although they are in different geographical locations. All places on the earth's surface with similar temperature, humidity, sunshine and rainfall have similar natural

vegetation. Similarly, places with similar climate normally have similar economic activities. For example, areas near the Equator usually experience higher temperatures throughout the year than those away from the Equator. Areas near the poles, both, North and South normally experience cool temperatures almost throughout the year. This situation leads to variations of climatic conditions in different places. Such places, with different climatic conditions are called climate zones.

### Factors affecting climate in Tanzania

Major factors affecting the climate of Tanzania just as in other parts of the world are altitude, vegetation, distance from the sea or lake, wind, and latitudes.

#### **Altitude**

The dominant climate in Tanzania is tropical climate, although it has climatic variations caused by altitude. Mountainous and highland areas are cooler than lowland areas which are characterized by relatively warm temperature. This is because for every increase of 100 metres of altitude, there is a temperature decrease of  $0.6^{\circ}\text{C}$ . Tanzania is located between 0 and 5 895 metres above sea level. Areas of high altitude such as Kilimanjaro, Arusha, Mbeya, Songwe, Njombe, Iringa, Morogoro, Rukwa, and Lushoto in Tanga are relatively very cold. At times they get exceedingly too cold to the extent that high mountains are covered with snow. For instance, the peak of Mount Kilimanjaro which is 5 895 metres above the sea level has the temperature below 0 degrees Centigrade. This temperature has caused the peak of Mount Kilimanjaro to be covered with snow. Climate change, however, has caused global warming which has caused melting of almost 80 percent of the snow cover. In addition, flat land and lowland areas with moderate altitude such as Dodoma, Singida, Shinyanga, Simiyu, Mwanza, and Tabora have a relatively warm climate. Similarly, coastal regions such as Pwani, Dar es Salaam, Tanga, Lindi, and Mtwara have high temperature and humidity as they are located at low altitudes above sea level.

An altitude of a place normally affects various economic activities. For example, some crops can hardly be grown in areas with high altitude. This condition is caused by lack of nutrients and the extreme cold that affect the growth of some crops. Cold-tolerant crops are widely grown in these areas, for example, coffee, tea, pyrethrum and bananas. In addition, steep slopes pose challenges in the construction of various infrastructures, such

as roads, railways and footpaths. This situation reduces the number of settlements, population and commercial interactions. The flat areas with moderate altitudes are likely to have high population, settlements and extensive commercial interactions. This is due to the availability of fertile land, water, infrastructure and accessibility to various places.

### ***Natural vegetation***

The natural vegetation of an area can also affect the climate of the respective area. Areas with dense forests such as Mufindi, Lushoto, Udzungwa, Njombe, Kibiti, Kibondo, and Biharamulo receive heavy rainfall. This is because clouds are easily formed due to high transpiration rates. These areas have fertile lands that support growth of trees and other vegetations. The plants and vegetation undergo transpiration which is important in rain formation. Areas with poor vegetation cover such as Dodoma, Singida, Shinyanga, Tabora and Simiyu receive low rainfall.

### ***Distance from the sea or lake***

Areas close to the sea or lake receive more rainfall than areas far from these water bodies. These areas receive frequent rainfall because they are characterized by high humidity and temperature caused by the interaction of warm and cold air. In Tanzania, areas close to the Ocean includes Dar es Salaam, Pwani, Lindi, Mtwara, and Tanga. Mwanza, Kagera, Kigoma, Rukwa, Ruvuma, Njombe, Mbeya, Mara, and Geita Regions are close to lakes. Heavy rainfall in these areas may cause water saturation in the soil, thus, causing floods or storms. Areas that are far from water bodies; especially the central regions such as Dodoma, Singida, and Tabora have low rainfall. This situation causes frequent drought and semi-arid conditions, thus, affecting agricultural activities in those areas.

### ***Wind***

Winds from the sea or lake often bring moist air that contributes to rain formation in coastal areas. Wind from dry areas brings dry air that may cause shortage of rainfall, thereby, contributing to dry conditions. Seasonal North-East winds cause low or no rainfall to most of the areas in Northern Tanzania. Also, these winds blow along the coast. Due to climate change, these winds have been changing over years, hence causing serious impacts on fishing activities and water transport. They have also been causing floods in several parts of the country.

## **Latitude**

The equatorial belt and areas near the Equator receive more solar radiation compared to areas far from the Equator. In these areas, the solar radiation reaches the earth at nearly ninety degrees. They, thus, receive maximum solar radiation. This condition leads to prolonged warming and, thus, contributing to the formation of rainfall. Temperature and rainfall in these areas largely contribute to the vegetation of the area.

Tanzania is located between latitude 1° and 12° South of the Equator, thus, it is very close to the Equator. Due to its proximity to the Equator, most part of the country receives maximum solar radiation throughout the year, resulting in longer warm periods. Also, winds from the South and North blow to low-pressure zones, thus causing rainfall.

## **Climate zones found in Tanzania and their characteristics**

A climate zone is a geographical area in a country, continent or world with a similar climate. Tanzania is generally located in the tropical climate zone because it is between 1° and 12° South of the Equator. All parts of Tanzania are warm in December, January, and February, since during this period the sun is at the southern hemisphere. Moreover, all parts of the country are cold in June, July, and August because during these months the Sun is at the northern hemisphere. During that period however, mountainous areas are cooler than other parts of the country.

The tropical climate of Tanzania is divided into four main climate zones. These zones are: Coastal Zone, Highland Zone, Central Zone, and Lake Zone. Each of these zones has a unique climatic condition that distinguishes it from other zones.

### **Coastal zone**

The coastal zone is located between 0 and 300 metres above sea level. It includes the regions of Dar es Salaam, Pwani, some parts of Tanga, Morogoro, Lindi and Mtwara, as shown in Figure 1. Also, the islands of Unguja, Pemba and Mafia belong to this zone. The climate of this zone is warm and humid throughout the year with little variation. This zone usually receives two rain seasons; monsoon and autumn rains. The monsoon rains fall between March and May. This is the heavy rain season. The second season is the autumn during which the rains fall between October and

December. This period is relatively wet. In the Coastal zone, rainfall average is between 1 000 and 1 930 millimetres per year.

June to September is the period of strong South-Westerly winds, thus, the zone experiences cold weather. In this period, temperatures drop to 21°C. The average temperature in this zone is 27°C. The highest temperature is experienced between December and February. During this period, temperature reaches 32°C. Also, during this period the wind blows in a high speed from North to East. Generally, humidity in this region reaches up to 80 percent.

### Highland zone

This zone is characterised by cool climate and moderate temperature. The Tanzanian highland zone includes the mountain ranges of Usambara, Uluguru, Nguru, and Hanang. Other mountain ranges are Rubeho, Udzungwa, Kipengere, Rungwe, Ufipa and Livingstone as shown in Figure 1. Also, this zone includes the Kilimanjaro and Meru mountains in Kilimanjaro and Arusha Regions respectively. Areas in this zone experience the monsoon rains brought by the Northern winds. These winds have a lot of moisture from the sea or lake. As the winds cross the Equator, they change their direction into Northwest winds. From May to October, when the South-west winds blow into this zone they become relatively dry. This condition happens because the winds pass through dry areas. Moreover, the zone has moderate temperatures and some areas such as Mufindi, Njombe, Lushoto and Rungwe are cold. These areas receive annual rainfall between 800 and 1 250 millimetres per annum especially in the areas surrounding the mountains. The temperature in this zone is between 14°C and 20°C. In addition, humidity is between 58 and 65 percent.

### Central zone

This zone is characterized by the semi-arid condition. In Tanzania, the zone is found in central regions of Singida, Dodoma and Tabora as shown in Figure 1. These areas receive moderate rainfall, less than 500 millimetres per annum. The atmosphere is less cloudy and the air is dry and sometimes dusty. Altitude of this zone ranges between 1 000 to 1 500 metres above sea level. For most of the year, temperature is high during the day and low during the night. Because of high temperatures and low rainfall, the central zone regions experience drought.

## Lake zone

Lake zone is located in the Northern and some Western parts of Tanzania. It covers the regions of Mwanza, Mara, Kagera, Geita, Simiyu, Kigoma, and Shinyanga. The Lake zone receives heavy rainfalls of between 1 140 and 2 000 millimetres per annum. The area has an average humidity of 70 per cent. It normally rains in four months of the year, and more rainfall is experienced in April and May. The Eastern part of this zone receives between 750 to 1 000 millimetres of rainfall, whereas, the Western part receives an average rainfall of 2 000 to 2 300 millimetres per annum. Temperature in this zone is around 27°C. The annual temperature range is as low as 2°C. Figure 1 shows the climate zones found in Tanzania.

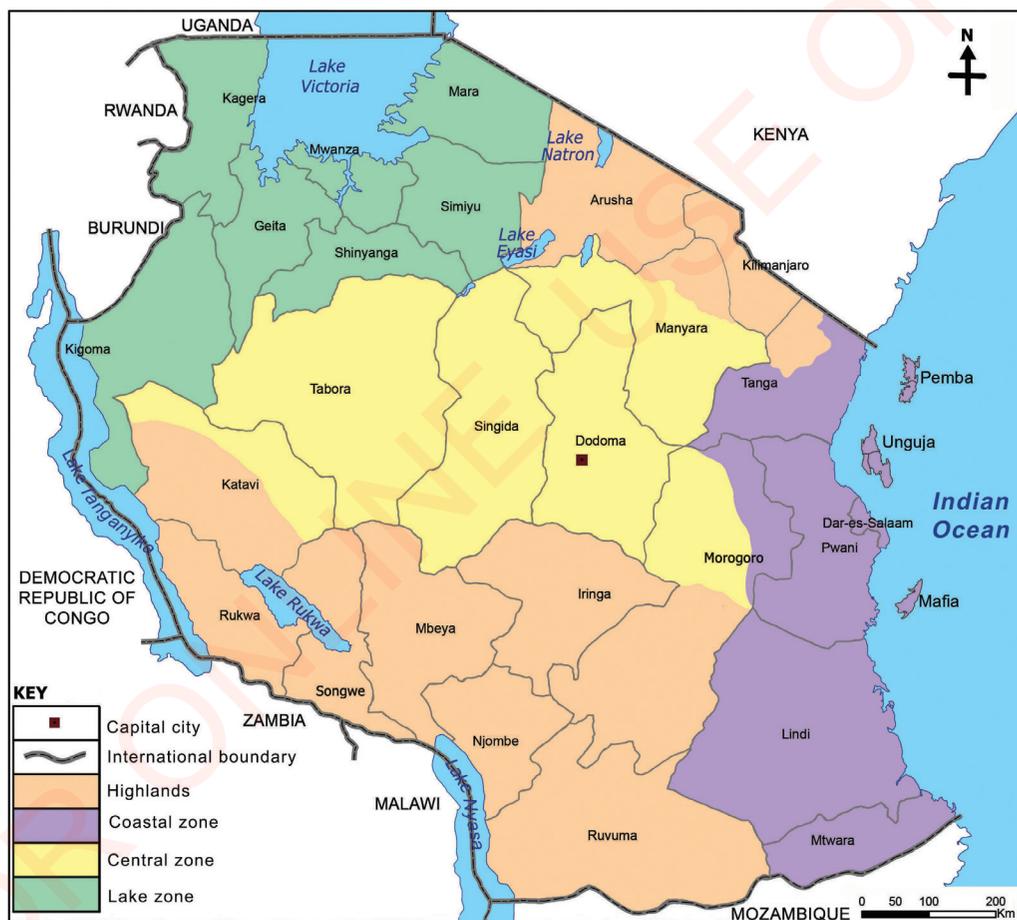


Figure 1: The climate zones in Tanzania

**Exercise 1**

**Answer the following questions:**

1. Define the following terms:
  - (a) Climate
  - (b) Weather
2. Using Figure 1, briefly explain why Dar es Salaam, Iringa, Mwanza, Dodoma, Ruvuma and Arusha Regions experience different amount of temperature.
3. Briefly explain why the lake zone regions receive heavy rainfall per annum.
4. Why do the lake zone areas have more fertile soil than the regions in the central zone?

**Climate zones in Tanzania and the economic activities**

There is a close relationship between climate zones and economic activities in Tanzania. Thus, economic activities taking place in a particular area are closely linked to the weather and climate of that area. The following details show some of the economic activities taking place in different climate zones in Tanzania. The coastal zone with high temperatures and high humidity favours cultivation of crops such as, rice, cassava, sisal, cashews, sugarcane, coconut and clove. Also, fishing and trade activities take place in this zone. The main activities in the highland zone are livestock keeping and cultivation of crops such as coffee, maize, cassava, sisal, cotton, sorghum, rice, beans and sesame. The central zone which has dry and hot conditions is known for cultivation of drought tolerant crops such as sorghum, cassava, sweet potatoes, grapes, cotton, tobacco, sesame and groundnuts. People in this zone are also engaged in livestock keeping including cattle, goat and sheep. Fish farming is also done in lakes, dams and ponds; for example in Mtera dam in Dodoma Region; Singidani and Kindai small lakes in Singida Region.

In the Lake zone, where there is heavy rainfall, people engage in the cultivation of cotton, cassava, banana, sugarcane, rice, and maize. People in this zone are also engaged in livestock keeping. Similarly, fishing is a major activity for the residents of these areas due to the presence of Lake Victoria and Lake Tanganyika.

The following are some of the major activities taking place in various climate zones in Tanzania.

### **Cotton cultivation in the lake zone**

A large percentage of cotton in the country is grown in Mwanza, Geita, Shinyanga, Mara, Kagera, Simiyu, and Kigoma Regions. Cotton usually grows in sandy, clay and silt soils. Cotton crop requires enough rainfall during sowing and growing. Harvesting normally takes place during dry season due to the presence of enough sunshine. The average rainfall for growing cotton ranges between 500 and 1 000 millimetres and temperature between 20°C and 28°C. The farmer is advised to harvest the cotton early before it is damaged. Figure 2 shows the cotton crop.



**Figure 2:** Cotton ready for harvest

**Source:** <https://allafrica.com/stories/201708310161.html>

Having been harvested, cotton is ginned to separate the fibre and the seeds. Cotton seeds are processed to produce oil which is used for skin care, cooking, and lubrication. After processing the cotton seeds, the remains are used to make animal feed for cattle, pigs and goats. The cotton fibre is used to make clothes, pillows and mattresses. Also, it is used in hospitals for medical purposes. Cotton benefits the people of the Lake zone by providing them with income and raw materials to make various products. Also, cotton is one of the sources of foreign currencies and contributes to the national development.



### Activity 1

1. Draw the map of Tanzania showing the areas where cotton is grown.
2. Name the climatic conditions required for growing and harvesting of cotton.

### Coffee production in the highland zone

Coffee is a crop that grows well in mountainous areas. There are two varieties of coffee that are widely grown in Tanzania; Arabica and Robusta. Arabica is widely grown in Arusha, Mbeya, Kilimanjaro and Ruvuma Regions. Robusta is widely grown in Kagera, Tanga, Morogoro, Manyara, and Rukwa Regions. Coffee plants need fertile and well-drained soil. Also, it grows well in an average temperature between 17°C and 23°C and between 1 016 and 1 500 millimetres of rainfall per year. Rainfall should be well distributed across the area throughout the year. Coffee needs shades from other trees, and is usually grown on fields with few trees raised to provide shades. Figure 3 shows the coffee crop in one of the highlands zone in Tanzania.



Figure 3: Coffee crop

Source: <https://mkulimamjasiriamali.wordpress.com/2019/03/08/kilimo-bora-cha-kahawa/>

Coffee seedlings are grown and kept in the nursery. They are left to grow to a height of 20 centimetres, and then transplanted to fields. The holes for the seedling are 60 cm wide and deep. Fertilizer is well added in the holes. The distance between one hole to another is 2.5 metres. Once planted, coffee trees produce fruits after three years and are capable of bearing fruits up to 30 years. Coffee is grown as a commercial crop. Coffee crop has got multiple uses, for instance, it is used for making beverages and snacks. Also, it is used to make a special coffee powder which is used to clean skin, eyes, and household utensils. In addition, it is used for decoration in clothing and beauty.

### Exercise 2

Answer the following questions:

1. Name three reasons why coffee grows well in the mountainous and highland areas.
2. List and explain five uses of coffee.



### Activity 2

1. Using various sources such as books and internet find the following information about coffee crop:
  - (a) Coffee growing areas;
  - (b) Suitable climatic conditions for growing coffee; and
  - (c) How to grow, care and harvest coffee.

Prepare a brief report about your findings and present it to the class.

## Coconut farming in the coastal zone

Coconut tree gives us a fruit called coconut as shown in Figure 4. In Tanzania, coconuts are mainly grown in the Coastal regions. These regions includes Pwani, Dar es Salaam, Tanga, Mtwara and Lindi. They are also grown in Unguja and Pemba Islands. Coconut grows well in moderate temperature of between 20 and 30 degrees Centigrade per year. Coconut also needs a lot of rainfall of about 1 500 to 2 000 millimetres per year. Sandy soil mixed with large amount of compost is suitable for coconut cultivation.



**Figure 4:** Coconut crop grown along the coastal area

**Source:** <https://www.habarileo.co.tz/habari/2019-08-075d4a7b4e1e1f6.aspx>

Coconut seedlings are grown in the nursery for six months. They are then moved and transplanted into circular holes with a diameter and depth of 90 cm. It is important to put compost and leave the holes open until transplanting. Normally the distance between one hole and another is 10 metres for taller seedlings and 3 metres for the hybrid ones. Hybrid species are normally shorter than the traditional ones. In order for the coconut trees to grow well, they need weeding. They must also be protected from all pests. A coconut tree produces coconuts after 3 years and continues to produce up to 50

years. Coconuts are used as food and spice for vegetables and other foods. The immature coconut produces a very nutritious drink that is believed to cleanse the kidneys and reduce weight. Coconut also provides raw materials for construction and making of traditional furniture.

### Exercise 3

Answer the following questions:

1. Describe three conditions suitable for coconut farming.
2. Mention five items which may be obtained from coconut materials.
3. Describe uses of the items you have mentioned in question 2.

### Cassava cultivation in the lake zone

Cassava grows well on fertile soil with moderate temperature of not less than 10 degrees Centigrade and moderate rainfall during planting. Cassava grows well on sandy soils and in areas with moist soils. In Tanzania, cassava grows well in Kigoma, Geita, Mwanza, and Mara Regions. These regions are located in the Lake zone. The zone covers areas surrounding Lake Victoria and Lake Tanganyika. Apart from being a food crop, cassava is also used as a commercial crop. Cassava is dried and crushed to obtain flour for cooking variety of food stuffs such as ugali, flatbread, doughnuts and porridge. Cassava leaves are used as vegetables. Cassava can be boiled and used as snack for breakfast. In addition, cassava is used as animal feed and a source of energy by decomposing their residues to produce biogas. The stem cuttings are used as seedlings. Farmers cut small pieces of these stems and replant them. Moreover, cassava stems are used as firewood. Farmers, thus, earn cash and obtain their basic needs from the crop. Cassava plants should be spaced at least 1 metre from one stem to another stem and 1 metre from one row to another. This space allows cassava to grow well. Figure 5 shows a cassava farm.



**Figure 5:** A cassava farm

Source: <https://www.ice.sua.ac.tz/suatv/index.php/en/habari/478->

### **Livestock keeping in the central, northern highlands and lake zones**

Livestock is one of the main economic activities in Tanzania. Livestock keeping takes place mainly in the central, lake and the northern highland zones. The most famous regions for livestock keeping include Mwanza, Geita, Mara, Shinyanga, Simiyu, Dodoma, Singida, Tabora, Manyara and Arusha. Grassland vegetation, and moderate rainfall have significantly contributed to pastoral activities in these areas. Animals such as cattle, sheep, goats, pigs, and birds such as chickens, ducks, and turkeys are raised by most of the people in these areas. Grazing is the major way that pastoralists use to feed their livestock. They leave with their livestock in the morning to graze away from homes and return back in the evening. Livestock are kept in the kraals.

Some of the pastoralist societies are the Maasai and the Baribaig from Manyara and Arusha Regions; Sukuma from Mwanza, Geita, Shinyanga and Simiyu Regions; Nyamwezi from Tabora Region and the Gogo from Dodoma Region. Some of these pastoralist societies are nomadic; they move with their herds from their areas to other parts of the country for searching of

pastures and water. Livestock keeping is the source of meat for pastoral societies. They also get milk, skin and money. They earn money after selling various products from livestock. Animal hooves are used for making various products such as shoe soles. Bones and horns are used for making buttons of clothes. Hides are used for making shoes, belts and clothes.



### Activity 3

Read various types of livestock keeping that take place in different areas and then identify climatic characteristics that favour the activity.

## Climate change in Tanzania

You have already learnt that, climate is a combination of weather elements that are observed and recorded over a long period of time, normally 30 years or more. When the average measures of these elements appear to change over a long period of time, it indicates that there is climate change. For example, if the average temperature of city “A” is 25°C, this means that the temperature was obtained after taking the average temperature of city “A” for 30 years or more. Now, the average temperature may be calculated again using data recorded in the more recent 30 years. If the new average measures are different from the earlier one, then it indicates that the climate of city “A” has changed. The climate, however, is not all about temperature. Climate change may therefore involve other elements of weather such as rainfall. Temperature and rainfall are the most important elements used to assess climate change.

One of the indicators of climate change is global warming. Rise of global temperature causes changes in the average records of the elements of climate. Why is temperature rising? Temperature rises because of the excessive concentration of greenhouse gases in the atmosphere. Greenhouse gases include carbon dioxide and methane. Carbon dioxide and methane in the earth’s atmosphere increase the earth’s temperature. This happens when the sun’s radiation reaches the earth’s surface, it warms the earth, and then the earth reflect heat from this radiation back to the atmosphere. The layer of

greenhouse gases in the atmosphere prevents heat from the earth's surface to escape to the atmosphere. This causes warming of the earth, which results to climate change.

But why has the concentration of carbon dioxide and methane increased in the atmosphere? One of the reasons is the increased use of fossil fuels, uranium, and coal. When these fuels are used, they release greenhouse gases into the atmosphere. These gases rise and accumulate to form a layer that prevents reflected radiation from escaping to the earth's atmosphere. When this happens, the earth's temperature increases. Deforestation and burning of charcoal also produce carbon dioxide and methane. Trees, however, absorb carbon dioxide when they use the gas to produce their own food through the process of photosynthesis and then, they release oxygen. Deforestation and the burning of charcoal, therefore, increase the amount of carbon dioxide in the atmosphere and reduces the amount of oxygen that would be produced for human beings. Similarly, large scale livestock keeping leads to mass production of manure that produces the methane gas. This gas also, blocks heat radiation from escaping the earth's atmosphere.

### **Impact of climate change in Tanzania**

Climate in Tanzania has been changing quite significantly in the past thirty years. For example, we have clearly observed increases of temperature and rainfall above average in many parts of the country. Rainfall above average, prolonged drought in some years, strong winds and rising sea levels in the Indian Ocean have been observed. These events have severe effects on people, animals, and settlements in many parts of the country. The following are the effects of climate change in Tanzania:

#### ***Change of seasons***

Climate change in Tanzania has caused great changes of seasons in many parts of the country. This has affected the calendar of agricultural and trade activities. Variation in rainfall calendar has caused unpredictable crop timing. Farmers end up with loss due to unpredictable weather patterns. This has also affected traders.

#### ***Melting of the snow-cap of Mount Kilimanjaro***

More than 80 percent of the snow-cap on Mount Kilimanjaro has melted between 1912 and early 2000's. Unfortunately, the snow-cap continues to

melt due to the rise of temperatures in the highlands and other parts of the country. Melting of snow has decreased the amount of water in the streams around the mount Kilimanjaro. This is likely to affect irrigation activities in the area.

### ***Rise of the sea level***

In recent years, Tanzania has witnessed a rapid increase of the sea level of the Indian Ocean. The rise of the sea level has caused submergence of some beaches. The most affected coastal line include parts of Pemba and Unguja Islands in Zanzibar and Mafia in Pwani Region, Tanzania mainland. The level of the Indian Ocean has increased due to the melting of snow at the earth's poles. This phenomenon has accelerated erosion of beaches, destruction of settlement and drowning of some islands and coral reefs. Intrusion of salt water into dry land also causes extinction of coastal vegetation. This situation can also affect tourism activities.

