

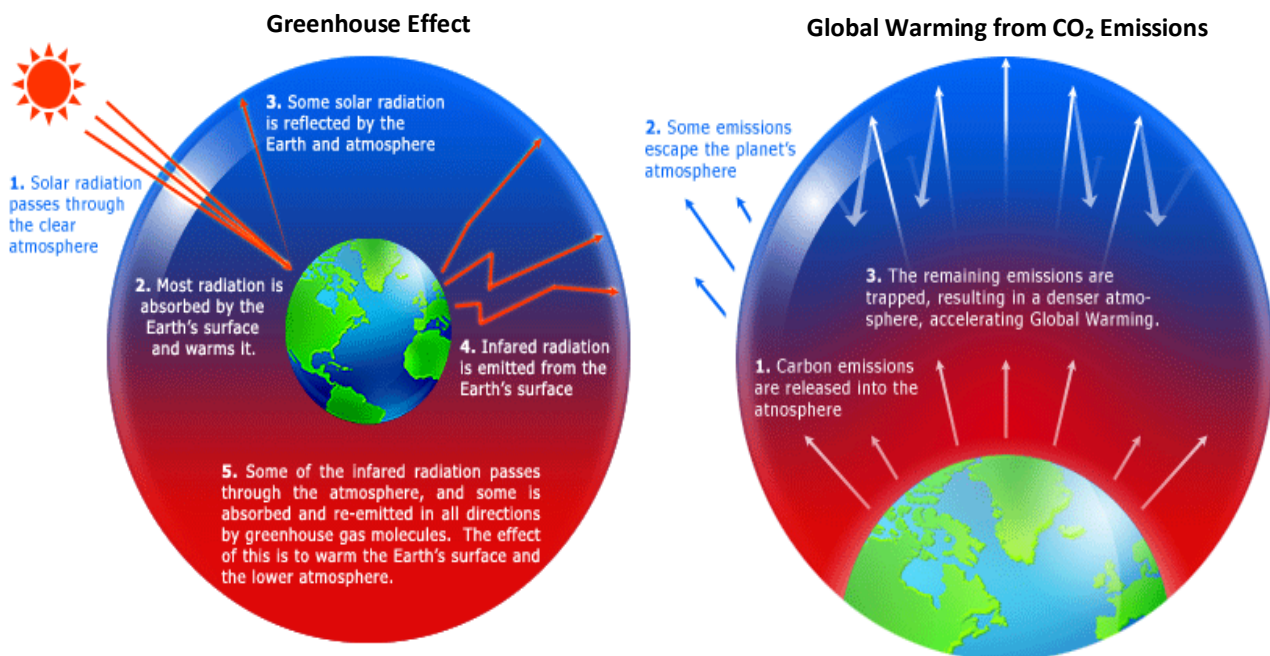
Global Warming, Climate Change, and CO₂ Emissions

The debate on global warming and the extent to which it is being compounded by human-based activity still goes on. Studies continue to validate the impact that it may have on our climate, and this makes global warming a key consideration for stakeholders in the tourism industry.

What does it mean? Global Warming in a Nutshell

The terms stems from the effects of greenhouse gases (GHGs) which act as a blanket, trapping heat from the sun within the earth's atmosphere. This is known as The 'Greenhouse Effect', which occurs because of those naturally occurring gases in the atmosphere. This in turn increases the average temperature of the earth's surface.

