

What effect is global aviation having on the environment?

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Credit: City University London

There's no denying the positive economic and social impact that air transport has had on our global society. From making it convenient for us to travel to far-flung places and experience different cultures to enabling isolated communities to have a source of income from tourism, there have been tremendous benefits brought about by aviation. This sector is a major engine for growth—more than 10 million jobs are directly related to aviation.

That said, a natural question that begs to be asked is, "what effect is global [aviation](#) having on the environment?"

According to the Intergovernmental Panel on Climate Change (IPCC), a leading international body established by the United Nations

Environment Programme (UNEP) and the World Meteorological Organisation (WMO), [air transport](#) contributes to 4.9 per cent of human-caused climate change, including emissions of [carbon dioxide](#) and other greenhouse gases.

In a year, nine billion passengers are flown around the globe and the number is expected to only go up. In the Middle East, research by Airbus has revealed that air traffic in the Middle East will double in the next 10 years, and by 2034, the passenger fleet of airlines in this region will grow by 2365 new passenger aircraft. As the demand for air travel increases, there is now a greater need to examine ways to reduce its potential damaging effects on our planet.

A major contributor to global warming is kerosene, a fuel used to power aircraft engines, which is not only a scarce resource but also emits carbon dioxide.

Boosting sustainability

Many years ago, governing bodies and several airlines such as KLM and Lufthansa became one of the first in the industry to venture in the field of aviation environmental action. Their efforts include:

- Using new engines which take up less than half the fuel per passenger per kilometre.
- Flying aircraft with electrical engines or battery-driven aircraft.
- Promoting the widespread use of aviation biofuels, which not only work as an alternative to fossil fuel but also emit 50 to 80 per cent less carbon.

In the UAE, Masdar's Sustainable Bioenergy Research Consortium (SBRC), has been undertaking important research concerning the development of biofuel. Established in 2011 and funded by Boeing,

Etihad Airways and several other research partners, the Consortium's role is to advance the aviation industry's commitment to implementing sustainable business practices by developing technology with the promise of producing a cleaner supply of fuel. At Etihad Airways, 2012 saw the national airline of the UAE become the first Middle East carrier to use sustainable biofuel.

Legislative action

From a legislation standpoint, there have been significant developments – for example, in October 2016, 191 nations signed a landmark UN accord agreeing to achieve a 50 per cent reduction in aviation-related carbon dioxide emissions by 2050.

A further initiative to boost sustainability in aviation is through the development of a commercial model of how airlines are motivated to minimise carbon dioxide emissions. In Europe, a trading platform has been introduced whereby the airlines have entitlements to a certain amount of [carbon dioxide emission](#) and have to buy and trade further 'rights' to emit on a 'stock market'.

Combating noise pollution

When it comes to high carbon footprints brought about by air travel, airports and the surrounding infrastructure, as well, have a massive role to play. Engine noise, especially around airports is another concern for the environmental sustainability of [air travel](#). Airports are able to tackle this problem by setting up sound walls or noise barriers designed to protect against [noise pollution](#). Similarly, aircraft engine manufacturers are continuously making progress in the reduction of noise emitted from engines. This is achieved by increasing the noise-containing airstream around the actual hot and noisy explosive exhausts of each engine.

Recycling strategies

Another key focus is the reduction of waste from catering on board aircraft – the use of reusable plates and silverware is incentivised with annual awards. Repurposing of items is also an effective method to reduce unnecessary consumption of resources. For instance, at The Emirates Group, retired aircraft fittings are reused when aircraft interiors are being upgraded.

The International Civil Aviation Organisation (ICAO), the UN's specialised organisation for international civil aviation is promoting sustainability through four major initiatives: making aeroplanes quieter by setting noise standards, managing the land around airports in a sustainable way, adapting operational procedures to reduce the noise impact on the ground and introducing operational restrictions. Through the use of sustainable sources of energy, efficient technology and environmentally friendly material, it is clear that the international aviation sector is making strides in reducing its environmental footprint.

Provided by City University London

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