

# Climate change

## What is the difference between climate and weather?

Climate refers to the average weather conditions over relatively long periods, usually 30 years.

Climate determines what clothes you have in your cupboard.



Weather refers to the atmospheric conditions of a specific place over a short time, typically a few hours.

The weather determines what you wear each day.



## What is climate change?

In its most recent assessment, the IPCC<sup>[1]</sup> highlights that humans have caused climate change, which is affecting weather patterns and extreme events across the world.

The climate has typically changed over the long history of the earth. What concerns us now is the much faster rate and extent of change, which means we can be sure that humans are causing the changes that we are now seeing.

<sup>[1]</sup> Intergovernmental Panel on Climate Change, a UN body that assesses the state of knowledge on climate change.

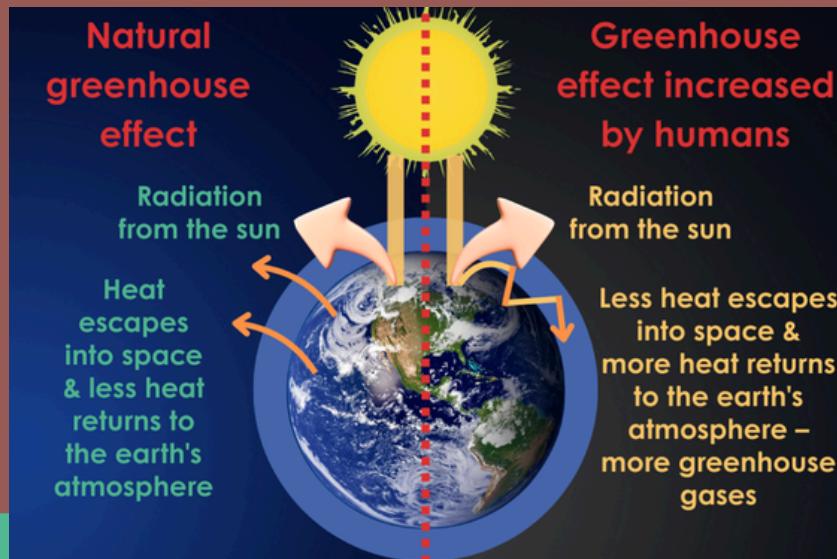
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## What human-made activities make climate change worse?

To understand this, we must understand the 'greenhouse effect'.

The greenhouse effect is a natural process. Our planet needs it for life. Certain gases in the earth's atmosphere, for example, water vapour, carbon dioxide ( $\text{CO}_2$ ), methane, ozone, nitrous oxide ( $\text{NO}_x$ ), and CFCs (chlorofluorocarbons), trap the sun's heat in the earth's atmosphere and help to maintain the heat necessary for life – without it, the average world temperature would be  $-18^{\circ}\text{C}$ .



Human activities increase the amount of greenhouse gases, aggravating the greenhouse effect and causing global warming. For example, increased  $\text{CO}_2$  from burning fossil fuels (industry, transport, domestic heating and cooling); methane from mining (oil, gas, coal), sewage, and bacteria that do not need oxygen to grow, such as rice fields, livestock and landfills;  $\text{NO}_x$  from fossil fuels and fertilisers; and CFCs (aerosols).

## What climate changes have we seen in Zambia, and what do we expect in the future?

In Zambia we have seen increases in temperature. The mean (average) annual temperature has increased by 1.3 °C since 1960. Temperatures are projected to continue to increase.

We have also seen changes in rain patterns – although these are difficult to separate out from the natural variability from year to year that is typical in southern Africa. Looking over the season as a whole, we have seen less rain over Zambia, particularly in the southwest.

We also experience dry spells within the rainy season. In the future, we will continue to experience dry spells within the rainy season, and there will be some days with heavy rainfall which can lead to flooding.



Inhabitants are familiar with these extreme weather sights in Kanyama and elsewhere in Zambia.

Climate change affects every sector of society in various ways, for example:



How much water there is, where it is, how clean it is and how much people need of it.



Increase in climate-related diseases, such as cholera, and heat stress.



Loss of biodiversity and valuable ecosystem services, e.g. food production.



Forestry production losses due to temperature and moisture changes.



