



The Paris Agreement

The Paris Agreement was reached in December 2015. It represents the most recent effort on the part of the UNFCCC (United Nations Framework Convention on Climate Change) to reduce the rate of global warming. It focuses on the main cause of this warming, namely the rising emissions of greenhouse gases. In this context, the burning of fossil fuels and resulting carbon emissions are singled out for special attention.

The Run-up to the Agreement

Before looking at the Agreement in some detail, it is might helpful to set it in context. First, global warming is nothing new. Nor is global cooling. Rocks tell us that the climate of the Earth and the climates of different parts of the Earth have undergone major changes over periods of time running into millions of years. Likewise, physical and documentary evidence have made us aware of short-term, small-scale fluctuations in climate, such as the 'Little Ice Age'. However, the instrumental recording of weather, and therefore climate, dates back only to the 19th century.

Figure 1 shows what has happened to global surface temperatures since the late 19th century. It shows the rise in temperature since 1970 that has prompted the growing awareness of global warming. The graph also shows that the trend in global surface temperatures 'fits' with the broad trend in carbon dioxide concentrations in the atmosphere.

Figure 2 substantiates a second and all-important correlation, namely that between the rise in carbon emissions and the growth in global population. Together these two figures could be used to substantiate the critical point that the current global warming is being caused by people and their activities, such as the burning of fossil fuels and deforestation (i.e. anthropogenic causes).

It was the Swedish scientist Svante Arrhenius who, in 1896, first established this critical link between atmospheric carbon emissions, the greenhouse effect and rising global temperatures. But it was not until 1992 that the United Nations really began to persuade the world both of the seriousness of the threats now posed by global warming and the urgent need to tackle its anthropogenic causes. This important step involved the setting up of the United Nations Framework Convention on Climate Change (UNFCCC) at the Rio de Janeiro Summit conference.

Figure 1 Global concentrations of CO₂ & surface temperatures (1880 - 2015)

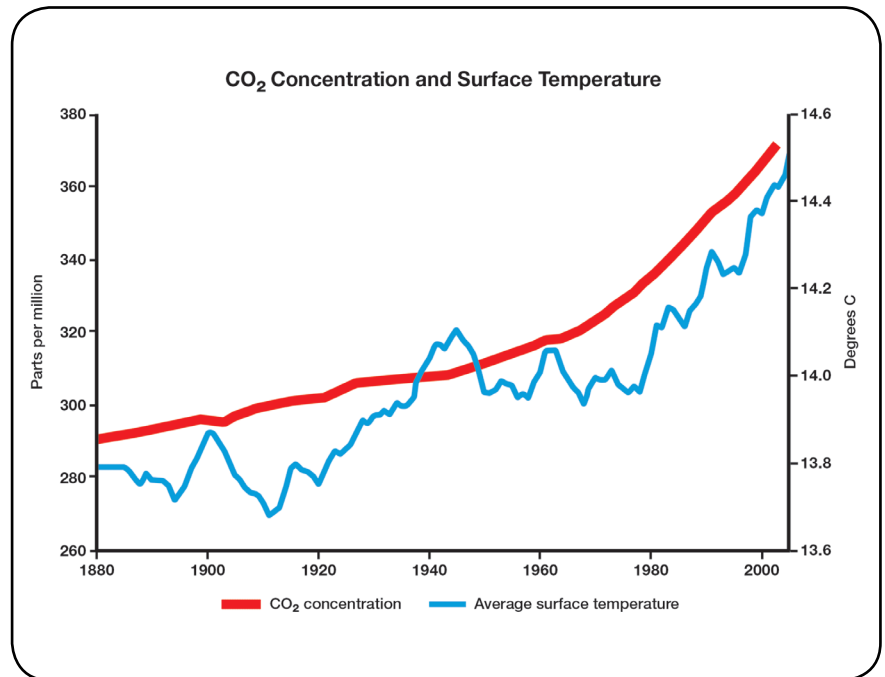
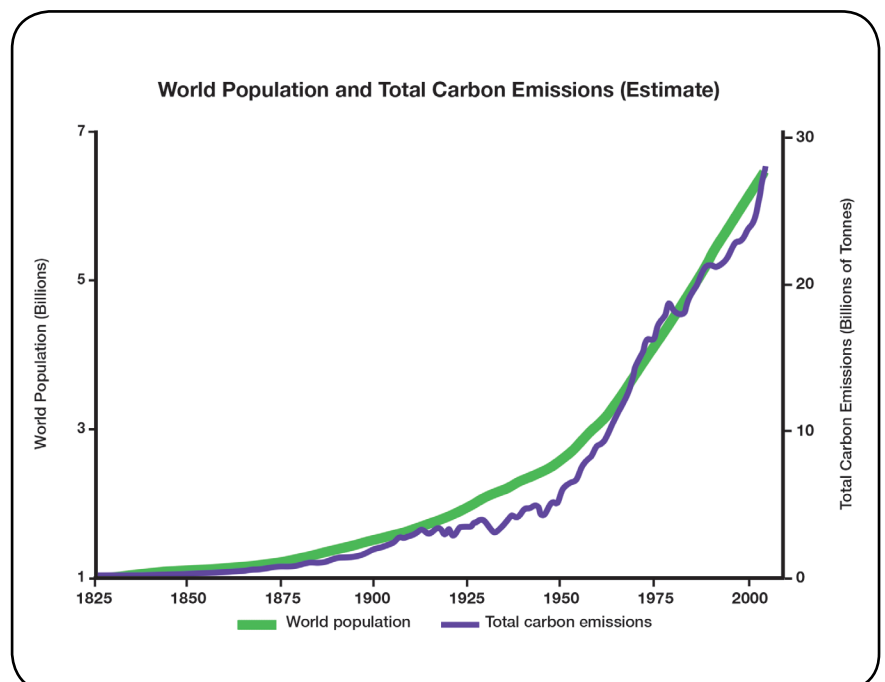


