



Stay Grounded

Network countering aviation –
for a just transport system

A Talanoa Dialogue Submission

Recommending that the UNFCCC set policy that directly regulates aviation emissions

October 18, 2018

(format: A4 paper)

Introduction

In this Talanoa Dialogue proposal we address the extent and rapid growth of global aviation as a *keystone issue* that we believe the UNFCCC must address – directly – if the world's governments are to ensure a reasonable outcome for the climate breakdown dilemma. We are grateful to the Talanoa Dialogue conveners for this opportunity to express views that otherwise would not be heard in the COP process. At the same time we must be frank and say that our network's member organizations are disenchanted by the COP process to date and by the influence that corporations have had in the COP's resistance to the systemic change the climate dilemma demands. The Talanoa Dialogue gives us tentative hope, and we thank you for considering the perspectives that follow.

Addressing aviation is a keystone for finding a holistic climate solution *for two broad reasons*:

First, the aviation industry's greenhouse gas emissions are a major contributor to the now increasingly evident breakdown of the global climate. Because (as explained later) the aviation industry is inadequately regulated by the UN International Civil Aviation Organization (ICAO), aviation's rampant expansion and the consequent increase of its greenhouse gas emissions will largely cancel-out international progress in reducing the GHG emissions of other economic sectors.

Second, flying is emblematic¹ of a host of affluence-related impacts on the climate. Overall the highest-emitting “10% of the global population contributes more than 50% of global emissions,”² and flying is a large contributing practice. Proposing at the COP table a political framework to reverse aviation's growth would be controversial - *and that is good*. Taboo subjects such as this must be brought into social and policymaking dialogues if we are to solve the climate dilemma. We believe aviation is the best and most visible subject for beginning this.³

Through our following answers to the three Talanoa Dialogue questions we address the keystone issue of aviation's greenhouse gas emissions and recommend policies we encourage the UNFCCC to consider.

About us:

Stay Grounded is a newly organized, growing international grassroots network that campaigns to resist aviation expansion on the basis of impacts on not only our global climate but also on local civil society, such as through land-grabbing (for airport construction or expansion) and impairments of health near airports that result from noise and air and water pollution.

We are people, communities and about 80 member organisations from around the world, facing these multiple impacts of aviation. Some of us are directly affected by noise or pollution from airports and air traffic patterns. Some of us are climate justice activists and young people who want to live our lives on a healthy planet. Some of us live in communities defending our homes, farmland and ecosystems from land-grabbing for new airports, airport expansion, biofuel production or projects for offsetting aviation emissions. Some of us are academics, trade unionists and workers in the transport sector, as well as environmental and transport organisations that foster alternative modes of transport such as railways or bus/coach systems.

Terms Used

“Aviation” and “airlines” refer to the commercial or corporate transport of passengers and freight by air.

“Aviation industry” is inclusive of the entire commercial aviation industry including manufacture (and the resources consumed in manufacture); the actual transport and supply of fuels; facilities (such as airports, and passenger and freight terminals, and “aerotropolis” developments that expand beyond those other facilities); and the airlines and their marketing efforts.

“Emissions” means greenhouse gas emissions.

“GHG(s)” means greenhouse gas(es).

“ICAO” is the United Nations' international aviation regulatory body, the International Civil Aviation Organization.

1. Where are we? (The first Talanoa Dialogue question)

As the Intergovernmental Panel on Climate Change's (IPCC's) recent “Special Report on Global Warming of 1.5 °C” points out, a very dramatic decline in CO₂ emissions is necessary beginning right now and taking only about two decades. It finds that the nationally determined contributions (NDCs) submitted under the Paris Accord are inadequate, and that they “cumulatively track toward a warming of 3-4°C above preindustrial temperatures by 2100.”⁴ For this reason and others explained in this answer, in particular the reduction of aviation emissions is vitally important.

A. Aviation is causing substantial climate impacts

Commercial aviation is the most climate-damaging form of transport, far more so than the industry acknowledges. It is contributing around 5% of the adverse climate forcing that humans cause each year,⁵ an accounting that incorporates all the kinds of GHGs aircraft emit and the fact that the emissions mostly occur at high altitude where their warming effect is magnified. The GHGs include CO₂, of which aviation causes at least 2% of the global total.⁶ These two percentage numbers are more significant than it may seem because less than 10% of the world's people have ever flown,⁷ and the percentage of people who fly in a given year is far smaller than that.

In short, aviation has significant climate impacts for a single industry, both in absolute terms and in view of the tiny minority of the world's people who fly or ship goods by air. Moreover, these emissions and impacts are growing rapidly, and existing regulations at the domestic and international levels are grossly inadequate. Regulations approved or considered to date are incapable of stopping - much less reversing - the unsustainable growth of the aviation industry's emissions.

