

DEGROWTH OF AVIATION

REDUCING AIR TRAVEL IN A JUST WAY





We are happy to receive donations for this report.
You can order the print version by writing to:

office@kollektiv-periskop.org
(Please note that Stay Grounded
cannot cover the shipping costs).

Download the PDF:

<https://stay-grounded.org/report-degrowth-of-aviation/>

Published by:

Stay Grounded / Kollektiv Periskop
c/o GLOBAL 2000
Neustiftgasse 36
1070 Wien, Austria

Contact: info@stay-grounded.org

Bank account:

Periskop – Kollektiv
IBAN: AT49 1420 0200 1098 0039
BIC: EASYATW1
Bank: Easy Bank
Purpose: Stay Grounded Donation
For donations from outside Europe see:
<https://stay-grounded.org/donate>

Editor: Tone Smith

Co-Authors: Adrian Haßler, Chandni Dwarkasing, Elli Reckmann, Filka Sekulova, Francois Schneider, Irene Iniesta-Arandia, Larry Edwards, Laura Machler, Matthias Schmelzer, Manuel Grebenjak, Magdalena Heuwieser, Nuria Blázquez Sánchez, Rose Bridger, Sara Mingorría

Lectorship: Abbey Marra

Illustrations: Judith Holzer

Layout: Judith Holzer & Sebastian Schäfer

Print: Pachnicke, Germany

Release: December 2019

The work of Stay Grounded and this report
has been supported by:



Published in cooperation with Rosa-Luxemburg-Stiftung Brussels.
Funded by the German Federal Ministry for Economic Cooperation and Development

Table of Content

Introduction	1
1. Reducing Emissions from Aviation = Reducing Aviation	3
2. Eliminating Tax Exemptions: Kerosene & Ticket Tax, VAT & Carbon Tax	9
3. Making Excessive Flyers Pay: Frequent Flyer Levy & Air Miles Levy	13
4. Setting Limits on Flights	16
5. Red Line for Airports: Moratoria on New Infrastructure, and Scaling Down of Airports	18
6. Fostering Alternatives	24
7. Institutional Change of Travel Policies	31
8. Other Means for Reducing Aviation	35
9. Bringing It All Together. A Summary	41
Literature	45

Info Boxes

Info Box 1: Stay Grounded	2
Info Box 2: Climate Justice	5
Info Box 3: Tourism and Aviation - A Combined Problem	8
Info Box 4: Envisioning Long-Distance Travel Beyond Aviation	28
Info Box 5: Emissions Offsetting - A Modern Sale of Indulgence	34

Diagrams

Diagram 1: Climate Impact of Different Modes of Transport	4
Diagram 2: Average Fuel Excise/Carbon Tax	12
Diagram 3: Aviation Related Conflicts	21
Diagram 4: Degrowth of Aviation - Cluster of Different Measures	48

INTRODUCTION

In July 2019, the Stay Grounded Network met in Barcelona to discuss how to counter the massive growth in the aviation sector. A new movement for degrowing aviation and fostering climate justice was born. The results of the conference and further discussions fed into this report, outlining numerous measures to reduce air travel in a just way.

Flying has become increasingly cheaper in recent decades, allowing increasing numbers of people to make flying part of their lifestyle. Still, less than 10% of the world's population has ever been on a plane.¹ Avoiding an unmanageable climate crisis will require unprecedented efforts to cut fossil fuel use in half in less than 15 years and eliminate their use almost entirely in 30 years.² Meanwhile, the aviation industry is planning for a massive expansion. Current or planned measures do not address the root of the problem, which is the growth of the aviation sector. Rather, they shift the discussion away from the fact that we need to radically reduce aviation, especially in countries of the Global North. This is a necessary step to reach a just and ecological mobility system (see **Info Box 2**).

While it is key to point out the pitfalls and disadvantages of the current 'green growth' attempts, there has not been enough investigation about strategies to degrow aviation. What are the necessary steps for the social-ecological transformation? What advantages do the different measures have, and which obstacles and problems might they involve? Do they really bring about more justice? Is one strategy best, or is it necessary to implement a combination of measures? With those questions arising in the growing movement questioning aviation, the Stay Grounded Network (see **Info Box 1**) organised an international conference on *Degrowth of Aviation* in Barcelona in July 2019. For three days, about 150 participants from over 15 countries explored, discussed and mobilised on these issues without a single flight taken, since people from far away had the possibility to join online. Choosing Barcelona for the conference venue was not a coincidence. Barcelona is a city with rising opposition to both airport expansion and mass tourism. Involving organisations that work actively to reduce not only flying, but also tourism, allowed for a fruitful interaction of these two movements. Most participants at the conference had a background in climate justice movements, initiatives against airports and noise, or groups fostering alternatives, and many of them

work in NGOs, universities or trade unions. It was quite a unique moment to gather as a new movement for degrowing aviation and fostering climate justice.

The main part of the conference was spent discussing measures that could help to reduce aviation in seven parallel working groups: taxes, frequent flyer and air miles levies, limits of short-haul flights, moratoria on airports, institutional travel policy changes, alternatives to aviation, and degrowth of tourism. The results of the conference fed into this report. However, at the conference, it was impossible to cover all potential measures. Some remaining approaches are therefore briefly treated in chapter 8 of this report. Some of the measures not covered in the conference (including emissions trading, offsetting, biofuels, synthetic fuels and improvements in engine efficiency) were excluded from the outset as being unjust, creating more problems than they solve, or not having the capacity to bring about the needed systemic changes (see **chapter 1**).

Several core questions accompanied the discussions in the working groups:

- What role can price instruments play when trying to degrow aviation? What kind of taxation system would be socially just?
- Where do we need regulatory instruments like limits to the numbers of flights, moratoria on airport projects or closing certain airports? Should we even consider banning flights on certain (shorter) routes? Could such regulatory instruments be added to taxation mechanisms?
- Does it make more sense to work bottom-up (individual behaviour change, voluntary changes of travel policies, grassroots pressure from below) or top-down (policy changes)? How can they play together in order to achieve systemic change?

- What alternatives to flying exist and what is needed to improve them?
- What role does tourism play in the discussion about degrowth of aviation? Do we need caps on tourism, and if yes, how will that work?

Some of the discussed measures might work within the current economic system. Some of them might challenge its foundations. Some measures touch upon the question of whether individual liberty should be restricted at the point where it violates the liberty of others. Measures must include considerations about the differences between countries in the Global North and the Global South, and what kind of role international agreements and solutions must play. Currently, international aviation politics is dominated by the lobby of the aviation industry who will never support strategies for limiting or degrowing aviation. However, degrowing aviation is the only way to sufficiently cut its emissions. Therefore, the grassroots and civil society movements will have to push for the solutions needed to reach a just and climate friendly mobility system. The more concrete we can imagine a just and environmentally sound future, the more likely change will occur (see **Info Box 4**).

With the conference and with this report, the Stay Grounded Network aims to fill the gap and incentivise more discussions about possible steps and visions. However, the report is not a manifesto or a readymade strategy. All of the presented measures have their advantages and disadvantages. The following report is merely a contribution to the discussion, knowing that it would be fatal to rely on politicians who do not grasp the urgency of radical change in the transport sector, or an industry which will never voluntarily give up its privileges and power. We hope the report can feed into academic research and civil society campaigns. In particular, we hope it provides useful arguments for those campaigning for a degrowth of aviation.

We wish you an interesting and inspiring read!

¹ Scott et al. (2012)

² IPCC (2018)

i

INFO BOX 1: STAY GROUNDED

Stay Grounded is a global network consisting of more than 150 member organisations. These include local airport opposition initiatives, climate justice groups, NGOs, trade unions, academics, groups fostering alternatives to flying, and organisations that support communities struggling against on-the-ground offsetting projects or biofuel plantations. The network started to form in 2016, the year in which a very weak global strategy to target aviation's climate impact (CORSIA) was launched (see **chapter 1**):

At different airports around the world, protests were organised simultaneously, and it became clear that building alliances is hugely important in order to exchange experiences, support each other, come out of the shadows and involve more stakeholders. It showed that local airport struggles (often framed as 'not in my backyard' conflicts) are not single cases, but that they are connected with the massive growth of aviation, the unfair subsidies of its industry and the proposal of false solutions like offsetting and agrofuels.

A modal shift of mobility can only be achieved by involving more and more groups and individuals to build pressure from below both locally and on a bigger scale by resisting, transforming and creating alternatives. In 2018, the network went public with a website, another series of global coordinated airport actions, and a position paper defining *13 Steps to Rapidly Reduce Aviation and to Build a Just Transport System*. This paper is being supported by more than 200 organisations.

Find out more at: www.stay-grounded.org

1. REDUCING EMISSIONS FROM AVIATION = REDUCING AVIATION

Berlin - Brussels, a very common route. But policy makers, lobbyists and tourists all travel by plane. It is normal, and there is no good alternative. One initiative is demanding the reopening of a night train between those cities, which would be 200 times more climate friendly.¹ Sometimes, degrowth of aviation could be as easy as that. Sometimes it might be more complicated. The fact is that green flights are and will continue to be an illusion, and there is no other way forward than reducing aviation.

Aviation is the mode of transport with the biggest climate impact by far (see **Diagram 2**). Yet, air travel is growing faster than any other sector. While global CO₂ emissions increased by an estimated 25% from 1990 to 2010, the CO₂ emissions from international aviation rose by more than 70% in the same period.² Within the European Union, as elsewhere, emissions from aviation grew more rapidly than those from other sectors of the economy.³ If it was up to the industry, this trend would continue: the number of aircrafts and the number of passenger-kilometres flown is expected to double over the next 20 years. This entails more than 1,000 infrastructure projects around the world and many associated conflicts (see **Diagram 3**). The international aviation industry anticipates annual growth of 4.3% throughout the next decades.⁴ This could cause greenhouse gas emissions from aviation to increase four to eightfold by 2050.⁵

How have such enormous growth rates been possible? One reason is that the costs of air travel are 60% lower today than they were in 1970. Costs have been cut through low-cost carriers, wage dumping, efficiency gains, and,

above all, sector deregulation from the 1980s onwards.⁶ States massively subsidise the industry: aviation kerosene is the only fossil fuel apart from maritime heavy oil that is usually not taxed. Many governments abstain from levying value-added tax on tickets and property tax on airports. In the European Union alone, the losses in state revenue due to the subsidies to the aviation sector amount to 30 to 40 billion euro annually.⁷ Also, aircraft manufacturers and airlines benefit from major subsidies.⁸ Everyone—including those who do not fly—pays for these subsidies, ensuring that the mode of transport of the better-off remains cheap.

