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Analysis of today
Assessment of tomorrow

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International air travel is not going to get greener any time soon

Chinese airlines are significantly surpassing pre-COVID-19 pandemic levels and breaking historical records for the number of passengers they carry.

With this growth in air traffic, the largest global producer of greenhouse emissions is giving no indication that it will adapt to green goals, at least when it comes to the rapidly growing aviation sector.

So far, before the end of the year, companies from China have transported slightly more than 700 million passengers, 80 million more than last year. Domestic flights accounted for the majority of this traffic, carrying about 640 million passengers, while international lines experienced particularly high growth, carrying up to 130% more passengers than in 2023.

In terms of travel, especially abroad, China has fully recovered after a three-year lockdown during the COVID-19 pandemic, and the constant growth in demand only hints at an increase in the number of travellers abroad and thus the adaptation of the airline industry to that demand.

International tourists—polluters

The carbon footprint left behind by international tourists is constantly increasing at a rate twice as high as the overall economy. Researchers from The University of Queensland examined global tourism carbon emissions and discovered an average annual growth of 3.5%, which is twice as fast as other sectors.

The tourism greenhouse emissions are approaching 10% of total industrial pollution, and the rapid growth of international travel, coupled with the slow introduction of alternative, harmless fuels, is expected to lead to increasingly negative figures in the coming years.

> Tourism came roaring back with a vengeance

"While travel halted in 2020 due to the COVID-19 pandemic, tourism came roaring back with a vengeance once the global health threat subsided, which has flooded the travel sector with even more rapid growth," said Ya-Yen Sun, professor at The University of Queensland and leader of research on drivers of global tourism carbon emissions.

The large growth of air transport in the post-pandemic period, together with the slow introduction of environmentally sustainable fuels, is changing the usual image of a sector that participates relatively little in global warming.

Improved energy efficiency, but the same carbon footprint

Global air traffic contributes about 2.5% to total carbon dioxide emissions and 4% to global warming. However, it is one of the most carbon-intensive branches of industry, so its potential to surpass other sectors in terms of negative impact on the climate over the years is increasing.

In less than 30 years, from 1990 to 2019, air transport of passengers and goods has increased four times. The pause during the pandemic had a beneficial impact on the climatic effects of this sector, as the drop in international traffic was more than 60%.

However, the return has been spectacular, as the global tourism market has grown to slightly more than 10 trillion USD in 2023, accounting for 10% of the global GDP and the same share of the global workforce.

> We used standard jet fuel in 1990 and are using the same stuff today

Strong technological progress has accompanied the aforementioned fourfold growth in civil air traffic of passengers and goods over the past three decades, leading to a more than twofold increase in energy efficiency during this time.

In 1990, one passenger consumed nearly 3 megajoules (MJ) of energy per kilometre of flight, but 30 years later, that consumption had more than halved, to 1.3 MJ.

But it did not have a positive impact on the protection of the ozone layer and climate change. "We used standard jet fuel in 1990 and are using the same stuff today. It has not gotten any cleaner. Biofuels and other alternatives are just a tiny fraction of global demand," said Hannah Ritchie, an expert on long-term changes in the environment.

Hard to reach green goals

Governments and companies place their highest hopes in reducing greenhouse emissions in the aviation sector through greater use of Sustainable Aviation Fuels (SAF), but their production of around 600 million litres in 2023 will account for only 0.2% of global jet fuel use.

Fuel suppliers will have to include 2% of Sustainable Aviation Fuels in their deliveries from next year

According to the regulation of the European Union, fuel suppliers will have to include 2% in their deliveries from next year, and each year an even higher percentage, in order to reach the level of 70% in all fuel deliveries for air carriers by 2050.

The goal seems more than ambitious, perhaps unattainable, considering that the level of application of alternative fuels in aviation is still very low.

At the same time, air traffic will continue to grow strongly in the coming years, due to increasing demand. The number of passengers will reach 5.2 billion, almost 7% more than this year, and cargo traffic will increase by about 6% and reach 72.5 million tonnes.

Long-term growth in demand, particularly in international travel, will lead to air transport increasing its share of total global carbon dioxide emissions, which has not been particularly high to date.

The trend of replacing traditional fossil fuels with ecologically sustainable ones due to their slow application does not indicate that it could compensate for the strong growth of traffic, to the extent that this sector could soon contribute to the reduction of global warming.