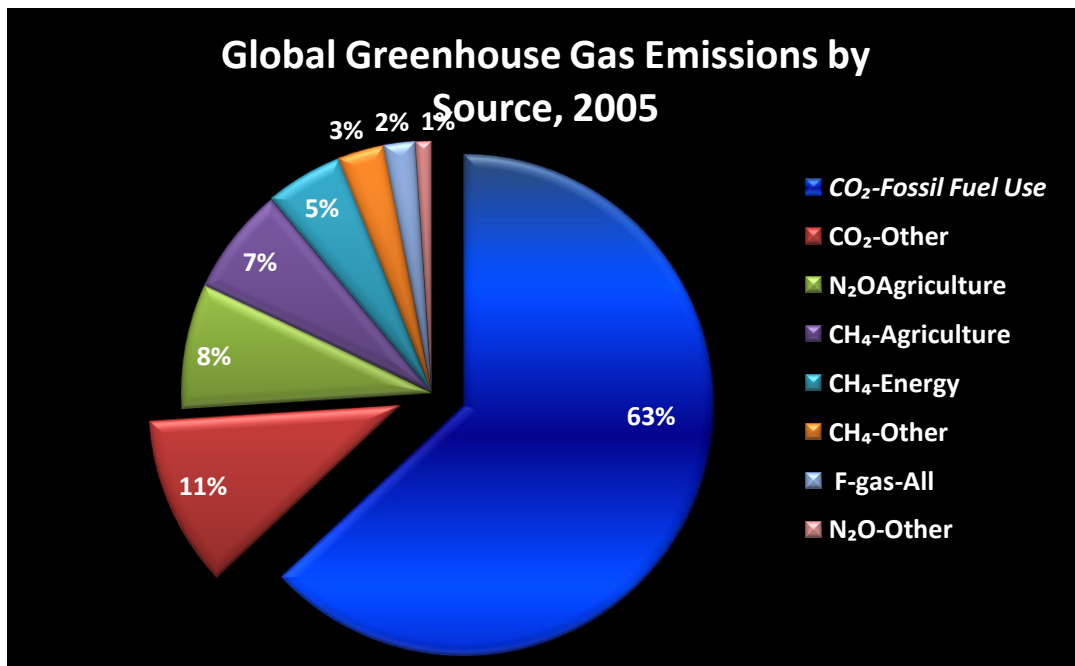
However, scientists have found from measuring the carbon dioxide (CO₂) in the earth's atmosphere, that the greenhouse effect is being accelerated by an increase of CO₂ emissions into the Earth's atmosphere, causing global warming. This has been attributed to human-based activities since periods of large-scale industrialisation, for example, burning fossil fuels for energy, transport and heating. The knock-on effects of this change in the earth's temperature on our average weather patterns are referred to as 'Climate Change.' The Intergovernmental Panel on Climate Change (IPCC) reported in 2006 that global temperatures are predicted to rise by between 1.8 and 4°C by 2100, and could be as much as 6.4°C.



Sources of Greenhouse Gas Emissions

The most important greenhouse gases are Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O) and Fluorinated Gases (F-Gases) and according to the Environmental Protection Agency (EPA), those gases are increased because of human activities. The common unit for measuring greenhouse gases is metric tons (Mt).

As detailed by the International Energy Agency in the chart below, the primary GHG emissions across each source for the year 2005 show that CO₂ emissions account for almost three-quarters of overall emissions. The burning of fossil fuels accounts for most of that figure. Other CO₂ emissions included cement production (primarily in China) and biomass burning (mostly deforestation in developing countries).