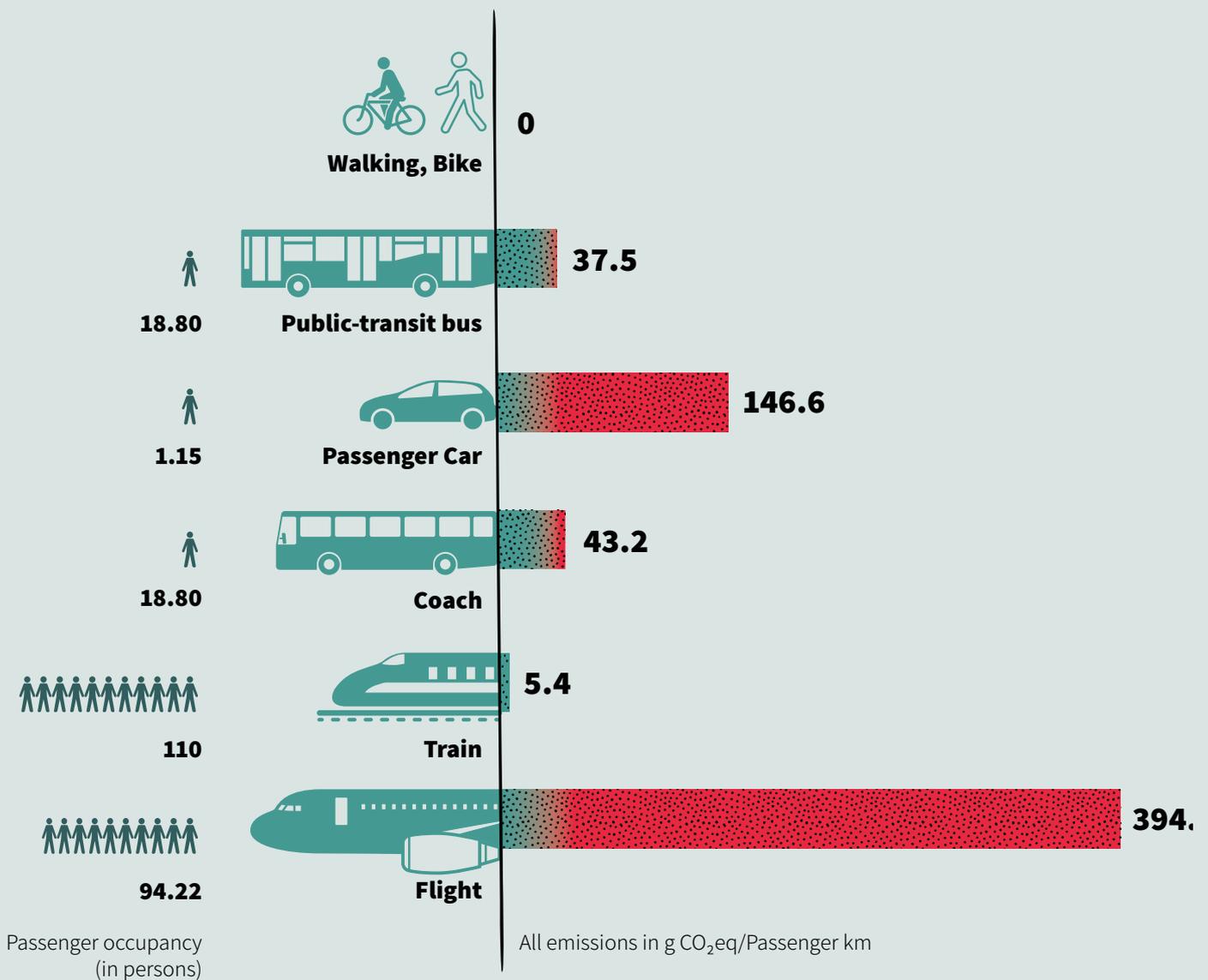
Industry representatives like to point out that emissions from aviation account for only 2% of global CO₂ emissions, and that international flights account for only 1.3%, but they conveniently omit several facts:

First of all, the share of emissions from the aviation sector is increasing rapidly. In a report to the European Parliament, the research organisation Öko-Institut warned in 2015 that CO₂ emissions from international aviation may

Diagram 1: Climate Impact of Different Modes of Transport

Source: UBA Austria 2019

The data refer to Austria (as of 2017). They are calculated taking into account average passenger occupancy in each mode of transport. The Austrian Environment Agency uses a factor of 2.7 to account for the non-CO₂ related climate impacts of aviation. The emission factors are shown per person and per kilometre. They do not show that the climate impact also depends upon the route and altitude of a flight. Short-distance flights are particularly harmful per unit of distance travelled since the emissions of the kerosene-intensive climb are disproportionately high. Still: the longer the flight, the greater the impact.



reach a share of 22% of global emissions by 2050.⁹ An even larger share is probable for the aviation industry in other countries: projections for the United Kingdom indicate that if the goal of limiting global warming to 1.5 degrees is taken seriously, and the controversial expansion of London's Heathrow Airport continues, aviation will consume up to 71% of the country's available CO₂ budget in 2050.¹⁰ Secondly, aviation's contributions to climate change are not just a matter of CO₂. If other factors contributing to climate change are taken into account—such as induced cloudiness, ozone, contrails, water vapour and soot—aviation's contribution to human-induced climate change doubles at the very least. A 2005 estimate stated that civil aviation's climate impact amounted to around 5% (see more about accounting for emissions in **chapter 8**).¹¹ Thirdly, only a small number of (frequent) air travellers are responsible for this 5%, since most of the world's population has never set foot on an airplane (see **Info Box 2**). Finally, one should also keep in mind that these figures only cover civil aviation—but there is limited information on emissions from military aviation available (see **chapter 8**).

The impacts of aviation also go beyond climate change. The extraction and transport of the fuels needed contribute to the broader environmental crisis through degradation of ecosystems, geopolitical conflicts and wars. Huge amounts of materials, such as metals and cement, will be consumed if the plans to build hundreds of airports and double the fleet of civil aircraft over the next 20 years, from 21,633 to 43,560, are carried out.¹²

Unfortunately, that is not all: people living near airports are exposed to higher health risks. High blood pressure and heart disease are some of the effects associated with aircraft noise and high particulate levels in ambient air,¹³ and additional airports and runways will degrade ever more habitats of people, animals and plants. At the same time, the economic impacts on host regions are not always positive. Negative examples include transport infrastructure and hotel chains displacing small shops and farmers, while real estate prices rise.¹⁴ Water reserves dwindle under the dual pressure of climate crisis and tourism. While landfills grow, the local culture becomes an attraction and a commodity.¹⁵ This all leads to mounting protests in regions inundated by mass tourism (see **Info Box 3**).

GREEN FLYING IS AN ILLUSION

In response to the growing critique, the aviation industry and the UN agency ICAO (International Civil Aviation Organisation) have announced their intention to make international aviation greener in the future. The proclaimed goal is *carbon neutral growth* from 2020 onwards, defined in the program CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation). It consists of mainly two elements: first, efficiency improvements and new technologies (like



INFO BOX 2: CLIMATE JUSTICE

Air traffic is a major obstacle to climate justice. While it might seem normal to fly in countries of the Global North, this 'normality' has only existed in the last two decades, and is only reserved for the privileged. Worldwide, less than 10% of the population has ever taken a flight. Flying is at the core of an 'imperial mode of living',¹ a form of production and consumption that is only possible because it is at the expense of others: residents exposed to noise and particle pollution from planes, local ecosystems, future generations and those in the Global South who are already bearing the brunt of the impacts of climate change. People do not enjoy this lifestyle out of malice or ignorance, but because it has been ingrained in the institutions and infrastructures that surround us. Such conditioning is hard to overcome, especially because the effects of such a lifestyle are not obvious.

The term 'environmental justice' aims to show that environmental problems are closely connected with society, that nature is a part of us and we are a part of it. What we do to nature, we do to our livelihood, or rather to the livelihood of others. The social movements for Environmental and Climate Justice demand an end to how we have been treating our environment and society.

Climate Justice means that the Global North and the global wealthy are now responsible for a larger share of the effort to combat the climate crisis and to mitigate the consequences. This includes financial payments for liability and redress. Funds for this could be raised by imposing a levy on frequent flyers and other harmful activities. But climate justice is more than a monetary or legal process. Achieving Climate Justice requires societies to prioritise a 'good life for all' above 'a better life for the few'. This includes justice among all—now and for future generations. It also implies the struggle against all forms of discrimination based on gender, origin, 'race', class, religion, or sexual orientation. And finally, Climate Justice means that people from the Global South have a right to resist neo-colonial climate policies like geo-engineering, biofuels and offsetting (see **Info Box 5**). It is not an option to continue flying and paying others in the Global South (where such measures are cheaper) to repair the problem by planting trees or being excluded from their forests.

¹ Brand and Wissen (2018)

,green fuels'), and second, carbon offsetting. In addition to international aviation, this strategy can also be recognised at airport and airline level, as well as in almost any climate sector.

The goal of technological fixes

Future technical improvements for aircraft and operations have been identified, and should continue to be researched. One example is how slightly changed flight

paths might reduce the creation of contrails.¹⁶ However, these attempts will be insufficient to overcome aviation's emissions problems: Step-changes in aviation technology are uncertain and will not come into effect until decades from now, which the industry admits.¹⁷ Lifting a huge engine into the air is simply much more energy intensive and complicated than moving a vehicle on the ground. For example, electric flying is not possible for passenger or freight engines because of the weight of batteries. The forecasted efficiency gains in fuel use are far exceeded by historic, current and planned growth rates of air travel and air freight.

One main greening strategy is the push for alternative aviation fuels: On the one hand, biofuels made from plants like palm oil are being fostered by the industry. However, this could drive a massive increase in deforestation and peat drainage and thereby cause vast carbon emissions. In order to avoid this and associated land grabbing, human rights violations and loss of food sovereignty, resistance to biofuels needs to be prioritised. Synthetic fuels made from electricity (Power to Liquid) are technically feasible,¹⁸ but they would have to be produced using surplus renewable energy, and we are a long way from even producing enough renewables for transport on the ground, agricultural production and heating. Aiming for unrestricted growth of renewables can also lead to immense problems, be it large hydroelectric dams causing biodiversity loss, or neo-colonial mega solar or wind parks on indigenous territory in the Global South.

Offsetting instead of reducing emissions

As technological solutions are limited, the ICAO climate strategy relies almost entirely on offsetting carbon. Instead of reducing emissions, airlines can offset them by buying carbon credits from others – like reforestation projects or hydro-electric dams that claim to lead to emissions savings. Airports often try to legitimise their destruction of ecosystems by offsetting the biodiversity loss. The study *The Illusion of Green Flying*¹⁹ demonstrates the many short-falls and problems associated with offsets and concludes that they serve as a cheap licence to continue polluting. Simultaneously, offsetting—besides often being subjected to fraud and strange calculations—has shown to have many perverse effects, especially in the Global South, including land grabbing, displacement of local communities, and more (see **Info Box 5**).

All in all, the minor efficiency gains and emissions savings delivered by the aviation industry's own measures will not prevent the massive rise in emissions that the envisaged growth rates will produce. For decades to come, 'decarbonised' air traffic or 'carbon neutral growth' will therefore remain an illusion. Instead, the mounting demand for biofuels, energy and offsetting credits represents a serious risk. The result might be amplified injustice, new ecological problems and conflicts, which is why climate justice can only go along with a reduction of energy use and aviation.

DEGROWTH: WHAT IS IT AND WHY IS IT NECESSARY FOR AVIATION?

The debate surrounding environmental problems induced by aviation and flying suffers from many of the same myths as the general discourse on green policy: it avoids the issues of reduction in activity or consumption levels, and puts all hopes into technical solutions in combination with economic instruments to 'correct prices'. However, as ecological economists have long pointed out, emissions are pervasive because all production processes require material and energy inputs, producing emissions and waste products as an outcome.²⁰ None of the technological solutions suggested by the aviation industry can change this. This understanding of biophysical reality, and of the biophysical basis of the economy, is central to the idea of degrowth.

