By: Cassandra Abraham
Education Officer
Before We Begin

Breathing Earth

Worldmeter

World Population: 1950-2050

Source: U.S. Census Bureau, International Data Base, June 2008 Update.
What Is Climate Change?

**Climate Change** is the long-term shift in weather patterns in a specific region or globally.

Climate change refers to changes in a region’s overall weather patterns, including precipitation, temperatures, cloud cover, and so on.

**Global Warming** refers to just one aspect of climate change; it is a rise in the surface temperature of the earth’s surface.
Causes of Climate Change?

Natural Causes

There are a number of natural factors responsible for climate change. Some of the more prominent ones are

- Continental drift
- Volcanoes
- The earth's tilt

Earth orbital changes -
- More tilt = warmer summers & colder winters
- Less tilt = cooler summers & milder winters
Causes of Climate Change?

Human Causes

Green House Gases (GHG)

Most climate scientists agree the main cause of the current global warming trend is human expansion of the greenhouse effect - warming that results when the atmosphere traps heat radiating from Earth toward space.
Causes of Climate Change?

Human Causes

Green House Gases (GHG)

Gases that contribute to the greenhouse effect include:

- Water vapor ($H_2O$)
- Nitrous oxide ($N_2O$)
- Carbon dioxide ($CO_2$)
- Methane ($CH_4$)
- Chlorofluorocarbons (CFCs)

The most abundant greenhouse gas, but importantly, it acts as a feedback to the climate.
Causes of Climate Change?

Human Causes

Green House Gases (GHG)

Human activities such as deforestation, land use changes, and burning fossil fuels. Humans have increased atmospheric CO2 concentration by a third since the Industrial Revolution began.
Causes of Climate Change?

Human Causes

Deforestation

Forests have a vital role to play in the fight against global warming. Forests absorb and store carbon in their trees and soil. But if forests are cleared or disturbed, this carbon is released as carbon dioxide and other greenhouse gases. Up to a fifth of global greenhouse gas emissions come from deforestation and forest degradation.
Causes of Climate Change?

Human Causes

Burning fossil fuels

Burning coal, oil and gas produces carbon dioxide and nitrous oxide.
Causes of Climate Change?

Human Causes

**Increasing livestock farming** - Cows and sheep produce large amounts of methane when they digest their food. Fertilisers containing nitrogen produce nitrous oxide emissions.
Global Warming & Humans

- Burning fossil fuels: 49%
- Deforestation: 14%
- Industrial processes: 24%
- Agriculture: 13%
Impacts of Climate Change

- Ice is melting worldwide, especially at the Earth’s poles.
- Sea level rise became faster over the last century.
- Hurricanes and other storms are likely to become stronger.
- Species that depend on one another may become out of sync.
  - For example, plants could bloom earlier than their pollinating insects become active.
- Floods and droughts will become more common. Rainfall in Ethiopia, where droughts are already common, could decline by 10 percent over the next 50 years.
In a Nutshell

Climate Change
What renewables are

- These are resources found in nature that are self-regenerating:
  - sunlight
  - wind
  - geothermal heat
  - waves
  - tides

- These sources are normally used to produce clean (or green) energy. This production does not lead to climate change and does not involve emission of pollutants.

- A related term is sustainable energy: this concept refers to generating energy with an awareness of the future, i.e. in a way that would enable future generations to meet their energy needs too. The concept is related not only to renewables, but also to energy efficiency.
Frank Kenyon Centre
Research Education and Conservation
So Let's Discuss!

What Can We do!
Breathing Earth