### ***Loss of biodiversity***

Organisms that are unable to adapt to high temperatures usually migrate or die, thus damaging nature and the ecosystem. For example, a lot of hippopotamus in the Ruaha River in Ruaha National Park died after the river dried up because of prolonged drought. Similarly, climate change attracts invasive plant species that affect nature and ecosystem of the area. This situation can also affect tourism activities.

### ***Increase in Diseases***

One of the effects of climate change is an increase and emergence of diseases such as malaria, cholera, hypertension and respiratory diseases. Increase of temperature in Tanzania has led to an increase of malaria cases. Malaria cases have been reported in colder highland areas such as Lushoto, Kilimanjaro and Njombe, where there were no Malaria cases before 2000's. On the other hand, the increase in temperature has been affecting some people with respiratory diseases such as asthma, allergy, and those with high blood pressure. Also, in recent years there has been an increase in the cases and recurrence of cholera and diarrhoea. Heavy rainfalls have led to floods and the spread of cholera in the country.

### **Occurrence of drought**

Drought is caused by lack of reliable rainfall in a particular area for a prolonged period of time. In recent years, various parts of Tanzania such as Arusha, Shinyanga, Kilimanjaro, Dodoma, Singida, Simiyu, and Tabora have been experiencing drought. Drought has a lot of effects including crop damage, death of animals and plants and drying of water sources. All these effects of drought lead to famine and poverty.

### **Impacts on farming and livestock**

Climate change has also largely affected both crop farming and livestock sectors. One of the impacts of climate change on farming are interruptions of farming seasons, changes in agricultural ecological zones, unpredictable rainfall, and prolonged periods of drought. Other impacts include death of livestock, increase in crop pests such as locusts and emergence of invasive species that affect crop germination. Also, excessive rains cause floods and damage the crops. This situation has been causing shortage of food and pastures in various parts of the country leading to starvation and deaths of livestock. Figure 6 shows the area affected by drought.



**Figure 6:** Photograph showing an area affected by drought

**Source:** <https://www.voanews.com/africa/less-severe-drought-forecast-horn-africa>

### ***Destruction of infrastructure***

Heavy rainfall damages various infrastructures such as bridges, roads, and power transmission lines. For example, in March 2020, the Kiyegeya Bridge in Kilosa District, Morogoro Region, which connects Dodoma and Morogoro Regions, collapsed due to floods caused by heavy rains. Excessive rainfalls have most often damaged railway infrastructures and affected transportation services in the country. Figure 7 shows the damaged Kiyegeya Bridge.



**Figure 7:** *The damaged Kiyegeya bridge in Morogoro Region*

**Source:** <https://www.eatv.tv/slider/naibu-waziri-wa-ujenzi-awasili-daraja-la-kiyegeya-lililosombwana-maji-morogoro>

### ***Precautions to reduce the effects of climate change***

Human activities are highly responsible for climate change. There are various precautions that human beings can take to reduce the impacts of climate change. Some of these precautions include the following:

- (i) Provide appropriate public awareness on the challenges of climate change. Proper education helps people to make right decisions related to climate change and its effects;

- (ii) Reduce the use of fossil fuels to run automobile engines and other machineries. Use of renewable energy sources such as solar, biogas, natural gas, geothermal and wind energy should be promoted;
- (iii) Control deforestation by reducing the use of firewood and charcoal. People should be encouraged to use natural gas and standard stoves to reduce the amount of firewood and charcoal used for cooking;
- (iv) Plant trees in open and deforested areas. Trees help to absorb excessive carbon dioxide in the atmosphere and provide us with oxygen. In return this strengthens the ozone layer and protects us from harmful radiation and global warming;
- (v) Conserve water sources and use water resource efficiently and effectively to reduce the effects of drought and shortage of rainfall; and
- (vi) Plant drought-tolerant and early mature crop varieties to ensure food security when there is drought. Farmers should also be advised to follow good agricultural practices to increase production especially when rainfall is little. It is also important to improve crop storage facilities.

**Activity 4**

1. In a group of four pupils, discuss how to deal with the effects of climate change in your area, and then present it to the class.
2. With the supervision of the subject teacher, visit the meteorological station, and assess the changes of the elements of climate recorded in five consecutive years. Identify the most affected element and then report about climate change in the area.

**Exercise 4**

Answer the following questions:

1. Name three products that are made of cotton.
2. Explain how climate of a place is identified.

3. Briefly outline four benefits of understanding the climate zones in Tanzania.
4. Briefly describe elements that indicate climate of your region.
5. Briefly describe climate of the region where you live.
6. How does climate affect human activities in your region?
7. List three things you have learned about the highland zone in Tanzania.
8. Briefly explain the difference between climate and weather.
9. Describe four characteristics of the Coastal zone and the main economic activities taking place in this zone.

### Vocabulary

Altitude	height above the sea level
Biogas	gas produced by the biological breakdown of organic matter such as animal or domestic wastes in the absence of oxygen
Carbon dioxide	toxic gas which is colourless, tasteless and odourless. This gas is caused by the burning of fossil fuels
Coral reefs	a rock formed by small marine organism called polyps where fish lay eggs
Ecology	the relationship between living things and their environment
Fossil fuels	fuels that are derived from the accumulation of dead plants and animal remains buried for a period of 1 000 000 years or more
Greenhouse gas	gas that absorbs and emits radiant energy in the atmosphere
Kraal	an enclosure for keeping cattle or sheep

# Chapter Four

## Tanzanian traditions and customs

### Introduction

*In Standard Six, you learnt about the concept of culture, you analysed and explained the importance of the Tanzanian culture to the nation. In this chapter, you will assess the roles and learn aspects of the pre-colonial Tanzanian traditions and customs and how to promote a positive culture. You will also assess the effects of bad pre-colonial Tanzanian traditions and customs for the purpose of eradicating them from the society so as to set the base for development in the society. The competencies that you will gain in this chapter, will help you to maintain and promote the good Tanzanian traditions and customs and get rid of the bad ones.*



#### Think

1. Traditions and customs.
2. Tanzanian traditions and customs.

### The concepts of tradition and custom

Tradition is a way of life that a society has set for itself and relates to every member of the community. Tradition guides members of the community on how best to live in that community. It is directly related to the history and culture of a particular society. This includes rituals in mourning and burial ceremonies, boys' and girls' initiation as well as marriage ceremonies. Customs are the common practices, norms or legal systems of a particular community. Customs are, thus, social principles that enforce traditions.

For example, burial ceremonies are a tradition while burial principles and practices are customs. Similarly, informal education through initiation is a tradition, but the principles used in carrying out the initiation are customs.

Traditions and customs are created and passed down from one generation to the next. A tradition starts as a custom which is formed by an individual or group behaviour and thereafter spreads to the whole society. When people in a certain community get used to these customs they influence the traditions. Traditions and customs may be lost if they are ignored or abandoned. It is therefore, important for a society to carefully maintain and promote appropriate traditions and customs. Besides, it is important to note that bad customs and practices that emerge and get used to in the society are strongly condemned. When bad customs and practices are not condemned they may influence the tradition of a society and become part of it. With change of time, traditions and customs become outdated and may contradict the interests of the society. It is, therefore, our responsibility to get rid of the outdated and bad traditions.



### Activity 1

Ask your parent or guardian about the old customs and traditions of your community and then:

1. Write down those traditions in your exercise book.
2. Name good traditions that should be maintained.
3. Identify bad traditions.
4. Explain why those traditions are inappropriate or bad.

### Role of traditions and customs

Basically, traditions and customs take a big portion in the study of culture. Traditions and customs reflect the way of life of a particular society including how the society lives, interacts and relates with other societies. Traditions and customs also show the different practices in the society. These may include beliefs, education, values, skills, experience, parenting and behaviour. They also reflect the way these practices are acquired and passed on to the next generation. In this regard, traditions and customs are important as they express social identity and distinguish one society from another. They also bring social wellbeing of the society and promote development of the nation.



### Activity 2

Ask your parent or guardian about the traditions and customs of your society related to parenting, values, behaviour and then write about:

1. Parenting in your community.
2. The values of your society.
3. Behaviours and practices of your community.

## The role of pre-colonial traditions and customs

Before colonialism, Tanzanian communities had their own traditions and customs. However, traditions and customs of those communities differed due to the presence of different economic, social, administrative, and environmental systems. The role of traditions and customs of those communities focused on economic growth, promotion of moral values and good behaviour as well as passing on informal education and beliefs of a particular society. Generally, traditions and customs aimed at setting principles of life in those societies. The pre-colonial traditions and customs had the following specific objectives:

- (i) To honour and promote good behaviour;
- (ii) To cherish hardworking. Work was regarded as the foundation of development;
- (iii) To encourage equality in production, distribution of resources and their ownership;
- (iv) To encourage the sense of dignity and respect to other people. This was done to encourage good conduct and discipline in a particular society
- (v) To encourage good parenting and nurturing in the community;
- (vi) To value indigenous knowledge and technologies in promoting development of a respective community;

- (vii) To empower members of the community to develop their lives while upholding and adhering to the rules and regulations of their community; and
- (viii) To build a culture of cooperation, solidarity, brotherhood, patriotism, love and a spirit of mutual support in the community.

The elderly and adults taught, guided and passed on traditions and customs of respective communities to the youth and children. Chiefs and elders were the main promoters and custodians of traditions and customs in their communities.

### Elements of the pre-colonial traditions and customs

The roles of the pre-colonial traditions and customs were divided into various aspects, which are good values and morals, education, parenting as well as beliefs and religion.

### The role of traditions and customs in building values and morals

The following things were emphasised in instilling good morals and values:

- (i) Caring for the elderly, children, people with disabilities and the poor. The community was taught to serve individuals in those groups;
- (ii) Accountability and hard working. Laziness and dislike of work were condemned in all communities. People were encouraged to love their work and work hard;
- (iii) Respect to elders and older people in the community. Elders were respected and believed to be more knowledgeable than the younger ones. For example, parents were called after their children's names like *Mama Maliganya*, *Baba Lugane* so as to respect them as parents;
- (iv) Cooperation in all matters of happiness and sadness such as wedding and funeral;
- (v) Hospitality to guests. Our communities were encouraged to love and help guests;
- (vi) Good relationships in the community. Quarrels and conflicts were discouraged; and
- (vii) Respect for traditional beliefs, ritual sites and ritual objects.



### Activity 3

Ask your parent or guardian about the values of your community and, then:

- (a) Mention the things that were emphasised and considered as good moral values in the community.
- (b) Briefly explain how good moral values may be maintained in the modern society.

### The role of traditions and customs in education

The role of traditions and customs was to provide education to the community. Education focused on teaching and passing on skills, experiences and knowledge of the community to the younger generations. The elderly and knowledgeable persons were responsible for the provision of education. There was no formal schools as those in the modern times. Young people were taught different skills and knowledge about war, hunting, traditional medicine and healing, blacksmithery, pottery, traditional beliefs and the history of the community. The teaching and learning were done in peer groups, at home and during initiation ceremonies. This kind of education focused on the following;

- (i) Healing, especially in the prevention and treatment of various human and animal diseases;
- (ii) Encouraging a spirit of cooperation, brotherhood and love;
- (iii) Insisting on respect for human dignity and law observance; and
- (iv) Security, defense and protection against natural disasters and enemies.

Although, communities had similar roles in providing education, they provided education in relation to their traditions, customs and the surrounding environment. This was done in order to strengthen the social, economic and environmental systems of the areas in which they lived.

**Exercise 1****Answer the following questions:**

1. Explain the role of traditions and customs in education for the modern society.
2. Elaborate how education is used to promote customs and traditions in the modern society.

**The role of traditions and customs in parenting**

Parenting skills and experiences enabled the communities to maintain their traditions and customs in the process of upbringing children in the society. Parenting began at conception to the puberty age when persons were identified as grownups or adults. The process of parenting and nurturing focused on various things including food. For example, a pregnant woman was advised to eat certain kinds of food and perform certain activities in order to get a healthy baby. Parenting was also done in order to instil good moral values and behaviour in the society. Family was the focal point of parenting and upbringing in the community. In addition, the whole community was involved in the parenting and development of children. Similarly, the community took the responsibility of preparing and nurturing all children so that they may conform to good moral values of the respective community.

**Activity 4**

Ask your parent or guardian about traditions and customs in parenting, then:

- (a) Explain how parenting was done in your community.
- (b) Briefly explain how to maintain good parenting in the community based on traditions and customs.

## The role of traditions and customs in beliefs and religion

In the pre-colonial societies, beliefs and religions were built on the foundations of the traditions and customs of the respective communities. People believed in the existence of God or gods who had the power to control all things. These beliefs influenced how people related with God, gods or great natural objects such as the sun, great mountains, caves, rivers, and forests. So, people believed that God or gods controlled and made final decision on everything in life. In this context, communities were taught and believed in their own traditional beliefs and worship. Each community had its own way of worshipping known as rituals. These rituals were performed in special places, such as graveyard, under large trees, on mountains, in forests, in caves, at crossroads, in lakes, in oceans and on large rocks. Choice of the ritual place depended on the type of the ritual. These rituals were usually led and performed by elders or clan leaders. For example, The *Nyumbanitu* Forest in Njombe Region is one of the most popular ritual sites for many purposes. Some of these purposes include prayers to God through ancestors in order to get blessings, rain, good harvest, and perhaps to remove misfortunes or tragedies in the community. Communities also worshipped through their ancestors. During worshipping, people gave offerings such as animals, local brews and grains. All these were done for the sake of maintaining traditions and customs. The community believed that disobeying rituals would cause problems in the society. Even when tragedy happened, the community members believed that it was the result of not worshipping. Ritual traditions and customs in the community were passed on from one generation to the next.

In some societies, rituals involved traditional ceremonies with an aim of worshipping. This also aimed at teaching people good moral values of their respective community. Similarly, people were advised to fulfil and adhere to rituals in order to avoid misfortunes and disasters. Religious beliefs were also accompanied by the use of traditional medicine to treat and prevent various diseases. Traditional medicines were provided by elders, traditional healers and midwives for treating various diseases. In addition, these traditional healers and elders healed through rituals and divination.

## Bad Traditions and Customs

Bad traditions and customs are still a big problem in many Tanzanian and African communities. Some of them are a major source of gender violence and sexual harassment. With modern development, communities have the responsibility to embrace positive change that promotes the wellbeing of the society. People should not abandon their traditions and customs. Some of the bad traditions and customs that have existed since pre-colonial times including gender and sexual violence, Female Genital Mutilation (FGM), early marriages for girls, superstition, killing of the elderly and people with albinism as well as inheriting widows, however, must be abolished.

### Effects of bad traditions and customs on pre-colonial Tanzanian societies

During this period, communities relied heavily on ideas and advice from elders, especially traditional leaders and healers. This situation went hand in hand with bad beliefs such as superstition and sorcery. As noted above, bad traditions and customs during this period resulted in the killing of the elderly and people with albinism, and female genital mutilation (FGM). Also, they caused sexual harassment and the exclusion of people with disabilities such as lepers. Such people were excluded, hidden and even killed in some societies. This is because community members believed that living with such people could bring misfortunes because they were cursed.

### Impact of bad customs and traditions in the post-colonial Tanzanian society

Despite the presence of laws prohibiting and punishing perpetrators of harmful traditions and customs, such traditions still persist in some communities. Examples of these harmful traditions in the modern societies include sexual harassment, sexual violence, and female genital mutilation (FGM). These practices have negative impact to the health of the victims, especially during childbirth, including an endless bleeding which may cause death. All these impacts lead to serious violation of human rights.



### Activity 5

Ask your parent or guardian about the bad customs and traditions of your community and also apply the knowledge you have learnt in Standard Six and then:

- (a) Mention some bad traditions and customs.
- (b) Discuss with your peers how to deal with bad customs and traditions.
- (c) Identify ways to get rid of bad traditions and customs in modern society.
- (d) Discuss with your peers the importance of religious beliefs in modern society.

### Ways to eradicate the bad post-colonial traditions and customs

Tanzanian societies acknowledge that culture is a pillar of any nation. Soon after independence various efforts were made to encourage, promote and maintain good traditions and customs. For example, in 1962 the government formed a special ministry to oversee all cultural issues in the country. Today, the government and civil society organisations continue to fight against bad traditions and customs that violate human rights, especially to women and children. Essentially, these efforts are being implemented by civil society organisations in support of the government in order to eliminate the violation of human rights and gender-based violence in the society. These organizations also help to mobilize communities and local governments to fight against the violation of the rights of women, children, the elderly, and people with disabilities. This is done in order to provide sustainable development to these groups.

The various efforts made by the projects funded by civil society organisations, the international community and government are aimed at changing the perceptions of the beneficiaries of those projects about bad traditions and customs. Emphasis is placed on supporting the victims through reporting cases of gender and children violence to authorities and taking precautions to defend the victims. Another effort made is to strengthen systems and

institutional structures, so that, these problems may be quickly identified and addressed.

The government cooperates with civil society organisations to protect and defend victims of violence in the community. The government, in collaboration with civil societies, has put in place various techniques in order to eradicate bad traditions and customs. The techniques include:

- (i) To mobilize the society through rallies, road shows and public adverts aimed to provide education and awareness about the impact of sexual violence and other kinds of violence;
- (ii) To organise capacity building for training some professionals, traditional and religious leaders and those who lead the fight against bad traditions in their areas;
- (iii) To build stakeholders' network against gender-based violence and to use institutions and people who are role models in eradicating gender-based violence. One of such example is the formation of the Tanzania Gender Network Programme (TGNP);
- (iv) To provide education and awareness to the community through media such as leaflets, radio and television programmes, newspapers and magazines. That can also be done through sports and drama in various social events;
- (v) Creation and promotion of platforms to fight gender-based violence through children groups which work as ambassadors in defending their rights; and
- (vi) To provide civic education on the rights of persons with disabilities as well as children and women's rights in fighting against harmful traditions and customs in Tanzania.

Therefore, it is important to form social platforms to fight against gender-based violence, monitoring and reporting incidents to relevant institutions. There is also a need to put in place techniques to eradicate gender-based violence. With the government support, we can build the foundations of maintaining appropriate traditions and customs in our society.

**Exercise 2**

**Answer the following questions:**

1. Explain how media can promote or destroy the traditions and customs of our society.
2. Identify the roles of traditions and customs to Tanzanian communities.
3. Name some techniques that can be used to develop good traditions and customs.
4. Explain how colonialism affected the development of traditions and customs of our society.
5. Mention the steps taken to promote traditions and customs of the post-independence society.

**Write TRUE for a correct statement and FALSE for an incorrect statement in the space provided.**

6. The colonialists came to promote the traditions and customs of our societies. \_\_\_\_\_
7. Parents and guardians can help to maintain the traditions and customs of our society for the present generation. \_\_\_\_\_
8. Sports and arts in the society are important tools in promoting and developing traditions and customs in the country. \_\_\_\_\_
9. Drug use, immorality, alcoholism and laziness promote customs and traditions in the country. \_\_\_\_\_
10. Imitating all the behaviours that emerge in the society regardless of their consequences is to keep up with time. \_\_\_\_\_

## Chapter Five

# Transportation and cooperation between Tanzania and other countries

### Introduction

*In Standard Six, you learnt about the cooperation between Tanzania and other African countries after independence. You also learnt about the reasons as well as the methods that were used to establish and strengthen the cooperation. In addition, you learnt about the advantages and challenges of maintaining cooperation. You also learnt about the precautions to be taken before and after establishing cooperation. In this chapter you will describe the available means of transportation between Tanzania and other countries. You will also learn how these means of transportation maintain good relations between Tanzania and other countries and their contribution to the economic development of the country. The competencies gained from this chapter will help you to use the available means of transportation as an opportunity to earn your personal, family and national income.*



### Think

The meaning of transportation.

Means of transportation.

Means of transportation and its contribution to development in your area of residence.

### The concept of transportation

Transportation is a system of moving persons and goods from one place to another by various means. The means of transportation can be through land, air and water. Transportation by land uses roads, railways and pipelines. Pipelines are used to transport oil, water and gas. Water transport uses ships, boats, canoes, and ferries. Similarly, air travel uses aeroplanes and helicopters. Tanzania has been building, improving and strengthening transport routes in various parts of the country.



### Activity 1

Identify the means of transportation available in your region.

## Transportation, economic development and cooperation between Tanzania and other countries

Transportation is an important sector that stimulates economic development. The sector also serves to build and strengthen diplomatic relations between Tanzania and other countries. Tanzania has been able to attract economic development and strengthen diplomatic relations through the three means of transportation.

### Land Transportation

Land transportation includes railway, roads and pipelines. The transportation by roads is done through trucks, cars, buses, motorbikes, bicycles and animals such as donkeys and camels. Similarly, there are freight and passenger trains that use railways. One of the examples of railway transport is the Tanzania and Zambia Railway Authority (TAZARA). Land transportation has improved the relations between Tanzania and her neighbouring countries. This is evidenced by improved economic and social relations, specifically in trade and industry.

Economic relations in the trade sector have mainly focused on transportation of imported and exported food and cash crops. Similarly, land transport attracts growth and development of industries. This is because it facilitates reliable transportation of raw materials and manufactured goods. Transportation has also led to the growth of towns in centres along the transportation routes. Food vending and services offered by some centres along the route provide citizens with income for their livelihood. Citizens in such areas have their incomes and settlements improved, thus, development of their areas. Transportation has enabled the Tanzanian communities to interact, socialise and build relations with people from other countries who come to the country.

Land transport also includes pipelines that transport water, oil and gas. This type of transportation stimulates economic growth because it is easy and safe. Figure 1 shows the TAZARA line and the oil pipeline from Tanzania to Zambia (TAZAMA oil pipeline). Oil and gas pipelines can pass underwater and on land, depending on the nature of the environment. This situation provides an opportunity for citizens to be self-employed or employed by other people or institutions and, thus, improve personal and national income. The transported gas is used to produce energy required for domestic and industrial use.

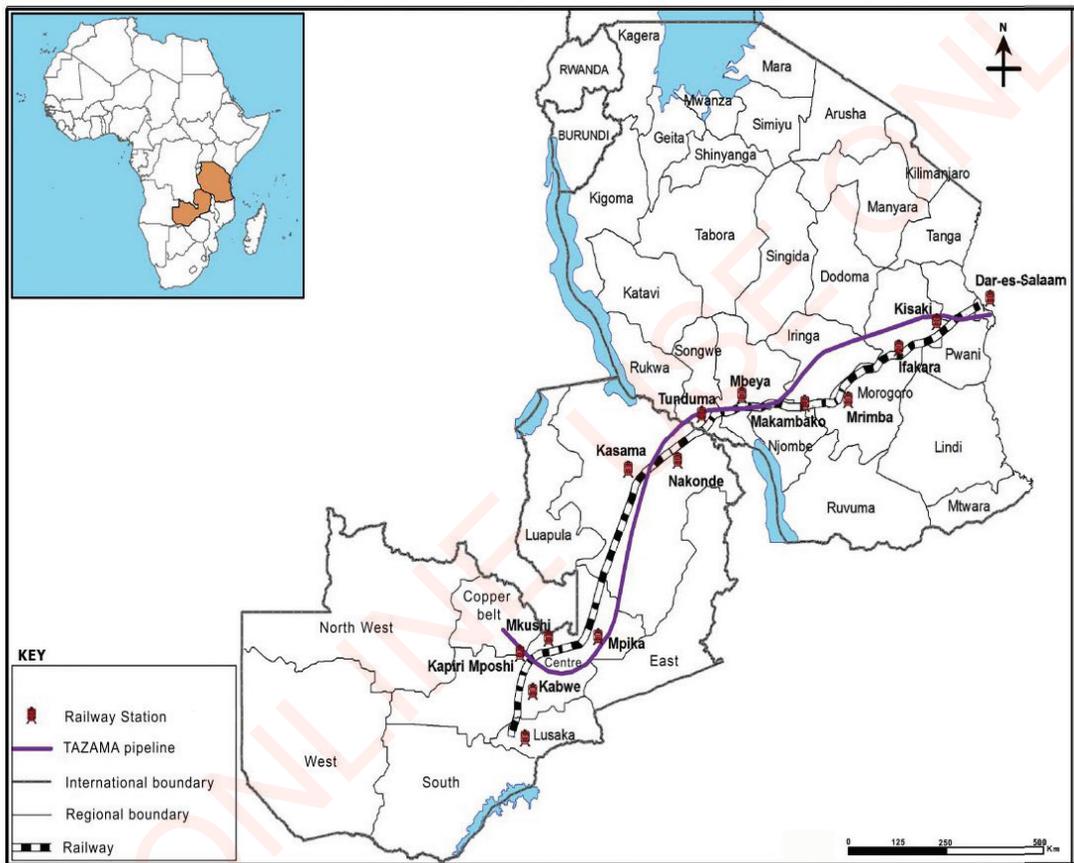


Figure 1: TAZARA Railway and TAZAMA oil pipeline from Tanzania to Zambia

### Exercise 1

Answer the following questions:

1. Mention the uses of land transportation in the country.
2. Identify the benefits of transportation in Tanzania.

## Water Transportation

Water transportation takes place in oceans, seas, lakes and navigable rivers. Through oceans, Tanzania uses marine transport to connect with other countries such as Kenya, Somalia, the Seychelles, Mozambique, South Africa as well as Asian countries. Lake Victoria connects three countries namely, Kenya, Uganda and Tanzania. Lake Tanganyika, one of the deepest lakes in Africa, extends across the borders of the United Republic of Tanzania, the Democratic Republic of Congo, Burundi and Zambia. Lake Nyasa connects Tanzania, Malawi and Mozambique.