Travel and freight by air are largely discretionary, whether for business or personal purposes. A fundamental challenge posed by air travel is that its high speed allows vast distance to be covered in a short time, and it is distance that most directly relates to the emissions and the impact on climate. Flying enables travelling distances that otherwise would be considered rarely, if at all. In the absence of effective international regulation, the aviation industry does all it can to engage more people in the practice of flying, and in flying more frequently and over longer annual and lifetime distances. Of all human climate-harming activities, flying is one that for the most part is a luxury and where sacrifices must be implemented from the international level, through regulation of the industry.

B. Aviation's growth-rate and GHG emissions are high & inadequately regulated

For decades, aviation worldwide has been the fastest-growing source of GHGs emissions:

- Aviation's rate of growth has for decades been a generally consistent 4-6% annually⁸ (a doubling rate of 14-18 years), and has averaged 6.2% for the past five years.⁹ Aviation's fuel

consumption, and hence GHG emissions, is expected to be 2.7 times greater in 2040 than 2017.¹⁰ This increase will for example “more than offset reductions from electric cars.”¹¹

- In 2017, passenger air travel increased 7.6%¹² and air freight increased 9.3%,¹³ doubling rates of 9 and 8 years.
- The rate of increase of air travel and air freight is unregulated; the aviation industry and ICAO (the official UN regulator) intend this growth to continue without restriction. In fact ICAO's regulations encourage air travel and air freight volumes to grow as fast as they possibly can.
- The problem is that ICAO is a regulatory body that has been captured by the industry it regulates.
- Unfortunately, the main solutions to rising emissions currently propounded by the ICAO – offsetting and biofuels¹⁴ – are profoundly problematic and are extremely unlikely to deliver genuine reductions to emissions.¹⁵

For these reasons and others herein, we believe aviation’s “projected CO₂ emissions will be incompatible with the 2°C target,”¹⁶ much less the 1.5°C one. “There are few indications that any new technical or operational advances will start to make CO₂ cuts in real terms and across the world’s aircraft fleet that would negate the rise in CO₂ due to growth in activity. ... Unpopular as it is ... there is a clear role in aviation for demand management.”¹⁷

C. Technology will not solve aviation's emissions problem – scale is the problem

Efficiency improvements vs. aviation growth. Ever since the 1960s, the growth of aviation’s GHG emissions have outpaced gains in the fuel and emissions efficiency of aircraft, a consequence of high growth in the number of passenger-kilometers travelled. “[I]t is questionable whether [global fleet average] efficiency gains of 1.5% per year can be maintained” beyond 2020 and may decline to less than 1% per year in the 2020s.¹⁸ Gains from technology decline over time because the easy and most effective improvements to aircraft are made earlier. In fact such gains have already dropped steadily from about 5% per year in the 1960s to the present 1.5%.¹⁹ A related factor is that aircraft are long-term investments lasting several decades, so disruptive technology improvements will take a long time to be substantially incorporated into the global fleets of airliners, air freighters and business aircraft.²⁰ In contrast to the above forecasted small gains in efficiency, as discussed earlier the amount of air travel growth (measured as global passenger-kilometers per year) has consistently been 4-6% per year since the 1980s, and for the past 5 years has averaged 6.2% (an eleven-year doubling rate).²¹ Given the expected rate of efficiency improvement, this means air travel GHG emissions can be expected to grow at a rate of 3-3.5% per year, which is about a 20-year doubling rate. OPEC’s “World Oil Outlook 2040,”²² published this September, expects aviation fuel consumption, and hence emissions, to be 2.7 times higher in 2040 than now.

With electric aircraft, any large scale benefit is still unforeseeable. Electric-powered flight is not yet proven on a commercial scale and present indicators are that it likely will be feasible only for short distances and small airliners (a few tens of passengers), due to the lower energy-per-weight and energy-per-volume densities of batteries, compared to jet fuel. It will take decades for technical development and certification of electric flight and for the integration of such aircraft into fleets.²³ Because high-speed flight encourages longer-distance travel than may otherwise be undertaken²⁴ and is energy intensive, we must consider how much renewable electricity can be generated (given limitations of land, materials availability and pace of renewable energy construction) and consequently how much electric flight can reasonably be supported among other uses for electricity.

