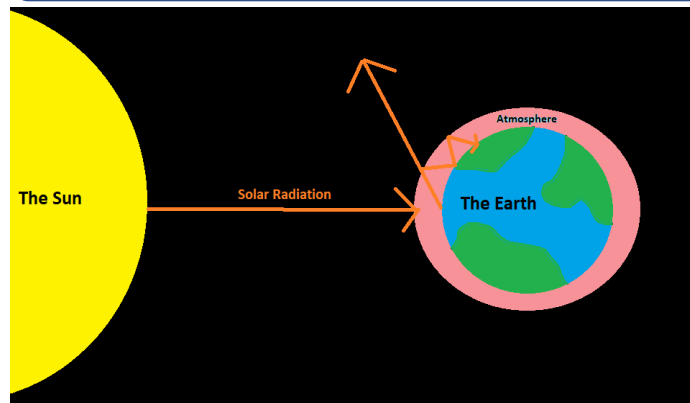


# 1. KO Causes + Impacts of Climate Change

The **Anthropocene** = the period of geological time where human activities are the main influence on the climate.

## The Greenhouse Effect: Why is the Earth getting hotter?



- Most heat on Earth comes from the sun as **solar radiation**.
- Some is **reflected** by the Earth's surface.
- Some is trapped by greenhouse gases in the Earth's atmosphere.
- More greenhouse gases = hotter temperatures.

**Solar Radiation** = heat energy from the sun.

**Atmosphere** = the gases that surround the Earth.

**Reflect** = when something bounces off the surface of another object.

## What are the anthropogenic causes of climate change?

Humans carry out four key activities that *enhance* the greenhouse effect by releasing greenhouse gases that cause climate change (Carbon Dioxide, methane). These are known as the **anthropogenic causes** of climate change.

CAUSE	PRODUCED	
<b>Burning fossil fuels for electricity.</b> 	Carbon Dioxide	Humans produce electricity by burning fossil fuels such as coal, oil and natural gas. These release carbon dioxide when burnt.
<b>Transport.</b> 	Carbon Dioxide	Transport like cars and planes that use petrol or diesel release greenhouse gases. Planes produce the most.
<b>Agriculture.</b> 	Methane	Farming can release methane. For example, sheep and cattle burp releasing the gas.
<b>Industry.</b> 	Carbon Dioxide	Making goods in factories such as making steel can lead to the releasing of greenhouse gases.

## What are the global impacts of climate change?



### Sea Level Rise

As water heats up, it expands. This is known as **isothermal expansion**. This will cause sea levels to rise around the world.



### Extreme Weather

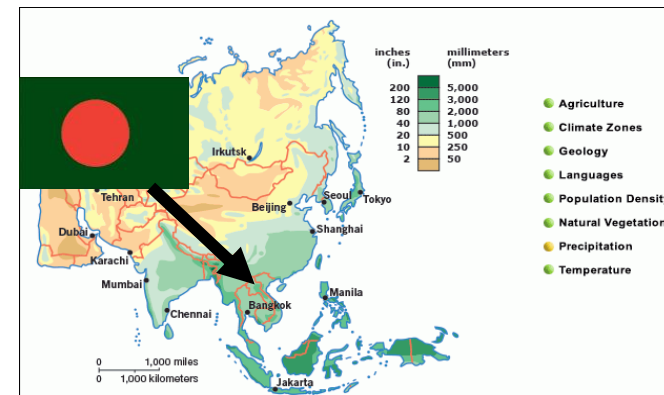
Climate change will cause extreme weather. We will see **droughts** in dry areas and **increased rainfall** in others.



### Ecosystem Collapse

Extreme weather will cause break downs of **food webs**. As the environment changes, plants and animals won't be able to adapt to the new conditions fast enough.

## What are the impacts of climate change on Bangladesh?



**Bangladesh** is a low-lying, EDC country in Asia.

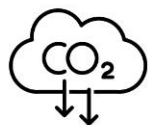
It experiences heavy rainfall and flooding. This will get worse as sea levels rise and climate change causes more extreme rainfall.

As an LIDC, Bangladesh has struggled to keep up with the demands to adapt to the problems.

Sundarbans flooded. Mangrove forests destroyed. 	People forced to leave their homes in the Sundarbans due to flooding. 	Rice / maize farmers in along the coast lose money as their crops are destroyed by floods. 
Farmland in along the coast is flooded with salt water – destroying the crops. 	Food prices rocket as maize and rice have been destroyed by floods and are now scarce. 	Large volumes of climate refugees flood 'safe' cities such as Dhaka. Results in growth of slums. 
The government invests huge amounts of money on flood defences to protect villages along the rivers. 	Habitats now permanently flooded – leading to biodiversity collapse (e.g. extinction of Bengal Tiger / Water Buffalo). 	Frequent floods from more extreme weather causes more natural disaster and deaths. 

## 2. Solutions to Climate Change

### How can we deal with the impacts of climate change?



**Mitigation** = reduce or prevent the impacts of something.



**Adaptation** = change to survive in the new conditions.

The UK has banned all petrol and diesel cars by 2050. It is planning to move this to 2030!	Bangladesh has been building earth seawalls known as 'embankments' along the Sundarbans.	The UK government is building offshore wind farms in the coast around Yorkshire and the Humber.
Turkey has built the Ilisu Dam. This will produce clean electricity and will create a reservoir of water for droughts.	Bangladesh has been training its citizens in its coastal regions to survive in floods. People are learning to build houses of stilts and fish for shrimp rather than plant rice.	China has been investing in 'carbon capture' technology. Here, Carbon Dioxide is trapped as it leaves coal power plants. It is then pumped and stored under the sea.
A number of countries are building a 'Great Green Wall' of trees across the south of the Sahara desert. This is known as <b>afforestation</b> .	The cost of solar panels has been falling in recent years. More and more people are choosing to install them on their homes.	Some people are making ~ effort to reduce the amount of meat and dairy they eat. This is intended to put pressure of farmers to switch to more eco-friendly methods of farming.



### Adaptation? Turkey's Ilisu Dam...



CROSS-SECTION OF THE TIGRIS VALLEY



The **Middle East** is a region which has a number of dry regions. Due to climate change, water is becoming scarcer.

Turkey has built the **Ilisu Dam** on the Tigris River to provide a source of drinking water during droughts. But it is not all that popular...

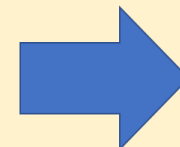
The dam will increase Turkey's water reserves in the area by 25%.	The dam has reduced Iraq's water income by as much as 50%.
Farmers in Turkey's poorest region will have more reliable access to water.	60,000 people have been moved as the dam has flooded a number of cities and villages to build the reservoir.
The hydro-electric dam could supply a huge amount of clean energy for Turkey.	Habitats will be destroyed as river banks will be destroyed by the reservoir.

### International agreements to mitigate climate change...

One attempt was the **Paris Agreement in 2015**. Countries from all around the world agreed to do various things to tackle climate change.



Aim to keep global warming below 2°C



Plan how to do it



Share knowledge



Measure emissions

The other were the **Sustainable Development Goals** which took a broader approach and looked at how we can improve the whole planet at the same time. *SGD 13 looked specifically at 'taking urgent action on climate change'.*



### Mitigating climate change in the UK?



The UK has pledged to ban all petrol and diesel car sales in the UK by 2030. The government hopes to reduce these cars on the road and therefore cut down on the levels of carbon dioxide emissions.

- This would drastically cut the UK's carbon emissions. 22% currently comes from transport.
- However**, some people don't think electric cars are reliable enough. Batteries don't last long and there are not enough charging sockets around the UK.