Water transportation has significantly contributed to the growth of cooperation between Tanzania and other countries. The contribution of transportation sector through water has a significant impact on the Tanzanian economy. Trade between Tanzania and other countries has expanded due to the availability of reliable maritime transport to the Great Lakes and countries along the Indian Ocean coast. For example, Lake Victoria is one of the major means of transportation of various goods between Tanzania, Kenya and Uganda.

Similarly, water transportation has significantly improved the agricultural and industrial sectors. This is because of the convenient transportation of agricultural inputs and equipment from European and Asian countries. This situation has provided opportunities for trade and employment to the local people thus, improving the income of individual Tanzanians and the nation as a whole. The export of industrial raw materials and industrial products contributes to the economic growth of Tanzania and other countries. The development of water transportation services has also led to the growth of national and international markets such as the Kibirizi International Fish Market in Kigoma, Kirumba Fish and Sardines Market in Mwanza, and Kibaigwa Maize Market in Dodoma.

### Exercise 2

Answer the following questions:

1. Classify the means of transport available in Tanzania.
2. What development activities can be done using the means of transport available in your area?

## **Air transportation**

Air transportation is carried out by aeroplanes and helicopters. Some of the international airports in Tanzania are Julius Nyerere International Airport (JNIA, Dar es Salaam), Kilimanjaro International Airport (KIA, Kilimanjaro) and Abeid Amani Karume International Airport (Zanzibar). Other airports are in Mwanza, Arusha, Songwe-Mbeya, Tabora, Bukoba, Kigoma, Dodoma and Mtwara. The government has continued to improve air transport by expanding the existing airports to the required international standards. For example, Julius Nyerere International Airport has been upgraded from two to three passengers' buildings. This has facilitated air transport and transportation both at the domestic and international levels.

The presence of international airlines in the country has facilitated transportation from Tanzania to other countries in the world including European countries, United Arab Emirates, India, America, Ethiopia, Kenya, Uganda, Rwanda and South Africa. Also, through air travel, tourists, investors, traders and government officials have been visiting Tanzania easily for various purposes including economic and social activities. The number of tourists to Tanzania from European, American and Asian countries is growing each year. The development of tourism has stimulated the growth of personal income and Gross Domestic Product (GDP) because of the expanded tourism-related services such as accommodation and food services, health services, sports and recreation. Similarly, business persons use this means of transport to export and import goods and raw materials including flowers, sculptures and traditional goods like ornaments and traditional clothes. Just like other modes of transportation, air transport has also increased and maintained economic cooperation between Tanzania and other countries in the world.

### **Advantages of the means of transportation**

In general, the means of transportation have been the catalyst for economic and social development in Tanzania. Tanzania has been earning revenues from taxes levied on the use of transport routes. It has also been increasing her national income through taxes from roads tolls, port and airport duties. Transportation has helped the nation to import various goods that are not produced locally or are not produced in sufficient amount to meet our local demand. Examples include machines and spare parts for running large and small industries.

Transportation has attracted local and foreign investors to invest in various sectors in Tanzania due to the improved investment environment. The arrival of international experts and investors to Tanzania has benefitted the country through the influx of scientific and technological skills. This contributes to economic development of the country. Transportation of crops and raw materials from one area to another has increased the incomes of individuals in areas where the means of transportation originate or pass through. Sales of goods and products to neighbouring countries have also contributed to economic development in the country. Citizens of the countries bordering Tanzania have been doing business in the country, thus, increasing their individual and national incomes.

### Exercise 3

Answer the following questions:

1. How do the means of transportation promote economic development in Tanzania?
2. By using examples, identify three major means of transportation which are available in Tanzania.
3. Briefly explain how the means of transportation have maintained cooperation between Tanzania and neighbouring countries.

Write **TRUE** for a correct statement and **FALSE** for an incorrect statement in the space provided.

4. TAZAMA oil pipeline has helped in transporting copper ore in Zambia. \_\_\_\_\_
5. Transport routes are important in promoting the economic development of Tanzania and the neighbouring countries. \_\_\_\_\_
6. The TAZARA railway has strengthened economic, political and social cooperation between Tanzania and Zambia. \_\_\_\_\_

## Chapter Six

# Impacts of the techniques used for the struggle of independence in Africa

### Introduction

In Standard Six, you learnt about liberation movements on the African continent. You also learnt about reasons for the anti-colonial movements and the strategies used to fight for independence. Similarly, you learnt about African heroes in the liberation movement, and the methods that were used to fight for independence in African countries. Moreover, you learnt about the challenges of independence in Africa and the lessons learnt from the heroes of Africa. In this chapter, you will analyse the methods and movements that have succeeded in fighting for independence. Similarly, you will assess the methods and movements used to fight for independence. The competencies gained from this chapter will enable you to choose the right approaches in solving challenges and making right decisions in the society.



### Activity 1

1. With the help of the teacher, create a short role play to illustrate the life of an independent family. Play it in the classroom.
2. Ask your parent or guardian about the meaning of a free country. Identify issues that make a country to be free.
3. Write the answers of your parent or guardian in your exercise book, and then present to the class.

### African independence movements

The aims of struggle for independence in African countries were almost similar. Africans fought for their independence through their nationalist leaders and freedom fighters in various parts of Africa. These nationalist fighters wanted to develop their African systems of governance, economic production, traditions and customs. This emanated from the discriminative, oppressive and exploitative nature of the colonial rule in Africa. The colonial rule overexploited African resources like land and minerals. The colonial

system was also based on favouritism, racism, tribalism and religionism aimed to divide Africans. Therefore, in attempt to fight against colonialism, Africans used various methods of struggle for independence.

The choice of method to be used in the struggle for independence in Africa depended on the nature of the colonial masters. There were three main techniques used in the struggle for independence. The first one was negotiation. This technique was also called constitutional change. The second technique was armed struggle; and the third was through revolution.

### **Independence through negotiation**

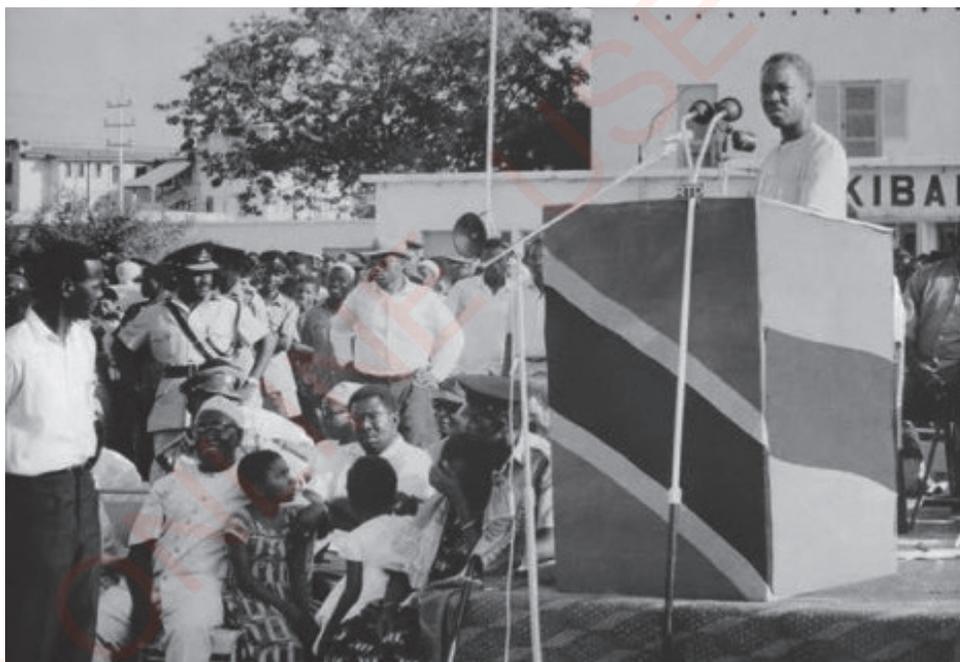
This technique was commonly used in many African colonies. Through this technique, independence was gained following social, economic, and political pressures that existed during those days. Some of the tactics used by liberation leaders included establishment of political parties; providing civic education; holding peaceful demonstrations; and establishment of newsletters, leaflets and newspapers. Additionally, strikes by workers and peasants were some of the tactics used by the people to struggle for independence. Eventually, independence was granted after agreements between the nationalist leaders of the major political parties and the representatives of the colonial governments. Tanzania mainland, formerly Tanganyika, is one of the African countries that gained independence through negotiations on 9/12/1961. Mwalimu Julius Kambarage Nyerere, under the TANU party, led talks and struggles for independence from the British colonial rulers. Other countries were Ghana in 1957, Uganda in 1962, Zambia and Malawi in 1964.

### **Effects of independence struggle through negotiation**

The negotiated independence had many outcomes to African countries. The following are some of those effects:

- (a) Independence was achieved without bloodshed. This was possible due to the pressure put on the colonialists;
- (b) Introduction of multi-party systems in the colonies. These parties fought for independence of their countries. Their goal was to govern their countries replacing the colonial governments. For example, in Tanganyika parties such as TANU, ANC, UTP and AMNUT were formed;

- (c) Establishment of political party branches across the country. These branches served as centres for spreading ideologies and messages from the top leadership. Similarly, these branches were also responsible for receiving the views and grievances from the members;
- (d) The colonial government banned their civil servants from joining political parties. Those who violated the order were dismissed. Therefore, a political party leader had to choose either to remain in the colonial government employment or serve in a political party. For example, Mwalimu Julius Kambarage Nyerere once resigned from his teaching job at St. Francis College. The school is currently known as Pugu Secondary School. Mwalimu did this in order to continue with the independence movement as the TANU party leader. He, thus, continued to lead the people of Tanganyika in the struggle for independence. Figure 1 shows Mwalimu Julius K. Nyerere addressing TANU members during a political rally.



**Figure 1:** *Mwalimu Julius K. Nyerere addressing TANU members during a political rally*

- (e) Active political party leaders were suppressed, harassed, threatened and imprisoned just to silence them. These leaders were determined to expose the evils of colonialism and the benefits of independence for their countries. For example, Mwalimu Nyerere of Tanganyika was

accused of opposing two district commissioners. Judgement of his case was a fine of Tshs 3 000.00 or six months imprisonment. He paid the fine and continued with the struggle.

### Exercise 1

Answer the following questions:

1. Mention four effects of struggling for independence through negotiation.
2. Briefly describe the two goals of various political parties established during the colonial period.
3. Identify two aims of political parties establishing branches during the independence movement.
4. Briefly explain two reasons for the colonialists to persecute the leaders of powerful nationalist political parties.



### Activity 2

In your groups, briefly describe the two lessons you have learnt about the challenges that faced leaders of the liberation movement. Present your answers to the class for discussion.

### Independence through armed struggle

This technique was used to fight for independence in colonies that had a good number of European settlers. The settlers owned large tracks of fertile land and mines. They also established factories and large plantations for crop production and livestock keeping in the colonies. Other settlers became citizens in the colonies and were not ready to leave their possessions. In general, the settlers were economically and politically powerful. Examples of countries that had settlers include Algeria, Angola, Kenya, Southern Rhodesia (Zimbabwe), Namibia, South Africa, Mozambique, and Guinea Bissau. The liberation movements in these colonies used arms to struggle

for independence. Africans also appealed for support from Non-Aligned countries. A good example of such countries is China and Cuba. The nationalist political parties provided military training to young people. They trained young people to fight the colonial forces. They also sought to destroy properties, settler settlements, infrastructure and investments of the colonialists until independence was achieved.

### **Impacts of armed struggle for independence**

The following are the impacts of the armed struggle for independence:

- (a) Freedom was gained through bloodshed and the destruction of several properties. The settlers, citizens, militants and leaders were killed during the battles;
- (b) Leaders and freedom fighters were forced to live in exile in friendly countries;
- (c) These liberation wars lasted for many years. For example, liberation struggles took ten years in Mozambique and Angola; 24 years in Namibia; and 33 years in South Africa. This affected many Africans;
- (d) Military training and coordination of liberation struggles were done in exile because of the restrictions posed by the colonialists. For example, the Mozambican FRELIMO militants and South African ANC activists were hosted by Tanzania where they received military training;
- (e) Presence of refugees in some African countries as a result of wars in their country. For example in Tanzania, Ruvuma, Mtwara and Lindi Regions hosted many refugees from Mozambique;
- (f) Several party leaders and militants were imprisoned to weaken their parties and suppress the independence movement. The pressure from the public, however, increased and independence was achieved; and
- (g) Many leaders of the liberation movements were brutally murdered; for example Eduardo Mondlane of Mozambique, the then Portuguese colony. The assassination aimed at intimidating other leaders and their supporters to stop demanding for independence.

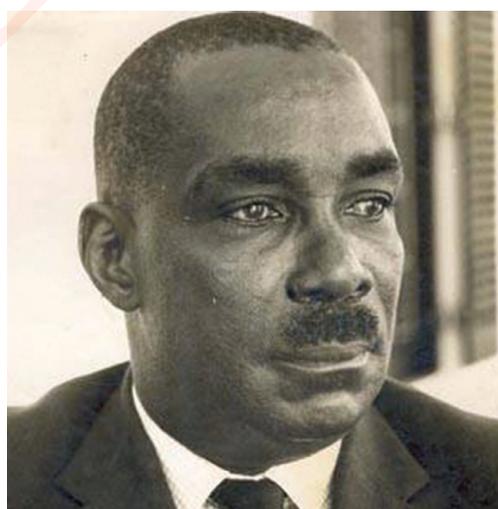
**Exercise 2**

**Answer the following questions:**

1. Explain the reasons why some colonies fought for independence through armed struggles.
2. List the countries that gained independence through warfare.
3. Explain what happened in the countries that hosted freedom fighters from various countries in Africa.
4. Briefly describe the effects of independence through armed struggle.

**Independence through revolution**

This technique was used when the colonialists handed over power to their few puppets instead of handing it over to the majority. The colonialists wanted to ensure that their interests were protected even after independence. In addition, they wanted the settlers or feudal lords (*Mamwinyi*) to retain the status of the ruling class and the Africans to be treated as slaves in their own country after independence. Examples of the countries that gained independence through revolution in Africa are Zanzibar and Egypt. Patriots were forced to overthrow the established puppet governments. The tactics they used were similar to the armed struggle. The leaders of the liberation movement formed and trained special revolutionary forces. The revolutionary leaders formed their own governments that included various groups of citizens. They also established diplomatic relations with friendly countries in order to get material and financial support. Figure 2 is a picture of the first President of Zanzibar Sheikh Abeid Amani Karume as one of the leaders of the revolution.



**Figure 2:** *The first President of Zanzibar Sheikh Abeid Amani Karume and the leader of Zanzibar revolution*

### The effects of the revolution

The following are the effects of the revolution:

- (a) Puppets and settlers had to surrender to the mass after the revolution;
- (b) True independence for the majority was achieved. It was often a true independence because every citizen felt being part of the struggle for independence;
- (c) Citizens formed their own governments;
- (d) People died and many properties were destroyed during the fight; and
- (e) Countries that earned their independence through revolution maintained political, economic, and social changes.

#### Exercise 3

Answer the following questions:

1. Briefly explain the reasons why some colonies gained independence through revolution.
2. What were the negative effects of gaining independence through revolution?
3. Briefly explain the reasons for your answers to question 2.

#### Exercise 4

Answer the following questions:

1. Write **TRUE** for a correct statement and **FALSE** for an incorrect statement in the space provided.
  - (a) Wages for African colonial civil servants working in the colonial government were deducted as soon as they joined in the liberation movements. \_\_\_\_\_
  - (b) Africans received social welfare services similar to those given to Europeans before independence. \_\_\_\_\_

(c) Peaceful demonstrations did not help in the struggle for independence. \_\_\_\_\_

(d) African traders imported fewer commodities during colonial era. \_\_\_\_\_

2. Fill in the blank spaces provided below.

(a) FRELIMO militants received military training in \_\_\_\_\_ and succeeded in bringing true independence to Mozambique.

(b) In the struggle for independence, some of the African countries that gained their independence through revolution were \_\_\_\_\_ and \_\_\_\_\_.

(c) Mwalimu Julius K. Nyerere succeeded in leading the Tanganyika independence movement as the leader of the \_\_\_\_\_.

### Vocabulary

Warfare fighting in a war with a particular type of weapon

# Chapter Seven

## Development in post- independence Tanzania

### Introduction

*In Standard Six, you learnt about the modern invasion of post-independence Africa, the concepts of liberation and modern methods of invasion. Similarly, you learnt about the effects of modern invasion and struggles against that invasion. In this chapter, you will analyse the economic, political, social and cultural development achieved in Tanzania since independence. Also, you will learn about development challenges in Tanzania and how to address them. The competencies gained from this chapter will help you to appreciate the efforts of Tanzanians to bring about development after independence and participate in protecting and promoting such development.*



### Think

The concept of development.

How to identify aspects of community and national development.

### The concept of development

Development is the process of transforming from low to the high levels in the political, economic, social as well as scientific and technological aspects. Development must take into account human rights, appropriate traditions, customs and the protection of national unity. Development must also be sustainable and meet the needs of the people. This means that development should be for the well-being of the people. Sustainable development is the transformation that meets the needs of the present without compromising the ability of future generations to meet their own needs. This kind of development can take place in various areas of economy, politics, social services and culture. Economic development focuses on the transformation of production by the use of science and technology, which simplifies operations. For example, in production areas such as farms,

factories and mines. Economic development influences transformation of other sectors like infrastructure as well as social services which include health, education, water and electricity. Development of social services creates political stability in the country thus enabling leaders and citizens to bring about national development.

**Activity 1**

Visit the surroundings of your school and then do the following things:

- (a) Identify the number of classrooms
- (b) The number of teachers and pupils
- (c) The number of toilets

Despite many economic, political, cultural and social challenges facing the country due to the impact of the colonial system, Tanzania has been able to bring about development in various areas from 1961 to the present. Such achievements can be divided into three main phases. These phases are:

- (a) The first phase, from 1961 to 1966;
- (b) The intermediate phase, from 1967 to 1985; and
- (c) The current phase, from 1986 to date.

**Development strategies during the first phase (1961 – 1966)**

This was a transitional period to change the inherited colonial system and strengthen the country's policies. Soon after independence, the country did not have a strong economy. This was due to lack of stable infrastructure, industries, and limited number of professionals such as economists, teachers, engineers, doctors, nurses, agronomists, and veterinarians. These professionals could play a significant role in supervising and managing various sectors thus bringing about the country's development. This situation made Tanzania and many African countries to depend on their former colonialists in many developmental issues. To eliminate such dependence, Tanzania

implemented various economic, social, political, and cultural development strategies which include the following:

**(a) Economic development**

This was the earliest period of building the economy after independence. Although political independence had been achieved, the major means of production were still owned by few people, especially European capitalists. The means of production included factories, farms, transport and communication facilities as well as large-scale crop and livestock farms. Despite the fact that the major means of production were owned by the minority, the independent government of Tanzania began to set strategies for improving her economy. It started by improving various means of transport and communication such as roads, railways and post offices. The government took all these precautions in order to facilitate transportation of agricultural tools, crops, and people. For example, in 1963 the railway line from Mruazi-Korogwe station to the Ruvu junction was built. This railway line was built to connect Tanga and the Central railway line. The government also built roads in some of the urban and rural areas to improve transportation services. Similarly, domestic and foreign markets were expanded to facilitate trade of locally produced raw materials and products. These efforts aimed at eliminating the export-based production system that always depended on exportation of raw materials. In addition, the government established the three-year and five-year economic development plans in 1961-1964 and 1964-1969, respectively. These plans aimed at increasing the production of cash crops.

**(b) Social development**

After independence, only few people accessed social services such as health, education, water and electricity. These services, to a great extent, were set up by the colonialists and provided according to race and religion. Services were few compared to the population. Therefore, development in the community focused more on improving health and education services. In the first step the government abolished racial segregation in the provision of health and education services. The government built schools, colleges and hospitals. For example, the University of Dar es Salaam, which started as a College of the University of London in October 1961 became a Constituent College of the University of East Africa in 1963. Dar es Salaam Teachers'

College famously known as Chang'ombe Teachers College was established in 1964 to improve provision of education services in the country through the expansion of primary and secondary school enrolment. This aimed at increasing the number of professionals who could bring about community development. During this period racial discrimination in education and health care was abolished.

### (c) Political development

Political development between 1961 and 1966 involved various steps in building a post independent Tanzania. The first step was gaining independence from the British rule on 9<sup>th</sup> December 1961. On that day, the British flag was lowered and the Tanganyikan flag was raised. The next step was for Mwalimu Julius Kambarage Nyerere to resign as Prime Minister of Tanganyika in January 1962 for ten months so as to strengthen TANU and lay foundation of the new nation of Tanganyika. The third step was for the white people to hand over power to Africans through the policy of Africanisation. The fourth step was the presidential general election in November 1962, in which Mwalimu Julius Kambarage Nyerere was elected the President of the Republic of Tanganyika from 9<sup>th</sup> December 1962. The fifth step was the establishment of the National Service (*Jeshi la Kujenga Taifa* - JKT) in 1963 as well as the establishment of the Tanzania People's Defence Force (TPDF) early in 1964. This was a civilian army that replaced the former Tanganyika Rifles Army which was the colonial defence force. The sixth step was the unification of Tanganyika and Zanzibar on 26<sup>th</sup> April 1964 to form the United Republic of Tanzania. The seventh step was the abolition of multi-party system and introduction of the single party- system, between 1964 and July 1965. The eighth step was the first one-party election that was held in September 1965.

### (d) Cultural development

During this period, the government made great efforts to maintain the Tanzanian culture. Emphasis was on language, dressing, food and entertainment. In this period *Kiswahili* was declared as the national language, which aimed to unite all the communities.

**Exercise 1**

Answer the following questions:

1. Explain how improvement of infrastructure such as roads and railways can bring about economic and social development of the country.
2. Identify aspects of social development between 1961-1966.

**Challenges that faced the first phase development strategies (1961-1966)**

Despite the development achievements obtained immediately after independence, there were various challenges facing those development efforts. The first challenge was the shortage of industries that would process the locally produced raw materials. The second was the shortage of domestic and foreign markets to sell those locally produced goods. This problem led to the exportation of raw materials that were sold at lower prices. In relation to that, the government lost revenues because the country's major means of the economy, such as factories, large-scale farms and banks were still owned by a few people including foreigners.

Moreover, education that was provided did not meet the needs of Tanzanians at that time. For example, instead of encouraging education for self-reliance, the education policy that was inherited from the colonial government focused more on preparing few people for white collar jobs. There was also a shortage of teachers and poor infrastructure that resulted into having fewer children in school and many school-age children were left without education. Similarly, there was a shortage of water and health services. Most of the health facilities had the shortage of medical equipment and drugs. In addition, the social services facilities were located more in white settlements while many African-occupied areas were left without reliable infrastructure and social services.