Figure 2 Global population growth & total carbon emissions 1825 - 2015)



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Setting up the UNFCCC led in 1997 to what became known as the Kyoto Protocol. This involved some 37 industrialised countries agreeing to reduce their carbon emissions by an average 5 percent below 1990 levels, for the period of 2008 to 2012. As part of this group, the UK committed to a 12.5 percent reduction in its emissions. Despite this intervention by some, but not all of the major polluters, global GHG emissions continued to rise.

In 2009, the UNFCCC duly called another climate summit meeting. This was held in Copenhagen and attended by 115 world leaders. The resulting Copenhagen Accord defined the long-term aim of limiting the maximum increase in the global average temperature to no more than 2°C above pre-industrial levels. There was however no agreement as to how this target was to be achieved. But importantly the Accord took on board the point that achieving this target would require truly global action (action not just by the developed countries).

It was another six years before the UNFCCC called yet another climate summit. This was precipitated by the work of the Intergovernmental Panel on Climate Change (IPCC), an independent organisation of environmental scientists and governments, which was providing ever increasing amounts of scientific proof of the anthropogenic factors behind climate change. The evidence was now irrefutable and of sufficient strength to persuade most of those national governments which had previously had been sceptical about the human causation of climate change. Thus, a record gathering of representatives from nearly all of the world's national government assembled in Paris late in 2015. More than 100 heads of government and 40,000 other attendees gathered in Paris to craft a global climate deal. The multiple negotiating groups and their alliances made the task extremely complex.

The Agreement

The Paris Agreement is the latest legally-binding framework for coordinating international efforts to tackle climate change. It is the outcome of six years of international negotiation under the auspices of the UNFCCC. It sets down in detail the route map and actions needed to keep global warming in check at no more than 2°C up on pre-industrial averages. The aim is that greenhouse gas emissions should peak as soon as possible and to achieve net-zero emissions in the second half of this century. All signatory governments are required to contribute to both **mitigation** (reducing the global output of greenhouse gases and increasing the size of greenhouse sinks) and **adaptation** (changing lifestyles and environments to cope with global warming). Unlike the Kyoto Protocol, the Agreement does not hand down country-specific targets for the reduction of carbon emissions. Instead all countries are required to develop their own plans of how, and by how much they propose to contribute to the mitigation of global warming. These are to be known as INDCs (Intended Nationally Determined Contributions). They are, in effect, voluntary pledges.

Table 1 gives some examples of the INDCs given by some of the more populous and more developed countries. These INDCs are to be reviewed by the UNFCCC at least once every 5 years, with the expectation that each review will show progress on the previous one. A mechanism has been created that allows countries to achieve their INDCs jointly. For example, countries may share their mitigation targets through a process of emissions trading. In all this the private sector to be encouraged to develop and share new technologies relating to reducing emissions. The Agreement was duly signed in April 2016 by 195 countries with its targets and conditions scheduled to come into effect in 2020.