Biofuels only make matter worse. The aviation industry proposes to resort to using biofuels to absolve its large and growing size and its increasing climate impacts. The fallacy of this move is apparent from the current global biofuel production of 84 million tonnes per year²⁵ – nearly all of it for road transport – which is already causing substantial social, environmental, and climate harms leading to an on-going backlash from civil society. In comparison, ICAO's “2050 Vision for

Sustainable Biofuels,”²⁶ adopted this March, plans for an annual aviation biofuel production of 128 million tonnes in 2040, increasing to 285 million tonnes by 2050. That would supply less than half of projected aviation fuel consumption, would still contribute GHG emissions even if somewhat reduced, and the rest of the fuel volume would still be fossil kerosene. The climate, social and environmental impacts of producing even a small fraction of those quantities of biofuel would simply be unacceptable. Both direct and indirect harms caused by biofuel production are well-known,^{27,28} and include:

- land-grabbing in the global so-called South
- food price volatility and undermined food security
- increased use of synthetic fertilizers, pesticides and other agro-chemicals
- deforestation and other ecosystem damage or destruction
- indirect GHG emissions caused by land use change, including loss of vital carbon sinks.

Synthetic fuels – better than biofuels but still problematic at large scale. Electro-fuels²⁹ are technically possible. However they require significant amounts of renewable electricity to synthesize and when burnt at-altitude still contribute to the non-CO₂ warming due to the release of water vapour, NO_x and other compounds. Therefore, at best the impact of renewable synthesized electrofuel is a 50% reduction in the climate warming impact of aviation.

Conclusion – technology does not solve the aviation problem. Because technology alone falls far short of solving aviation’s climate impacts, and in the case of biofuel and electro-fuel have high impacts, it is crucial that the UNFCCC establish policy that caps at present levels and then rapidly reduces the amount of air travel and air freight. Growth in aviation is several percent more per year than efficiency improvements. The needed rapid reduction can be accomplished through a declining cap on annual jet fuel consumption or by other direct means (e.g. limiting the available slots at airports or other throughput at airports, and limiting construction of new airports) that in combination will cause a rapid emissions reduction. Those means are discussed below under Talanoa question three.

D. The present regulation of aviation growth & emissions fails under the Paris Accord

Control of aviation and its emissions is necessary at both national and international levels, and in several respects this entails consideration of equity among nations and populations and classes of people. Current policy under the UN International Civil Aviation Organisation (ICAO) appeals to using biofuels and emissions-offsetting tactics; but neither of these approaches directly reduce emissions from planes, and both are environmentally and morally problematic.

The complete ineffectiveness of current policy to reduce emissions, the total absence of any serious policy to reduce emissions, and the inequitable climate impacts caused by aviation's growth are reflective of the ICAO having been captured by aviation interests. As such, the ICAO is unsuitable as an independent agency to regulate the aviation industry's emissions and growth. We discuss what UNFCCC can do about this below under Talanoa question three.

E. A matter of equity: the need for UNFCCC to directly regulate aviation

It is estimated that less than 10% of the global population have ever set foot on an aircraft.³⁰ Even in developed nations, less than half of the population flies in a given year. This means that, due to both climate impacts and those small numbers of flyers, it is mostly non-flyers who bear the brunt of: (1) aviation's contribution to the climate crisis; (2) the negative humanitarian and climate impacts of airport construction and expansion (impairment of carbon sinks; land-grabbing and community displacement) that rampant growth in aviation is causing; and (3) health issues involving noise and non-GHG pollution near increasingly busy airports.

F. Social factors are key concerning aviation's excessive & growing emissions

Aviation is emblematic of the socially-constructed ‘soft denial’³¹ of climate breakdown and inequity; flying is extremely carbon-intensive and the privilege of a generally affluent global minority (<10% of the global population). Concerted action by the UNFCCC to dramatically limit aviation’s overall emissions in line with the Paris Accord would have significant direct benefit for the climate and therefore everyone globally. Equally important, because flying is commonly tied to the personal identity of an individual who flies,³² the shock of learning about the need for a policy that directly or indirectly reduces the ability to fly (frequency and/or distance) *will have a knock-on effect* in gaining among many of these affluent people an acquiescence to the need – voluntarily or through additional policy – for the quick reduction of other (non-aviation) high-emitting practices.

G. Factors we have not considered

Our answers to the Talanoa Dialogue questions do not consider military aviation and its GHG emissions because the data are scarce and incomplete. Nonetheless, emissions from military aviation are likely significant, unchecked and virtually ignored. We recommend that the UNFCCC request the International Panel on Climate Change (IPCC) to seek this data and report back.

2. Where do we want to go? (The second Talanoa Dialogue question)

The “Where are we?” section identified the severity of the aviation emissions problem, and why this is a *keystone issue* for ensuring a reasonable outcome from the climate breakdown the world is undergoing. The section also established that ICAO’s regulation of aviation’s GHG emissions is grossly inadequate, and demonstrates the urgent need for the UNFCCC to take over that responsibility itself, through policy made by accord.