**Activity 2**

Identify the challenges that the country faced during the first phase of the development.

## Development in the second phase, 1967-1985

This was a period of positive and fundamental changes in the political, economic and social services. This was achieved by overcoming the challenges that existed in the first phase of development.

### (a) Political development

In terms of political development, Tanzania decided to adopt the policy of Socialism and Self-Reliance. This policy was adopted during the Arusha Declaration on 5<sup>th</sup> February 1967. The aim was to ensure that the major means of economic development were owned by all citizens for their development. Socialism and Self-Reliance was effectively implemented under the policy of one-party system of Tanganyika African National Union (*TANU*), which later, became *Chama Cha Mapinduzi* (CCM). The policy of Socialism and Self-Reliance and the one-party system contributed greatly to the national unity, solidarity, and peace.

Another important political step during this period was the strengthening of regional cooperation among East African countries. Thus, Tanzania in collaboration with Kenya and Uganda established the East African Community in 1967. The cooperation, however, collapsed in 1977. One of the reasons for the collapse was that Tanzania and Kenya did not accept the actions of the dictatorial government of Idd Amini, the President of Uganda from 1971-1979.

Before the break-up, the East African Community had achieved a number of things including strengthening the spirit of brotherhood and unity among the member states. Also, the member countries established East African Corporations for the purpose of improving infrastructure that connected member states. Those corporations included the East African Airlines, Railways, Harbours and Post offices. These efforts aimed at stimulating economic growth and the national incomes of member states as well as strengthening defence and security in the region.

This period also witnessed two other political developments in Tanzania. The first step was to merge the two ruling political parties, TANU from mainland Tanzania and Afro-Shirazi Party (ASP) from Zanzibar in 1977. The move also coincided with "*Chama Kushika Hatamu*" (Party Supremacy). In November 1985 Mwalimu Julius Kambarage Nyerere willingly retired as President of

the United Republic of Tanzania. This decision laid the foundation of the peaceful and democratic transfer of national leadership from one presidency to another in Tanzania.

### **(b) Economic development**

As a political philosophy that emerged from the Arusha Declaration, Socialism and Self-reliance, provided the direction for economic development. During this period, the government owned all major means of production and encouraged the implementation of development policies and strategies to eliminate economic dependence. Thus, the government worked hand in hand with the citizens to bring about national development. The development efforts aimed at improving domestic revenue to reduce foreign dependence. To respond to various development challenges, the government supported peasants and livestock keepers with modern methods of farming and animal husbandry. The government also established and encouraged cooperative unions.

Similarly, the government established and developed various industries including textile industries such as MWATEX (Mwanza), MUTEX (Musoma), KILITEX (Arusha) and Urafiki Textile (Dar es Salaam). Others were leather processing and production industries, matchbox industry, car spare parts and Mang'ula machinery industry. Moreover, the government established the Arusha General Tyre factory in 1971, building materials factories, cigarette factory (TCC), and Scania truck assembly factory (TAMCO) at Kibaha.

Following the establishment of these industries, the government established public corporations and banks. For example, the National Bank of Commerce (NBC), the Cooperative and Rural Development Bank (CRDB) and the Tanzania Postal Bank (TPB). Similarly, the government built industries for value addition of the local products. Also, means of transportation were built and improved. Whole-sale shops known as Regional Trading Companies (RTC) and village cooperative shops were established. The government made public all social services related to food and meat production, transportation, distribution and sale of essential commodities such as sugar, cereals and cooking oil. The services were provided by public companies and other institutions such as National Food and Agriculture Corporation (NAFCO), National Milling Corporation (NMC), Regional Transport Company (RETCO), cooperative unions and cooperative shops.

These economic activities were guided by the policy of nationalisation and rural development. This policy aimed at centralising all means of production. Rural development involved establishment of both *Ujamaa* and development villages.

**Activity 3**

1. With the help of the subject teacher, prepare a song or recite a poem about the second phase economic development from 1967 to 1985 and its successes.
2. Identify four achievements that Tanzania has gained as a result of the cooperation with other East African countries.

**(c) Social development**

There were various social developments following the Arusha Declaration of 1967. The declaration led to the nationalization of social services that were owned by individuals or religious institutions. The nationalised social services included schools, colleges and hospitals. The aim was to improve provision of education and health services to people. The government's decision opened opportunities for more Tanzanians to get education from primary school to university because the government sponsored all these levels of education. Primary education was compulsory for every school-age child. Tanzania adopted the Education for Self-Reliance Policy as a strategy of implementing the Arusha Declaration. This policy aimed at preparing young Tanzanians to be self-reliant in their lives after school.

In 1974 the government approved the provision of free education through the Musoma Resolution which promoted the Universal Primary Education (UPE). Primary education was made compulsory to all school-age children. Likewise, the government provided adult education for all adults who were illiterate. These initiatives stimulated the individual and national economic development because people were able to read and understand messages related to health, improved agricultural techniques and animal husbandry.

Another stage of social development was the establishment of *Ujamaa* villages from 1968–1973 and later development villages from 1973 – 1976. These villages were established as part of the implementation of the Arusha Declaration. This made it easier for the government to provide social services to more people, including health, water, and education. During this period, each village was required to have a dispensary and a primary school. Every three villages were required to have a health centre. Similarly, there was an increase of employment opportunities for the people due to an increase in industrial and agricultural activities and, thus, improved living conditions.

#### (d) Cultural development

Developmental changes spread throughout the country, thus, many Tanzanian societies embraced the Tanzanian culture and love to all people. Kiswahili was strengthened as the national language that united more than 120 Tanzanian ethnic groups. Kiswahili became the language of teaching and learning in primary schools. After recognising the importance of Kiswahili to Tanzanians, the government established the National Kiswahili Council (BAKITA) for the purpose of developing and promoting the language. This period also witnessed the establishment of the National Arts Council of Tanzania (BASATA) with the aim of promoting and developing Tanzanian art. Likewise, Tanzanian dressing style adhering to the morals and dignity of the community was promoted and people were encouraged to put on Tanzanian cultural clothes such as *khanga* and *kitenge*. Traditional food stuff was also emphasised. Sports activities such as athletics, football and volleyball were highly developed during this period.

#### Exercise 2

Answer the following question:

Briefly describe the political development that took place during the second phase from 1967 to 1985.

## Challenges that faced national development in the middle phase, 1967 to 1985

In spite of the development made in this phase, Tanzania faced various challenges. Tanzania faced many economic problems caused by global economic crises. There was high oil prices in the Middle East between 1973 and 1979. Tanzania also suffered from severe droughts in 1974 and 1975. The drought caused severe food shortages and the government spent a lot of money to import food. Similarly, collapse of the East African Community (EAC) in 1977 forced Tanzania to establish its own corporations in order to attain economic liberation.

The Kagera War between Tanzania and Uganda that lasted from 1978 to 1979 also seriously affected the country's economy. The war forced Tanzania to spend large sums of money to fight against Idd Amin, the then President of Uganda. Moreover, the International Monetary Fund (IMF) and the World Bank (WB) between 1979 and 1985 terminated financial support to Tanzania. The WB also prohibited other countries to support Tanzania because the country opposed its structural Adjustment conditionalities.

In general, these challenges led to economic collapse, thus, the nation lacked capital to develop and strengthen economic and social activities. All these misfortunes and problems led the nation to adopt free market and privatisation policies from 1986.



### Activity 4

Ask your parent or guardian about the political and social developments that happened in Tanzania from 1986 to 1992.

## The current development phase, from 1986 to date

The development processes in Tanzania from 1986 to date have focused on addressing problems that existed from the mid-1970s to the mid-1980s. Development has also focused on improving economic and social

development and increasing domestic revenue collection. This was done in order to reduce foreign economic dependence. Various development policies were adopted and implemented so as to improve the economy in the country.

### **(a) Political development**

Some Tanzanians demanded political change from one-party to multi-party political system. The movement for these changes began in 1985. Later, in 1990, the Father of the Nation, Mwalimu Julius Nyerere, allowed the process by having a transparent debate on the establishment of a multi-party system. In 1991, President Ali Hassan Mwinyi, the second President of the United Republic of Tanzania, formed a presidential commission of inquiry on one party or multiparty political system. The commission was under the chairmanship of the former Chief Justice Francis Nyalali and it aimed at collecting Tanzanians' views on whether they needed the single or multi-party system. In 1992 the Nyalali Commission recommended that Tanzania should adopt a multi-party system, a step that was officially reached in July 1992. In addition, Tanzania's decision to adopt the multi-party system was also the condition of the World Bank and Western nations. After 1992, the government registered 13 political parties including Chama cha Demokrasia na Maendeleo (CHADEMA), the National Convention for Construction and Reform (NCCR–Mageuzi), Tanzania Labour Party (TLP), and the Civic United Front (CUF). The ruling party, Chama cha Mapinduzi (CCM), was also re-registered. The first multi-party general elections were held in 1995. That allowed greater political competition, increased democracy, and improved media freedom than ever before. Accountability, transparency and productivity increased the freedom of civil society organizations to encourage and promote development. Multi-party elections have been conducted in Tanzania after every five years since 1995 to date.

### **(b) Economic development**

Tanzania is a member to various international institutions, such as the World Bank (WB), the International Monetary Fund (IMF), World Trade Organization (WTO), African Development Bank (AfDB) as well as the United Nations (UN). The WB and IMF once imposed conditions to Tanzania so as to implement the Economic Recovery Program (ERP) which was adopted in 1986 after economic crises that began in the mid-1970s.

During this period, development process in Tanzania went hand in hand with the establishment of a free market economy. This is an economic system in which the government creates an enabling environment for the private sector to participate in the economic activities of the nation. The enabling environment includes formulation, management and implementation of policies that facilitate economic production. The government no longer engages itself in production. This type of economy allows individuals and private companies or institutions to own the means of production as opposed to what was practiced between 1967 and 1985.

The adoption of a free market economy was one of the results of economic restructuring programmes. Thus, the government changed her economic policy to give room for the implementation of the privatisation policy in the country. Also this period witnessed investment in constructions and development of industries. Similarly, privatisation of parastatal organisations, factories and farms took place. The country continued to improve her economy and participated in the economic competition with other countries. Also, there have been improvements in the means of transport such as, roads, bridges, expansion of the Dar es Salaam port, as well as construction of ferries and markets. Figure 1 shows the pedestrian bridge at Furahisha in Mwanza City.



**Figure 1:** *Pedestrian Bridge at Furahisha in Mwanza*

**(c) Social development**

Socially, the development process focused on improving social services such as health, education, housing, water and electricity. In the health sector, the government and private organisations built and upgraded hospitals, health centres and dispensaries. They also provided community health education in various parts of the country. Similarly, in the education sector, more secondary schools have been built in each ward, thus increasing the number of student enrolment in secondary schools and tertiary institutions including colleges and universities. Other achievements include the expansion and improvement of teaching and learning infrastructure, the increase of the number of teachers and graduates; thus helping to reduce illiteracy in the country.

In this period, also, the public and private institutions invested in settlements, the energy sector and water supply services. The economic restructuring program wanted the government to introduce fees in education, water, energy and health services. Thus, the government introduced user charges in every social service. Citizens were supposed to contribute to the services they received from government institutions. However, from 2016 the government introduced free education programme in government schools from pre-primary to form four. Figure 2 shows Muhimbili - Mloganzila National Hospital, in Dar es Salaam.



**Activity 5**

1. Mention the economic and social developments achieved in the country since 1985.
2. Name the benefits of free education in the country.



**Figure 2:** Muhimbili - Mloganzila National Hospital, Dar es Salaam

#### (d) Cultural development

This period of multi-party democracy has been accompanied with an expansion of mass media, freedom of expression, civil society organisations, development of sports, arts and growth of science and technology. This situation has encouraged interactions between Tanzania and other countries, especially those in Europe, Asia and America. This interaction has an impact on the Tanzanian culture, for example dressing styles, education, types of food, entertainment, language and many others.

#### Challenges facing the country's development process from 1986 to date

Despite the progress that Tanzania has achieved from 1986 to date, there are still various economic, political, social, and cultural challenges. During this period, the country has suffered from inadequate revenue due to poor revenue collection systems. Some private sector and companies initially did not pay taxes, which led to the government's failure to create an enabling investment environment. There was a failure in developing the privatised means of production, contrary to government expectations. Many resources such as

minerals have been owned and looted by foreign capitalist companies. In addition, due to low income of most Tanzanians, some citizens failed to pay for various social services such as education, health, electricity, transport and water. Such situation made the government to provide free education from pre-primary to form four from 2016. In terms of health, the government pays part of the cost of healthcare for citizens who have joined the National Insurance Health Fund. Another big challenge is that there is a growing gap between the rich and the poor.

### Methods used to address the current development challenges

The government has put in place various strategies to address the current developmental challenges. The first strategy was to establish stable and reliable tax collection systems which have minimised the loss of revenue. Similarly, the government has established strong systems to control and monitor ownership, mining and sale of minerals. One of those precautions is the creation of mineral markets in each region; this has improved the revenue collections. In addition, the construction of the Mirerani Wall is among the latest strategies to control Tanzanite smuggling and tax evasion.

The government continues to promote patriotism, so that people can value and protect national resources. Additionally, the government has been able to improve public companies such as Air Tanzania, Tanzania Railway Company (TRC), Tanzania Telecommunications Company Limited (TTCL) and Tanzania Posts Corporation (TPC) so that they generate high profit. On the other hand the government has banned manufacturing, distribution and use of plastic bags to protect the environment. On the political field, the government has committed resources on improving the relationships between political parties.



#### Activity 6

List the aspects of economic and social development that currently exist in your region.

**Exercise 3**

Answer the following questions:

1. Compare and pick the right match between the development strategies in **Column A** with their achievements in **Column B** in the space provided.

Column A	answers	Column B
(i) Nationalisation of the major means of production		(a) democracy and freedom of information in the country
(ii) Educational strategies from 1986 to present		(b) opening of state universities, religious organisations and individuals
(iii) Strategies for economic recovery from 1986 to the present		(c) construction of modern railways and the purchase of aeroplanes
(iv) Multi-partism		(d) community development
(v) Modern economic movement		(e) reduction of infectious and epidemic diseases
(vi) Provide health education		(f) increased students' enrolment in higher education
(vii) Provision of free education in the country		(g) increase the students' enrolment in primary and secondary education
(viii) Giving loans to various groups		(h) Socialism and Self-Reliance Policy between 1967 to 1985
		(i) privatisation and free market

Write **TRUE** for a correct statement and **FALSE** for an incorrect statement in the space provided.

2. The Arusha Declaration had a plan to remove settlers from the country. \_\_\_\_\_
3. Inadequate capital is a major challenge in bringing development in the country. \_\_\_\_\_
4. Tax evasion contributes to delay in the achievement of the nation's development plans. \_\_\_\_\_
5. Construction of roads, railways and airports cannot bring about social development in the country. \_\_\_\_\_
6. The free market policy reduces the value of domestic goods and industries. \_\_\_\_\_

Answer the following questions:

7. Identify the aspects of economic development that Tanzania has achieved since 1986.
8. Describe the educational progress achieved in Tanzania since 1986.
9. Identify the economic development challenges that faced Tanzanian economy from 1967 to 1986.
10. Explain modern economic strategies and how they can solve the current development challenges.

### Vocabulary

**Africanisation** to replace the European or white staff in the government with Africans

**Challenges** things that hinder certain efforts

**Plans** Strategies to achieve the national development goals

**Strategies** Activities to be done so as to achieve certain intended goals

**System** a social or economic arrangement that guides certain people

# Chapter Eight

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## Uses of maps

### Introduction

*In Standard Six, you learnt about drawing and reading a map of your local region and that of Tanzania. You also learnt about drawing and reading a map related to your environment. In this chapter, you will learn to differentiate between latitudes and longitudes. You will also learn how to use these lines to identify and indicate different places on the map. In addition, you will learn how to calculate time of different places using longitudes. The competencies gained will enable you to identify and indicate locations on the map and calculate time.*

### The Concept of Latitudes and Longitudes

Different lines are used to present information on a map. Longitudes and latitudes are among the lines that help you to use the map. In order to use these lines, you are required to understand what they mean and their rules. The Earth is spherical in shape. It is divided by imaginary horizontal lines known as latitudes and vertical lines known as longitudes, as shown in Figure 1. The Earth's vertical Prime line known as longitude of Meridian or Prime Meridian divides the Earth into two vertical parts with that of the East, equal to that of the West.

Likewise, another Earth's Prime line is called Equator. The line divides the Earth into two equal parts known as hemispheres: the Northern and the Southern Hemispheres. Latitudes and longitudes are presented by degrees. These degrees are presented with a special symbol of  $^{\circ}$ , for example  $360^{\circ}$ .

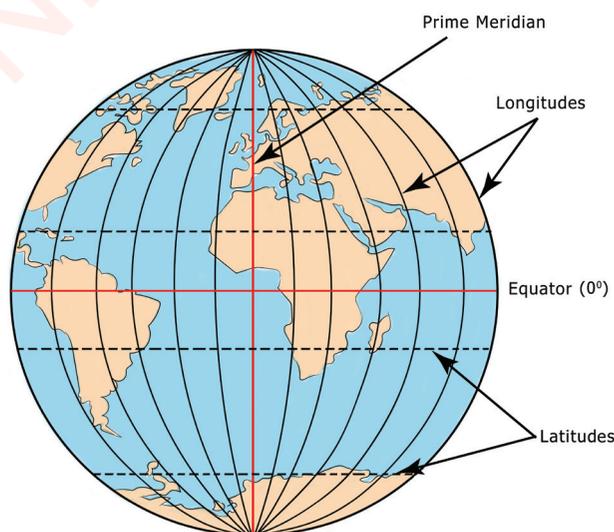


Figure 1: Latitudes and Longitudes

## Latitude

Latitudes are imaginary parallel lines drawn on the Earth's surface North and South of the Equator. Equator is the latitude with zero degree ( $0^\circ$ ) as presented in Figure 2. This line divides the Earth into two equal Hemispheres; the Northern Hemisphere and Southern Hemisphere. Latitudes are drawn parallel to the Equator, therefore; they don't meet anywhere. The degree of a latitude is counted from the Equator and is identified depending on the Hemisphere. Other important latitudes are; the Tropic of Cancer with  $23\frac{1}{2}$  degrees North of the Equator; the Arctic Circle with  $66\frac{1}{2}$  degrees North of the Equator; the Tropic of Capricorn with  $23\frac{1}{2}$  degrees South of the Equator; and the Antarctic Circle with  $66\frac{1}{2}$  degrees South of the Equator. These important latitudes form circles whose degrees increase from the Equator towards the North and the South. The Equator line is the only latitude that makes a great circle. The line of Equator helps in locating short routes in water and air transport.

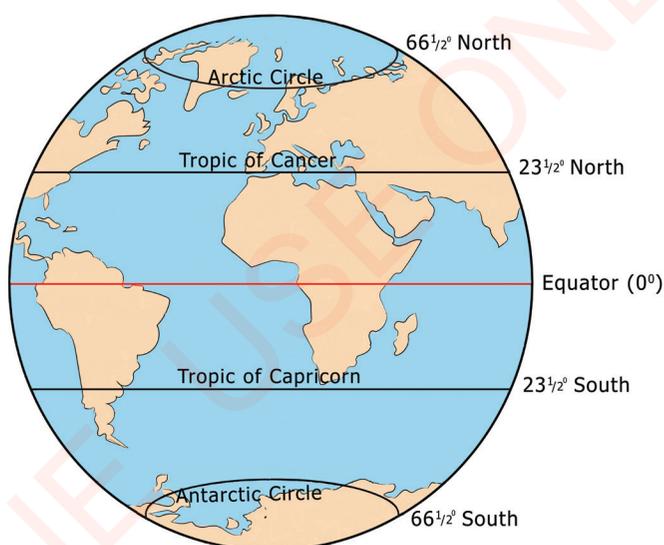


Figure 2: Latitudes

## Longitudes

Longitudes are imaginary vertical lines drawn on the Earth's surface from the North to the South Pole. Prime Meridian or Greenwich Meridian is the longitude with zero degree ( $0^\circ$ ) which is drawn at the middle of the Earth as shown in Figure 3. Longitudes are drawn East and West of the Prime Meridian. The Earth has a total of 360 degrees. From the Prime Meridian, other longitudes are drawn after every 15 degrees towards the East and West until they reach 180 degrees on the two sides.

Every longitude makes a great circle. Latitudes and longitudes differ in various ways as presented in Table 1.

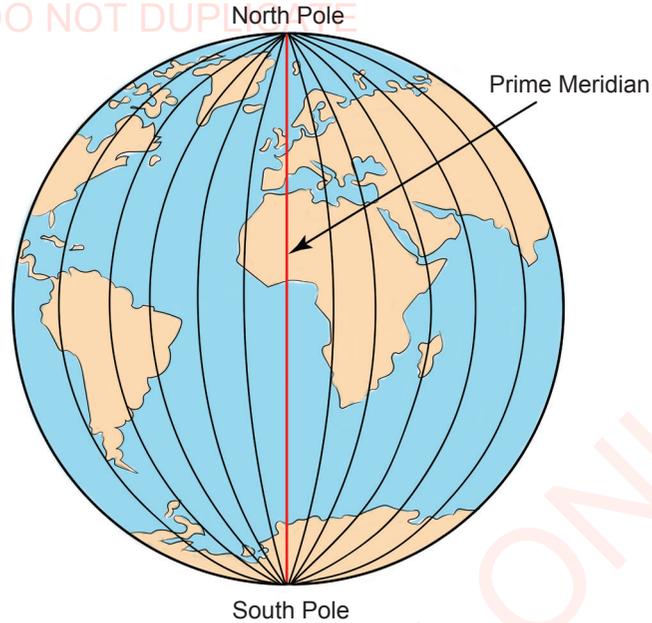


Figure 3: Longitudes

Table 1: Differences between latitudes and longitudes

Latitudes	Longitudes
1. Latitude with zero degree ( $0^\circ$ ) is known as the Equator.	Longitude with zero degree ( $0^\circ$ ) is known as the Prime Meridian.
2. Equator is the only latitude that makes a great circle which divides the Earth into two equal parts which are Northern and Southern Hemispheres.	Every longitude makes a great circle that divides the Earth into two major parts.
3. Latitudes are lines drawn parallel to the Equator.	Longitudes are vertical lines and they all meet at the North and South Poles.
4. Latitudes are measured from zero degree at the Equator ( $0^\circ$ ) up to 90 degrees ( $90^\circ$ ) towards the Southern or Northern Hemisphere.	Longitudes are measured from zero degree, at the Prime Meridian ( $0^\circ$ ), up to $180^\circ$ towards the East or West.

Latitudes	Longitudes
5. Latitudes help to show the distribution of regions with different climatic characteristics.	Longitudes are used to show the differences in time between one part of the earth relative to another.