Table 1 A sample of INDCs

Country/ grouping	Pledged reduction in INDC emissions	Base year (from)	Target year (to)	Population 2016 (millions)	GDP per capita 2016 (US\$)
Australia	-26 to 28%	2005	2030	24.2	49,755
Brazil	-37%	2005	2025	207.7	8,656
Canada	30%	2000	2030	36.2	42,349
China	-60%	2005	2030	1,378.7	8,213
EU-28	-40%	1990	2030	74.1	23,534
India	-33%	2005	2030	1,324.2	1,710
Japan	-26%	2005	2030	128.0	38,972
Mexico	-22%	2005	2030	127.8	8,209
Russia	-70%	1990	2030	144.3	8,748
Turkey	-21%	2012	2030	79.5	10,863
USA	- 26 to 28%	2005	2025	323.1	57,638

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Limitations and Concerns

While most of the world's governments have willingly signed the Agreement, there are growing concerns as to its ability to deliver on its targets. First, there are three related issues giving rise to concern:

- 1) Some observers wonder whether the INDC approach, essentially a bottom-up one, is the right one. How can we be sure that when totted all the individual INDCs will achieve the global targets? **Table 1** shows, for example, how variable the pledges are. Added to this, is it not possible for individual countries to 'cheat' by setting their own INDC pledges at an unfairly low level? Equally it might be argued that self-set targets are more likely to be realistic and attainable.
- 2) Even if all the individual INDCs are thought to be fair, there is the worrying clause in the Agreement stating that there will be 'a non-punitive compliance mechanism.' In other words, there will be no real punishment for those countries who fail to fulfil the terms of the Agreement (i.e. meet their self-declared INDCs). To be effective, surely the Agreement needs to be backed by a strict form of global governance with real teeth? This issue is highlighted by the subsequent behaviour of the USA. Initially it was reluctant to sign the Agreement but eventually did so. However, in June, 2017 President Trump said that the USA was withdrawing from the Agreement, then six months later was indicating that the USA might re-enter it. The vital point here is that if the Agreement is to achieve its targets, then it cannot afford to have one of the major global players blowing hot and cold. However, there is some hope in the US with many US western cities and states aiming to tackle global warming on a regional basis.
- 3) Overall, the Agreement shows an insufficiently holistic awareness of the carbon cycle. It is too concerned with reducing the burning of fossil fuels as a means of bringing about a lowering of carbon dioxide in the atmosphere. Relatively little attention is paid to the other important route to that goal, namely through an increased sequestering of carbon in forest and oceanic sinks.

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Secondly, there are a number of ‘more local’ circumstances which might possibly get in the way of achieving the Agreement’s targets. Four such examples are:

- 1) Poorer countries being unable to either develop or afford alternative sources of energy sufficient to replace their use of fossil fuels. So, there is an issue of access to technology and capital.
- 2) The Agreement makes the assumption that the wealthier countries will help the poorer ones with this much-needed capital and technology. Some may well be less willing to do this than others.
- 3) Political unrest or economic recession could well force countries to give less priority to meeting their INDC pledges.
- 4) An unwillingness on the part of more wealthy countries to make the lifestyle changes needed to achieve the INDCs, such as by reducing energy use, using public rather than private transport.

A Serious Omission

There does seem to be one very serious omission from the Paris Agreement, namely the considerable emissions that come from international transport, by sea, land and air. The UNFCCC decided that emissions from international aviation should not be included in national inventories of the Agreement. Instead, it has relied on the Kyoto Protocol (1997) which requested governments and airlines should work together through the International Civil Aviation Organisation (ICAO) to reduce emissions from the sector. The ICAO and its parties have since delayed and presided over almost two decades of inaction. In the meantime, emissions in this sector increased by over 75 percent between 1990 and 2017. This is almost double the average emissions growth rate from all other sectors of the global economy. **Figure 4** clearly shows that those emissions are set to continue increasing.