At the same time, degrowth is about much more than just a simple decrease in consumption, living standards or material throughput of the economy. The concept also encompasses a critique of the whole modern culture of development, that is, a belief that more is always better. A core concept is *sufficiency*. Degrowth is a movement that questions growth-society and searches for ideas and practices about what might constitute a good life and a good society, without aiming to prescribe any specific solutions. Diversity and a plethora of approaches are envisioned.²¹

The concept of 'degrowth' (*décroissance*) was born in France in the 1970s as a cultural critical parallel to the more technocratic *Limits to Growth*-debate taking place internationally. 'Degrowth' as a concept was born at a time when international development aid was taking off, and the Western, individualist and consumerist lifestyle was heavily promoted as a modern ideal in developing countries. Today, it must be understood first and foremost as a project for a radical social-ecological transformation.²²

The discussion around degrowth of aviation encompasses two things: the simple and basic message of reduced flying to reduce environmental impacts, and at the same time, a questioning of the modern cultural-economic model in which flying and hypermobile, busy lifestyles have become the norm, both privately and at work. Thus, discussing degrowth of aviation must include more than simple measures to reduce the immediate emissions from aviation. To address the problem on a larger scale, there is a requirement to challenge and reconsider the wider development and economic model of which it is a part.

BEYOND FALSE SOLUTIONS

Having outlined the impossibility of green flying and the need instead for a reduction of aviation, if the measures are to have any effect on climate change, we will now discuss different alternative measures in detail, including how to implement effective action. If the proposals from

the aviation industry itself are not convincing, then what are the strategies or measures that could work to reduce aviation? There need to be – and there are already – alternative paths, as highlighted by initiatives that tackle the causes of climate change at their roots and seek effective climate action. Many suggestions already exist, but need to be examined in detail. What we need is debate and implementation of measures that have an actual effect in terms of reducing the problems we are facing. This was one of the purposes of the conference in Barcelona in 2019.

The next chapters describe in-depth a range of measures that can be much more effective than the ones proposed by ICAO. Knowing that there are no magic solutions, the chapters discuss the pros and cons of each policy in terms of its effect on emissions reductions, its feasibility of being introduced, as well as its possible contribution to broader systemic change, including social justice.

FURTHER READING

Stay Grounded (2017). *The Illusion of Green Flying*.
<https://stay-grounded.org/green-flying>

Fatheuer, T. , L. Fuhr and B. Unmüßig (2016). *Inside the Green Economy*.
<https://www.boell.de/en/dossier-inside-the-green-economy>

Peeters et al. (2016). *Are Technology Myths Stalling Aviation Climate Policy*.
https://www.researchgate.net/profile/Scott_Cohen10/publication/296632724_Are_technology_myths_stalling_aviation_climate_policy

Demaria, F. et al. (2013). What is Degrowth? From an Activist Slogan to a Social Movement. In: *Environmental Values* 22 (2), pp. 191-216. <https://www.ingentaconnect.com/content/whp/ev/2013/00000022/00000002/art00005>

-
- ¹ Tagesspiel (2019)
 - ² Öko-Institut (2015: 12)
 - ³ EEA (2019)
 - ⁴ ATAG (2016: 18), ICCT (2017: 1)
 - ⁵ European Commission (2017)
 - ⁶ ATAG (2016: 22)
 - ⁷ Korteland and Faber (2013)
 - ⁸ Gössling et al. (2017)
 - ⁹ Öko-Institut (2015: 28)
 - ¹⁰ Carbon Brief (2016)
 - ¹¹ Fahey and Lee (2016)
 - ¹² ATAG (2016: 66)
 - ¹³ Schlenker and Walder (2016)
 - ¹⁴ Bridger (2015)
 - ¹⁵ The Guardian (2017), TWN (2017)
 - ¹⁶ Mannstein (2019)
 - ¹⁷ Heinrich-Böll-Stiftung (2016), Der Standard (2019)
 - ¹⁸ Malins (2017)
 - ¹⁹ Stay Grounded (2017)
 - ²⁰ Spash and Smith (2019)
 - ²¹ See e.g. Kallis et al. (2015) or Demaria et al. (2013)
 - ²² Muraca (2013)



Penguins, being "cool birds that stay on the ground", block a hallway at the Tegel Airport in Berlin in November 2019. See <https://tinyurl.com/sldzmlr>
 Photo credits: Leonhard Lenz



INFO BOX 3: TOURISM AND AVIATION— A COMBINED PROBLEM

Expansion of aviation and the massive growth in tourism are closely linked. In 2018, more than half of all international plane travels were related to tourism.¹ Tourism as a whole is a trillion-dollar industry growing at an annual rate of 3-5%²—and so is its environmental impact which is already significant.³ The carbon footprint of the sector grew from 3.9 to 4.5 Gt CO₂ between 2009 and 2013, representing 8% of global greenhouse gas emissions.⁴ Transportation makes up the largest part of tourism's carbon footprint. Apart from its impact on climate change, tourism also negatively affects the local environment in terms of degradation of biodiversity, soil health, water availability and quality, and high levels of noise.

Tourism is sold as a product which allows people to displace themselves from one location to the other, while offering the 'comfort' to stay in their own bubble. Tourism often serves as a means to escape the workplace and stressful routine, to quickly relax in order to be fit for work again. The tourist industry has become increasingly efficient at pre-packaging this experience for its customers. Instead of getting to know the world, tourists book the cheapest flight or flight-hotel packages, most often to mass tourism destinations, including all-inclusive mega resorts. It is socially accepted to forget the fact that tourists are visiting a space where local people live their daily lives. The profit-motive has transformed and is transforming local environments from being 'attractive to live in' to 'comfortable for tourists'. This often leads to displacement of local residents from beaches, forests, cities and other public spaces. Even seemingly individual low-budget trips with Airbnb can cause detrimental impacts in the housing market.

Barcelona—the host of the 2019 *Degrowth of Aviation Conference*—represents a sad illustration of both the environmental and social consequences of tourism and its exponential growth. The growth of tourism in Barcelona cannot be explained without the expansion of high-speed transport infrastructure—both train and aviation—making Barcelona one of the main tourist destinations in the Mediterranean. Up to 82% of tourists in Barcelona arrive by plane.⁵ Moreover, the port of Barcelona attracts a large amount of cruise ships and ranks highest in Europe by number of passengers (about 2.7 million in 2018). The municipality of Barcelona registered 31 million overnight stays and 23 million visitors in 2016,⁶ an increase of more than 800% since 1990. The Stay Grounded Coalition in Barcelona identified some of the impacts in a joint statement. Gentrification, a result of real-estate speculation and Airbnb, makes it hard for local

citizens to find affordable housing. Low-income groups are forced out of the city and their neighbourhoods, leading to long ways to work, and are often unproportionally exposed to high levels of airport noise and pollution. Gentrification further results in the substitution of local commerce.

On the Balearic Islands, which served as a huge Spanish 'laboratory tourist experiment' starting in the 1950's⁷ and since been exported elsewhere in Spain, the impacts of an economic model relying exclusively on tourism is increasingly felt and questioned. Affordable housing has decreased while precarious jobs have increased. Serious water scarcity is looming and the natural landscape has been destroyed or degraded. In a manifesto titled *Without limits there is no future*, a multitude of regional organisations called for a reshaping of tourism and for a diversification of the economy, for sustainability and more local democracy, and more specifically, for slowing down and stopping large infrastructure projects.⁸

In the Global South, tourism is often linked to displacement of local communities, labour precariousness and poor working conditions. It has been argued that tourism functions as a placebo by failing the promises of bringing 'development' and social well-being to local communities.⁹ The image of tourism as a sustainable form of development must therefore be questioned, along with the more general concept of 'development'.¹⁰ In the end, the issue boils down to how a community can *live from tourism* instead of *letting tourism live from it*. So while it might be clear that tourism needs to take place with fewer flights, there is also a need to both reshape tourism and to reduce tourism overall (see **chapter 6**.)

¹ DGAC (2017), UNWTO (2019)

² UNWTO (2016), World Travel & Tourism Council (2017)

³ Gössling (2002)

⁴ Lenzen et al. (2018)

⁵ Rico (2019)

⁶ Ajuntament de Barcelona (2017)

⁷ Buades (2006)

⁸ *Without limits there is no future* (2006)

⁹ Blázquez Salom and Cañada (2011)

¹⁰ Konstantinus (2018)

2.

ELIMINATING TAX EXEMPTIONS: KEROSENE & TICKET TAX, VAT & CARBON TAX

Flying is virtually tax-free in large parts of the world despite the massive cost aviation causes to the environment and society. While most forms of transport are subject to excise duty, value added tax, and other levies, flying continues to be subsidised with dozens of billions of euro every year through tax exemptions. This chapter will discuss the potential of taxation as an instrument to curb flight traffic, and strategic pathways to achieve this in practice.

For historical reasons, aviation has enjoyed tax benefits that are exceptional compared to other areas of society.¹ This can partly be attributed to the international character of aviation as opposed to the national character of taxation. The 1944 Chicago Convention was the foundational international agreement on aviation, seeking to facilitate and expand aviation. It prohibits the imposition of taxes on fuel already onboard an aircraft when it lands. Over time, this convention gave rise to the practice of exempting all aviation fuel from both taxation (excise duty) and value added tax (VAT), sometimes formalised through bilateral air service/transport agreements. This principle has been upheld in cross-border aviation (if not at the domestic level) to this day. It is important to note that the Chicago Convention does not explicitly prohibit the taxation of all aviation fuel—that is a widespread misconception. The Convention as such only applies to fuel that is already on board at landing, but says nothing about fuel taken on board before departure.²

Introducing adequate taxation in the aviation sector on par with other modes of transport could effectively reduce demand, while generating significant revenue streams

that could be directed towards more sustainable modes of transport. Such taxation could take several forms. Some commonly proposed taxes include: a tax on kerosene comparable to other fuels, the collection of VAT, a general and economy-wide carbon tax, and ticket taxes (passenger taxes) that can be varied according to distance travelled or other factors. The revenues of such taxes depend on many factors. A recent study commissioned by the European Commission³ estimates that introducing a kerosene tax (at 0.33 €/litre) in Europe would generate €17bn in fiscal revenue, while VAT (at 19%) would raise €30bn Europe-wide. It is estimated that due to the increase in cost of flying, such a kerosene tax would reduce CO₂ emissions by 11%, while VAT (at 19%) would do so by 18%.

The landscape of existing aviation taxation is fragmented. About a dozen countries collect a kerosene tax (excise duty) for domestic flights, including the United States, Canada, Australia and Japan. Tax rates are usually very low, such as 0.01€/litre in the US and 0.02€/litre in Australia. In comparison, the agreed minimum for a kerosene tax in Europe—if it were introduced—would be significantly higher, at 0.33 €/litre following the EU Energy Tax

Directive. While no EU member state collects a kerosene tax for domestic flights at this point, the majority raise VAT at effective rates ranging from 3% (Luxembourg) up to 27% (Hungary) of the ticket price.⁴

Given the constraints on collecting a kerosene tax and VAT in cross-border aviation (see above), taxes on international connections are usually levied as ticket taxes, i.e. as a fixed amount per passenger and departure. Such ticket taxes exist in many countries, including a number of EU states. They are often progressive with regard to distance and class, and generally range from below 1 euro (Thailand, all international flights) to more than 170 euro (UK, long distance, any class above lowest).