### Exercise 1

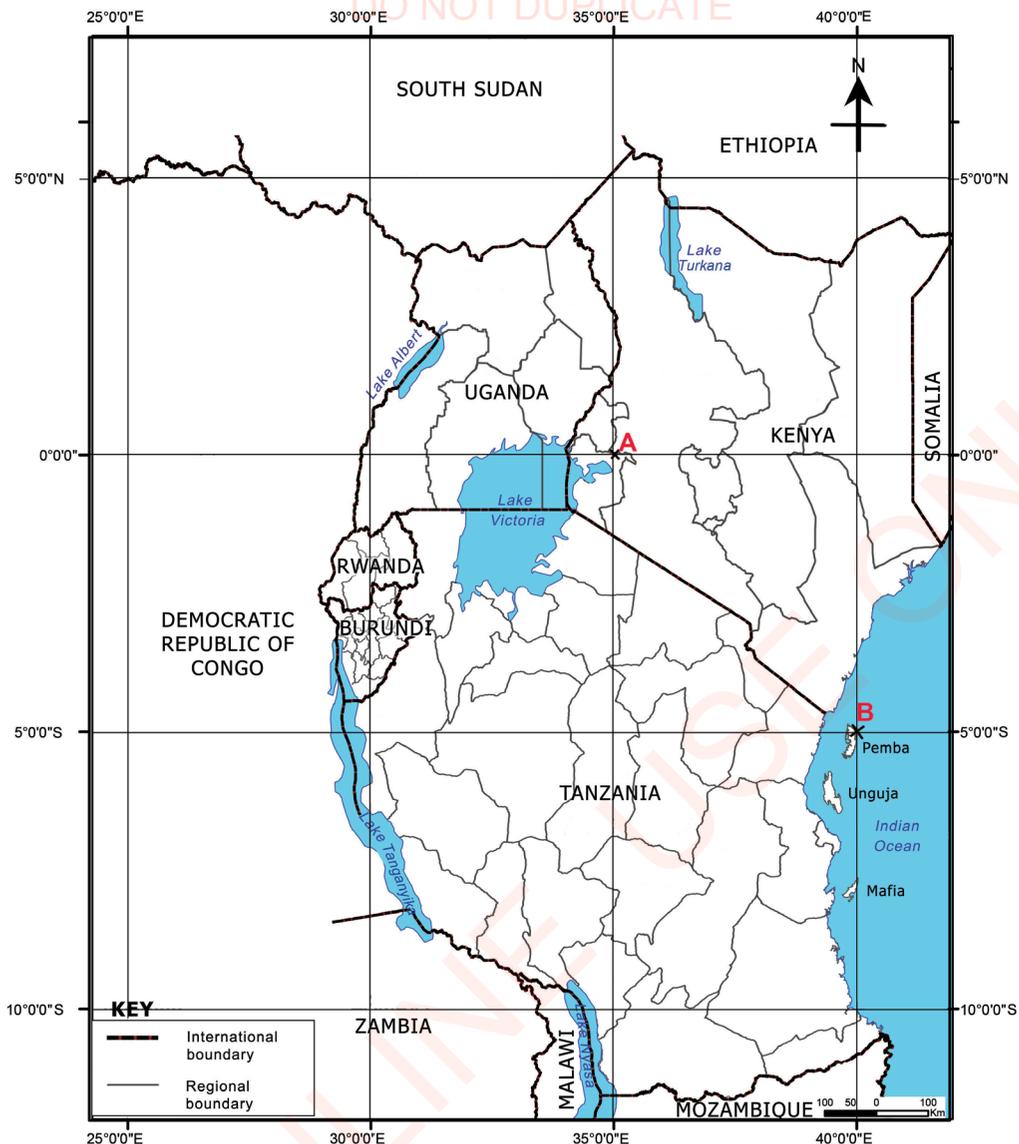
Answer the following questions:

1. Explain the meaning of longitude and latitude.
2. Draw a diagram of the Earth and indicate the important latitudes and the Prime Meridian.

### Uses of Latitudes and Longitudes

Latitudes and longitudes have the following uses:

- (a) To show location on the map: Latitude and longitude lines are used to show location of points and regions on the Earth's surface. For example, Tanzania is located between latitude  $1^{\circ}$  and  $12^{\circ}$  South and between longitude  $29^{\circ} 30'$  and  $40^{\circ} 35'$  East as presented in Figure 4;
- (b) To measure distance on the map: When lines of latitude and longitude meet, they form a point of intersection. The point of intersection identifies or locates a particular point on the Earth's surface. Therefore, two points of intersection could be used to show location that can be used to measure the distance between them. Every point on the Earth's surface is an intersection point with some degrees of latitude and longitude. For example, point "A" is located at latitude  $0^{\circ} 00'$  and longitude  $35^{\circ} 00'$  East and point "B" is located at latitude  $5^{\circ} 00'$  South and longitude  $40^{\circ} 00'$  East. Due to the use of the latitudes and longitudes, the distance between these two points can be calculated as shown in Figure 4;



**Figure 4:** Intersection points of latitudes and longitudes at points A and B

- (c) Longitudes determine days and dates of different places on the Earth with reference to the International Date Line;
- (d) To locate air and marine transport routes. It helps captains and pilots to locate the shortest routes to a destination;
- (e) Longitudes help to calculate local time of a particular place on the Earth's surface; and

- (f) Latitudes help to identify the characteristics of climate of different areas on Earth depending on their distances from the Equator. Temperature decreases as you move away from the Equator towards the Northern or Southern Hemispheres.

### Calculation of time at places on the map using longitudes

Longitudes enable people to calculate local time at different places on the Earth. It is important to understand basic rules that enable us to calculate local time by using longitudes. Moreover, it is important to understand ways of identifying a longitude of a particular place by using local time. You should understand that, the complete rotation of the Earth on its own axis is equal to 360 degrees. The Earth takes 24 hours to complete that rotation. Therefore, the Earth takes one hour (or 60 minutes) to complete a rotation of 15 degrees. This means that when the Earth rotates on its own axis, it takes 4 minutes to rotate 1 degree ( $1^\circ$ ) of longitude. Therefore, we can understand the basic rules used to calculate time of a particular place as follows:

- (i) If the Earth takes 24 hours to complete one rotation of 360 degrees, how much time will it take to complete 15 degrees?

Solution:  $360^\circ \longrightarrow 24 \text{ hours}$

$15^\circ \longrightarrow \text{hours?}$

Then, use the cross multiplication method ( $\times$ )

$$\begin{aligned} & \frac{15^\circ \times 24 \text{ hours}}{360^\circ} \\ & \text{hours } \frac{360}{360} \\ & = 1 \text{ hour} \end{aligned}$$

Therefore, the Earth will take 1 hour to rotate 15 degrees.

- (ii) If the Earth takes one hour to rotate 15 degrees, how much time will it take to rotate one degree?

Solution:  $15^\circ \longrightarrow 1 \text{ hour}$

$1^\circ \longrightarrow \text{hours?}$

Then, use cross multiplication method (×)

$$\frac{1^\circ \times 1 \text{ hour}}{15^\circ}$$

$$\frac{1 \text{ hour}}{15}$$

Remember that 1 hour is equal to 60 minutes

Therefore;

$$\frac{60 \text{ minutes}}{15}$$

$$= 4 \text{ minutes}$$

The Earth therefore, will take 4 minutes to rotate 1 degree.

According to these facts, the following time is taken by the Earth to rotate on its own axis in different degrees of longitudes:

- (a) 4 minutes to rotate 1 degree (4 minutes  $\longrightarrow$   $1^\circ$ )
- (b) 1 hour to rotate 15 degrees (1 hour  $\longrightarrow$   $15^\circ$ )
- (c) 24 hours to rotate 360 degrees (24 hours  $\longrightarrow$   $360^\circ$ )

These rules are important because they are used to calculate time of a particular place.

Read the following example that shows how values of longitudinal degrees are used to get the time taken by the earth to rotate the respective degrees, then; answer the questions that follow.

**Example:**

If the Earth takes 1 hour to rotate 15 degrees, how much time will it take to rotate 90 degrees?

- (a) Observe the following rule:

$$15^\circ \longrightarrow 1 \text{ hour}$$

(b) Solution:

$$15^\circ \longrightarrow 1 \text{ hour}$$

$$90^\circ \longrightarrow \text{hour?}$$

(c) Find the ratio by multiplying 90 degrees by one hour, and then divide by 15 degrees

$$\frac{90^\circ \times 1 \text{ hour}}{15^\circ}$$

(d) Divide 90 degrees by 15 degrees

$$\begin{aligned} & \frac{90^\circ}{15^\circ} \\ & = 6 \end{aligned}$$

(e) The obtained answer from step “d”, should be multiplied by 1hour, i.e.  $6 \times 1 = 6$  hours.

(f) Therefore, the Earth will take 6 hours to rotate 90 degrees.

### Exercise 2

Answer the following question:

If the Earth takes 1 hour to rotate 15 degrees, how much time will it take to rotate each of the following degrees?

(a)  $180^\circ$

(b)  $225^\circ$

(c)  $120^\circ$

### Calculation of local time using longitudes located on the same side and different sides of the Prime Meridian

You can calculate local time of two areas that are located on the same side, that is; both on East or both on West of the Prime Meridian. Also, you can calculate local time of areas located in two different sides of the Prime Meridian that means one on the East and the other on the West.

Remember that when calculating time of two places located on the same side, for example, East to East, or West to West, you are supposed to find the difference of the degrees by subtracting the degrees of the two places. But when calculating the time between two areas located in two different sides, one on the East and the other on the West, you are supposed to add the degrees of the two places. This is due to the rotation of the earth on its axis. The more you move towards the East time difference increases while the more you move towards the West, time difference decreases. It is important to understand that the earth's rotation on its axis from West to East makes those on the eastern side of the Prime Meridian to experience sunrise and sunset earlier than those on the western side of the Prime Meridian.

### Calculation of local time using longitudes located on the same side of the Prime Meridian

*Example 1:*

If it is 9.00 A.M at town "A" located at longitude  $30^\circ$  East, what will be the local time at town "B" located at longitude  $60^\circ$  East?

Solution

Steps to follow:

- (a) Find the difference in degrees of longitudes between town "A" and town "B". Since both towns are located in the Eastern side of the Prime Meridian, differences in degrees of longitude are found by subtracting the degrees of longitudes of the two towns.

$$60^\circ - 30^\circ = 30^\circ$$

- (b) Find the difference in time between town "A" and town "B".

Since we don't have time of town "B" and the longitudinal difference between the two towns "A" and "B" is  $30^\circ$ , we can find the time by using the fact that, the Earth takes 1 hour to rotate 15 degrees.

$$1 \text{ hour} \longrightarrow 15^\circ$$

$$\text{Hours?} \longrightarrow 30^\circ$$

Then, use the cross multiplication method (x)

$$\frac{30^\circ \times 1 \text{ hour}}{15^\circ} = 2 \text{ hours}$$

The difference in time between town "A" and town "B" is 2 hours.

- (c) Find the time of town "B" by adding or subtracting the difference in time between town "A" and town "B"

Since town "B" is located East of town "A" hence, it is ahead in time. Therefore, add the difference of 2 hours to the time of town "A" which is 9:00 A.M.

$$9 + 2 = 11$$

$$9:00 \text{ A.M} + 2 \text{ hours} = 11:00 \text{ A.M}$$

Therefore, the local time of town "B" which is located on longitude  $60^\circ$  East will be 11:00 A.M

*Example 2:*

If it is 9.00 A.M at town "D" located  $15^\circ$  West. Calculate the local time of town "E" which is located at  $45^\circ$  West.

Solution:

Steps to follow:

- (a) Find the difference in degrees of longitudes between town "D" and town "E". Since these towns are both located on the West of the Prime Meridian, the difference in longitudes is found by subtraction.

$$45^\circ - 15^\circ = 30^\circ$$

- (b) Find the difference in time between town "D" and town "E"

Because we do not have time for town "E" and the longitudinal difference between the two towns "D" and "E" is  $30^\circ$ , we can find it by using the fact that the Earth takes 1 hour to rotate 15 degrees.

1 hour  $\longrightarrow$   $15^\circ$

Hours?  $\longrightarrow$   $30^\circ$

Then, use cross multiplication method ( $\times$ )

$$\frac{30^\circ \times 1 \text{ hour}}{15^\circ} = 2 \text{ hours}$$

Therefore, the difference in time between town "D" and town "E" is 2 hours.

- (c) Find the time of town "E" by adding or subtracting the difference in time between town "D" and town "E"

Although the two towns are located in the West of the Prime Meridian, town "E" is located farther away from West than town "D". This means town "D" is ahead in time than town "E". Therefore, to calculate the time for town "E", we subtract 2 hours from the time of town "D" which is 9.00 A.M

$$9 - 2 = 7$$

$$9:00 \text{ A.M} - 2 \text{ hours} = 7:00 \text{ A.M}$$

Therefore, the time of town "E" located at  $45^\circ$  West will be 7:00 A.M

### Calculation of local time using longitudes located on different sides of the Prime Meridian

*Example 3:*

If the local time of town "C" located at  $45^\circ$  East is 1:00 P.M, what will be the local time of town "D" which is located at  $15^\circ$  West?

Solution:

Steps to follow:

- (a) Find the difference in degrees of longitude between town "C" and town "D". Because these towns are located in two different sides of the Prime Meridian, that is East and West, the difference in degrees of longitude is found by addition.

$$45^\circ + 15^\circ = 60^\circ$$

- (b) Find the difference in time between town “C” and town “D”

Since we do not have time of town “C” and the longitudinal difference between the two towns “C” and “D” is  $60^\circ$ , we can find it by considering the fact that the Earth uses 1 hour to rotate 15 degrees.

$$1 \text{ hour} \longrightarrow 15^\circ$$

$$\text{Hours ?} \longrightarrow 60^\circ$$

Then, use the cross multiplication method ( $\times$ )

$$\frac{60^\circ \times 1 \text{ hour}}{15^\circ} = 4 \text{ hours}$$

The difference in time between towns “C” and town “D” is 4 hours.

- (c) Find the time of town “D” by adding or subtracting the difference in time between town “C” and town “D”.

To find the local time of town “D”, we subtract 4 hours from the time of town “C” which is 1:00 P.M. because town C is located on East while town “D” is located on West.

$$\text{Thus, } 1:00 \text{ P.M} - 4 \text{ hours} = 9:00 \text{ A.M}$$

Therefore, the time at town “D” located at longitude  $15^\circ$  West will be 9:00 A.M.

**Note:** If the given time is of a place located on the West of the Prime Meridian, you are required to add the difference in time between town “C” and town “D” to get the time of a town located in the East of the Prime Meridian.

### Exercise 3

Answer the following questions:

1. Calculate the local time of Malindi town in Kenya which is located at longitude  $40^\circ$  East if it is 3:00 P.M at Tunis in Tunisia which is located at longitude  $10^\circ$  East.

2. Calculate the local time of town "N" which is located at longitude  $60^{\circ}$  West, if it is 1:00 P.M at town "M" which is located at longitude  $30^{\circ}$  East.
3. Find the local time of town "X" which is located at longitude  $65^{\circ}$  West if it is 10:00 P.M at town "Z" which is located at longitude  $10^{\circ}$  West.

### **Calculation of longitude of a place using local time**

We can find the longitude of a place if time at the two places and the degrees of longitudes of one place are known.

#### **Example 4:**

Find the longitude of town "Y" whose local time is 3:00 P.M, if it is 1:00 P.M at town "Z" which is located at longitude  $40^{\circ}$  East.

Solution

Steps to follow:

- (a) Find the difference in time between town "Y" and town "Z"  
3:00 P.M – 1:00 PM = 2 hours
- (b) Find the difference in longitudes

Since we have the difference in time between town "Y" and town "Z", which is 2 hours, we can find the longitudes by considering the fact that the Earth takes 4 minutes to rotate  $1^{\circ}$ .

Convert the hours into minutes:

1 hour  $\longrightarrow$  60 minutes

2 hours  $\longrightarrow$  minutes?

Then, use the cross multiplication method ( $\times$ )

$$\frac{2 \text{ hours} \times 60 \text{ minutes}}{1 \text{ hour}} = 120 \text{ minutes}$$

Convert the minutes into degrees

$$1^\circ \longrightarrow 4 \text{ minutes}$$

$$? \longrightarrow 120 \text{ minutes}$$

Then, use cross multiplication method ( $\times$ )

$$\frac{1^\circ \times 120 \text{ minutes}}{4 \text{ minutes}}$$

$$\frac{120^\circ}{4} = 30^\circ$$

- (c) Find the longitude of town “Y” by adding or subtracting the degrees obtained from the given degrees of town “Z”.

Because the local time at town “Z” which is located at longitude  $40^\circ$  East is behind that of town “Y”, we therefore, add  $30^\circ$  to the given  $40^\circ$  of town “Z”.

$$40^\circ + 30^\circ = 70^\circ$$

The longitude of town “Y” will thus, be  $70^\circ$  East.

#### Exercise 4

Answer the following questions:

- Write the names of the latitudes with the following degrees:
  - $23\frac{1}{2}^\circ$  North
  - $66\frac{1}{2}^\circ$  North
  - $23\frac{1}{2}^\circ$  South
  - $0^\circ$
  - $66\frac{1}{2}^\circ$  South
- If it is 10:00 A.M at town “Y” which is located at longitude  $40^\circ$  East, what will be the time at town “P” which is located at longitude  $55^\circ$  East?

3. Find the local time of Tanga in Tanzania which is located at longitude  $39^{\circ}$  East, if it is 12:00 noon at Kinshasa in the Democratic Republic of Congo (DRC) which is located at longitude  $14^{\circ}$  East.
4. Find the longitude of town "X" whose time is 4:00 P.M, if it is 2:00 P.M at town "Y" which is located at longitude  $56^{\circ}$  West.

**Choose the most correct answer and write its letter in the box provided.**

5. Which of the following towns will experience sunrise earlier?

- (a) A town located at  $40^{\circ}$  East
- (b) A town located at  $45^{\circ}$  West
- (c) A town located at  $45^{\circ}$  East
- (d) A town located at  $40^{\circ}$  West

6. Which of the following areas will experience sunset earlier?

- (a) Kasese  $30^{\circ}$  East
- (b) Tanga  $39^{\circ}$  East
- (c) Kisumu  $35^{\circ}$  East
- (d) Bujumbura  $29^{\circ}$  East

7. One of the following is not the use of latitudes

- (a) To show location on the map
- (b) To locate air and marine transport routes
- (c) To calculate time of a place
- (d) To calculate distance between places on the map

**Write TRUE for a correct statement and FALSE for an incorrect one in the space provided.**

8. The local time of the countries located in the Eastern side of the Prime meridian is ahead of that of the countries located in the Western side of the Prime Meridian. \_\_\_\_\_

9. The Prime longitude is called Equator. \_\_\_\_\_
10. The Earth uses more than 24 hours to complete one rotation with  $360^\circ$ . \_\_\_\_\_
11. Latitudes and Longitudes are used to show location on photos. \_\_\_\_\_
12. The Equator line divides the Earth into two main parts which are the Eastern and the Western Hemispheres. \_\_\_\_\_

### Vocabulary

Degrees	a unit of measurement of angles used to locate points on the Earth's surface
Great circles	circles that divide the Earth into equal parts. Each longitude makes a great circle
International Date Line	an imaginary line on the earth's surface located at longitude $180^\circ$ which is used to separate calendar dates
Intersection point	a point where two lines meet

# Chapter Nine

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## Solar system

### Introduction

*In Standard Six, you learnt about the solar system and the Earth's movements and their effects. Also, you learnt about solar and lunar eclipses and their effects. Moreover, you learnt how to plan your activities based on the changes of weather and seasons of the year resulting from revolution of the Earth. In this chapter, you will learn more about the solar system and atmosphere. You will also learn the concept and the importance of the ozone layer, how human activities affect the ozone layer and measures to control ozone layer depletion. The developed knowledge and skills from this chapter will enable you to understand the solar system, the atmosphere and its layers. Also, the competencies gained will help you to analyse activities that are environmentally friendly and that protect the ozone layer. Similarly, these competencies will help you to understand the measures to control human activities that affect the ozone layer.*

### The Solar system and the atmosphere

The universe is made up of more than one billion of galaxies. The solar system is one of the galaxy systems. The Solar System comprises the Sun, planets, satellites, asteroids, meteors, atmospheric dusts and snows. The sun is centred in this system. Earth is the third planet in the solar system that is about 150 million kilometres (150 000 000 kilometres) away from the Sun. Like other planets, the Earth is surrounded by a layer with a mixture of various gases. This layer is called atmosphere.

### Atmosphere

The atmosphere is a layer of various gases surrounding the Earth. It is divided into four major layers. These layers are *troposphere*, *stratosphere*, *mesosphere* and *thermosphere* as shown in Figure 1. Each layer is characterised by specific temperature and air pressure.

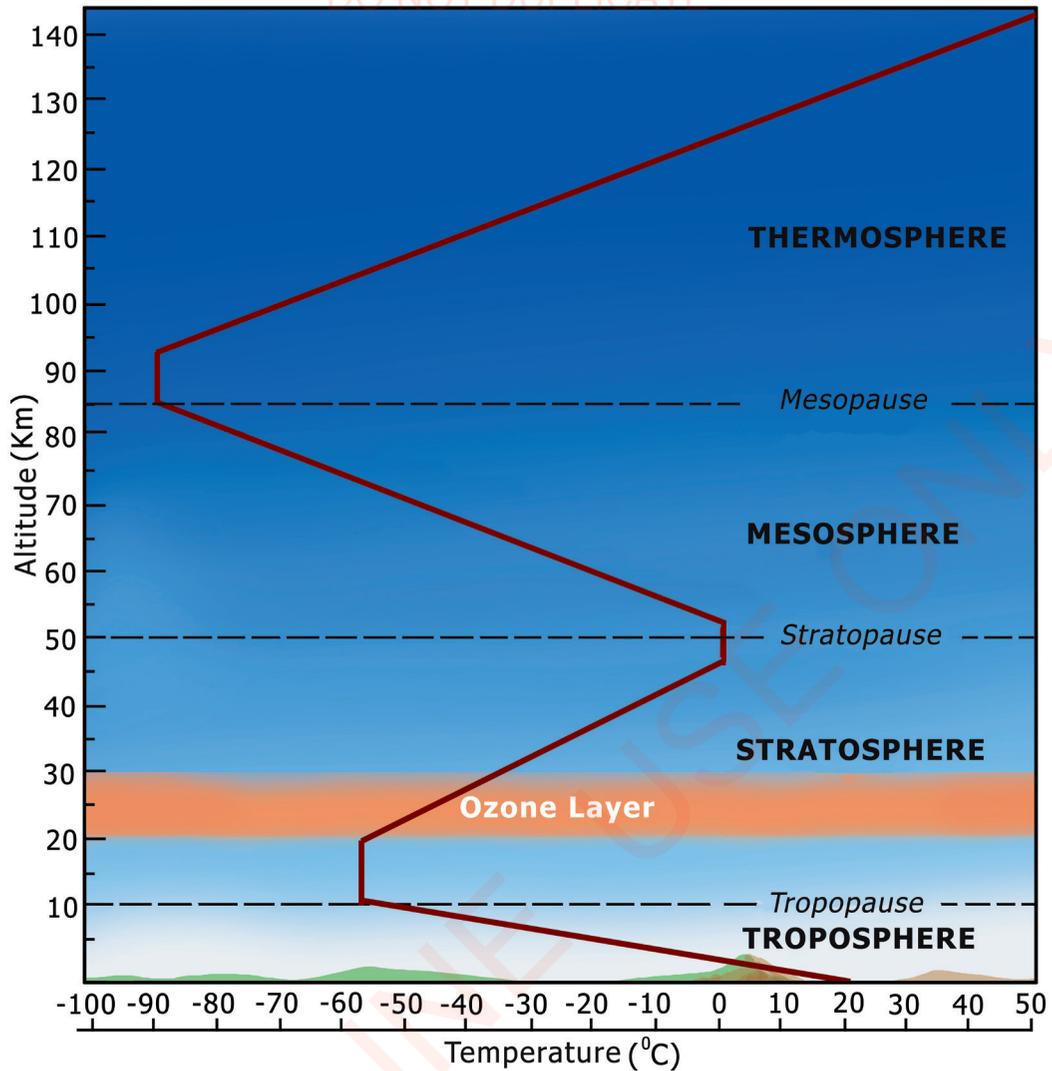


Figure 1: Layers of the atmosphere

## Troposphere

This is the lower layer of the atmosphere from the earth's surface. The height of this layer is estimated between 0 to 10 kilometres from the earth's surface. Human beings and other living things live in this layer. All human activities take place in this layer. Passenger and cargo flights operate in this layer. In the troposphere, temperature decreases as altitude increases.

## Stratosphere

Stratosphere is found between the troposphere and the mesosphere. The height of this layer is estimated between 10 to 50 kilometres from the earth's

surface to the sky. Rarely passenger and cargo planes fly in the lower part of this layer when there are heavy clouds in the troposphere. This layer is very important as it supports life of living organisms due to the ozone layer that protects the Earth from the sun's intense rays. In the stratosphere temperature rises as height increases. This is because the ozone layer absorbs the ultraviolet rays.

### Mesosphere

Mesosphere is a layer in the atmosphere that is found above the stratosphere. The height of this layer is estimated between 50 to 85 kilometres from the earth's surface. This is a very cold layer. In this layer, temperature decreases as altitude increases to about -90 degrees Centigrade (-90 °C) at the mesopause.