This urgent need is for UNFCCC to establish a regulatory framework that will directly restrict (not “offset”) aviation’s emissions, ensuring that they will be swiftly reduced consistent with the objectives of the Paris Accord to hold global temperature rise to well-below 2°C and if possible below 1.5°C. The aviation emissions policy must be equitable among nations and provide for this equity to improve over time. This matter of equity is particularly important for some developing countries, such as small island developing states (SIDS), which are geographically isolated and depend on aviation for their transport and food imports.

In support of people’s need for mobility and the needs of the travel industry, the policy should explicitly favour non-flight transport modes for intercity travel and other long-distance travel, as well as encourage within-region holidays as an alternative to long-distance travel. The favoured modes should be ones that have low or zero GHG emissions and which operate at speeds which do not encourage traveling excessive distances.

3. How do we get there? (The third Talanoa Dialogue question)

A. The world needs a UNFCCC accord that directly regulates aviation emissions

As noted in our answer to the first Talanoa question, the IPCC’s recent “Special Report on Global Warming of 1.5 °C” dramatically points out the need to reduce GHG emissions to nil over a timeframe of two decades. It finds that the cumulative contribution of national commitments toward climate change mitigation are inadequate and are likely to lead to a temperature rise of 3-4 °C by the end of this century, unless seriously improved.³³ As a high-emissions practice that is largely a luxury and which collectively has a significant climate impact, flying can and should be cut back. Reductions of aviation emissions, through direct regulation implemented without delay, is vitally important.

Here, we suggest a direct and straightforward means for reducing aviation emissions which we believe merits being added to on-going international policy considerations. Our suggestion is for UNFCCC to create policy that regulates the annual allowed production of aircraft fuel, with fuel distribution to be allocated by ICAO. Although matters concerning aircraft fuel for international

flights are presently controlled through article 24 of the 1944 Chicago Convention on International Civil Aviation,³⁴ we believe it is feasible for UNFCCC to supplant those controls with new ones, because UNFCCC adopts its policies through international accord. We raise the following points in support of new policy:

- It is crucial that the UNFCCC, by accord, *cap at the present level* the worldwide amount of jet fuel the aviation industry may use annually and at the same time *set an explicit schedule* for the rapid reduction of the allowed annual amount. (We don't suggest a schedule here, leaving that to international discussion and policymaking.) This policy removes authority from ICAO to regulate the aviation industry's climate-impacting emissions, other than working to develop and implement improved aircraft and flight-operations technologies.
- As part of the above by-accord policy, ICAO should be assigned the task of allocating the capped annual jet fuel consumption among nations, which can then distribute their annual allocations among airlines and owners of business and private aircraft. This fits the role for which ICAO was created (setting rules for internal function of the industry internationally), and removes the newer role for which it is ill-suited (regulating the industry's own overall impact on the climate) and for which it has a fundamental conflict of interest. Direction to ICAO should be to distribute fuels for equitable air transport service among nations.
- The term "jet fuel" is used here to encompass both fossil-sourced kerosene and biofuels. The reduction schedule could provide separate amounts for fossil fuel and biofuel. If so, it should take into account limitations that should be placed on biofuel use in consideration of: (1) what other economic sectors need such fuels; and (2) matters of environmental, social and equity impacts of producing such fuels (discussed above in section 1.C).

Other means of reducing aviation emissions that the UNFCCC should consider addressing in policies are:

- Limit the construction or expansion of airports;
- Limit the number of aircraft "slots" at airports;
- Place a high tax on aviation fuel;
- High and progressive taxation of airline tickets (such as a Frequent Flyer Levy, for instance);
- Ban air travel advertisement (similar to bans on tobacco advertisement in some nations), to reduce demand;
- Ban frequent flyer programmes, with a short phase-out period for using already acquired "miles," to reduce demand.

B. The world needs a UNFCCC accord that encourages sensible forms of mobility.

In addition to directly reducing aviation emissions, such as through policy suggested above, it is important for the UNFCCC to adopt policy that diverts travel demand from flying to modes of travel that are compatible with net-zero climate emissions, such as these policies:

- Eliminate anti-competitive subsidies that presently favour high-emission forms of transport such as aviation, so that low emission forms of transport will instead be favoured in the marketplace.
- A key need is to end the enormous indirect subsidy caused by not taxing aviation fuel internationally.

4. Conclusion

We believe the analysis and recommendations presented in this submission are cogent and that they provide realistic - even if challenging - solutions to aviation's enormous and growing contribution to the existential threat of climate breakdown.

We recognise that our approach and recommendations may be viewed as being outside of mainstream policy discussion. We contend, though, that they are now ripe for serious deliberation at the COP table. Allowing, even tacitly, the continued growth of aviation and its emissions is irreconcilable with the critically dangerous climate breakdown situation.