In light of this fragmented landscape, the best way to compare the aviation tax rates among nations is to use the overall tax rate of each, which combines the various kinds of taxes applied to flights in a given country. This overall tax rate can be calculated as a weighted average for domestic and international flights, taking into account both the difference in taxation and passenger numbers between the two. Such a comparison shows that the level of taxation is particularly high in the United Kingdom (on average ca. 40€ per passenger and flight), with a number of countries lying in the range of 15–20€ (including Canada, the US, and a number of EU states). Comparatively high tax rates, that only apply for international departures, are in effect in Australia (40€), Mexico (30€), and Brazil (30€).

THE ADVANTAGES OF TAXATION

The introduction of meaningful taxation in the aviation sector comes with a range of advantages. Increases in ticket prices are expected to curb demand⁵ and the current expansion of aviation, which could initiate contraction of the aviation sector. At the same time, this addition to air travel cost would immediately boost the competitiveness of alternative forms of transport such as rail and bus, which (in Europe) are generally taxed at standard VAT rates (although some countries apply an exemption or reduced rates). Even merely levelling the VAT playing field with an aviation tax would generate a significant income stream that could be used to fund transformation of the transport sector towards more sustainable modes (and not be ‘ring fenced’ for more spending on aviation). Alternatively, taxes could be redistributed to bolster social justice at national or even global levels (e.g. through the Green Climate Fund). Whether such an earmarking (‘hypothecation’) of tax revenues can be legally anchored depends on the national context, but the general practice is not unheard of in many countries (e.g. for road upkeep).

Taxing aviation is a realistic and feasible measure: aviation taxes already exist in many domestic contexts, and the instrument is well-known and well-studied. It can also be expected to have relatively broad backing among the public and even political parties, as taxing aviation

effectively amounts to bringing the sector in line with existing practice in other sectors (creating a ‘level playing field’). One potential downside to consider is that this notion may undermine the idea that states should actively support more sustainable modes of transport, especially rail transport. A kerosene tax has the particular advantage that, in principle, it could cover all forms of aviation (including freight, private as well as commercial aircraft, and the military) and its effect increases proportionally to the distance travelled. Taxing kerosene would give aircraft manufacturers an incentive to improve fuel efficiency, which would not be the case with other types of taxes or a frequent flyer levy (see next chapter).

While aviation taxes generally apply equally to any citizen who flies, one social justice argument claims that frequent flyers mainly consist of middle and high income households. Considering that in many countries most of the population flies rarely or never, as opposed to a minority who are frequent flyers, aviation taxes are socially progressive in practice. The ‘Yellow Vests’ protests in France are a case in point: in the context of their protests, it has been argued that kerosene taxes represent a more socially just alternative to motor fuel tax increases.

CARBON TAX: THE DIFFERENCE TO AVIATION SPECIFIC TAXES

Carbon taxes are widely discussed and agreed upon by mainstream economists as an efficient and effective climate mitigation measure. The original idea of a carbon tax was to put a price on greenhouse gases emitted by sectors such as industry and transport, in order to internalise the social costs—or the so-called ‘negative externalities’—that CO₂ causes. The tax hence serves as an economic incentive for companies and consumers to opt for low carbon alternatives.

The approach has several problems. One is the difficulty of considering and pricing all of the damage caused by burning fossil fuels—like biodiversity loss, negative social consequences, health impacts and in general a very insecure future. There is also the ethical question surrounding whether or not to put a price on for example human life or the ‘damage’ of species extinction. But most importantly, should we not rather avoid the damage overall?

Due to the rapid progress of the climate crisis, there has been a move away from focusing on internalising the externalities, and instead a debate about how high the carbon price must be in order to achieve the necessary reductions (as defined by the scientists). Today, carbon prices are often way too low to have a significant emission reduction effect. To be effective, the price needs to be high—120 € per tonne or more.⁶

In practice, carbon taxes are often levied on fossil fuel products, sometimes as one element of several that together constitute the total tax rate. The CO₂ tax can be

explicit or implicit (i.e. used as an argument for the tax in the first place). Therefore, it often not easy to distinguish between CO₂ taxes on fuel and other fuel taxes. Sometimes it might even give a better picture to consider the two together (see **Diagram 2**).

For aviation, one kind of carbon tax could be on jet fuel, if it distinguishes between the differing CO₂ emissions resulting from the production and use of various kinds of fuels—kerosene, several kinds of biofuels, and electro-fuels. But as the impacts of flying are more than just the emitted CO₂, a carbon tax for aviation would have to take into account the impact of burning kerosene high up in the air (see above). If not, the tax implemented throughout all transport sectors could lead to an indirect subsidising of planes in comparison to means of transport on the ground. A carbon tax applied to tickets could also include a share of the operational and surface passenger transport CO₂ emissions of the departure and arrival airports.

Pricing carbon cannot be the sole mechanism, replacing other possible measures like cutting short haul flights or frequent flyer levies. A properly implemented carbon tax might, in principle, have advantages in comparison to a kerosene tax, as it could also tackle the climate impact from burning biofuels or synthetic fuels, which are by no means carbon-neutral. However, even this is not straightforward: generally carbon taxes are not applied to biofuel because carbon taxation schemes are set up mainly with the purpose of facing out fossil fuels, and also because the emissions from biofuels do not fall under the UNFCCC reporting rules (see **chapter 8**).

THE LIMITS OF TAXATION

The disadvantages of a tax-based approach fundamentally tie in with the limits of market-based approaches more generally. As airlines will likely pass the additional cost on to passengers, wealthy frequent flyers can afford to maintain their habits, while the mobility of others will effectively be reduced. Given the general political unpopularity of raising tax rates, expanding taxation in the aviation sector represents a relatively one-off measure with limited scope for successive increases to respond to the increasing urgency of the climate crisis. At the low rates that are currently discussed in Europe, a kerosene tax, a carbon tax or VAT may do little more than cancel out some of aviation’s subsidies. It is unknown how flyers will react to such a modest price increase; that is, whether demand will be notably reduced. Also, the price signal of any tax can be counterbalanced by declining oil prices, due to oil price fluctuations. Although aviation taxes are not regressive as such, given that flying continues to be more widespread among higher-income households, individual low-income households (e.g. migrant workers) may still be adversely affected unless addressed through balancing measures like full or partial redistribution.

From a strategic point of view, introducing taxation for aviation falls short of offering a more profound critique of current forms of mobility both in regards to environmental sustainability and social justice, compared with, for example, the idea of a frequent flyer levy (see **chapter 8** on progressive ticket taxes). At the same time, the complexity of national and international taxation regulations make pursuing a kerosene tax a challenging target for effective grassroots activism, and risks tying up activist energy. There is also the risk that such taxes could exempt biofuels, which produce similar high-altitude climate impacts, potentially creating a dangerous incentive for their increased use. The same argument can be made for synthetic fuels (electro-fuels) that would continue to generate other greenhouse gases and contrails when used in aviation.

Diagram 2: Average Fuel Excise / Carbon Tax

Source: OECD (2019)

The figure shows tax rates as of 1 July 2018. The numbers are emission-weighted averages calculated across 44 OECD countries and Selected Partner Economies. They include international aviation. The effective carbon tax is the sum of fuel excise taxes (of which the statutory rates are usually expressed in common commercial units, such as litres of gasoline) and explicit carbon taxes (understood as taxes called carbon taxes where statutory rates are typically also expressed in common commercial units or per unit of CO₂ emissions).



HOW TO ACHIEVE TAXATION OF AVIATION?

At this point in time, a consensus is emerging even among more mainstream actors that the aviation sector is undertaxed. Including a justice argument in campaigns against aviation expansion can be an important and promising strategy. While the vast number of mechanisms and models for taxation at national and international levels may be overwhelming at the outset, it is important to remember that currently there is no or very little taxation on aviation, anywhere in the world. Therefore, any form of new taxation is preferable to the status quo. With profit margins in the sector becoming ever slimmer, even modest tax rates can potentially cause a crisis and market consolidation in the sector after decades of aggressive expansion.

The undertaxation of aviation suggests merit in pursuing whatever tax schemes may be within reach in a given jurisdiction in order to create momentum. The situation in Europe shows the potential for such momentum. After aviation taxes became a key issue in recent European election debates, a coalition of like-minded states (Finland, Sweden, France, Netherlands, Luxembourg) is now advocating aviation taxes at the European level, and a European Citizen Initiative is under way.⁷ A promising strategy could be to pursue ticket taxes at a national level, while building coalitions for action at regional and global levels. The advantage of ticket taxes is that they can be introduced at the national level without significant legal hurdles, and with freedom to design rates, distance bands, and other features such as including a frequent flyer levy or air miles levy. Networks between stakeholders or activists, like Stay Grounded, could play a role in this effort by facilitating the exchange of knowledge, best practices and key arguments.

This chapter illustrates that there is no silver bullet among the taxation models currently discussed—all taxation instruments are subject to trade-offs. This calls for a pragmatic approach, where the overall aim should be to pursue what is feasible and seek to create a mix of instruments. While a radical tax reform towards carbon taxation has recently received increased attention as an alternative to more widespread instruments, its effects and side effects will equally depend on the concrete implementation. Either way, it will be particularly important to ensure the inclusion of non-CO₂ emissions caused by aviation, as this factor is currently sidelined in the discourse. In a similar vein, any suggested tax exemptions for biofuels or synthetic fuels must be challenged. Unless these points are taken into account, a simple carbon tax model will achieve far less than targeted measures to address flying as a high-emission activity.

Overall, aviation taxes are an important opportunity to connect the struggle against the expansion of the sector with the broader movement for tax justice. Adjusting tax systems to the reality of the climate crisis both at national and global levels is vital for social justice and climate

justice. The right framing is critical when discussing this strategy, e.g. by speaking about ending unfair subsidies and tax exemptions rather than discussing an additional tax burden. The industry is addressing this question with sudden concern for the mobility of less affluent segments of the population, arguing that higher ticket prices would amount to curtailing their mobility. While tax proposals should take social justice into consideration as much as possible (e.g. through a frequent flyer levy), it is advisable to put negative side effects into perspective by underlining the social injustice of the climate crisis at large. The ‘social washing’ strategy deployed by the airline industry can also be countered by unmasking the vast differences in flying behaviour between a minority of frequent flyers and a majority that hardly flies, which is conveniently concealed behind average figures.

FURTHER READING

CE Delft (2018a). *A Study on Aviation Ticket Taxes*. Study commissioned by Transport & Environment. <https://tinyurl.com/y2duav5m>

CE Delft (2018b). *Taxing Aviation Fuels in the EU*. Study commissioned by Transport & Environment. <https://cedelft.org/en/publications/download/2693>

CE Delft (2019). *Taxes in the Field of Aviation and Their Impact*. Study commissioned by the European Commission. <https://tinyurl.com/u3sxp>

European Citizens’ Initiative (2019). *Ending the Aviation Fuel Tax Exemption in Europe*. www.fairosene.eu

Transport & Environment (2019a). *A Cheap Airline Ticket Doesn’t Fall from the Sky*. Originally published by “Follow the Money” (NL). <https://tinyurl.com/y4gjgsb>

Transport & Environment (2019b). *Taxing Aviation Fuel in Europe*. https://www.transportenvironment.org/sites/te/files/publications/2019_02_Taxing_kerosene_intra_EU.pdf

¹ Transport & Environment (2019a)

² Transport & Environment (2019b), CE Delft (2018b)

³ CE Delft (2019)

⁴ CE Delft (2019)

⁵ CE Delft (2019)

⁶ Grebenjak (2019)

⁷ European Citizen Initiative (2019)

3.