Changing energy availability, for example when there are droughts there is less hydropower from Kariba dam.



Reduced agricultural harvests, drought, and poor crop health.



Cities and settlements experience pressure in terms of drainage, roads and buildings.

## Can anything be done to prepare for the changing weather patterns and extreme weather events?

Being in an extraordinary time of human-caused climate change means we need to prepare for future climate and weather patterns that are different from what our ancestors have known in the past. Governments are doing this, and there are things we can do, too.

Responses are often divided into reducing the causes of climate change (known as 'mitigation') and adapting to the changes in climate (known as 'adaptation'). Ideally we need to support 'climate-resilient development', which enables the development outcomes we want in a way that will not be negatively affected by, nor contribute to, climate change.

The following pages summarise some of the actions that governments are taking and those that we can take at home and also where we work.

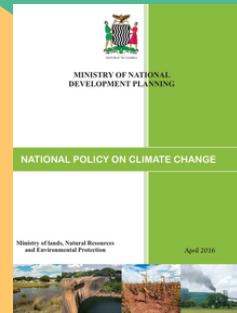
## a) Government actions

Zambia's legal frameworks to address climate change and participation in global frameworks, include the:

- National Policy on Climate Change; and
- Green Economy and Climate Change Act.

Zambia also contributes to the United Nations Framework Convention on Climate Change (UNFCCC), including a:

- Nationally Determined Contribution, which outlines plans to reduce greenhouse gas emissions and the causes of climate change; and
- National Adaptation Plan.



## Examples of climate change adaptation



Water conservation (including groundwater) through storage and improved irrigation efficiency; preventing waterlogging and erosion; emergency planning for droughts.



Developing climate-resilient healthcare systems; public health campaigns for climate-related health risks.



Ecosystems and the natural environment: Minimising habitat destruction and promoting land management (e.g. through reforestation and afforestation and soil management); integrated landuse planning and management, ecosystem-based adaptation.



Crop diversification and breeding; water-allocation infrastructure and management; conserving soil moisture; modifying farming practices (when and where to plant and management of livestock using weather information).



Improving water and sanitation and drainage; creating rainwater storage; building practices to manage heat (e.g. natural ventilation and shading, green roofs).

## b) What you can do

- Follow the weather forecasts provided by the Zambia Meteorological Services; this can help you plan your day, week and your season (particularly if you are farming). ZMD is part of the Ministry of Green Economy and Environment.
- In the case of extreme weather events, follow the instructions of the emergency services, such as the Disaster Management and Mitigation Unit.
- Remember your vulnerable neighbours (those with disabilities and the elderly or those with small children) and help them with information or practical assistance.



**Ministry of Green Economy and Environment**

Phone: (260 954) 755155  
National Emergency Operations Centre –  
Phone: toll-free 909



## Adapting to climate change in the longer term

If you are a small business owner/trader:

- Invest in a high-quality covering for your stall in the market to protect your goods against rain and dust.
- Consider how weather conditions will affect demand for your goods.



If you are a farmer:

- Consult the seasonal forecast to determine what variety of crop to plant and when to plant it.
- Use weekly and daily forecasts to decide when weather conditions will be suitable for fertiliser application or harvesting.





Erect shade for livestock and people.



### In your life:

Take into account likely climate futures when deciding where to live/build your house.



Use daily forecasts to influence how and where you move from place to place.

## **Being prepared for extreme weather in the short term**



### **Heavy rains and/or thunderstorms:**

Keep storm drains and streets clean all the time so that the water has a place to flow away.



Switch off big electrical appliances (lightning hazard).



Find cover in a solid structure, and do not stand under a tree (lightning hazard).



Do not play in the water, and avoid crossing (on foot or in a vehicle) low-lying bridges or streams.



When it floods, get to higher ground.



Keep your important documents (e.g. identity documents) in a protected, central place to grab easily if evacuation is necessary.

### Extreme heat:



Drink enough water and ensure that people with disabilities and children drink enough water. Also, ensure that animals have enough water.



Try not to be outside during the hottest part of the day (1100–1400 hours).



Stay in the shade or the coolest part of the house. Use an umbrella or wear a hat if you have to be outside.