Figure 3 Comparison of CO₂ emissions from transportation

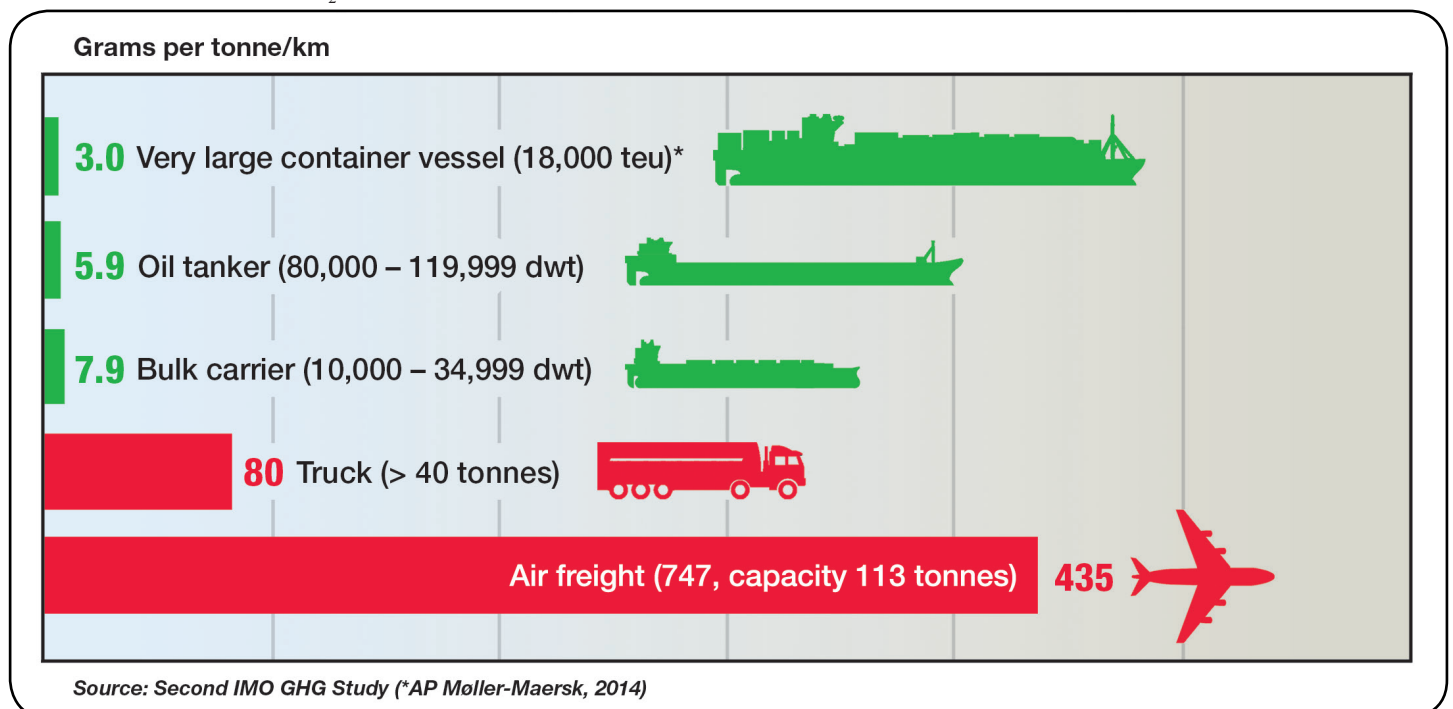
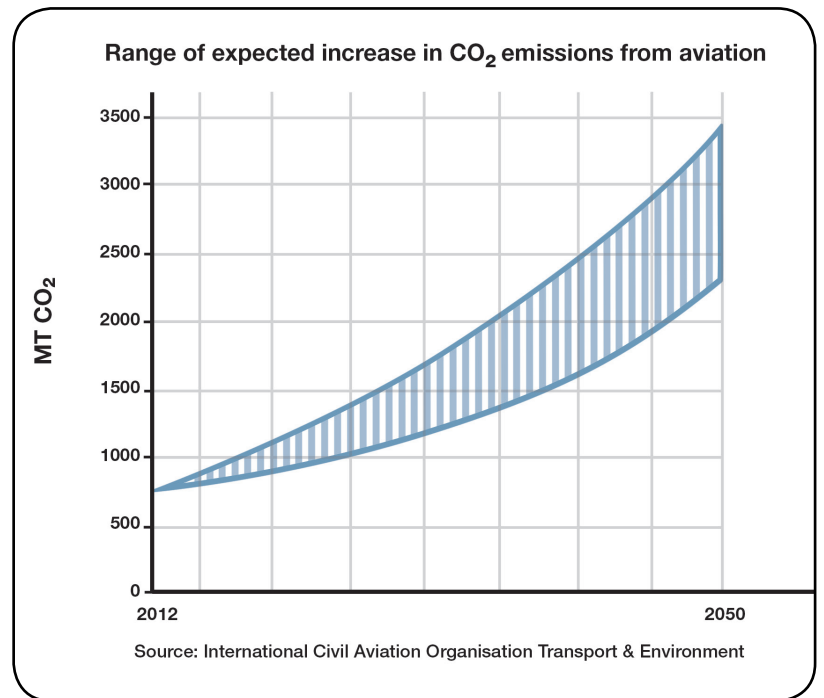