MAKING EXCESSIVE FLYERS PAY: FREQUENT FLYER LEVY & AIR MILES LEVY

“The jet-setting habits of Bill Gates and Paris Hilton mean that they produce an astonishing 10,000 times more carbon emissions from flying than the average person”, finds a recent study.¹ 1 % of English residents are responsible for nearly 20% of all flights abroad; 10% most frequent flyers took more than half of the flights abroad.² Flying shows climate injustice in its most extreme form—a few wealthy are most responsible for the harm, while large majorities worldwide never or rarely fly. Two possible measures could tackle this injustice: a Frequent Flyer Levy (FFL) or an Air Miles Levy (AML).

The taxes discussed in the previous chapter are meant to reduce aviation industry’s unfair tax exemptions. The issue is that these taxes remain the same across the board, hardly affecting upper class frequent flyers. But why should a businessman on his sixth flight to his Tuscan villa in one year be taxed at the same rate as someone who flies to visit family on another continent every second year? Could the taxes be combined with a levy targeting the small, privileged minority responsible for most flights and distances? Could such a levy constrain the demand for multiple or long-distance flights?

The Frequent Flyer Levy (FFL) proposes to make each flight taken within a given time period progressively more expensive, thus incentivising fewer flights. The FFL has been promoted for many years by the UK organisation, *A Free Ride*,³ with a campaign for ‘a free flight a year’, meaning a ‘levy free flight’. However, if every person on Earth flew once a year, climate emissions would skyrocket. Therefore, a slightly different model is proposed in

this chapter, progressively raising higher fees during a longer time period, and also imposing higher levies. One option could be to have one levy-free first flight every three or four years, the second flight would have a levy of e.g. 150 euro, and with each additional flight the levy doubles. In the best case, the rates would be different for economy than for business or first class tickets, because first class seats produce up to seven times the emissions of an economy ticket.⁴

The Air Miles Levy (AML) makes distance flown progressively more expensive and arises from an October 2019 report⁵ commissioned by the UK Committee on Climate Change, which evaluated the FFL and other means for reducing aviation. The AML becomes more expensive in steps of cumulative distance flown during a 3 or 4 year period, and would also impose higher rates for business and first class, or very high ones for private jets. Carmichael explains in his report: “By factoring-in distance, the levy would be more closely linked to emissions [than

the FFL] and fall more heavily on those polluting more. It would also more effectively discourage long-haul flights: as most flying is for leisure, some shift from long-haul to short-haul destinations would be expected, delivering further emissions reductions.”

Because lower income groups fly the least, the FFL or AML would mainly affect wealthier people. Depending on the level of the levy, the FFL could considerably reduce frequent flying. However, in and of themselves, these levy schemes are probably not sufficient in addressing the aviation sector’s environmental impact. They must be combined with other measures discussed throughout this report. In particular, they should be combined with policies aimed at ending aviation’s privileges (see **chapter 2**), and at fostering alternative transport modes, both (night) trains and climate-friendly ships for long-distance travel (**chapter 6**). The revenues obtained through the FFL or AML can be used to make climate-friendly mobility accessible for all, especially in the Global South. Also, a just transition fund could be founded for those regions who suffer from economic losses by a decreasing tourism sector (see **Info Box 3**). The levy could therefore contribute to climate justice (see **Info Box 2**).

No FFL or AML measures are currently implemented, as the few existing instruments tax every ticket/person equally. However, in other sectors some examples of progressively taxing environmentally damaging consumption do exist. One is the UK’s Vehicle Excise Duty, which put an escalating tax on cars according to their carbon emissions. It was successful in encouraging car owners to buy smaller, cleaner cars (until it was changed in 2017).

ADVANTAGES OF LEVIES OF EXCESSIVE FLYING

The goal of the FFL policy is to contribute to social and climate justice. The numbers are quite clear: even with low-cost aviation on the rise, large disparities and inequalities in aeromobility exist between and within nations, along the lines of social classes, ethnicity and gender. Despite the fall in relative prices, survey data indicate that the vast majority of low-cost flights are taken by more privileged social classes.⁶ Contrary to arguments from the airlines, in relative terms, the distribution of flying has not become more equitable across social class. Low-cost air travel is therefore not ‘democratising aeromobility’.⁷ Hence any tax on aviation would be relatively progressive, if one takes the entire population into account.⁸ Globally, only 3 per cent of the population flew in 2017, and some 90% of the global population has never flown.⁹ In Germany, only 8% of the entire population fly more than twice a year.¹⁰ This means that very few frequent flyers cause an enormous amount of climate impact. These numbers demonstrate the importance of focusing on the hypermobile elite¹¹ in the efforts to degrow the aviation sector.

The purpose of an FFL or AML is not to try to factor in the social cost of carbon to the price of a ticket. Instead, the levies are targeted to deliver a specific outcome: reduced demand for air travel against unconstrained levels, to help restrain aviation emissions within safe limits for the climate, and to do so in a way that is just and potentially politically feasible. FFL or AML are per design more progressive policy instruments than a kerosene tax, a ticket tax or a carbon tax. One key advantage is that the levies might be more socially acceptable than general increases in taxes on aviation or kerosene, due to the disproportionate impact on wealthy frequent fliers, and thus potentially politically more attractive. A survey on public attitudes to the FFL in the UK found that a FFL is perceived to be fairer than and preferable to any of the other options for reducing air travel—although it has to be kept in mind that the FFL model in UK promotes a pretty low levy and a ‘free flight a year’, instead of every couple of years.

The primary focus of the FFL on the *number of flights* can be decisive for communication purposes. While in combination with other policy measures flying will become more expensive and restrictive for all, the FFL ensures that this is particularly so for frequent flyers. Low income passengers who want or need to take a long-distance flight once every couple of years—such as migrants visiting families in other continents—are not the primary target of this levy. Reducing the number of flights is also the key demand of communities impacted by noise around airports. However, the FFL falls more heavily on people taking several short-haul flights than on those taking fewer but much more damaging long-haul flights. A flight from London to Melbourne Australia has approximately 15 times the impact of a London-to-Barcelona flight.¹²

By targeting *cumulative distance flown*, the AML targets those who pollute more, so it is closely linked to emissions contributing to the climate crisis. It encourages shortening one’s average travel distance, and discourages more than one long-haul flight every few years, something a straight carbon tax or FFL does not do. In this regard, the AML might be more fair in climate-terms than the FFL. A disadvantage might be that the AML might not inhibit people from taking short-haul flights which could be easily shifted to trains or buses—while longer trips that might be necessary for some who have family in other continents cannot easily be replaced because of the current lack of climate friendly and affordable ferries. Carmichael points out that with an AML, people will avoid shorter trips, in order to not rack up miles that will increase the levies charged on their longer trips. To what overall relative degree an FFL may inhibit short-haul more than an AML has yet to be studied.

OBSTACLES AND CHALLENGES TO IMPLEMENTING THE LEVY

As with all other policy proposals aimed at degrowing aviation, there will be massive and coordinated opposition from the aviation industry and, in the beginning, from politicians and the general public. Regarding the FFL and AML, however, one should expect resistance from the most powerful in society, the mobile elites that do not want to give up their privileges, including many lawmakers. This is supported by studies that have shown that a large share of aviation emissions are caused by a relatively small group of highly mobile and hypermobile travellers that usually represent the political, economic and cultural elites of society.¹³ There is a crucial job of raising public awareness of the fact that climate targets cannot be met without constraints on air travel, and to also build opposition against the irresponsible and powerful frequent flyers. Meanwhile, more sustainable modes of long-distance transportation must be made attractive to support a change in public opinion.

One disadvantage is that for those wealthy enough to be largely insensitive to price, neither FFL nor AML may be sufficient to reduce their flying habits. Here, another kind of regulation would be necessary, such as a general ban on short haul flights that affects all flyers equally (see **chapter 3**), or of course measures that tackle inequality and wealth as such.

One issue concerns the framing of the levy: Campaigning for ‘one free flight every 3 years’ might make the law more popular; however, it suggests that one flight in this period is a human right, while it is actually also too much if planetary boundaries are to be respected. Thus, in communicating a levy proposal, it is important to clearly distinguish it from and communicate in combination with the other taxes that are necessary to degrow aviation in the face of the climate crisis in general; the FFL/AML being an additional instrument aimed specifically at frequent flyers.

There are a number of challenges that need to be addressed if one wants to introduce a levy. The levy could in principle be operated in every country, ideally as a globally uniform tax. However, due to a lack of strong international institutions which could impose such a levy (there are no global taxes/levies yet), it could first be implemented in individual countries or regions, like on an EU-level. In this case the levy would be determined at the EU and collected nationally. The levy would apply to both domestic and international flights.

Tracking unique passenger characteristics to calculate the levy might require new systems. The introduction of a levy could steer a critical debate regarding data protection, as flight data would have to be stored. An alias-based system, that uses identity codes to secure comprehensive protection of data security could possibly provide a solution. A levy scheme needs to ensure that airlines’ sharing

of this data among themselves is restricted to levy purposes only. This could be regulated by the standard aviation authorities.

A levy might be more complex to administer than the current or alternative aviation tax arrangements. This was the pretext used by the Scottish Government when refusing to consider an FFL as an alternative to the Air Passenger Duty. Implementing a levy will entail changes to the customer journey when purchasing plane tickets, which the industry will try to resist. That is why it needs to be made as simple as possible.

FURTHER READING

UK Frequent Flyer Levy Campaign (n.d). <http://afreeride.org/>

Carmichael, D. (2019). *Behaviour Change, Public Engagement and Net Zero: A Report for the Committee on Climate Change*. <https://www.theccc.org.uk/wp-content/uploads/2019/10/Behaviour-change-public-engagement-and-Net-Zero-Imperial-College-London.pdf>

Devlin, S. and S. Bernick (2015). *Managing aviation passenger demand with a frequent flyer levy*. New Economics Foundation. https://neweconomics.org/uploads/files/58e9fad2705500ed8d_hzm6yx1zf.pdf

Gössling, S. (2019). *These Celebrities Cause 10,000 Times more Carbon Emissions from Flying than the Average Person*. <https://tinyurl.com/y2woucy>

¹ Gössling (2019)

² Kommenda (2019)

³ A Free Ride (2017)

⁴ Carmichael (2019)

⁵ Carmichael (2019)

⁶ UK Civil Aviation Authority (2016)

⁷ Cwerner et al. (2009)

⁸ Bishop and Grayling (2003)

⁹ Die Zeit (2019)

¹⁰ Tagesschau (2019)

¹¹ Jacobin Magazine (2019)

¹² Carmichael (2019)

¹³ Gössling et al. (2009)

4.

SETTING LIMITS ON FLIGHTS

Setting absolute limits on aviation is theoretically the easiest and most secure way to guarantee the industry's contribution to climate mitigation targets. Arguably, such measures are also preferable from a fairness perspective, as bans do not differentiate between rich and poor, but are mandatory for everyone. While absolute environmental limits seem politically difficult, the idea of caps on short-haul flights has been gaining momentum.

From an environmental and justice perspective it is clear that the number of flights and cumulative air travel distances must be reduced to a necessary minimum as soon as possible. The remaining flights will need to be allocated in the most equitable way possible or for the greatest public good—as part of the total remaining carbon budget and in line with climate justice. On a global level, this policy could be implemented through a cap-and-share mechanism,¹ although such a global scheme is unlikely to be introduced soon. However, with the climate movement gaining momentum lately, it is arguably realistic for some limitations to be imposed on air travel, especially bans on short-haul flights.