The extent to which growth in aviation and growth in its carbon emissions can be decoupled from each other is extremely limited and fundamentally insufficient. All potential regulations of aviation that are easily implemented *are easy precisely because they are ineffective* and therefore garner little resistance from the industry or vested interests. The world can no longer afford ineffective measures. We, as a global society, must take the more difficult policy path that will *directly confront the problem and correct it with certainty*. We urge the UNFCCC to set us on this path without delay by deliberating on and acting on our recommendations. And we thank you for the opportunity to participate in the Talanoa Dialogue.

Respectfully submitted,

Stay Grounded – an international network

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End Notes

¹ See response by climate scientist Kevin Anderson, fwd from question made 24:39, in a panel discussion following his talk, "Universities and Climate Change - Part of the problem or solution?" on 4 July 2017, sponsored by CEMUS in Sweden. Recording: <https://www.youtube.com/watch?v=v6fLarIV2AI>.

² "Making our collective response to climate change more equitable." C40 Blog, 4/6/2018. https://www.c40.org/blog_posts/making-our-collective-response-to-climate-change-more-equitable. Moreover, a UK gov't study found that 15% of adults took 70% of flights. FullFact, 24 Nov. 2016. <https://fullfact.org/economy/do-15-people-take-70-flights/>

³ Gossling & Cohen (2014), at 23-24: "[I]n touching taboos there [] is potentiality to re-order, even though this may require overcoming psychological barriers both on the side of those touching taboos and those holding taboos sacred. ... [O]vercoming taboos will be fraught with difficulty; yet, without overcoming taboos, significant sustainable transport policies on a broader scale are unlikely to emerge." <https://epubs.surrey.ac.uk/805807/22/Gossling%20%26%20Cohen%202014.pdf>

⁴ IPCC SR1.5 at 1-11. http://report.ipcc.ch/sr15/pdf/sr15_chapter1.pdf

⁵ Hemmings (2018). "Aviation: 2 to 3 times more damaging to the climate than industry claims." Transport & Environment. 6 Feb 2018. <https://www.transportenvironment.org/news/aviation-2-3-times-more-damaging-climate-industry-claims>

⁶ Grewe (2018). "Climate Impact of Aviation CO2 and non-CO2 effects and examples for mitigation options". Presentation. https://www.transportenvironment.org/sites/te/files/Climate%20impact%20of%20aviation%20CO2%20and%20non-CO2%20effects_Volker%20Grewe.pdf

⁷ Scott et al. (2012): Tourism and Climate Change: Impacts, Adaptation and Mitigation (p.109), citing Worldwatch Inst. (2008): Vital Signs 2006-2007 (<http://www.worldwatch.org/node/4346>). "Yet only 5 percent of the world's population has ever flown," (p. 68). This estimate is old, but the most recent, so we use a conservative "10%".

⁸ OPEC (2018). World Oil Outlook 2040, p.143. <https://woo.opec.org/pdf-download>

⁹ Boeing (2017). "Current market outlook: 2017-2036", p.7. <http://www.boeing.com/resources/boeingdotcom/commercial/market/current-market-outlook-2017/assets/downloads/cmo-2017-10-20.pdf>

¹⁰ OPEC (2018) (*supra*), p.145.

¹¹ Analysis of OPEC (2018) reported in: The Guardian (21 Sept 2018), "Opec predicts massive rise in oil production over next five years: Increasing demand from airlines will more than offset reductions from electric cars". <https://amp.theguardian.com/business/2018/sep/23/opec-predicts-massive-rise-in-oil-production-over-next-five-years>

¹² Travel Mole (1 Feb 2018). "Air travel growth smashes 10-year average". http://www.travelmole.com/news_feature.php?news_id=2030884

¹³ Aviation Week & Space Technology (10 Dec 2018). "Booming E-Commerce Sector Drives Air Cargo Demand". <http://aviationweek.com/commercial-aviation/booming-e-commerce-sector-drives-air-cargo-demand>

¹⁴ ICAO also works on regulations involving efficiency and emissions; however, the scope for improvement in these areas is limited as we discuss in section 1.C.

¹⁵ Heuwieser (2017). "The illusion of green flying." Finance & Trade Watch, Vienna. http://www.ftwatch.at/flying_green/

¹⁶ Bows-Larkin et al. 2016, "Aviation and climate change: The continuing challenge", <https://onlinelibrary.wiley.com/doi/10.1002/9780470686652.eae1031>, in: "Encyclopedia of Aerospace Engineering", 2016. p.2

¹⁷ *Id.*, p.8.