Source: International Energy Agency, 2008

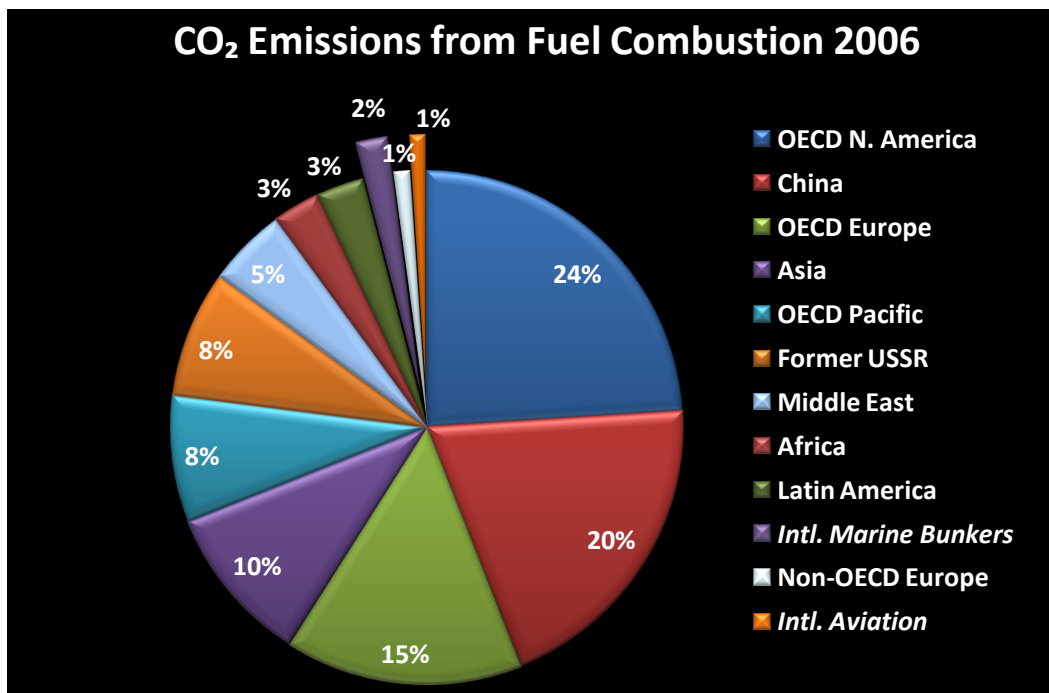
Who's Involved?

The reality is that we all are. Trends show that industrialised and highly-populated countries are the greatest contributors. This would explain why countries going through rapid development show a big increase in their percentage of CO₂ emissions. The chart below from the International Energy Agency shows the CO₂ emissions from fuel combustion. These emissions make up the majority of overall human-based CO₂ emissions. For 2006, the biggest contributors to CO₂ emissions from fuel were The Organisation for Economic Co-operation and Development (OECD) North America (including Canada, Mexico, and the United States), followed closely by China.

OECD Europe came third at 15%, and this group includes Ireland. While Ireland in its own right contributed very little to overall CO₂ emissions from fuel (0.16%), The World Bank has shown that growth in Ireland's CO₂ emissions from the period 1990-2005 has seen an increase of 38.3%. This compares poorly against an overall Euro-Zone growth of 2.2% and a world growth of 29.5% for the same period.

The chart also outlines the contentious issue of contributions to CO₂ emissions from international fuel bunkers and aviation, which are often difficult to account for on a country-by-country basis and were not included in the Kyoto Protocol. These industries account for 2% and 1% respectively – perhaps a smaller figure than we might have previously thought.

Under the Kyoto Protocol, ratifying countries agreed to reduce global carbon dioxide emissions by an average of 5.2% from 1990 levels through 2008-2012. However, as the [Little Green Data Book 2009](#) (published by The World Bank) points out, the world is far behind these targets. It reveals that global emissions have increased by 29.5% from the period 1990-2005. Over this time, there were substantial increases in contributions from India and China. This has opened up the debate that a new regulatory framework is required to address the emissions from developing countries and this will be negotiated at [United Nations Climate Change Conference \(COP 15\) in Copenhagen, 7-18](#) in December of this year.



Source: International Energy Agency, 2008

Why is this Important for Tourism?

The tourism industry has a dual relationship with the environment: it is affected by climate change but it also contributes towards it. Granted, the effects of global warming resulting in extreme climate change such as the natural disasters that have hit many tourist destinations in our recent history and the migration of plants and animals from their natural habitat makes a case for itself. But these statements can seem alarmist and extreme – part of the ‘moral crusade.’ What the facts state is that the CO₂ emissions from tourism are estimated at 5% of overall worldwide emissions. In terms of accommodation for example, the heating and cooling of buildings requires huge energy resources. Apparently, for each holiday taken, the accommodation alone accounts for 20% of the overall carbon emissions. This is just one aspect of a holiday, but considering the overall patterns of travel, climate, and environmental resources that attract tourists in the first place, the issues surrounding our environment – good or bad – cannot be overlooked.

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