In 2001, the EU White Paper on Transport stated, “We can no longer think of maintaining air links to destinations for where there is a competitive high-speed rail alternative.”² Still, no caps or bans on flights exist. However, in 2019, politically relevant calls have been made for bans from several quarters. In a May 2019 debate, two candidates for president of the European Union addressed short-haul flights. Frans Timmermans (now vice president of the European Commission) called for a total ban on them, and conservative Manfred Weber instead advocated for reducing their number.³ In March, members of the Dutch parliament demanded a ban on flights between Brussels and Amsterdam.⁴ German climate expert Hans-Joachim Schellnhuber argued that prohibiting domestic flights within Germany should be one of the government's high priorities, and he proposed a per person lifetime limit of 20 flights of any length.⁵ In June, several French MPs tried to amend a mobility bill to ban flights between

airports if a rail link exists that takes no more than 2.5 hours longer than flying.⁶

Air travel is still primarily an elitist mode of transportation, with the biggest share of flights taken by the wealthy minority. For example, in 2018 the top 10% of frequent flyers in England took more than half of all international flights.⁷ Therefore, the general public might be in favour of air travel reform. In a YouGov poll conducted in the United Kingdom in August 2019, two thirds (67%) of the people interviewed said that air travel should “definitely” or “probably” be limited to tackle the climate crisis.⁸ A reduction of short-haul flights seems to be the easiest way to reduce flying between city pairs where alternative transportation options already exist or are being built. For example, the Western European railway network can replace a large proportion of short-haul flights (see **chapter 6**).

In general, different forms of limits, bans or caps on (short-haul) flights could follow in succession, among them:

- Immediate bans on flights with rail alternatives of 4-5 hours.
- Immediate bans on domestic flights, especially in smaller countries.
- Caps on the number of short-haul flights between specific airports could be an intermediate step (e.g. a maximum of two flights a day between them, instead

of seven) before making a complete ban. This would need to go along with building added capacity of alternative transport modes.

- Airport-specific caps on the number of flights, toward meeting emission targets and limits on noise, fine particulates and other air pollutants (see also **chapter 5**).

ADVANTAGES AND OBSTACLES OF CAPPING FLIGHTS

The climate advantage of alternatives like trains and buses is tremendous, and a rapid shift to them is feasible if efforts are made. Short-haul flights have poor economic profitability because of their lower occupancy rates compared to international flights. They are often continued by airlines and alliance partners in order to feed their international and intercontinental hubs, and for fear of losing their historic ('grandfathered') slots in airports (due to the 'Use it or lose it' rule). The slot regulations are not only inefficient but are also counterproductive in terms of climate protection.

A main advantage of bans on short-haul and/or domestic flights is their inherent effectiveness in reducing emissions. In addition, they are more socially just than market and price mechanisms, because their effect is universal regardless of wealth. Some use short-haul flights for routine transit, such as those living in one city and working in another, or companies with multiple locations to administer. This form of work life can be quite exhausting and hard to combine with relationships and family life, so banning such flights may help reform harmful work norms and promote alternatives such as video conferencing (see **chapter 6**).

Banning short-haul or domestic flights could cause the shutdown of many regional airports. This might also have positive economic effects, as regional airports most often make high losses and are only kept alive with subsidies (see **chapter 5**). Jobs could be created in the railway sector instead. In addition, a multimodal and sustainable approach to (public) transport is voiced in many official government papers, but not yet implemented. The shift from short-haul flights to alternatives is a low-hanging fruit of climate mitigation, but obviously still hangs too high for most of today's politicians.

The feasibility of banning short-haul flights depends on the extent and quality of a country's train and highway networks. Since those conditions vary among countries, there is no one-size-fits-all approach to eliminating these flights. Limiting domestic aviation in economically growing countries in the Global South might clash with issues of global justice and their lower historical responsibility for environmental problems like the climate crisis. Therefore, the highly industrialised countries must lead the way.

STRATEGIES TO IMPLEMENT LIMITS ON FLIGHTS

In global climate governance, aviation has continuously been omitted. Environmental caps like per capita resource entitlements or cap-and-share mechanisms have not yet been implemented, as market-based mechanisms have been the preferred tools since the beginning of neoliberalism. Nevertheless, due to the consequences of the climate crisis being increasingly felt today, as well as the climate movements getting stronger, momentum is building for measures like bans, absolute caps and cap-and-share mechanisms. Researchers, campaigners and activists should advocate for such measures as legitimate ways to tackle the climate crisis, without fear of being singled out as being radical or limiting others' freedom.

As a start, banning a few short-haul flights is a realistic goal. If it proves successful, this effort can expand rapidly, especially if there are no significant consequences for travellers. With further success, the possibility for a more general limitation of aviation may arise. Success hinges on pre-existing or planned modes of alternative transport (see **chapter 6**), as well as a cultural shift from boundless to conscious mobility.

FURTHER READING

Sonia Sodha (2018). *A radical way to cut emissions – ration everyone's flights*. The Guardian: <https://www.theguardian.com/commentisfree/2018/may/09/cut-emissions-flights-air-travel-flying>

Friends of the Earth Europe (2000). *From Planes to Train. Realising the potential from shifting short-haul flights to rail*. Brussels

Stefan Gössling, Paul Upham (2009). *Climate Change and Aviation. Issues, Challenges and Solutions*. Earthscan. London.

- 1 Friends of the Earth Europe (2018)
- 2 European Commission (2001: 38)
- 3 The Washington Post (2019)
- 4 View from the wing (2019)
- 5 Clean Energy Wire (2019)
- 6 Massy-Beresford (2019), The Connexion (2019)
- 7 Kommenda (2019)
- 8 Centre for Climate Change and Social Transformation (2019)

5.

RED LINE FOR AIRPORTS: MORATORIA ON NEW INFRA- STRUCTURE AND SCALING DOWN OF AIRPORTS

Hundreds of new airports or airport expansions are planned to fuel the skyrocketing growth of aviation. Putting a moratorium on these infrastructure projects—delaying or suspending them—directly decreases aviation’s capacity to grow. While a few examples of moratoria on airport projects exist, fighting airport projects could also lead to healthier neighbourhoods, and to safeguarding precious farmland or biodiversity.

The rapid growth of aviation demands new infrastructure. Simultaneously, new or bigger airports demand an increase in flights. There are 550 new airports or runways planned or being built around the world, plus runway expansions, new terminals etc, totalling more than 1200 infrastructure projects.¹ Most of them involve new land acquisition, the destruction of ecosystems, displacement of people and local pollution and health issues (noise/traffic/particles/etc.). More and more airports, especially in the Global South, are becoming ‘Aerotropolis’, or Airport Cities, surrounded by commercial and industrial development, hotels, shopping cities, logistic centres, roads, or connected to Special Economic Zones.² Airports represent a main infrastructure for the globalised capitalist economy, needed for the just-in-time production and trade of goods, work travel, the tourism business, as well as the deportation of unwanted ‘travellers’: illegalised migrants.³

Effective resistance against airport projects can prevent the negative effects and counter a lock-in to an emis-

sions-intensive, destructive form of mobility for decades into the future. Resistance also allows abstract issues like emissions to become more tangible. Networks connecting different local struggles through shared experiences and joined forces can build strong pressure, making it easier to tackle the root causes of aviation growth and climate change.

By definition, a moratorium is an officially ordered delay or suspension of an activity or law. There have been quite successful moratoria in the past, such as the atomic moratorium in Germany,⁴ the coal moratorium in the United States⁵ and the international whaling moratorium.⁶ An ‘airport moratorium’ is a building moratorium that halts the construction of a project or projects. It can be imposed by cities, towns and courts, and for a variety of reasons. Further, it can be short-term or indefinite, depending on the project and the area where it is located.⁷

Currently, there are no countries to our knowledge that have introduced moratoria on a national scale, prohibit-

ing the construction of any new airport infrastructure. However, judicial processes for establishing a moratorium against special airports on a regional scale do exist. Some examples include:

- **Munich Airport, Germany:** In a 2012-referendum, most of Munich's population voted against the construction of a new runway at the city airport. The expansion would have meant an increase from 90 to 120 departures and landings per hour. During its campaign in the Bavarian regional election, the new government promised to stop any airport expansion, and once in power it agreed on the limited-time moratorium. The Bavarian government established a five-year moratorium in 2018. Whether the moratorium will have a long-term effect or not is still uncertain.⁸
- **Vienna International Airport, Austria:** In February 2017, an Austrian administrative court blocked the construction of a third runway at Vienna's Airport because it would go against the country's commitments to the Paris Agreement, and because it would destroy too much agricultural land.⁹ The court considered climate protection more important than jobs or better aviation infrastructure.¹⁰ The airport company appealed. A few months later, the decision was ruled "unconstitutional" by the Higher Constitutional Court, and in 2018, the Federal Administrative Court permitted the expansion of the airport with a few requirements: the airport must now become carbon-neutral. This requirement, however, only covers the on-ground operations of the airport and does not include the core business of the airport—the flights. Furthermore, it includes the use of problematic off-setting (see **Info Box 5**).¹¹ At the time of this report there were still appeals pending against the permission to construct the runway on the European level.
- A new airport on farmland in **Notre-Dame-des-Landes, in Western France** was cancelled in 2018 following opposition since the project was first proposed in the 1970s. The resistance over many years gave rise to a new term, *Zone à Défendre* (ZAD), referring to the community living on the site. It resisted the airport project and formed a space for ecological and social experimentation.¹²
- **Idaho Falls, USA:** There was a moratorium on developing the land areas surrounding the Idaho Falls Regional Airport, but it lasted for only six months.¹³
- **New Mexico City International Airport, Mexico:** The project of a new airport in Mexico City in the dry lake bed of Texcoco was launched at the beginning of this century, but has been cancelled twice because of local indigenous and nation-wide opposition. Recently, the plans were officially cancelled for a third time after a referendum. However, on-site tests for the project continue.¹⁴

- In **Bangladesh**, a plan for a major airport and associated 'satellite city' in the **Arial Beel** wetlands was cancelled following protests by farmers and fisher folks concerned over the loss of their livelihoods.¹⁵
- In **Thailand**, provincial and forestry authorities intervened to halt construction of an airport on **Koh Phangan**, a mountainous, beach-fringed island, when it was discovered that land clearance had encroached on forest land in Than Sadet National Park.¹⁶
- The expansion of **Marseille Provence Airport** was stalled in 2019 by the French environmental authority who requested to revisit the Environmental Impact Assessment. The argument was that the benefits of expansion are overstated whilst the environmental impact is understated. In addition, the assessment did not demonstrate the project's compatibility with France's target to reach carbon neutrality in 2050.¹⁷

Given that the current climate warming produced by aviation is already too high, it is not enough to halt the construction of new airports: it is also necessary to scale down airports, especially in the Global North. If combined with the measure of reducing short-haul flights (see **chapter 4**), most of the regional airports would become unnecessary. There is an on going debate concerning whether it would be preferable to have the few remaining airports situated in the countryside, instead of in densely populated cities, where noise and particles affect more people's health and well-being.¹⁸

WHY TARGET AIRPORTS?

If measures like higher taxes on flights and bans of short-haul flights led to a reduction in flights, airport expansion would no longer be profitable. But we are still a long way from the implementation of such measures. Increasing public awareness, campaigns, and media attention will be necessary to reach a reduction in flights. Therefore, targeting airport infrastructure can be a very effective way to raise attention, and to halt local expansion of aviation and greenhouse gas emissions.