¹⁸ Peeters et al. 2016, "Are technology myths stalling aviation climate policy?". Transportation Research Part D: Transport and Environment. 44:pp.30-42. <http://www.sciencedirect.com/science/article/pii/S1361920916000158>

¹⁹ *Id.*

²⁰ Bows-Larkin et al. 2016 (*supra*).

²¹ Boeing 2018, "Current Market Outlook, 2017-20136". <https://www.boeing.com/resources/boeingdotcom/commercial/market/current-market-outlook-2017/assets/downloads/cmo-2018-3-20.pdf>

²² OPEC (2018). (*supra*).

²³ Royal Aeronautical Soc. (2017). "Can easyJet shor circuit airliner flight?". <https://www.aerosociety.com/news/can-easyjet-short-circuit-electric-airliner-flight/>

²⁴ Dickinson, J.E. et al. (2013). "Understanding temporal rhythms and travel behaviour at destinations: potential ways to achieve more sustainable travel." JrnI Sust. Tourism. 21(7), 1070-1090. p.1. <http://eprints.bournemouth.ac.uk/21154/1/Dickinson%20et%20al%202014%20JOST.pdf>

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- ²⁵ BP (2018). "BP Statistical Review of World Energy June 2018", p.45.
<https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review/bp-stats-review-2018-full-report.pdf>
- ²⁶ ICAO (proposed 2017, adopted 2018). "2050 Vision for Sustainable Aviation Fuels".
<https://www.icao.int/Meetings/CAAF2/Documents/CAAF.2.WP.013.4.en.pdf>. Note that we consider the name of this policy document to be greenwash; aviation biofuels are anything but sustainable, and the policy gives some fossil-origin aviation kerosene a sustainable label - absolutely unjustified.
- ²⁷ Open letter to ICAO signed by 96 civil society organizations, 6 Oct 2017.
<http://www.biofuelwatch.org.uk/2017/aviation-biofuels-open-letter/>
- ²⁸ Ecofys et al. (2014). "The land use change impact of biofuels consumed in the EU: Quantification of area and greenhouse gas impacts".
https://ec.europa.eu/energy/sites/ener/files/documents/Final%20Report_GLOBIOM_publication.pdf
- ²⁹ Explanation of electro-fuels: <https://en.wikipedia.org/wiki/Electrofuel>
- ³⁰ See endnote 7.
- ³¹ Hoexter (2016). "Living in the Web of Soft Climate Denial." *New Econ. Perspectives*, 7 Sept 2016.
<http://neweconomicperspectives.org/2016/09/living-web-soft-climate-denial.html>
- ³² Hibbert J.F. et al. (2013). "Identity and tourism mobility: an exploration of the attitude-behaviour gap." In: *Jrnl Sust. Tourism 2014 book: "Understanding & Governing Sustainable Tourism Mobility"* (Cohen et al., eds.), 21:7:pp.999-1016.
https://www.researchgate.net/profile/Susanna_Curtin/publication/271940921_Identity_and_tourism_mobility_An_exploration_of_the_attitude-behaviour_gap/
- ³³ IPCC SR1.5 at 1-11. http://report.ipcc.ch/sr15/pdf/sr15_chapter1.pdf
- ³⁴ 1944 Chicago Convention:
https://en.wikipedia.org/wiki/Chicago_Convention_on_International_Civil_Aviation

https://unfccc.int/sites/default/files/resource/295_Stay%20Grounded%20submission%20to%20Talanoa%20Dialogue_%28Final%29_18-Oct-2018.pdf

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WHO publishes new recommendations on noise, with potential implications for airport operators

In October, the World Health Organisation (WHO) published the Environmental Noise Guidelines for the European Region, a document providing recommendations to policy-makers on how to reduce health risks related to noise exposure from various sources. For the first time, the WHO established source-specific guidelines, including the suggested limitation of average noise exposure from aircraft to Lden 45dB and night exposure to Lnight 40dB. It also recommends changes to infrastructure, including opening and/or closure of runways and flight path rearrangements, to reach these values. The three recommendations are defined as “strong”, which means that they are considered applicable as policy in most situations. Report by ACI EUROPE’s Head of Environmental Strategy & Intermodality, Marina Bylinsky.

The publication of the WHO Guidelines is an occasion for the air transport sector to take stock of how aviation noise management has evolved over the past decades, what the outstanding challenges are and for us, at ACI EUROPE, to point out how European airports see the way forward.

We all know the good part of the story: aircraft have become quieter and quieter; the average noise footprint of an aircraft has decreased by 75% since the introduction of the first jet airliners. New operational procedures offer unprecedented flexibility to fly aircraft in ways that minimise the noise exposure of local communities. However, something seems to have gone wrong: in spite of decreasing noise exposure at many airports, an increasing number of residents feel annoyed about it. And complaints do not only come from residents living close to the airport. Opposition to airport operations and development is growing in many locations.



