

What is climate change and what can we do about it?

**Elham
Going
Green**

Climate change is in the news. Newspapers and television report that:

- The weather is becoming increasingly unpredictable with frequent events of extreme weather – floods, droughts, heat waves and severe storms
- Glaciers and polar ice caps are shrinking
- Rising sea levels are beginning to submerge some island states
- Long droughts are causing desert conditions resulting in unpredictable harvests

You might be wondering what to believe or whether anything can be done about it. We hope this leaflet will help you answer those questions.

What is the scientific evidence that the climate is changing?

Climate refers to the average weather experienced over a long period. This includes temperature, wind and rainfall patterns. The climate of the Earth is not static, and has changed many times in response to a variety of natural causes.

However, the Earth has warmed by 0.74°C over the last hundred years. Around 0.4°C of this warming has occurred since the 1970s.

In 1988 the United Nations established a scientific body of about 2,000 meteorologists and scientists called the Intergovernmental Panel on Climate Change (IPCC) to evaluate the risk of climate change caused by human activity. The IPCC bases its assessment mainly on published peer reviewed scientific literature. Governments generally regard the UN climate panel as authoritative.

The IPCC reports that:

- The global average surface temperature increased over the 20th century by about 0.6°C
- There has been a widespread retreat of mountain glaciers in non-polar regions during the 20th century
- Northern Hemisphere spring and summer sea-ice has decreased by about 10 to 15% since the 1950s. It is likely that there has been about a 40% decline in Arctic sea-ice thickness during late summer to early autumn in the last 10 years
- Tide gauge data show that global average sea level rose between 0.1 and 0.2 metres during the 20th century

According to the IPCC, mean global temperatures could rise between 1.1 and 6.4°C (with a best estimate of 1.8 to 4°C) above 1990 levels resulting in a further rise in global sea levels of between 20 and 60cm by the end of this century. The recent rapid melting of Arctic sea ice suggests that IPCC estimates may be conservative.

In 2007 sceptics attempted to challenge the scientific consensus in the High Court but the judgment supported the IPCC position:

“These propositions...are supported by a vast quantity of research published in peer-reviewed journals worldwide and by the great majority of the world’s climate scientists.”
Mr Justice Burton, High Court, London, 10.10.2007

What is causing climate change?

Climate change is caused by global warming because of a strengthened greenhouse effect.

The 'greenhouse' effect is a natural process that makes life possible. So called greenhouse gases (carbon dioxide, methane and nitrous oxide) thicken the atmosphere and, like a greenhouse, trap heat near earth's surface, warming the atmosphere. Without it temperatures at earth's surface would be -17degrees C.

Some greenhouse gases (carbon dioxide and methane) are produced naturally by humans and animals.

But during the 20th century more greenhouse gases have been released into the atmosphere with the result that temperatures are increasing beyond the normal range at an increasing rate. 72% of all gas released into the atmosphere is carbon dioxide (CO₂).

What is causing the increase in greenhouse gas emissions?

Most scientists now agree that the significant increase in the concentrations of greenhouse gases in the earth's atmosphere is caused by:

- Our burning of fossil fuels (coal, oil and gas); and
- The continued destruction of forests and heath land and draining of wetlands that would normally absorb CO₂

In addition, there is a concern that the warming process could speed up because:

- Polar ice acts like a mirror to reflect the sun's rays away from earth, helping to keep it cool. As the ice melts this effect will reduce, causing the remaining ice to melt faster with the effect of more rapid rises in sea levels.
- The permafrost in Alaska, Canada and Siberia locks away vast quantities of the greenhouse gas methane. As the permafrost melts, methane is released into the atmosphere thus increasing the 'greenhouse' effect.

What does climate change mean for us?

Many scientists believe that we are already committed to a temperature rise of at least 2°C, which means that climate change will affect us all. It is likely to cause:

- Destruction of natural habitat and loss of arable land
- Extinction of some animals and plants
- Conflict over scarce resources such as remaining fossil fuels, water, land and food
- Mass migration from regions devastated by climate changes; and possibly
- Increases in disease and deaths

The social, environmental and economic cost of climate change could be huge. This fact was extensively examined in the recent Stern report on the economics of climate change.

What sort of world would we leave for our children and can we do anything about it?

Whether the temperature rise goes beyond 2°C will depend on what we do now to reduce our emissions. It is not too late to prevent a further rise. Climate change presents a significant challenge to us all but there are also enormous opportunities if we are willing to take action.

What can governments do?

Governments must act to:

- Stop deforestation
- Reduce use of and dependence on fossil fuels
- Accelerate the search for alternative sustainable sources of energy
- Develop low impact, sustainable agriculture

What can individuals do?

25% of carbon dioxide emissions are produced by the way we live and shop. We can all help reduce them by making some fairly simple changes in our daily lives. Most of these changes below will also save us money:

Reduce use of energy in the home

- Turn appliances off at the main switch (don't leave them on standby)
- Turn the thermostat down (on hot water and heating)
- Use energy efficient boilers, wood burning stoves and solar power whenever possible
- Use low energy light bulbs
- Take a shower rather than a bath (replace power showers with a showerhead that oxygenates the water – save water without losing pressure)
- Make sure your washing machine is full and use low temperature cycle
- Make sure your dishwasher is full and use low temperature cycle
- Do not let taps run – use a bowl to catch waste water and use it on plants
- Do not boil more water than you need
- Fit the highest level of insulation to your roof, and draught proof windows

In your garden

- Collect rainwater
- Recycle waste vegetable matter to make your own compost
- Plant drought tolerant garden plants
- Grow vegetables in your garden or get an allotment
- Plant trees and shrubs
- Avoid concreting over garden space.

Shopping

- Plan your meals and buy only what you need
- Buy local seasonal produce whenever possible
- Avoid packaged produce
- Re-use shopping bags especially sustainable bags in fairtrade cotton.
- Avoid products in plastic containers
- Buy fresh rather than processed foods
- Eat less red meat

Transport

- Use your car less and reconsider the need for journeys; walk cycle or use public transport, wherever possible.
- Learn to drive in a way that is most fuel efficient – keep your speed down, think ahead to avoid sudden breaking and avoid gear changes
- Consider a 'Car Share Scheme' in your community
- Cut down on air travel especially 'short haul' holidays and short breaks.

Fair Trade – think 'Fair Trade' whenever you can

- The main criteria for Fair Trade is to produce goods in a sustainable way thus minimising carbon emissions and paying third world employees a fair wage. Fair Trade is as important to us as it is for the third world. By supporting Fair Trade we are cutting down the world's carbon footprint
- Consider buying Fair Trade goods whenever you can
- Fair traders use a proportion of their profits to develop and regenerate the host communities

All the above will help us to save the planet for the next generations.

REDUCE, RE-USE, RECYCLE AND SAVE YOUR MONEY INTO THE BARGAIN!