Local airport resistance is often organised around issues of noise and air pollution. Halting airport expansion will limit noise and air pollution for nearby residents. This accounts not only for negative health effects due to the exposure itself, but also for the health effects due to the worries about the expansion situation. The so called 'change effect' is a well-known phenomenon in noise impact research. It describes the increase of long-term noise annoyance in areas where airport expansions will be carried out. This negative health effect cannot be accounted for by the increase in noise exposure levels.¹⁹

In the case of moratoria, the imminent aim to stop the construction of a new runway can become a shared goal for climate activists and health-affected residents alike.

Also, affected farmers and conservationists can become allies when fighting such a project. It might be easy to get wide citizen support for questioning such harmful projects since they are usually financed through public money. Since flight routes are often led above city districts with poorer population, it is necessary to include those residents in the campaign. If done in a sensitive way, different tactics can be combined in the struggle—from judicial appeals (e.g. to meet noise limits) to civil disobedience.

Moratoria mean a direct change to a local situation, and do not necessarily involve extensive national or international legislative processes in order to be established. In this way they are practically very feasible. Furthermore, if moratoria beyond the regional level are considered, and there was e.g. an EU-wide implementation, they might lead to a decrease in competition and aspiration to expansion among European Airports. Finally, moratoria are expected to be a means that is met with less opposition from passengers using air travel.

OBSTACLES AND DISADVANTAGES OF TARGETING AIRPORTS

Despite the feasibility of moratoria on new airport infrastructure projects, there are potential barriers to consider. These involve the difficulty in accomplishing moratoria on a single airport scale due to economic competition between airports. Airport boards and the industry at large typically argue: ‘if we don’t expand here, another airport will expand’. This can even lead to competition between airport opponents, with some proposing the expansion of an airport elsewhere. This would be a typical ‘Not in my backyard’ approach. Such issues also led to the founding of the Stay Grounded network: By connecting the numerous struggles against airports, it is possible to show that airport projects should not take place—‘not here, not anywhere!’.

Often, airports also try to counter critique and opposition by greenwashing their image. Hundreds of airports participate in an Airport Carbon Accreditation programme, in which they can be labelled a carbon-neutral airport without reducing a single flight.²⁰ The measures only target the few greenhouse gas emissions emitted on the ground, and rely extensively on offsetting emissions (see **Info Box 5**). Offsetting the affected land and biodiversity is a common strategy, albeit numerous studies show that it is impossible to compensate and create the same sort of biodiversity somewhere else.²¹

A difficult obstacle to airport moratoria or to reducing the number of airports is the opposition by workers and trade unions. Usually, alternative plans for new jobs are lacking, which is a real problem, since the structural changes needed for a climate just economy should not fall on the shoulders of the people still working in fossil economy sectors. Still, the need for jobs cannot be accepted

as an argument, because in the long run, there are no jobs on a dead planet.

Opposing airports can also be quite dangerous, especially in authoritarian states, where resistance is often violently oppressed. Many airport projects in the Global South not only lead to noise and climate issues, but actually threaten livelihoods. Resistance therefore is often much more fierce, involving blockades and hunger strikes, and not counting on financial resources or media attention.

Finally, since airports are such an important infrastructure for the current economic system, it is basically impossible to reduce airports without also changing our economy towards a more regionalised economy (see **chapter 6**). This does not mean that we need to wait for systemic changes until airports can be targeted; on the contrary, airport moratoria and a reduction of airports can be an important step in the much needed social-ecological transformation process.

STRATEGIES TO LIMIT AIRPORTS

As shown above, construction of new airports or runways is happening all the time. To support the existing oppositions, we can learn from older struggles against expansions, and share experiences about communication strategies, possible allies, legal means, and action forms. Solidarity between the struggles is important, especially if affected people or activists are facing repression and criminalisation. Social media attention, investigative journalism, tracking the money flows, writing solidarity letters, or targeting decision makers with letters are some of the possible ways to do this.

In addition to the global scale, airport opposition at the local level can be an effective means to connect a variety of struggles and movements. While a moratorium can limit the CO₂ emissions of a given airport, it also relieves the residents from additional noise exposure and air pollution, and can save farmland or biodiversity from being sealed. This shared goal is an important chance to create synergies and solidarity.

Moreover, considering environment and health policies in relation to noise and air pollution can be a leverage to accomplish the implementation of moratoria. Noise abatement policies, including stronger regulations to limit aviation noise, can be an indirect approach to limit aviation. Aircraft noise is typically a common and intense issue regarding operations at existing airports and the planning, permission and construction of new airports. Imposing strict noise limitations, night flight bans or operation restrictions can limit the amount of flights.²² The new and progressive noise guidelines of the World Health Organisation (WHO) could also be of help in working to limit airport noise. Advocating for the implementation of the WHO guideline levels for average noise exposure due to aircraft noise would lead to a radical reduction in the



Diagram 3: Aviation Related Conflicts

Sources: Stay Grounded (2019d),
Environmental Justice Atlas (n.d.)

The EnvJustice project of the Institute of Environmental Science and Technology at Autonomous University of Barcelona (ICTA-UAB) and the Stay Grounded network have registered more than 300 socio-environmental conflicts related to the expansion or creation of new airports or aerotropolis (airports surrounded by industrial and commercial zones). 60 of these have been analyzed in-depth. The remainder consists of airports under construction or proposed, planned, operational or cancelled airport projects that merit further investigation. The information gathered has been provided by organizations, local collectives and academics, and coordinated by Rose Bridger (Stay Grounded & GAAM - Global Anti-Aerotropolis Movement) and Sara Mingorria (ICTA-UAB).

- Investigated airport conflicts
- Airport cases that merit further investigation



amount of flights. If these guidelines became the standard there would no longer be flights at night.

Citizen science is a new approach which can be used in support of noise limitation. The organisation Schiphol Watch has developed a free app with which residents can register and document aviation noise. All results are collected in a database and are being evaluated by universities. In the Netherlands, residents already approach their local and regional politicians and press members with the data.²³

Working together with trade unions and universities in order to research alternative plans for jobs can also be important. It is a bizarre conflict to have workers' interests stand against residents' interests, when they are often the same group of people. Trying to create alliances and find commonalities (like the fight for justice, against pollution, and for better train connections) can be important steps. There are few trade unions that are progressively looking for alternative pathways—one positive example is the Public & Commercial Services Union PCS in the UK, opposing the third runway in Heathrow.²⁴

Attracting media attention and motivating people to organise collectively against an airport expansion can be achieved by organising different actions. Bike demonstrations to the airport, rallies at the airport, flash mobs and creative actions including disguise or papier-mâché planes can be very effective and suitable for the very sensitive territory of an airport. Examples are people in red suits creating a 'red line for aviation growth'; 'die-ins', where people simultaneously fall on the floor and represent the violence of the climate crisis and the injustice of flying; people in penguin costumes have also appeared at airports, with penguins gradually becoming memes or mascots of the anti-flying movement, since "the coolest birds stay on the ground".

Additionally, actions of civil disobedience have taken place at airports, although there is a higher risk for criminalisation than at less sensitive infrastructures. In London, runways have been blockaded several times;²⁵ in Sweden, activists blocked the fuel train to disrupt the delivery of kerosene to the airport;²⁶ and the group Extinction Rebellion had plans to close an airport by driving drones close by²⁷ and targeted London City Airport, blocking the entrance with their bodies. In addition, one person climbed onto a plane. Another person refused to sit down inside a plane whilst giving a lecture on the climate crisis, delaying takeoff for two hours. In the Global South, street blockades and strikes have taken place. In India in August 2019, small-scale farmers staged a sit-in for over a month in front of the district's planning administration, continuing their year-long protest to counter the expansion of Karad airport in Maharashtra State.

FURTHER READING

News on airport struggles can be found on the website of Stay Grounded and of the Global Anti Aerotropolis Movement, as well as their facebook accounts:

<https://stay-grounded.org>

<https://www.facebook.com/StayGroundedNetwork>

<https://antiaero.org>

<https://www.facebook.com/GAAMovement>

Bridger, R. (2015). *What is an Aerotropolis, and Why Must These Developments Be Stopped?* <https://antiaero.files.wordpress.com/2015/03/gaam-whats-an-aerotropolis2.pdf>

Noise Data from citizens & App to measure aircraft noise:

<https://reports.explane.org>

¹ Stay Grounded (2017: 2-3)

² Global Anti-Aerotropolis Movement (n.d.)

³ Herrero (2019)

⁴ Spiegel (2011)

⁵ Davenport (2019)

⁶ Wikipedia (n.d.)

⁷ Bankrate (n.d.)

⁸ Süddeutsche Zeitung (2018)

⁹ Reuters (2017)

¹⁰ Global 2000 (2019)

¹¹ Klimareporter (2019)

¹² Environmental Justice Atlas (2018b)

¹³ Keleher (2019)

¹⁴ Stay Grounded (2019b)

¹⁵ Environmental Justice Atlas (2018a)

¹⁶ Environmental Justice Atlas (2019)

¹⁷ Climate Change News (2019)

¹⁸ BUND (2015)

¹⁹ van Kamp and Brown (2013)

²⁰ ACA (2017)

²¹ Stay Grounded (2017: 2-3)

²² WHO (2018)

²³ Explane (n.d.)

²⁴ Airport Watch (2018)

²⁵ The Guardian (2016)

²⁶ Stay Grounded (2019a)

²⁷ BBC News (2019)

6.

FOSTERING ALTERNATIVES

How do we shift from flying to other modes of transport? Much can be done to make train travel, in particular, more attractive, especially through better coordination of international train schedules and booking systems. At the same time, we cannot avoid the question of how to travel less (i.e. less often, shorter distances) in general. The modern hypermobile lifestyle we have developed over the last few decades must come to an end.

Plane tickets are not only cheap, but the lack of good and affordable alternatives also pushes people to fly. What alternatives are already in place, and what is needed to improve them? More generally, we must question the hypermobile lifestyle many of us have developed over the last few decades. Perhaps a form of decelerated societies can be part of the solution, as the *Slow Food* and the emerging *Slow Travel* movements are proposing.

There are many ways of envisioning a world where people still travel, but travel in different ways, i.e. slower, less often, shorter distances, staying longer once they travel, and choosing sustainable means of mobility (see **Info Box 4**). This chapter will first explore alternatives to travelling by plane (trains, buses, ships and online conferences). The reader will note that many of these alternatives have their disadvantages: Their energy use is not zero, and some alternatives are still way too marginal. Also, not everything can be shifted from the plane to other modes. Therefore, it is necessary to generally reduce the need for transport and to degrow tourism and the trade of goods. Changing our lifestyles and the desire for far distance mobility may be hard to achieve,¹ but is necessary. As a study² from the UK shows, the average time spent travelling hasn't changed over the past 50 years: what has changed is the distance travelled—and this is what needs to change again.

SHIFTING FROM PLANES TO (NIGHT) TRAINS AND BUSES

Currently, the existence of trains, night trains, long distance and overnight buses differs widely between countries and continents. In many countries where a railway does not exist, good bus systems provide for longer distance travel (like many Latin American countries). Night trains have long been commonplace across Europe, but most were discontinued in recent years, nearly to the point of extinction.³ They lost large portions of their market share to low-cost airlines and to subsidised high-speed trains, and are disfavoured by unfair policies and by a lack of cooperation between train operators and national authorities.⁴ Still, there are some positive developments: The Austrian railways have been buying up night-trains from other countries which have shut them down, and have expanded their night train service. The Swedish government announced in 2019 that it will fund the creation of overnight train services from Sweden to the European mainland.