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In recent years, this development has shed a completely new light on noise management. Airports are increasingly aware of the fact that managing noise is actually not just about... noise. Apart from the acoustic parameters, such as the noise created by an aircraft movement or the frequency of such events,

an increasing body of research has identified how so-called “non-acoustic factors” have a strong impact on the way people perceive noise. After all, whether a sound is perceived as unwanted and disturbing and becomes noise, depends on many subjective variables. Noise at a low volume can be irritating and stressful. Equally, sound you love can be bad for your health, by damaging your hearing if played at too high a volume. Experts from within and beyond the airport industry are in the process of better understanding what non-acoustic factors are and how they can be addressed to minimise the annoyance people experience from overflying aircraft. It is however already recognised that aspects such as the trust that residents have in the airport operator or authorities in general, and the quality of communication between them, are of key importance.

A lack of trust and a negative attitude towards the airport can stem from the feeling of some residents that they are not benefitting from the positive impacts of the airport’s activities, and only experience its negative impacts. They perceive their situation as unfair. Hence the need for airports to not only reduce noise, but also proactively seek ways to bring more value to local communities, and involve them in identifying how this can be best achieved. However, today we lack scientific knowledge to comprehensively assess quality of life around airports and identify the means for an airport operator to improve it. We are also struggling to find the right words and metrics to communicate about such a complex topic as noise. This and other research needs are part of a dedicated ACI EUROPE Airport Noise Research Roadmap, completed by the ACI EUROPE Noise Task Force earlier this year. Moving forward, the question of maximising the added value provided by airports to local communities is also going to be addressed in the broader context of the upcoming ACI EUROPE Sustainability Strategy, to be announced in June next year.



A detailed overview of the achievements and challenges of airport noise management, as well as concerns with regard to the WHO Guidelines, is available in the ACI EUROPE Analysis Paper Addressing the Future of Aviation Noise. Photo credit: Brussels Airport Company

What does this mean when we consider the new WHO Guidelines? We believe that they do not fully reflect the complexity of the way people perceive noise and consequently, the ways to mitigate it. As an example, just consider the relocation of a runway, which is one of the recommended measures – it would inevitably expose new communities to aircraft noise. Even if it helped achieve noise levels within the limits recommended by the WHO, many of the newly impacted residents are likely to be annoyed and oppose the project.

Furthermore, the recommendations for aircraft noise are very strict – at most European airports, to reach the guideline values of Lden 45dB and Lnight 40dB, infrastructure changes would actually be insufficient. Instead, very severe limitations of air traffic, including a night flight ban, would potentially be required.

We do not question the need to protect citizens from health risks and recognise that certain levels of noise are undesirable and need to be avoided, regardless of the non-acoustic aspects of noise annoyance. We also welcome any research on noise and health and the work done by the WHO in this area. However, we believe that given the potential implications of the new guidelines on mobility and related services that our modern societies rely on, the discussion on their potential implementation needs to be considered in a broader context. We cannot talk about acceptable noise levels in isolation from the question of different pathways for the development of our societies as a whole. In light of the growing emphasis of travel as part of ‘experiential living’ beloved of millennials, boomers and Generation Z, it is time for critical discussion on the growing mobility needs of our societies and the environmental impacts of transportation – a discussion that takes into account all the positive and negative impacts of mobility.

Noise related policy-making should not prejudge the outcomes of such a comprehensive discussion.

A more detailed overview of the achievements and challenges of airport noise management, as well as our concerns with regard to the WHO Guidelines, is available in the ACI EUROPE Analysis Paper *Addressing the Future of Aviation Noise*.



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CCC concludes there is limited scope for biofuels for aviation – even that not without risks

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The Committee on Climate Change (CCC) has been looking at the future role of biomass, to try to cut the UK's CO2 emissions. In their report they look at how much biofuel the UK aviation sector should be expecting to use by 2050. The AEF has been assessing the CCC report, and say the UK aviation sector cannot rely on biofuel use to offset CO2 emissions growth. Only limited supply of sustainable biomass is likely to be available in future, and it should be used carefully to tackle climate change. The CCC warns that too much hope of biofuel use in future could delay or discourage work on other ways of reducing emissions (i.e. fuel efficiency and limiting demand for flying).” The CCC advises that we shouldn't plan for aviation biofuel to exceed 10% of total aviation fuel use by 2050. More would risk diverting sustainable biomass from more carbon efficient uses, such as timber for construction, or industrial uses when combined with Carbon Capture and Storage (CCS). CO2 released by aircraft in flight cannot be captured. Significant emissions are associated with the manufacture of aviation biofuel from biomass. The CCC says CCS must be used in this biofuel manufacture, or otherwise producing and burning aviation biofuel could result in even higher emissions than simply burning fossil fuels.