Figure 4 The increase of CO₂ emissions from civil aviation



Since the Paris Agreement, attention has turned, not to the emissions from aviation, but rather to those from shipping. Until 2017, the UN’s IPCC had estimated shipping emissions to be a maximum 400m tonnes per year. However, a draft report by a group of international scientists tasked by the UN’s International Maritime Organisation with monitoring pollution from ships shows emissions are much worse than feared. It calculates that annual emissions from the world’s merchant fleet have already reached 1.12bn tonnes of CO₂, or nearly 4.5 percent of all global emissions of the main greenhouse gas. It goes on to warn that CO₂ emissions from this sector are set to rise by a further 25 percent or more by 2020. The issue here is how is this need to reduce emissions from international shipping to be allocated between the shipping nations of the world?

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Whilst the concern about global shipping is well founded, **Figure 3** puts that particular source of pollution in context. Carbon emissions from shipping pale almost into insignificance when compared with those of air freight and to a lesser extent road freight.

One is left wondering why is not much more action being taken in these two contexts of global air and road transport?

Summing Up

There are few world leaders today who in their right minds would deny either the seriousness of global warming or its anthropogenic causes. Former US President Obama stated “no nation – large or small, wealthy or poor – is immune from the effects of climate change”. Equally there are few who would not recognise that the Paris Agreement is a well-intentioned attempt to define a pathway aimed at avoiding this looming global disaster. However, the potential of this Agreement to do just that might be questioned on five main grounds, namely that:

- It fails to set the mitigation bar at a sufficiently high level.
- Its reliance on voluntary national pledges represents too soft an approach to the challenge.
- It lacks the ‘teeth’ needed for effective implementation.
- It sweeps under the carpet the complex issue of carbon emissions from international transport.
- It may well have come too late (read the latest IPCC report on the issue).
- Global warming is a global challenge requiring global action and global governance. At this late stage, no nation should be allowed to shirk its share of the overall responsibility for ensuring that the human race does have a future on Earth.

A Postscript to the Agreement

Since the Paris Agreement, the IPCC has published a Special Report (2018) on the current state of climate change. This implies that the Agreement does ‘too little and too late’ and that the increase in global temperatures should not exceed 1.5°C rather than 2°C from pre-industrial levels. This revised temperature is now widely thought to represent the tipping point between global survival and global disaster (see *Geo Factsheet due to be published in April 2019*).

In December 2018, a Climate Change Conference (COP 24) was held in Poland (at Katowice) which is one of the world's leading coal-burning countries. This was called in order to sort out how the revised target of 1.5°C might be achieved. Speaking at the opening ceremony, Antonio Guterres, UN Secretary - General, said climate change was already “a matter of life and death” for many countries and that the world is “nowhere near where it needs to be” on the transition to a low-carbon economy.

This changing of the global temperature threshold is challenging enough as it clearly requires all countries to revise their INDCs. But the overall task is made all the more so by the threatened non-cooperation of the USA and subsequently of other significant ‘energy players’ such as Russia, Kuwait, Saudi Arabia and Brazil. Among the sticking points prolonging the Conference was how to achieve transparency in the measurement and reporting of the progress being made by individual countries in achieving their revised emission pledges. These revised INDCs now come into effect as from 2020. Related to this issue of monitoring, it was reluctantly agreed that there should be some sort of ‘rulebook’ to deal with countries that fall short in delivering their revised INDCs.

So, the key question is this: can the Paris Agreement deliver all that is now expected of it? Only time will tell, but time is rapidly running out. The omens are not good.

Questions

- 1) Assess the strengths and weaknesses of a voluntary pledges (INDCs) approach to reducing global warming.
- 2) Discuss whether or not it is right that emerging countries, such as India, Nigeria and Brazil should expect capital and technological help from developed countries?
- 3) Suggest possible ways of dealing with carbon emissions from international shipping.

Further Reading

- COP21: The key parts of the Paris Agreement: <https://unfccc.int/process-and-meetings>
- <https://www.un.org/climate-action>
- Special supplement on climate change. The Economist. November 28th 2015.
- The Climate Contest Environment Brief. Time Magazine. December 14th 2015.
- Local Government vs. Global Warming in the US. The Economist. September 15th 2018.
- IPCC report on Global Warming of 1.5°: <https://www.ipcc.ch/sr15/>
- COP24: Katowice Climate Change: <https://unfccc.int/event/cop-24/>

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