### Thermosphere

Thermosphere is the highest atmospheric layer. This layer is found above the mesopause. The height of this layer is estimated between 85 to 1 000 kilometres from the earth's surface. In this layer temperature is very high; it is estimated to about 2 000 degrees Centigrade due to increase in altitude. The increase in temperature is caused by various atoms and molecules that absorb ultraviolet and x-rays radiation from the sun and are thus split and heated. Due to this atmospheric structure, temperature varies between day and night and in different seasons of the year. In this layer, radio waves are reflected, so it is a very important layer for communication.

#### Exercise 1

Answer the following questions:

1. What is atmosphere?
2. Mention four layers of the atmosphere
3. In which layer of the atmosphere do human activities take place on a daily basis?
4. Name three examples of radio stations available in Tanzania that rely on the rays reflected from the thermosphere for broadcasting.
5. Name three advantages of the troposphere to human life.

## The ozone layer

The ozone layer as shown in Figure 2, is the lower part of the stratosphere that filters almost all harmful ultraviolet rays from the Sun. The ozone layer lies between 20 to 30 kilometres above the earth's surface. This layer contains a high concentration of ozone gas. Ozone is a molecule that contains oxygen atoms. This ozone molecule contains a total of three oxygen atoms and is produced and destroyed in the stratosphere. This layer contains higher concentration of ozone molecules than other parts of the atmosphere. The ozone layer prevents almost all of the ultraviolet rays from penetrating the earth's surface. It thus serves as a filter for strong solar radiations such as x-rays and ultraviolet rays from the sun to prevent them from reaching the earth's surface and causing harm to living organisms. Due to absorption and prevention of strong harmful solar radiation from the Sun, ozone layer protects us from diseases such as skin cancer and other health defects.

Unfortunately, chemicals used in refrigerators, perfumes, insecticides and fire extinguishers have been producing gases that have depleted the ozone layer in the atmosphere. Also, melting snow in poles produces chemicals that affect the ozone layer. This effect is more pronounced in the North and South poles. This condition causes holes in the ozone layer called ozone-holes. A good example include the ozone holes in Antarctic. Emergence of these holes allows intense radiation of ultraviolet to penetrate and reach the earth's surface where it affects living organisms including human beings.

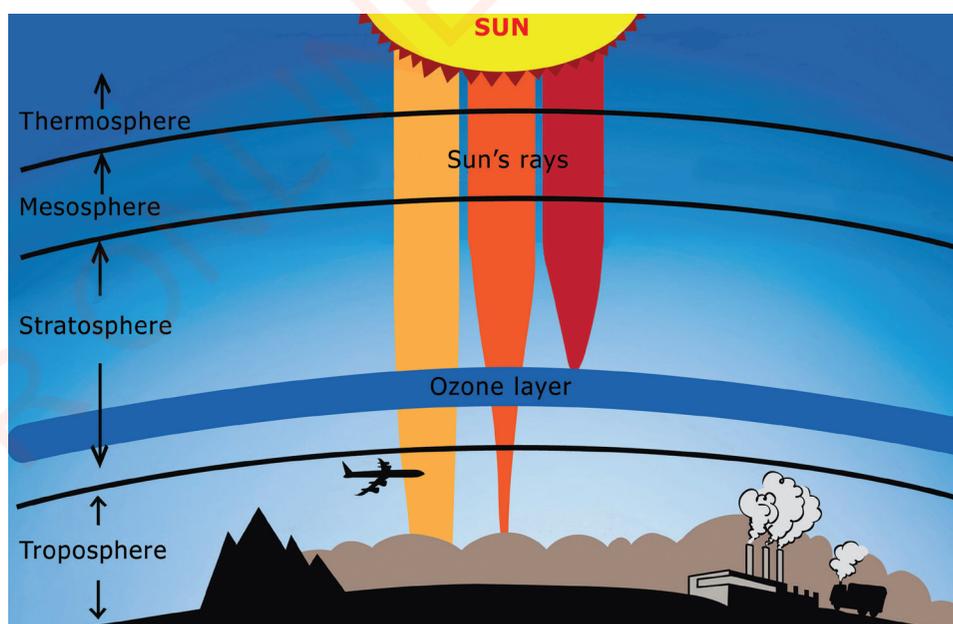


Figure 2: The ozone layer

## Importance of the ozone layer

The ozone layer is important to living organisms because it is useful in the following ways:

- (a) Filtering strong solar radiation: strong solar radiation, if not filtered in the ozone layer, would be very dangerous to living organisms such as humans, animals and plants. These living organisms are affected by ultraviolet solar radiations which cause diseases such as skin cancer, eye cataract, damage to skin cells and skin aging. The filtering of strong solar radiations reduces the possibility of harm to human beings and other living organisms; and
- (b) Controlling the amount of temperature that is required on the Earth's surface: as solar radiation travel to the earth's surface some of them are filtered into the ozone layer. The filtered radiation fail to reach the Earth's surface. This reduces the effects of global warming.

### Exercise 2

Answer the following questions:

1. Briefly explain the meaning of the ozone layer.
2. In which atmospheric layer is the ozone layer found?
3. What is the most abundant gas in the ozone layer?
4. What do you think would happen to living organisms if the ozone layer was not there? Explain.

### Effects of human activities on ozone layer

Life of human beings depends on the environment they live in. In order to survive and meet their development needs, human beings need to engage in various activities such as transportation, agriculture, animal husbandry and energy production. These activities have been producing gases that destroy the ozone layer. These gases are produced from man-made compounds such as chlorofluorocarbons (CFCs), halogen, bromine, and hydro-chlorofluorocarbons (HCFCs).

Ozone depleting gases have been used by humans in various activities such as in air conditioners in cars, homes, offices, and in refrigerators as shown in Figure 3(a) and (b). Others include insecticide aerosol, as well as additive solvents in domestic and industrial steam applications. Due to their effect on the ozone, use of CFCs has been replaced by HCFCs. The HCFCs contribute to global warming too but they are much better than the CFCs. The following details explain different human activities that produce harmful gases contributing to depletion of the ozone layer.

- (a) Production and uses of air conditioners and refrigerators: Air conditioners and refrigerators, as shown in Figure 3, are important and mostly used in tropical countries to preserve food and medicine. They are also used to control temperature in buildings and cars. The gases used in these appliances are known to deplete the ozone layer;
- (b) Use of pesticides: Ozone depleting gases are used in factories that produce pesticides for fumigation as well as spraying. Some of them are also used to clean various electrical appliances;
- (c) Mattress manufacturing: Some of these ozone depleting gases such as chlorofluorocarbons and hydro-chlorofluorocarbons are used in manufacturing of mattresses;
- (d) Making firefighting equipment: Dangerous ozone depleting gases such as Halogen have been used in firefighting systems;
- (e) Use of solvents: Some of the ozone depleting gases such as carbon tetrachloride are used as solvents for various industrial and domestic activities. These activities include cleaning, use of steam laundry machines, and in chemical and pharmaceutical industries; and
- (f) Use of sprayers: chlorofluorocarbons can also be used as an aerator in aerosol sprays such as incense, paint or mosquito repellent.



(a) A refrigerator



(b) An air conditioner

**Figure 3:** Examples of devices that emit ozone depleting gases

Sources: <https://thubajvc.files.wordpress.com/2014/02/fridge.jpg>



### Activity 1

With the supervision of a subject teacher, visit a nearby factory, observe activities in the factory, and write a report on what you have observed in relation to depletion of the ozone layer.

### Measures to control the depletion of ozone layer

The following are different measures to control depletion of the ozone layer:

- (a) Purchasing air conditioners and refrigerators that emit less ozone-depleting gases;
- (b) Purchasing aerosols that contain less ozone-depleting gases;

- (c) To avoid leakage of air conditioning gas in cars and refrigerators during repair or maintenance;
- (d) To use alternative raw materials to manufacture industrial goods such as mattresses, solvents, inks and pesticides in order to get rid of hazardous gases that deplete the ozone layer;
- (e) Use of modern technology to manufacture quality air conditioners for homes, cars and factories;
- (f) To control importation of air conditioners and refrigerators that emit more ozone depleting gases. The best air conditioners and refrigerators are those that are energy efficient and produce very small amounts of ozone depleting gases. These products often contain instructions about efficiency in energy use; and
- (g) Improving technology in industrial machinery by installing air filters to prevent harmful gases and dusts chemical air from reaching the atmosphere.

Despite the various measures to control depletion of the ozone layer in 1987 many countries in the world signed an agreement, in Montreal city in Canada, to reduce the use of ozone depleting gases. The Montreal Agreement is also ratified by the government of Tanzania. This agreement has brought a significant reduction in the use of ozone depleting gases. More similar efforts are still needed to ensure that ozone layer is not damaged. These efforts will protect the lives of living organisms on Earth. Although industrial activities, transportation, energy production and agriculture are essential to human development, it is important to conduct these activities carefully. If we are not careful, the ozone layer could be depleted severely. Consequently, the lives of the current and future generations will be at risk.



### Activity 2

Discuss with your fellows how to control human activities that could cause depletion of the ozone layer. Compile your answers and present them in the class.

**Exercise 3**

Answer the following questions:

**A:** Choose the most correct answer and write its letter in the box provided.

1. One of the following affect stability of the ozone layer:
  - (a) Wind
  - (b) Oxygen
  - (c) Lightning and rain
  - (d) Chlorofluorocarbons
  
2. The ozone layer is part of the lower layer of
  - (a) Troposphere
  - (b) Stratosphere
  - (c) Mesosphere
  - (d) Thermosphere
  
3. In which layers are the harmful rays filtered?
  - (a) Ozone
  - (b) Mesosphere
  - (c) Thermosphere
  - (d) Troposphere
  
4. One of the following is an ozone depleting gas found in industrial smoke.
  - (a) Oxygen
  - (b) Bad smell
  - (c) Chlorofluorocarbons
  - (d) Winds

5. Which of the following effects may be caused by ultraviolet solar radiations?

- (a) Skin diseases in human beings
- (b) Insect breeding
- (c) Burning shrubs
- (d) Decrease of temperature on earth

**B: Fill in the blanks**

6. Ultraviolet solar radiations are filtered in \_\_\_\_\_ before reaching the Earth's surface.

7. Some of the gases that deplete the ozone layer are \_\_\_\_\_ and \_\_\_\_\_.

8. Harmful solar radiation, if not filtered, can cause \_\_\_\_\_ and \_\_\_\_\_ to human beings.

9. Ozone layer is important because \_\_\_\_\_ and \_\_\_\_\_.

**C: Answer the following questions**

10. In which layer of the atmosphere do daily human activities take place?

11. In which layer of the atmosphere do large cargo planes fly?

12. Explain how living organisms may be affected if the ozone layer is depleted.

13. Describe how you can control depletion of the ozone layer in your area.

14. Briefly describe the characteristics of each of the four layers of the atmosphere.

D: Observe the following picture, then answer the questions that follow



15. What is a farmer in the picture doing?
16. Name disadvantages of the activity done by the farmer in the picture in relation to the depletion of the ozone layer.

### Vocabulary

Absorption	a process by which one thing is absorbed by another
The universe	is the space that holds galaxies stars, planets, meteors, and other bodies that float in the sky as a single object
Ultraviolet rays	a type of solar radiation with short waves of 10 to 400 milliwatts (mW)
X-rays	radiation of short wave length that can penetrate objects and show what is inside or give images of structures inside the objects

# Chapter ten

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## Population and settlements

### Introduction

*In Standard Six, you learnt about the resources available in Tanzania and the places where they are found; the contribution of these resources to national development; challenges associated with the use of these resources in Tanzania and ways to address them. You also learnt about the factors that contribute to resource degradation in Tanzania and the precautions needed to protect and conserve those resources. In this chapter, you will learn about population and use of resources; settlements; the way population and settlements affect production activities; and factors influencing distribution of population. You will also identify effects of rapid population growth and ways to control them. The competencies gained in this chapter will help you to discover the relationship between population and development in the society.*

### The concept of resources



#### Remember

1. Resources available in Tanzania.
2. Natural resources.
3. Man-made resources.
4. Examples of renewable resources.

### Population and resources use

Human beings form the most important component for development of a nation. Development, use and maintenance of resources available in the nation depend on human engagement in the process. Population and settlements play an important role in sustainable use of resources. While overpopulation leads to overexploitation of resources and resource

degradation, small populations lead to underutilization of the available resources.

## Population

Population is the total number of people living in a particular area, such as, village, ward, district, region or country in a particular period. Population includes people of all ages and both sex. These people may be of the same or different faith, ethnic group, nation, and with different levels of education. These people may be living together or scattered.

### Sources of population data

Number of people in an area can be obtained through various methods, including population census, research, births and deaths registration, immigration statistics, local travel information, as well as data from local government offices on the number of people immigrating into and emigrating a particular area. Some of these methods are described below:

### Population and housing census

Population and housing census is a process of counting and recording number of people of a given area such as village, ward, division, district, region or country. It is the process of collecting, processing and disseminating demographic data of a particular area at a particular time for a specific reason. During census, everyone is supposed to be counted. All people, from children to elders, both, females and males, employees and non-employees, all are supposed to be counted during the census day. The census also shows the time and place it was conducted. There are two types of census. The first type is the one that involves counting of people basing on their place of residence. This type is known as *de jure*. The second type of census involves counting of people according to where they will be found by an enumerator on the enumeration day. This type of census is known as *de facto*.

In Tanzania, census is conducted after every 10 years. The last population census in Tanzania was held in 2012. According to the 2012 population census, Tanzania had 45 million people. According to the National Bureau of Statistics, Tanzania's population is growing rapidly. By 2020, the number of Tanzanians was estimated to be more than 59.8 million.

For a census to be effective, the following things must be considered:

- (a) A person should be counted at the place where he or she will be found by the enumerator on the day of the census or at their place of residence;
- (b) The type of questionnaire and the questions to be used should consist of relevant information required by the government;
- (c) Recruitment of people who will be involved in the census and the way to train them;
- (d) Provision of public information about census exercise and its importance to the people and the whole nation;
- (e) Provision of sufficient equipment and means of transport to enumerators; and
- (f) Using the best technology for collecting, processing and disseminating census data.

In general, this exercise requires adequate preparation and high level of citizenry participation to ensure its success.

### **Population and housing surveys**

In this method, detailed information about an individual, family or part of the population in a given area is taken to represent the entire population. In population and settlements, survey method is used. Survey refers to the sampling and collection of information about all persons in the sampled households. In a survey, basic information such as production, consumption and public services is collected and processed in order to get detailed information. Results from the sample taken represent the total population present in that area.

### **Births and deaths registration**

Births and deaths registration is one of the method used to obtain population data of a particular area at a given time. This method involves collection of information about a total number of children born in a particular area at a certain period of time and a total number of human deaths. This information

is available in offices responsible for registration of births and deaths. Additionally, the total number of births and deaths in a particular area can be used to determine the number of people present in that area over a given period of time. This method helps to access data easily, although many countries use census to obtain population data. However, in many countries especially the developing ones, there are challenges of obtaining data on births and deaths. This is caused by several reasons, including unwillingness of people to provide such data.

### Migration information

Population in a particular area is also obtained by using information available from migration offices. This information includes the number of people immigrating a particular country and applying for permanent citizenship after the fulfilment of the required conditions of a particular country. It also includes, the number of people moving outside the country.

#### Exercise 1

Answer the following questions:

1. Explain the meaning of resources.
2. Name two advantages of human resources in the area you live.
3. Explain the meaning of population.
4. List four things that the government should consider in order for the census to be successful.



#### Activity 1

1. Observe your birth certificate and list all available vital information.
2. What information would you like to be added or removed from the certificate? Give reasons for your proposal.

3. Find the population of the following areas:
  - (a) Your home
  - (b) Your classroom
4. In groups of four students, using a variety of sources such as books, atlases, websites and the web link, search the following information and present it to the class:
  - (a) An East African country with a human population almost similar to Tanzania.
  - (b) The most populated country in East Africa and four reasons for such a population.
  - (c) The least populated country in East Africa. What do you think could be the reasons for the low population in that country?

### Settlements



#### Think

1. Meaning of settlement
2. Types of settlements
3. How settlements can affect production activities

Human beings normally live in houses and have relatives with whom they live in their houses. The area in which humans live is called a settlement. Thus, settlements are places where people live and establish an interactive community. Settlements are not just the presence of a house or a shape of a town or village, but include activities and services that take place, such as production activities, education and health services, culture, recreational sites and panorama. Settlements can be nucleated especially in cities due to a high population, or scattered for example in villages where there is a low population. Settlements facilitate various economic activities such as production activities, business and tax collection due to the concentration and interaction of people. Thus, settlements improve the individual's economy and the nation as a whole. Additionally, settlements facilitate the provision of social services.

## Types of settlements

Settlements can be divided into two main types: urban and rural. Figure 1 is an example of urban settlement, while Figure 2 is an example of rural settlement.



Figure 1: Urban settlement



Figure 2: Rural settlement

By observing Figure 1 and 2, you can identify characteristics of settlements. Some of these characteristics are as follows:

- (a) Buildings in the urban settlement are close to each other compared to rural settlement. This situation is caused by a higher population density in urban areas than in rural areas;
- (b) Urban settlements are associated with better economic and social services than rural settlements; and
- (c) Urban settlements are associated with construction of better and modern houses compared to rural settlements.

### Settlement patterns

Settlements can be built in a variety of patterns. These patterns are divided into three categories. The first pattern is linear settlement. In this settlement pattern, houses are built along the road, railway, lake or river. This pattern is influenced by access to linear infrastructure such as road, railway line, and water ways as well as business opportunities.

The second type of settlement pattern is of houses built close to each other in one place. This type of settlement pattern is known as nucleated or clustered settlement. The houses are built in clusters in order to be closer to the existing social services such as schools and hospitals. Also, this form of settlement is found on centres of economic activities such as markets, industries, mining, and tourism. Often these social services and economic activities are limited and very essential; hence causing people to live closer to them.

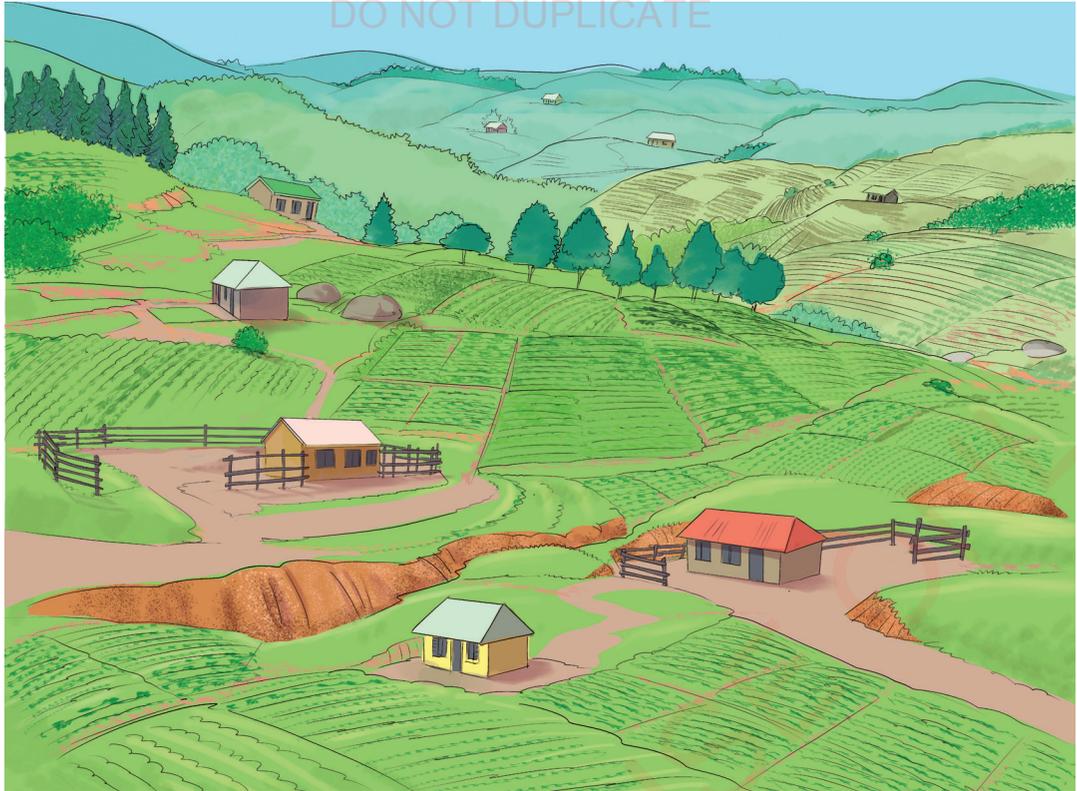
The third type of settlement pattern is known as dispersed or scattered settlement. This is caused by the availability of sufficient land that makes people build their houses in a scattered form so as to be surrounded by farms. All in all, the three types of settlement patterns are affected by geographical factors such as landform, soil fertility, natural hazards, land and conservation laws. Figures 3, 4 and 5 show the three settlement patterns.



**Figure 3:** *Linear settlement*



**Figure 4:** *Nucleated settlement*



**Figure 5:** *Scattered settlement*

### **Effects of population on production activities**

Population and settlements in a particular area play an important role on production activities. In this section, you will learn how population size affects production activities of a particular area as explained below.

#### **Underpopulation**

Production activities depend on the number of people living in a particular area. When an area has a low population (underpopulated) than the available resources, these resources will be underutilised. This leads to stagnation of the economy and other development activities. A small population in an area can affect production activities in a variety of ways. Some of the effects include:

- (a) Shortage of manpower for production activities such as agriculture and industry;

- (b) Shortage of goods and markets in a particular area: a small population normally has low purchasing power. This situation can lead to low demand of the goods produced. Thus, production decreases to correspond with the market size. The result of this situation is economic stagnation;
- (c) Underutilisation of resources, such as minerals, land, wildlife, water and forests: small population results in underutilisation of land and other resources. This situation makes people unable to achieve the targeted development goals;
- (d) Poor living conditions: due to low production, people's living standards may also be poor; and
- (e) Shifting cultivation and informal settlements: The existence of a small population in a large area causes people to engage in shifting cultivation and informal settlements. People burn forests and cut down trees to clear land for agriculture and housing. This leads to soil erosion and shortage of rainfall; hence low production.

Underpopulation can also be an advantage to the community to achieve sustainable development if their resources are utilised appropriately.

### **Overpopulation**

When an area is overpopulated, its population size exceeds the available resources. This affects production activities. People overutilise the available resources than their capacity to regenerate. High population of an area especially when majority have low education can affect the quality of production activities. Some of these effects are as follows:

- (a) Environmental degradation: a high population causes environmental degradation because demands exceed the capacity of the available resources leading to shortage of resources such as land, water and wildlife. This situation may lead to soil erosion, thus reducing productivity in a cultivated land;
- (b) A high population causes pollution due to the increased production and consumption activities that are taking place in the area;
- (c) Decline or depletion of resources: a high population causes overutilisation of existing resources such as minerals and land. This

leads to depletion, decline or deterioration of these resources;

- (d) Increased cost of social services: a high population requires a lot of money for the government to provide social services, such as education, health, transport and other services;
- (e) Unemployment: As the population increases more than the economic activities, it affects the labour market. This situation leads to the problem of unemployment; and
- (f) Shortage of land and food: as the population increases, farms are changed into residential areas. This causes the decline in agricultural land and food production. This situation leads to food shortages in the country or a particular region. For example, Kilimanjaro Region faces land shortages due to high population and settlements.

However, if overpopulation is coupled with the availability of appropriate technology and markets for agricultural products, it becomes an important element for development. Use of technology stimulates discovery of better ways of using the resources in small area and thus increase productivity in agriculture. Large population size, therefore, can increase production.

### **The effects of settlements on production activities**

A settlement is a place where people live and perform various activities. Settlements can be of one family house, a village, a town or a city. As indicated earlier, there are two types of settlements, urban settlements and rural settlements. The types of settlements and their patterns affect production activities.

