Climate change: Copenhagen in graphics

The energy supply is the biggest source of emissions globally

**Where do greenhouse gas emissions come from?**

Which countries are most responsible for causing human-induced climate change?

And have governments pledged tough enough cuts so far to keep the global average temperature rise within "safe limits"?

As the UN summit in Copenhagen approaches, we look at the past, present and possible futures of climate change.
Growing populations and rising living standards helped drive emissions ever upwards during the second half of the 20th century. In the first years of the new century, China's emissions overtook those of the US.

Global emissions have risen steadily in recent decades.

**CLIMATE CHANGE GLOSSARY**

Select a term from the dropdown:

- Adaptation
- Annex I countries
- Annex II countries
- Anthropogenic climate change
- Atmospheric aerosols
- Bali action plan
- Bali roadmap
- Baseline for cuts
- Black carbon
- Boxer–Kerry bill
- Business as usual
- Cap and trade
- Carbon capture and storage (CCS)
- Carbon dioxide (CO2)
- Carbon dioxide (CO2) equivalent
- Carbon intensity
- Carbon leakage
- Carbon neutral
- Carbon offsetting
- Carbon sequestration
- Certified Emission Reduction (CER)
- Clean Coal Technology
- Clean Development Mechanism (CDM)
- Climate change
- CO2
- COP15
- Dangerous climate change
- Deforestation
- Emission Trading Scheme (ETS)
- EU Burden-sharing agreement
- Fossil fuels
- Geological sequestration
- Global average temperature
- Global energy budget
- Global dimming
- Global warming
- Greenhouse gases (GHGs)
- Greenhouse effect
- Hockey stick
- IPCC
- Joint implementation
- Kyoto Protocol
- Major Economies Forum on Energy and Climate
- Methane Mitigation
- Natural greenhouse effect
- Non–annex I countries
- Per–capita emissions
- Pre–industrial levels of carbon dioxide
- REDD
- Stern review
- Technology transfer
- UNFCCC
- Waxman–Markey energy bill
- Weather

**Carbon dioxide (CO2) equivalent** - Six greenhouse gases are limited by the Kyoto Protocol. Each gas...
has a different global warming potential.

The overall warming effect of this cocktail of gases is often expressed in terms of carbon dioxide equivalent - the amount of CO2 that would create the same amount of warming.

CO2 equivalent is often measured in kilotonnes (Kt) or thousands of tonnes, and gigatonnes (Gt) or billions of tonnes.

But when trying to assign "responsibility" for causing climate change, how should they be measured?

Populous developing countries such as China and India have relatively high overall emissions - comparable with many developed countries.

But each of their citizens produces a much smaller amount than counterparts in regions such as North America or Western Europe.

Countries that industrialised early and grew rich early because of that industrialisation, such as the UK, Germany and the US, have a higher "historical footprint".

In some peoples' eyes, this gives them a higher responsibility for curbing the problem.
A number of academic teams have calculated how emissions are likely to rise in the next few decades, and what that is likely to mean in terms of rising temperatures.

Copenhagen: Where they stand
What's your Copenhagen solution?

Their projections are not exact because there are many sources of uncertainty in the calculations, including the exact relationship between greenhouse gas levels and
temperature rise.

A number of developed countries and blocs have set targets for cutting their emissions, some of which depend on what other countries do.

The EU, for example, will cut emissions by 20% from 1990 levels - but if there is a global deal, that will rise to 30%.

Some developing nations have also pledged to reduce the rate at which their emissions are growing.

If implemented, are these curbs enough to keep the global average temperature rise below 2C - the target adopted by G8, the EU and a number of major developing countries?

Analysts project that if no further action is taken on emissions, man-made warming will go beyond the relative safety of 2C above pre-industrial levels.
According to the European Climate Foundation analysis - and others - commitments made so far are probably not enough to meet the G8 target.

This shortfall is one of the issues likely to be highlighted during the Copenhagen conference.