Limited scope for biofuels to cut aviation emissions, concludes CCC

News from the AEF (Aviation Environment Federation)
Nov 16 2018

The UK aviation sector cannot rely on biofuel use to offset emissions growth, new analysis from the Committee on Climate Change suggests in its report on biomass in a low carbon economy, published yesterday.

The report considers the limited supply of sustainable biomass likely to be available in future and how this should best be used to tackle climate change.

While “some use of aviation biofuels may be desirable”, the report finds, “planning for high use of biofuel in aviation that does not materialise would risk diluting incentives for other ways of reducing emissions (i.e. fuel efficiency and limiting demand for flying).”

Specifically, the CCC advises that we shouldn't plan for aviation biofuel to exceed 10% of total aviation fuel use by 2050. Any more than this, they argue, would risk diverting sustainable biomass from more carbon efficient uses, such as timber for construction, or industrial uses when combined with Carbon Capture and Storage (CCS).

While it is not possible to capture the CO2 released by aircraft in flight, significant emissions are associated even with the manufacture of aviation biofuel, and to the extent that biomass is used for aviation, it essential that CCS technology is used in fuel production process. **Producing and burning aviation biofuel without CCS technology could result in higher emissions than simply burning fossil fuels.**

Biomass should only be directed towards aviation at significant scale if three key tests are met, the report argues:

1. Overall levels of abatement from producing and using aviation biofuels must be equal to or better than other biomass best-use applications (see chart above)
2. Aviation biofuel production plants should be genuinely 'CCS ready', and
3. Biomass use in aviation beyond 10% uptake should be used to reduce emissions below 2005 levels, not as a substitute for other options.

The recommendation is at odds with figures from those advocating for very high levels of biofuel in aviation. The UK industry coalition Sustainable Aviation, for example, which brings together manufacturers, airports, airlines, and air navigation service providers, has long maintained that "sustainable aviation fuel" could plausibly represent 25-40% of global aviation fuel by 2050. And with growing recognition of the challenge posed by aviation in the context of achieving net zero emissions in the coming decades, a [recent draft paper](#) from the Energy Transitions Commission argued for a move towards 100% biofuel for aviation in order to decarbonise the sector.

The CCC maintains its longstanding recommendations that aviation CO2 emissions should, by 2050, be no higher than they were in 2005 (37.5 Mt), and that given the likely reductions in the carbon intensity of flying (including from new technology and fuels), this allows for no more than a 60% growth in passenger numbers during that period. Current government forecasts for aviation are that demand will grow by 80% by 2050, and that emissions will reach around 40 Mt, overshooting the 37.5 Mt planning assumption.

The importance of land use emissions

Meanwhile a [separate CCC report](#), also published yesterday, argues for "fundamental changes" in land use. Subsidies currently given to farmers under the Common Agricultural Policy should instead be directed at climate mitigation and adaption through measures such as tree planting and the restoration of peatlands, CCC argues. Around 18 Mt CO2e is emitted annually from UK peatlands that have been degraded over time as a result of moor burning for grouse shooting, agriculture and peat extraction for horticulture. The "rewetting" of peatland could prevent 4-11 Mt of CO2 being emitted annually.

Heathrow Airport announced recently that it is investing in a peatland restoration pilot project in Lancashire. If successful, the airport hopes further investment will help it offset the emissions from some of the flights from a third runway. But today's report shows that peatland restoration is clearly considered by the CCC not to represent an alternative to action on aviation emissions, but as necessary in parallel to meet the UK's climate commitments. And if this is true even under the Climate Change Act as it stands, it seems very likely that there will be even less room for any growth in aviation emissions under a more stringent UK target in line with the ambitious temperature goal of the Paris Agreement.

What's next?

The CCC will be publishing a more detailed report on land use next year, as well as an update to its [2009 advice on aviation](#), including a review of its passenger growth and emissions reduction recommendations for the sector. Around the same time, the Committee will publish its advice to the Governments of England, Scotland and Wales on: when the UK should reach net zero emissions; if that target should be set now; the implications for emissions in 2050; and how such reductions can be achieved.

On 30th October CCC launched a [call for evidence](#) in relation to this 'net zero' report, including on how both low-carbon technologies and behaviour change can be used to help reduce emissions close to zero in difficult sectors such as aviation. Responses are invited by 7th December.

<http://www.airportwatch.org.uk/2018/11/ccc-concludes-there-is-limited-scope-for-biofuels-for-aviation-even-that-not-without-risks/?fbclid=IwAR2Eu7zO2y0T5y4bWq3yMw8Y63exft1Lmea-WmwJbmvzizHcerDily6BXEs>