#### **Urban settlements**

Urban settlements have a large population size in a small area, thus houses are crowded. Towns vary in the way they are planned and constructed. Towns can be planned or unplanned. Towns can grow vertically by constructing storey buildings. They also grow horizontally by extending constructed areas. These conditions of urban construction and growth affect production as follows:

- (a) Urban planning: planned towns facilitate production activities as they are built according to land requirements for various production activities

and service delivery. Unplanned settlements affect production because the layout does not consider different production needs. They often lead to conflict in land use hence failing to conduct some economic activities. Similarly, informal settlements affect the construction of infrastructure to facilitate production activities and service delivery. This situation hinders production and service delivery, thus urban poverty increases; and

- (b) Growth of towns: vertical and horizontal growth of towns has different effects on production. When towns grow vertically, construction of storeys cause overcrowding of people in a small area. This can facilitate the construction of infrastructure and service delivery. Crowded areas also provide a lot of business opportunities. But horizontal expansion of towns increases the cost of constructing infrastructures and service delivery. Many sub-urban areas lack infrastructure and services to facilitate production activities. This situation affects production and makes the urban economy poor.

### Rural settlements

Rural settlements are relatively underpopulated compared to urban settlements. Some of the rural settlements are scattered whereas, others are nucleated. All these types of settlements are found in Tanzania, although nucleated settlements are more common because of the socialism and self-reliance policy of 1970's that emphasised formation of Ujamaa villages. These settlement patterns have different effects on production activities in rural areas. In overcrowded villages, distance between houses is short because houses are close to each other. The distance between houses and workplaces such as farms, however, is long. In scattered settlements, there is a long distance between residential areas. Since houses are built on farms, the distance between houses and farms or workplaces is short. Rural settlements affect production as follows:

- (a) Long distances between houses and farms: this affects agriculture as it becomes more expensive and difficult to maintain the farms if the farmer has to walk long distances back and forth. This affects transportation of agricultural inputs to the farm and of crops from the farm to homes and to the market. Also, it affects the farmer's ability to manage efficient use of resources;

- (b) Closeness of the houses: closeness of houses has the advantage of facilitating construction of both physical and social infrastructures as well as, provision of production services. To improve agriculture, people need to be empowered by having infrastructures such as roads and markets. They also need access to services such as health. Education on the best way to use these resources is also very important. All these are easily done if people's residents are close to each other. Also, administrative services and community participation become much easier to execute;
- (c) Long distances between houses: If houses are scattered, construction of infrastructures and provision of social services will be affected, as it will be more expensive. This will undermine efficient use of resources and affect production; and
- (d) Short distances between settlements and farms: When a home is closer to the farm, it simplifies production. The farmers spend less time and energy to reach the work place and to access other services such as energy, water and construction materials.

### Exercise 2

Answer the following questions:

#### A. Fill in the blanks

1. The place where human beings live and establish an interactive society is called \_\_\_\_\_.
2. Settlements can be divided into two types which are \_\_\_\_\_ and \_\_\_\_\_.
3. The type of settlement pattern characterised by crowded houses in a small area is called \_\_\_\_\_.
4. Linear settlement pattern is influenced by \_\_\_\_\_ and \_\_\_\_\_.

#### B. Answer the following questions

5. What is the relationship between population and settlements?
6. List five effects of high population on production activities.
7. List five effects of low population on production activities.

**Population distribution** DO NOT DUPLICATE

People do not live in one place; they are distributed in different places. This situation makes different areas in a region or country to have different population distributions. In this section, you will learn the concept of population distribution and its causes.

**The concept of population distribution**

Population distribution is the way in which population is spread out in a particular area due to various geographical, political, historical, economic and social factors. The distribution of people varies from one area to another. Some areas are crowded, while others have scattered settlements, and some are completely uninhabited. People on the earth's surface are, thus, unevenly distributed.

Distribution of people in the regions of Tanzania varies considerably. Some regions have greater population size than other regions as shown in Figure 6. Dar es Salaam, Mwanza and Kagera Regions have large population sizes. The least populated regions are Lindi, Njombe and Katavi. Among the causes of such distribution are access to natural resources, economic opportunities, social services and soil type.



### **Geographical factors**

Soil type, climate, vegetation and landscape contribute greatly to the distribution of population. Areas with fertile soils are more populated than areas which are less fertile, for example some areas of the Kilimanjaro Region with volcanic soils are highly populated. Various activities such as agriculture and livestock keeping take place in fertile areas as the soil favours farming and grazing.

Highland areas are usually less populated compared to lowlands because it is more difficult to construct houses and conduct economic activities in mountainous compared to lowland areas. Areas with moderate temperatures and humidity such as some parts of Kilimanjaro, Arusha, Iringa, Kagera, and Mbeya Regions are densely populated because they are good for agriculture. Arid and semi-arid areas such as Dodoma, Singida, and Tabora Regions have low population because of droughts that affect agriculture and the lives of the people in general. Dense forest areas are home to wild animals and tsetseflies. This situation can affect pastoral activities, so people do not prefer to establish settlements near those areas.

### **Economic factors**

People like to live in areas that allow production activities, such as trade, agriculture, fisheries and industries. Areas with large farms, mining and large cities also attract more people to settle. Many cities, like Dar es Salaam and Mwanza, have among other things, many business opportunities that motivate many people to migrate into those areas. These areas provide employment opportunities. Most retailers prefer to stay in places where markets are widely available.

### **Social factors**

Availability of quality healthcare, education, transport and communication, security as well as markets attract people. For example, the presence of many academic institutions in the city of Dodoma, such as the University of Dodoma (UDOM), the Institute of Rural Development Planning (IRDP), College of Business Education (CBE) and the Mineral Resources Institute (MRI) have contributed significantly to attracting people into the city.



### Activity 2

Work with your classmates in groups of 4 on the following tasks:

1. Identify the settlement types and patterns in your area.
  2. Explain how housing status affects production activities in your area.
- Present your work to the class.

### Exercise 3

Answer the following questions:

1. Explain how geographical, economic, and social factors affect population distribution.
2. Use the map of Tanzania in Figure 6 to identify regions with:
  - (a) Large population sizes.
  - (b) Small population sizes.
3. Explain three factors influencing population distribution in Question 2 (a) and (b).

### Factors affecting population

Factors that affect population are attributes that cause the population to increase or decrease in a particular area. There are various factors that affect population such as the increase or decrease of birth rates and death rates; uncontrolled increase of immigrants compared to emigrants; and increase or decrease in life expectancy. These factors are described in detail as follows:

- (a) Fertility:** This refers to the number of children born in a particular geographical area at a particular time. When children born outnumber those who die, it leads to an increase in population. For example, in many Sub-Saharan African countries fertility rate is high, so there is a growing population. While the decrease in the number of children born leads to a decrease in population. For example, many developed countries have low fertility rates as the result the population size is small.

- (b) **Mortality:** When deaths are higher than the number of children who are born, the population of an area declines. For example, the countries with continued wars or those herd hit by pandemic diseases such as COVID-19 experienced loss of many lives, and hence decline in their population size. So far, decrease in the number of deaths leads to an increase in the population size of the area.
- (c) **Migration:** When the number of immigrants is higher than emigrants, the population of a particular area increases. For example, Tanzania has been receiving refugees and other immigrants from various countries such as Rwanda, Burundi and Democratic Republic of Congo. Therefore, in countries of their origin the population decreases while in Tanzania the population increases.

### Controlling the factors affecting population size

There are some factors that may affect the population size of a particular geographical area. These factors can be controlled. There are several ways that are used to control population as follows:

- (a) Reproductive health education should be provided to community members so that they can plan to have a specific number of children. Besides, efforts should be made to prevent early pregnancies by educating the community about its negative effects. In addition, education should be provided to the community about the benefits of having a sufficient and productive workforce in the community;
- (b) Deaths can be controlled by improving healthcare, nutrition, infrastructure, educating the community about good health and reducing or preventing accidents;
- (c) The government has to control illegal immigration because it contributes significantly to population growth in a particular area;
- (d) Improve access to education to youths: Access to education services in the country can control population growth. For example, many girls who spend much of their time in schools often do not get into early marriage or have children at a young age. Thus, childbearing age is increased; and

- (e) Women should be given more opportunities to participate in economic activities and development. Women who participate in economic activities and development often have a lower number of children than those who are not engaged in economic activities.

**Activity 3**

Visit both densely and sparsely populated areas, and then:

- (a) Identify factors that affect the population in those areas.
- (b) Explain how you would involve yourself in controlling the factors you identified in those areas. Present your work to the class.

**Rapid population growth**

Rapid population growth refers to the fast increase in the number of people at a particular place. As the population grows faster than the level of production, it creates problems in the community. In many developing countries, population growth is even greater than economic growth. This is due to high fertility rate, increase in average life expectancy as well as a significant rapid increase of migrants such as refugees.

**Effects of rapid population growth**

There are various effects of rapid population growth in the community. These effects include: environmental degradation resulting from high demand for shelter and cultivation; an increase of vulnerable street children; and increased crimes. Other effects include famine as a result of overpopulation; outbreak of diseases caused by environmental degradation. In addition, rapid population growth contributes to environmental pollution caused by low income of the people and the congestion making them unable to dispose wastes properly. Furthermore, it leads to shortage of social services such as schools, hospitals, drugs, safe maternity, and transport; shortage of resources and unemployment. This is due to population growth that does not correspond to the country's economic growth.

## Controlling the effects of rapid population growth

Effects of rapid population growth can be controlled through the following ways; the community should be educated on environmental protection; prevention of early pregnancies by educating girls; family planning education should be provided to community members so as to reduce the rate of new births; the government or individuals should create new employment opportunities for people and provide entrepreneurship education that will enable more people to become self-employed.

### Exercise 4

Answer the following questions:

1. Name two factors that contribute to rapid population growth.
2. Distinguish between rapid population growth and population growth.
3. Using four different ways, explain how you can control rapid population growth in your region.

### Exercise 5

Answer the following questions:

A. Choose the most correct answer and write its letter in the box provided.

1. What is the correct way to get the population data of a particular area?
  - (a) Holding a Meeting
  - (b) To register persons in political parties
  - (c) Conducting a population and housing census
  - (d) Register the number of livestock owners in the country
2. Settlement refers to
  - (a) presence of housing
  - (b) the place where people live
  - (c) empty area

- (d) the shape or appearance of a city
3. Low population refers to:
- (a) the situation where the population is so high; hence resources are used effectively
- (b) the condition of the population in the area
- (c) the situation where the population is so low; hence resources are underutilised
- (d) the decline of the population

**B. Fill in the blanks**

4. \_\_\_\_\_ is a pattern of houses built along the road.
5. The increase of population in Tanzania is caused by \_\_\_\_\_ and \_\_\_\_\_.
6. Human deaths can be controlled by \_\_\_\_\_ and \_\_\_\_\_.
7. The city of Dar es Salaam is growing rapidly because of \_\_\_\_\_.
8. The growth of Dodoma city is contributed by \_\_\_\_\_.
9. Census in Tanzania is conducted after every \_\_\_\_\_ years.
10. In Tanzania a population and housing census showing a population of 45 million people was conducted in the year \_\_\_\_\_.

**C. Write TRUE for the correct statement and FALSE for an incorrect statement in the space provided.**

11. Majority of Tanzanians live in urban areas. \_\_\_\_\_
12. Deaths of people in an area are a cause of population growth. \_\_\_\_\_
13. Controlling early pregnancies is one of the methods of controlling rapid population growth. \_\_\_\_\_
14. Population is the total number of people living in different areas. \_\_\_\_\_

**D: Answer the following questions**

15. Describe three methods used to find population data in Tanzania.
16. Describe four effects of rapid population growth in your area.
17. Briefly explain how low population and settlement affects production activities in the area.

**Vocabulary**

**Emigration** act of leaving one's own country to settle permanently in another country

**Immigration** the act of someone coming to live in a different country

**Migration** movement of people from one place to another that involves temporal or permanent change of areas of residence within the country

**Urban** is an area surrounding a town. Most inhabitants of *urban areas* have non-agricultural jobs

# Chapter Eleven

## Economic activities in the East African Community

### Introduction

*In Standard Six, you learnt about different economic activities in member states of the East African Community. You also learnt how these activities influenced good relations between Tanzania and other countries. In this chapter, you will learn and compare different economic activities and their advantages in the East African Community. The competencies gained from this chapter will help you to identify and engage in different economic activities at the family, national and international levels. Also, the competencies gained will help you to utilize economic opportunities available in the East African Community.*

### Countries in the East African Community

East African Community (EAC) is a regional economic integration that consists of six countries, namely; Tanzania, Kenya, Uganda, Rwanda, Burundi and South Sudan. These countries vary in land size and population (Table 1 and Figure 1). For example, Tanzania has the largest area and population size. The second largest country is South Sudan, although it is the fourth in terms of population size. Kenya is the third in terms of land area but second in the population size. The fourth country in land area is Uganda, which is the third in population size followed by Burundi which is the fifth. The last country with the smallest land area is Rwanda.

**Table1:** Population and land area of countries in the East African Community

No.	Country	Area (Km <sup>2</sup> )	Estimated population size by 2019
1	Tanzania	945 090	54.2 million
2	Kenya	582 646	47.8 million
3	Uganda	236 000	39.0 million
4	Rwanda	26 338	12.1 million
5	Burundi	27 834	11.7 million
6	South Sudan	619 745	12.3 million

**Source:** East African Community (<https://www.eac.int/eac-partner-states>)

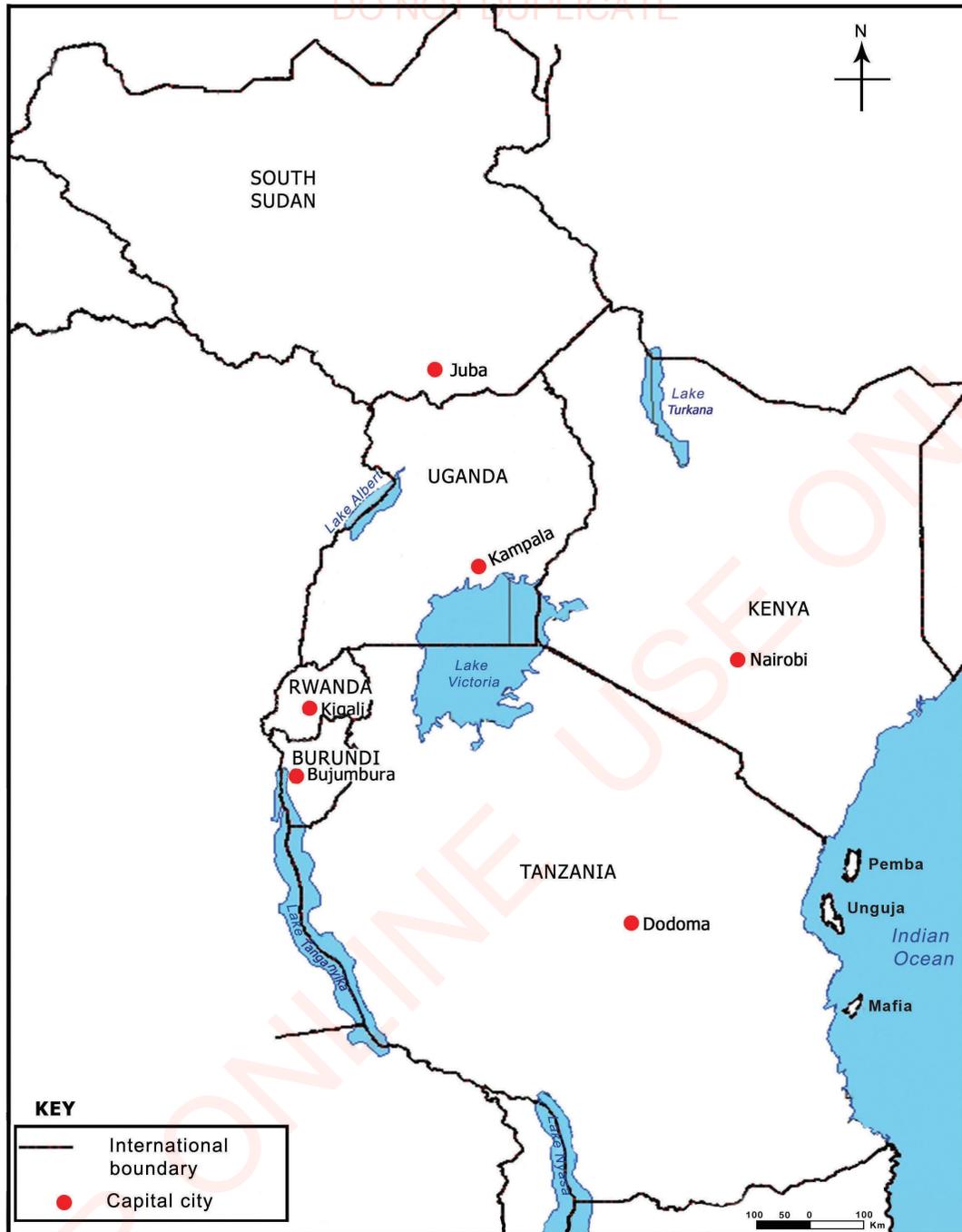


Figure 1: Member states of the East African Community

### Major economic activities in the East African Community

The citizens of the East African Community engage in various economic activities to generate their income. The main economic activities in the

EAC include agriculture, industry, trade, mining, livestock keeping, fishing, tourism and transportation. Some of these economic activities have led to integration among the East Africans. These activities are carried out by the governments and their institutions, individuals and private companies. The income generated from these economic activities contribute to the economic growth and development of the East African countries. The following are explanations on some of the main economic activities in the member states of East African Community.

### **Crop farming**

Crop farming is an economic activity that involves production of various food and cash crops. The main cash crops cultivated in the East African countries include coffee, cotton, tea, palms, cashew nuts, sisal, sugarcane, tobacco, vanilla flowers and cloves. Food crops include maize, bananas, cassava, groundnuts, rice, bulrush millet, cashew nuts, wheat, beans, millet, sweet potatoes, Irish potatoes and coconuts. These crops are cultivated in different parts of the East African countries. Growth of each of these crops depends on specific climate and types of soil. These crops are grown in almost every member states of the East African Community, although some countries cultivate them in larger quantities. For example, cotton and coffee are mainly produced in Tanzania, Burundi, Kenya, and Uganda. Maize, beans, wheat, rice and sorghum are mainly cultivated in Rwanda, Burundi, Tanzania, South Sudan, and Kenya. When the food crops are produced in large quantities they are also sold as cash crops.

Farming activities in these East African countries are mainly done by small-holder farmers or peasants. These farmers practice subsistence farming mainly to produce food crops. Only small quantities of their harvests are sold for buying non-food items that are needed by their households. These farmers get little and poor yields because they use poor farm inputs such as hand-hoes, and depend mainly on rainfall.

Large-scale farmers usually cultivate commercial crops. They use modern inputs such as machines like tractors for farm preparation, sowing, weeding and harvesting. Large scale-farmers usually rely on irrigation schemes. After harvesting, they sell some of their crops within the country and the rest are exported. Cash crops increase the income of individual farmers and improve economic growth of the East African nations.

Both, small and large scale farming have a lot of advantages. Small scale farmers depend on farming for subsistence while large-scale farmers produce crops in large quantities for sell in order to earn money for their development. Also, crop farming is one of the most important sources of foreign exchange for the East African countries. A large proportion of the population is employed in this sector. Employment opportunities in the farming sector include preparation of farms, sowing of seeds, weeding, harvesting, packaging and transportation of crops. In addition, crop farming has contributed to the establishment of various processing and manufacturing industries. These industries depend on farm products for their raw materials. For example, clove is used to manufacture ointment, tooth paste, food spices and soap. These industries have created jobs to many people in the East African member states.

### **Industry and trade**

Industrial activities include processing of raw materials to produce different types of products. The industrial sector also provides services that are important for economic development and for the wellbeing of people. The East African countries have established and developed different industries. These industries produce different products such as clothes, shoes, building materials, agricultural inputs, beverages, veterinary and human medicine, furniture and educational materials. Most of the industries get their raw materials from agriculture, livestock and natural resources.

Industrial development has promoted growth of trade in the East African Community. In this community, there are small, medium, and large scale business persons. In general, there are individuals, companies, governments and their institutions that engage in different types of businesses. These businesses aim at promoting the economies of the East African community in general. The traded goods are from the manufacturing, agriculture, and service sectors. The service sector includes health, communication, electricity and education. The East African countries have created a good environment for trading among the member states by removing some taxes on goods and services. Also, the EAC member states have eliminated trade barriers to facilitate the movement of goods and services among them.

The East African countries produce industrial products. These products include clothes, shoes, beverages, cement, food products, cosmetics, paints,

pharmaceuticals, veterinary medicines, and herbicides. Other products are insecticides, medical supplies, chemicals (acids, caustic soda), electrical appliances, plastic goods and livestock products. Apart from these commonly produced goods, Rwanda also produces cell phones. South Sudan is known for the production of crude oil. Industrial development has contributed to growth of the business sector. Many people within the East African Community have been self-employed in the business sector. Industrial and trade activities have also contributed to the rise of income of individuals and the East African nations. Growth of industries has certainly added the value of raw materials and products in the countries of East African Community.



### Activity 1

Use various sources of information such as books and the internet, to get the following information:

- (a) Names of two industries from each of the countries in East African Community that produce similar products.
- (b) (i) List the raw materials that are used to manufacture those products.  
(ii) Explain the benefits gained from the respective industrial activities.

Present your responses to the classroom.

## Mining

There are huge deposits of various types of minerals in all the EAC member states. These minerals include Tanzanite, diamond, gold, tin, coal, copper, iron ore, mica, lime, petroleum, natural gas and salt. All these are mined in different parts of East African countries. Two types of mining are conducted in these countries. There are small scale and large scale mining. Small scale mining is done by small scale miners who only use simple and traditional tools. Large scale mining is carried out by large miners or mining companies. Large scale miners use modern and large excavation and processing machines. In all East African member states, large scale mining is mainly done by foreign companies with huge financial investments.

Every East African country protects its minerals so that they each may benefit from their resources. Governments have been proposing different means of protecting their mineral resources. For example, the government of Tanzania has built a security wall surrounding Tanzanite mines in Mirerani, Manyara Region. Moreover, the Tanzanian government has also established mineral markets in each region so as to protect the mineral business against smuggling and black market.

Tanzania has various minerals including gold, Tanzanite, tin, diamond, coal, copper, iron ore, natural gas, and salt. Minerals that are found in Kenya include gold, soda ash, coal, and limestone. Gold, copper, iron, salt, mica, petroleum, and limestone are found in Uganda. South Sudan also has several minerals such as iron ore, copper, gold, zinc, and silver. South Sudan has a huge amount of crude petroleum oil. Minerals found in Burundi include gold, uranium, copper, and limestone. For the case of Rwanda, gold is mined in abundance. So far, some of the types of minerals mined are common in all member states of the East African Community.

The mining sector has many advantages. It provides employment opportunities to people and contributes to the growth of the national income. In addition, some minerals are used as decorative and industrial raw materials. Likewise, minerals are used in construction industry and manufacturing of utensils. Some minerals such as coal, natural gas, and petroleum are used as source of energy.

### Exercise 1

Answer the following questions:

1. List two types of minerals found in all the countries of the East African community.
2. Which type of mineral is only found in Tanzania?
3. Differentiate between small scale and large scale farming.
4. Identify five crops which are used as industrial raw materials, and, mention two products that are produced from each crop.
5. Briefly, describe two advantages of using modern inputs in agriculture.

## Livestock keeping

Livestock keeping is among the economic activities in the East African countries. Livestock keeping involves rearing domestic animals, fish farming (aquaculture), beekeeping (apiculture). Livestock keeping provides employment and commodities. Some of these commodities are milk, meat, leather, skin, and wool. Therefore, it provides food and it is one of the major sources of income because livestock keepers may sell meat, skin, milk, and manure. Livestock keeping has benefitted many East Africans because it has provided employment and contributed to the national income.

Livestock keeping is widely practiced and very popular in East African member states. However, fish farming and beekeeping are not widely practiced. The domestic animals in Tanzania include cattle, goats, sheep, pigs, chicken, and ducks. Popular animals that are kept in Burundi include goats, cattle, chicken and ducks. Ugandans mostly keep cattle, chicken, goats, ducks, horses, donkeys and rabbits. Also, in Kenya, cattle, goats, camels, chicken, donkeys and ducks are reared. In Rwanda, cattle, goats, chicken and pigs are kept in large quantities. South Sudan keeps cattle, goats, and sheep. Thus, there are some common animals that are found in all East African countries.

## Fishing

Fishing is an economic activity that involves catching fish from different water bodies such as ocean, sea, lakes, ponds, dams, and rivers. Fish are caught by using different methods such as hook and line, fish traps, nets, fish fence and others. Fishing is mainly done for the purpose of food and income. In East Africa, fishing is one of the major sources of income generating activities because many people are employed by fishing companies or are self-employed in the sector. Fishing in the EAC member states is done in various water bodies including the Indian Ocean, Lake Victoria, Lake Tanganyika, Lake Nyasa, Lake Kyoga, Lake Edward, Lake Turkana, Lake Kivu, Lake Albert, major rivers and several dams. Some of these water bodies are trans-boundary, as they are shared by two or more countries. For example, Lake Victoria is shared by Tanzania, Kenya, and Uganda. Whereas, Lake Tanganyika is shared by Tanzania and Burundi.

Fishing has many advantages to the East African countries. It leads to the availability of fish which provides fish fillets for food, a good source of protein. Also, it provides us with numerous products such as oil, glue, skin, decorating materials and fertilizers. Fish provides raw materials for plastic utensils and clothes. Moreover, fish bones are important ingredients in animal feed, while fish oil is used as human medicine. On top of that, the fishing sector is one of the sources of foreign currency, thereby; contributing to economic growth of the East African countries. For example, Tanzania is a good exporter of Nile perch fillets to Europe. Also, fishing activities provide employment opportunities to the people of East African Community.

### Exercise 2

Answer the following questions:

1. List East African water bodies in which fishing activities are conducted.
2. List five fish products.
3. Briefly, describe five advantages of livestock keeping in East African countries.

### Tourism

Tourism is an activity that involves the movement of a person or a group of people visiting attractions in a place outside their usual environment. They visit those places for leisure, business or learning. There are two major types of tourism; domestic and international tourism. Domestic tourism involves people of a given country travelling from their localities to certain destinations within the country, while International tourism involves people of a given country travelling from their localities to a certain destination outside their countries for learning, training, business, and leisure or recreation.

The tourism activities that take place in the countries of the East African Community are sports tourism, conference tourism, academic tourism and commercial tourism. Tourism is also done by visiting recreational and tourist attractions such as beaches, national parks, game reserves and historical sites. Tourism also takes place in desert areas, waterfalls and various fascinating landscapes. Other tourist attractions include historical monuments and unique landscapes such as Mount Kilimanjaro.

Almost all East African member states have protected tourist attractions. For example, Tanzania has several national parks such as Serengeti, Ruaha, Mikumi, Kilimanjaro, Katavi, Mkomazi, Tarangire, Udzungwa, Saadani, Mahale, Burigi-Chato, Nyerere from part of the legendary Selous game reserves, and Gombe. Similarly, there is Ngorongoro conservation area with beautiful scenery. In this area, wildlife coexists with Maasai pastoralists. Ngorongoro conservation area is famous to both domestic and international tourists. Other tourist attractions in Tanzania include, game reserves such as Moyowosi and Ugalla. Many tourists visit various natural landscapes such as Mount Kilimanjaro and the beaches on the Indian Ocean. Furthermore, there are historical monuments and historical sites like the National Museum and house of culture in Dar es Salaam, House of wonders and the Old Fort in Zanzibar, historical paintings at Kondoa-Irangi, scenic land of Isimila in Iringa, Olduvai (Oldupai) Gorge in Arusha, and the old fort buildings and other monuments in Bagamoyo and Kilwa.

In Kenya, there are various tourist attractions. These include the Tsavo, Sibiloi, Maasai Mara and Ruma National Parks. Similarly, there are historical sites and the Indian Ocean beaches in Mombasa and Lamu. Fishing and mountain climbing are also very popular tourist activities in Kenya. In Uganda there are various tourist attractions such as Queen Elizabeth, Mount Elgon, Semuliki, Mount Ruwenzori, Kidepo Valley, and Kibale National Parks. Also, tourists like to visit Murchison falls National Park, and Bujagali falls in the Nile River near Jinja.

Rwanda is rich in wildlife. There are various national parks with many wild plants and animals. Some of the national parks in Rwanda are Akagera, Nyungwe, Volcanoes and Mukura-Gishwati. Akagera is one of the biggest national parks in Rwanda that consists of various wild animals and plants. In Burundi and South Sudan, tourism has not been developed enough due to political instability. Despite the existing political instability, tourism in South Sudan and Burundi is going on. Examples include the popular national parks of Nimule, Lantoto, Bandingilo, and Shambe in South Sudan. Some of the game reserves in South Sudan are Fanikang and Juba. Burundi is known for cultural tourism. Tourists visit areas with traditional dances and festivals. Burundi also has Rusizi, Kibira, and Ruvubu National Parks.

Tourism in East African countries has so many advantages. Some of the advantages include providing employment to citizens, growth of the national

income, source of foreign currency, catalyst for improvement of infrastructure, business, transportation, and communication activities. Tourism also contributes to the growth of other sectors such as agriculture and livestock keeping. It also contributes to the development of arts and cultural activities.

### Exercise 3

Answer the following question:

List three areas in Tanzania where people can visit to learn about the following things;

1. Ancient history
2. Natural scenery
3. Wildlife

### Exercise 4

A. Answer the following questions:

1. List four products that are manufactured by East African industries.
2. Explain two advantages of each of the following crops:
  - (a) cotton
  - (b) maize
  - (c) clove
3. Identify three types of tourist attractions available in East African countries.
4. Explain the meaning of the following terms:
  - (a) tourism
  - (b) livestock keeping
  - (c) fishing

**B. Write TRUE for a correct statement and FALSE for an incorrect statement in the space provided.**

5. Food crops are grown exclusively for food. \_\_\_\_\_
6. Coffee, cotton, and clove are among the cash crops.  
\_\_\_\_\_
7. Mining benefits miners' families only in East Africa. \_\_\_\_\_
8. The increase in Gross Domestic Product (GDP) is one of the benefits of economic activities. \_\_\_\_\_

### Vocabulary

Agricultural inputs	essential items for agriculture including drugs, fertilizers, seeds, and tools
Caustic soda	powerful chemical substance used to make strong soaps and cleaning reagenty
Crude oil	naturally occurring, unrefined petroleum
Herbicides	toxic chemical substances that are used to destroy unwanted plants, especially weeds
Insecticide	toxic chemical substance that is used for killing insects

# Chapter Twelve

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## Entrepreneurship

### Introduction

*In Standard Six, you learnt about categories of entrepreneurship, qualities of an entrepreneur, advantages of being an entrepreneur, and important things to consider in entrepreneurial activities. Likewise you analysed challenges facing the Tanzanian communities in utilizing the opportunities available in their environments. You also learnt how to address those challenges. In this chapter, you will learn about entrepreneurial activities and how they contribute to economic growth. You will also analyse the opportunities available from the means of transport and transportation in your environment. Also, you will evaluate the effects of illegal practices in entrepreneurial activities. The competencies gained from this chapter will help you to identify opportunities available in the means of transportation for increasing your income. Also, it will help you to follow the appropriate methods of conducting entrepreneurial activities to get rid of losses.*



#### Think

1. About entrepreneurial activities.
2. About the contribution of entrepreneurial activities to the growth of production.

### Entrepreneurial activities

Entrepreneurship is a creative activity that is done by a person or a group of people by identifying available opportunities and using them to create, advertise and run small businesses to earn income. Such creativity or innovation, involves one's skills and knowledge in solving the challenges facing a particular society. In entrepreneurship, various activities are done such as; agriculture, animal husbandry, food processing, decoration, tailoring, and trade. Entrepreneurial activities can be operated by an individual, a group of people, company or in partnership. Entrepreneurship

can help entrepreneurs to earn income and pay taxes to the government, thus, contributing to the country's economic growth. The following are some of the entrepreneurial activities and how they contribute to economic growth:

### **Agriculture**

Agriculture is an economic activity that involves food and cash crop production. Entrepreneurs opt for high-yielding, fast-growing and marketable crops. Crop farming can be very cheap, and can produce yields in a very short time. Examples of farming include, gardening of horticultural crops such as amaranths, spinach, tomatoes, onions, and peppers. Planting and harvesting time ranges from three weeks to three months depending on the crop.

### **Animal husbandry**

Animal husbandry is another productive activity that entrepreneurs can use to increase their income. An entrepreneur can raise a variety of livestock such as cattle, goats, fish, bees, chickens and rabbits. In the process, the entrepreneur can employ creativity by providing them with feeds enriched with recommended nutritional requirements. These efforts are carried out by entrepreneurs in order to access market opportunities based on the quality of the livestock and their products. Innovative animal husbandry provides an entrepreneur with quality products such as milk, meat and hides. These products can further undergo value addition and be sold. When these products are sold, they provide an entrepreneur with an income that contributes to the growth of personal income and that of the nation. By doing this, the entrepreneur is also able to solve the challenges facing his/her community.

### **Tailoring**

Tailoring is a skill that is used to sew several pieces of fabric into something else, to make various stitches using thread and needle. Needlework helps to promote creativity that enables entrepreneurs to produce quality products. Selling these products enables the entrepreneur to earn an income, thus, meeting their daily needs. Innovation in needlework enables entrepreneurs to create the best products that can compete in local and international markets. Entrepreneurs can also participate into exhibitions' and trade fairs, such as Sabasaba to attract customers and earn more income.

## Business

A business is an activity that involves the purchase and sale of goods or services. Entrepreneurs ensure innovation by distributing or adding value to products and services needed in a particular society. The value of a product or service may increase depending on its quality. Quality of a product is determined by its preparation, packaging or an environment where it is made or sold. Attractive and good language to customers, honesty in pricing and selling exact weighted products, good appearance of entrepreneurs, and timely availability of goods or services can increase faithfulness and sales. The main goal of any business is to make profit. Business can be done by an individual, a group of people, a company, or by a partnership between one person and another, one community and another or one country and another. An entrepreneur has to abide to all the rules, regulations and procedures set forth by government authorities in doing businesses. They have to add value for the purpose of improving quality of goods or services. This helps in attracting more customers and getting higher profits.



### Activity 1

1. Explore one entrepreneurship opportunity that is available in your society.
2. Explain how that opportunity can contribute to development in your community.

### Exercise 1

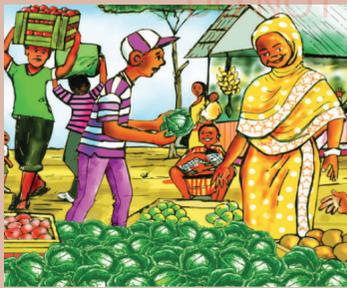
Observe the following pictures and answer the questions that follow:



1



2



3



4

1. Describe the activities taking place in pictures 2 and 3.
2. How do activities in those pictures support development of an individual or the economy of a nation?
3. Name three products you can get from the activity in picture 2?
4. Explain the importance of the activity shown in picture 3 in relation to empowering entrepreneurs economically.
5. What is the entrepreneurial activity shown in picture 4? Explain how this activity can bring about economic development and reduce in your community.
6. Name three advantages that are related to the activity in picture 1

### Entrepreneurship opportunities available in the transportation sector



#### Think

1. Various means of transportation.
2. Entrepreneurship opportunities available in the transportation sector.

Entrepreneurs can use one of the three available means; land, water and air transportation in transporting passengers and goods. Transportation can be facilitated using vehicles, motorcycles, bicycles, oxcarts, aeroplanes, ships, human beings and others. In addition, an entrepreneur can also use such opportunities to do various other businesses; selling food and drinks,

telecommunications services, financial services, hotels and guest houses as well as toilet services. When an entrepreneur provides these services, it is an opportunity that increases their income. The following are explanations of some opportunities arising from the transportation sector:

**Transportation:** An entrepreneur can design and improve the means of transporting passengers and goods in various ways such as motorcycles, taxis, buses, boats and canoes. Creativity may be used to attract more customers through increased number and quality of transport means as well as arranging convenient service schedules and distances covered. Transportation business can be done locally, from one region to another, or internationally involving various countries. The transport business can benefit the entrepreneur financially as well as the country's economy.

**Hotels and restaurants:** This business may be run near passenger or truck stations. Most often passengers need the convenience of beverages, food and accommodation near these stations. Many entrepreneurs engage in hotel and restaurant services. Entrepreneurs can benefit from the customers entering and leaving the area. In this way, they can earn an income and improve their lives. Success in this investment, however, requires creativity, honesty, self-discipline, smartness and hygiene.

**Small businesses and services:** The transportation sector provides opportunities for small businesses such as food, fruit and beverages vending, telecommunications, electronic financial services as well as selling clothes and packaging materials. Passengers' high demands for refreshments provide an entrepreneur the opportunity to supply these products and earn money.

### Exercise 2

Answer the following questions:

1. Name three means of transportation used by entrepreneurs to transport their products.
2. Name the benefits that an entrepreneur can get through transportation.
3. Briefly explain five opportunities from the transportation sector.

## Side effects of illegal practices in entrepreneurship



### Think

1. The meaning of illegal practices in entrepreneurship.
2. Four illegal practices in entrepreneurship.
3. Consequences of engaging in illegal practices in entrepreneurship.

Although entrepreneurship is a courageous practice to do business, such courage does not allow an entrepreneur to do illegal practices. Illegal practices in entrepreneurship are practices used by some entrepreneurs to make huge profits. Such illegal practices may cause problems to an entrepreneur. Illegal practices in entrepreneurship that give an entrepreneur illegal income are dangerous to the development of their business. Such practices have negative effects to an entrepreneur, customers and the nation.

### Illegal practices in entrepreneurship

The following are some of the illegal practices done by some entrepreneurs:

- (a) **Tax evasion:** This is an illegal way in which entrepreneurs avoid paying taxes by not disclosing the place where a business item is produced. This allows them to provide to authorities false information on the magnitude of their business. Some entrepreneurs collude with dishonest employees of the Tanzania Revenue Authority (TRA) to avoid paying the correct taxes. Tax evasion is a serious offence all over the world because it denies a nation of the expected revenue, thus, hindering the country's economic growth. In many countries, it is associated with "economic sabotage". When a country's income is denied by entrepreneurs, it affects the government's capacity to provide essential social services such as infrastructure. It also has a significant social, economic and political impact. Many countries have enacted strict penalties for tax evasion and malpractices in business. Thus, in order to support the collection of government taxes, buyers are advised to claim receipts for all payments they make.

- (b) **Selling expired products:** Some unfaithful entrepreneurs sell expired products. This is dangerous to the consumer since that may cause health risks. Expired products can even cause death. For example, a patient who takes expired medication may get seriously harmed or remain uncured by the medications. Expired drugs may become poisonous to the consumers. It is therefore important for the entrepreneur to observe quality specifications and standards of their products. The user is also advised to check the expiry date of any product they wish to buy.
- (c) **Running a business without permits:** In order for a business to be legal, an entrepreneur must have all required permits. Such permits include Taxpayer Identification Number (TIN), business license, tax assessment or identity cards for small entrepreneurs. Business permits are issued by the respective government authority to any entrepreneur who wants to do business in the country. Some entrepreneurs do business without required permits from the relevant government authorities. This situation affects the country's economy.
- (d) **Cheating in weights and measures:** Some entrepreneurs cheat on measurements of products they sell or produce. For example, an entrepreneur may pack sugar in a package that shows the weight of one kilogramme, but in reality, it is less than one kilogramme. This situation affects the consumer by getting less value for the paid amount. At the same time the entrepreneur is earning an illegal profit. It is the entrepreneur's responsibility to ensure that he or she submits the weighing tools to an agency responsible for inspection and approval at least once a year. Also, the entrepreneur should use standard volume packaging, for example avoiding over loading bags.
- (e) **Sale of substandard products:** Some entrepreneurs sell substandard products which can cause negative impact to the user. Entrepreneurs must submit samples of their products to the Tanzania Bureau of Standards (TBS) for quality assurance. They then may be licensed to use the TBS mark of quality. An entrepreneur who buys a product and sells it to a customer should ensure that the product has required quality standards approved by TBS.

- (f) **Sale of illegal products:** It is important to be aware that, not all products in the market are legal. Some entrepreneurs sell illegal products to earn money which is not good practice. For example, there are products that are prohibited in the country such as cosmetics that contain poisonous ingredients. But there are dishonest entrepreneurs who sell these products and expose their consumers to serious health risks. Entrepreneurs are advised to avoid engaging in illegal trade.

### Exercise 3

Answer the following questions:

1. Explain the meaning of business permits.
2. List five illegal practices done by some entrepreneurs.
3. Briefly describe the three illegal practices used by some entrepreneurs.

### Impact of illegal practices on entrepreneurship

There are many economic and social consequences resulting from illegal practices in entrepreneurship as follows:

- (a) **Loss of government revenue:** A large portion of government revenue or Gross Domestic Product (GDP) is obtained from tax. Tax evasion by some entrepreneurs denies the nation of its revenue. This situation hinders development activities by the government, including infrastructure development and improvement of social services. Entrepreneurs need to be honest in order to facilitate national development.
- (b) **Harmful effects to consumers:** Consumers have experienced harmful side effects from using expired products such as food and medicines. The expired products are often sold by dishonest entrepreneurs and purchased by unsuspecting customers. There has also been use of products without adherence to quality standards. Low quality products include building materials, cosmetics, and clothes. These products have been dangerous, poisonous or harmful to consumers. For example, use of sub-standard construction materials have led to construction of low quality buildings. Consequently, such buildings may develop faults or even collapse in a short time.

- (c) **Closure of entrepreneur's business:** When inspection by the responsible authority discovers that a business is run on unlawful means that business may be shut down. Also, the business can be shut down if it is found to have caused harm to the community. Similarly, an entrepreneur can be prosecuted and severely punished. Illegal and unlawful business activities are a challenge to the government and pose a serious threat to the country's economy and environment. Many countries, including Tanzania, have enacted strict laws aimed at controlling entrepreneurs who violate business ethics by engaging in illegal business practices. Closure of a business tarnishes the image of an entrepreneur to the community, relatives and family.

### Ways to control illegal practices in entrepreneurship

- (a) *Educating the community:* The community should be educated on the need to observe quality standards. Everyone should avoid buying and selling illegal, substandard and expired products. This knowledge will help consumers to observe carefully all relevant issues, including products expiry dates. In so doing, they can avoid health problems which could be experienced after using such products.
- (b) *Educating entrepreneurs:* Entrepreneurs should be educated on the importance of doing business in accordance with the laws, regulations and procedures of the country. This education will help them to follow the rules and regulations of the business and avoid doing illegal businesses. It will also help entrepreneurs to operate their businesses efficiently and freely. Furthermore, it will enable them to obtain various instructions and permits from the government regulatory agencies before starting a business or distributing goods.
- (c) *To enact and implement laws to control illegal business practices:* These laws will help entrepreneurs to do legal businesses and avoid penalties for not following the required procedures in the businesses. The laws will help entrepreneurs plan and strategize improvement of their businesses by selling and buying quality products. This will increase income and promote business growth. Necessary legal actions should be taken to entrepreneurs and their business partners, who violate the country's laws and regulations. The punishment will be a lesson to all entrepreneurs and customers of illegal products.

These punishments will help them change and realise the importance of doing legal business for economic development of their families and the community at large.

- (iv) *Controlling the use of products obtained from illegal practices:* This strategy will cause entrepreneurs and partners who are involved in such illegal businesses to lose customers. The entrepreneur may, thus, realize the need for lawful business practices. If product consumers provide necessary cooperation, it will help contain illegal and unlawful business practices in the country.



### Activity 2

Work with your fellow pupils in groups to discuss the following questions:

1. What are illegal practices in business, which can hinder the country's economic development?
2. What are the effects of the practices identified in question number 1 to the economy and society?
3. What are the most effective ways of controlling illegal practices in entrepreneurship?
4. Why do you think identified ways in question number 3 are the best in controlling illegal practices in entrepreneurship?

Present your work in class.

### Exercise 4

Answer the following questions:

#### A. Fill in the blanks

1. Three effects of illegal practices in entrepreneurship:
  - (a) \_\_\_\_\_
  - (b) \_\_\_\_\_
  - (c) \_\_\_\_\_.

B. Match items in **column A** with those in **column B** by selecting the correct answer from column B, then write its letter in the space provided.

Column A	Answer	Column B
2. Specialists who verify and approve the weights and measurement tools for various products.		(a) Tanzania Revenue Authority (TRA)  (b) Weights and Measurement Agency (WMA)
3. Illegal practices in entrepreneurship		(c) One of the methods of controlling illegal businesses
4. Government authorities that monitor the quality of entrepreneurs' products.		(d) Tanzania Bureau of Standards (TBS)  (e) Affects Government Revenues
5. Entrepreneurs who evade paying taxes are easier to be identified when audits are conducted by _____.		(f) Road Agency  (g) Tanzania Minerals Audit Agency (TMAA)
6. To educate the community on the importance of buying quality products.		(h) It brings more revenue to Central Government

**C. Write TRUE for a correct statement and FALSE for an incorrect statement in the space provided.**

7. Illegal business practice is a proper and legitimate way for some entrepreneurs to supplement their incomes. \_\_\_\_\_
8. Entrepreneurs are advised to avoid engaging in illegal selling of harmful cosmetics. \_\_\_\_\_
9. Tax evasion by some entrepreneurs denies the nation to earn revenue. \_\_\_\_\_
10. The quality of products of entrepreneurs is certified by the Tanzania Revenue Authority (TRA). \_\_\_\_\_
11. One way of controlling illegal practices of entrepreneurs is to provide education to entrepreneurs and the general public. \_\_\_\_\_
12. Explain the meaning of business that uses illegal practice.
13. Name four ways of cheating on weights and measures which can be avoided by entrepreneurs.

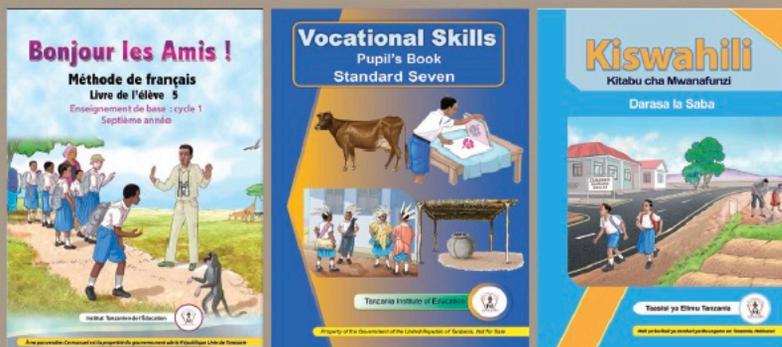
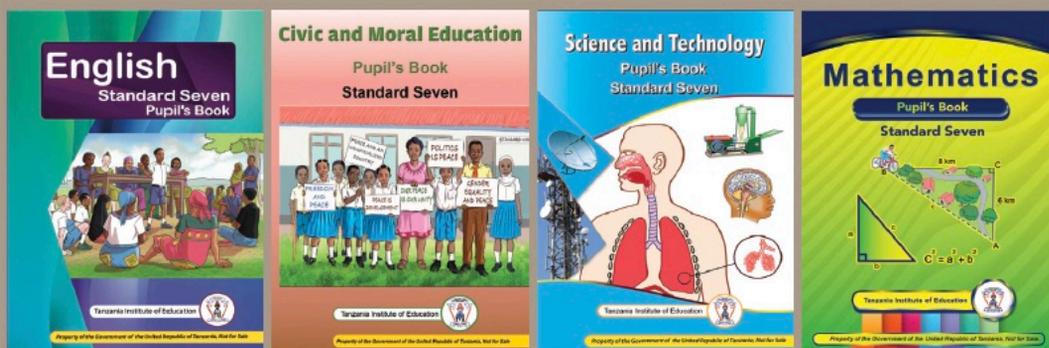
### Vocabulary

Creativity	involving the use of original ideas to generate something new
Honesty	the quality of being upright and fair
Opportunity	a chance one can use to implement a business idea and increase income
Self-disciplined	the ability to make yourself do things you know you should do even when you do not want to

# Tanzania Institute of Education



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