Today, a common opinion among European professionals is that a rail journey time of four hours is a reasonable alternative to flying. A study by FoE Germany (BUND) found that 200,000 flights from German airports—about two thirds of all domestic flights—could be replaced by

trips of less than four hours on existing ICE-trains.⁵ A recent study for the German Environmental Agency⁶ confirmed this order of magnitude. Avoiding such short-haul flights is not enough, but even this shift hasn't happened. Proactive rail companies, intensive public debates and bans of short-haul flights are needed to make this modal shift appealing—especially if we want to replace more than just extremely short flights.

Buses and trains are not only more environmentally friendly than planes, they are also easier to access than airports. Since train or bus stations are well connected to local public transport systems, they don't imply check-in and security checks (with the exception of the Eurostar train), provide for greater flexibility (booking a ticket on the day of travel), and passengers can work while in transit thanks to common Wi-Fi. Additionally, if the journey is overnight, the cost of accommodation is avoided. Measures that can help shift travellers from planes to trains and buses include improved international booking, affordable tickets and improved transfers between trains (e.g. night trains and day train connections). Railway connections to large airport hubs are also imperative in order to avoid short-haul flights.

Currently, there are only a handful of websites for those who might want to travel by alternative means and book trips at affordable prices. These include *The Man in Seat 617* and *Back on Track*,⁸ a European network to foster European cross-border passenger train traffic and in particular the night trains.

HIGH-SPEED TRAINS: AN ALTERNATIVE THAT CREATES NEW PROBLEMS

Some argue that high-speed trains are the only feasible alternative to flights. However, high-speed trains are not without their own problems: First of all, energy use rises exponentially with speed, so high-speed trains are extremely energy intensive. They also involve high CO₂ emissions from producing the cement and steel used in the large-scale constructions needed for these trains (e.g. long tunnels and bridges). Second, trains still do not run with 100% renewable energy. Third, constructing new train lines for high-speed trains can be very complicated: since sharp curves are problematic, they cut straight through the landscape. This can lead to resistance because of loss of livelihoods and biodiversity (an example is the *No TAV* movement in Italy). High-speed trains involve large land destructions: A 100 km high-speed train line require the same land destruction as a new airport (5000 ha for 400 km track). They are also very expensive (10M€ for 250km), and high speeds (>300km/h) cause rails to quickly deteriorate.

It might be worth discussing whether there is a socially and ecologically acceptable limit for speed. Furthermore, convenient travelling does not mean setting new records of maximum speed but having a reliable network of lines

with a high total average speed available. Having connecting trains available within 5 or 10 minutes (instead of 40 or 55 minutes) saves more time than increasing the maximum speed from 200 to 300 km/h. Even on German fast trains, average speed is far below 200 km/h.

SHIPS WITH RENEWABLE PROPULSION

Overseas travel was more common by ship than by plane until the 1970s. For such trips, ships could still be an alternative to flying. The problem is that currently, there are almost no existing passenger ships left. In addition, the shipping sector's environmental impact is also considerable. Cargo or cruise ships usually use heavy oil as fuel, which is why shipping is a growing source of greenhouse gas emissions and is also a major source of other kinds of air pollution, causing health problems, acid rain and eutrophication. Much like aviation, the sector's international emissions have never been included in international climate agreements and related reporting, including the recent Paris Agreement (see also **chapter 8**). Apart from the need to reduce international trade in goods and to strengthen regional economies, technological improvements need to be developed and implemented quickly, in order to replace heavy oil with a mix of renewable alternatives like wind, solar, battery-electric, hydrogen or ammonia. Such technologies for shipping can be implemented much easier than for aircraft. Alternative propulsion (not using fossil fuels) for small ferries on short routes is already operational, and extension to larger vessels of longer range is promising.

There currently exist some examples of alternative passenger and cargo transport by ship:

- *Fairtransport*,⁹ based in the Netherlands, is the first modern 'emission free' shipping company. They use only the wind as a means of propulsion. Their ships sail between Europe, the Islands in the Atlantic, the Caribbean and America with a focus on transporting special products which are organic, or crafted traditionally – such as olive oil, wine and rum. The ships also carry passengers, offering the opportunity to travel across the Atlantic without emissions. *Fairtransport* is a member of the Sail Cargo alliance, an alliance of sailing cargo vessels which also carry paying passengers.
- *e-Ferry*¹⁰ is a zero emission commercial ferry powered by rechargeable batteries connecting the Danish part of the Baltic Sea and the island of Ærø to the mainland.
- The project *Race for water*¹¹ campaigns against plastics in the sea, and uses a ship powered by solar, wind and hydrogen.
- *Sail to the COP*¹² is a project where a ship and a crew of activists sailed from Europe to the Americas. It raised awareness of aviation before the climate summit which was meant to be held in Chile in December 2019.

On these kinds of trips, the journey is part of the adventure. It might be possible to gain sailing experience which can enable sailing with other vessels in other parts of the world. A longer ship journey offers the opportunity to take time off, relax, escape the ever-increasing pace of life and use the time for oneself.

But of course, this kind of ship travel is no alternative to current forms of plane travel. Trips by ship are very marginal and something for adventurers or people with enough money. Furthermore, to be able to use traditional sailing ships, only specific routes can be taken, and only at certain times of the year when the winds are reliable.

TELEPHONE OR VIDEO CONFERENCES

Telephone and online conferences can drastically reduce work travel. Online methods can be used for interviews, conferences, workshops (webinars), or hybrid learning (to communicate with one or more remote students or faculty in a classroom environment synchronously with video and content). While Skype used to be the most common platform, many more providers have established well-functioning systems in the last years. Some of them are for free, some require a charge, some are less secure, while others are encrypted. There are real-life examples for how conferences can be organised with online attendees and presenters in ways that are inclusive and function well.

- The network *ecolize* is developing an inclusive concept for online participation at conferences, which includes the remote participants into the social aspects of a conference like meals, coffee breaks etc.¹³
- Virtual reality (VR) is growing and improving by the minute. There are companies already offering VR platforms for meetings. Examples are *meetinvr.net* and *portalspaces.com*.

This alternative can save both emissions and money, reduce paper and plastic waste, save time, and increase flexibility. Establishing online conference systems is also cheaper than paying for flights.

Online conferencing is considerably more climate friendly than flying, but online communication or virtual reality is not emission free. In fact, studies say the internet in total produces about 2% of the world's CO₂ emissions.¹⁴ Further, special electronic equipment is needed for large-scale video conferencing, and electronics are increasingly associated with a range of environmental and social problems, such as mining pollution, local resistance or problematic working conditions. Other problems that result from treating information online include security breaches and privacy issues. Also, it will always be necessary for certain personal relationships to interact face-to-face: feelings, friendships and emotions are hard to deal with when talking to a computer. But in many cases, work

meetings and conferences can still be an alternative to flying.

REDUCING LONG-DISTANCE TRADE - AN ECONOMY OF SHORT DISTANCES

Freight transport accounts for a significant share of carbon emissions. Instead of aiming to triple the volume of transport by 2050,¹⁵ we need to reduce the demand for goods from far away and develop localised economies. Food in particular could be grown as locally as possible. This measure would at the same time serve the goal of increased food sovereignty.¹⁶ The aim must however be climate protection, not nationalist-style protectionism. This can and needs to happen alongside maintaining multi-cultural and open-minded societies.

It becomes clear that it is hard to tackle the issue of aviation in an isolated way. Aviation is embedded in a broader picture of a fossil capitalist economy that will be hard to overcome without radically changing policies—not only for transport, but also for other sectors such as trade, agriculture, energy or the financial system.

Practical measures are numerous and cannot be discussed in this report. They could include resistance to free trade agreements, higher tariffs on products brought by plane or fossil-fuelled ships, subsidies for local production of food and goods, and much more. Because they are systemic in character, such proposals will face significant resistance. Joining forces with other social struggles (on food sovereignty, trade justice, etc.) will therefore be important.

DEGROWING AND RESHAPING TOURISM

The increase in aviation, and especially in cheap flights, has been a key driver for the parallel increase in mass tourism and its negative effects both on the environment and the local society (see **Info Box 3**). There has recently been a surge in local protests around airport expansions, real estate speculation and urban planning policies. If aviation and its impacts are to be reduced, this necessarily involves changing the tourism industry and travelling in different ways. Tourism must change both quantitatively and qualitatively:

1. Reshaping tourism in order to reduce its negative impacts, making tourism more sustainable and in line with the visions of long-distance travel in the future.
2. A degrowth of tourism induced by a reduction of tourists, especially at hotspots, through the establishment of negative incentives or straight forward caps and limits.

Qualitative change: Reshaping tourism

If we wish to transform tourism in an equitable way for citizens of 'tourism-struck' areas and the environment, it is crucial to empower citizens to express how tourism affects their daily lives. Urban planning plays an important role in order to grant the opportunity to democratically decide what each space is dedicated to. To design cities with the resident and not only the visitor in mind, must necessarily imply limitations to large transport infrastructures such as airports and ports. In Barcelona, a suggestion for democratising the planning related to tourism has been to move from tourism management based on public-private undertakings (such as *Turismo de Barcelona*) to public-community management, where citizens can effectively participate through legal entitlement.

Unfortunately, one must also be realistic and consider some of the key obstacles for the implementation of participatory and citizen-led local decision-making concerning tourism: The first regards the large influence of very powerful lobbyists representing the supply side of the tourism sector. The second is society's general positive image of tourism. Social media and its individualist/identity-shaping premise begs us to share content online. And this is exactly what fuels the tourist sector's belief in and realisation of profits. Furthermore, as in the case of Barcelona, many tourist-occupied infrastructures are owned by the state and therefore decisions are not made at the local level where the impacts of tourism are felt the most. Concrete ways to reduce negative effects of tourism also include fostering environmentally friendly transport (see above); rent-freezes and public housing in touristic areas, so that residents are not driven away; the generation of alternative jobs that could replace both fossil and mass-tourism oriented ones (e.g. in a localized production of goods); and facilitating public space, local shops and trading which is oriented towards the residents.

Apart from the measures above, the perception of tourism and travel would need to qualitatively change. We could call this travelling, in order to make the difference to tourism clear. Travelling includes an openness towards cultures and new experiences, demands only modest infrastructure and facilities, and usually takes more time, maybe even several weeks or months.¹⁷ However, the scale problem, with respect to the amount of tourists, will remain even if we travel differently. In some places this problem is so big that reshaping tourism alone will not help.

Quantitative change: Degrowing tourism

If a rising amount of people start travelling to unconventional tourist destinations in order to experience 'authentic' cultures, there may no longer be any unspoilt environments to speak of. For example, Instagram has recently driven thousands of people to take photos in national reserves and places where tourists usually would not

travel to—or are prohibited to visit for good reasons.¹⁸ So while it might be clear that tourism needs to change qualitatively, we also need to think about reducing tourism overall.

Most of the measures to reduce aviation discussed in this report would likely lead to a reduction of a certain type of problematic tourism. But there are also concrete measures to degrow tourism that can be implemented, especially by affected communities. One possibility is to increase the tourist charges for the public sector services that tourists make use of, such as public transport, maintenance, cleaning and security of public space. For example, in September 2019, Venice started to collect a \$3-\$10 fee from visitors.¹⁹ Tourists can purchase their tickets online before coming to Venice and, depending on the exact package, these tickets grant them admission to tourist attractions and cultural events, as well as access to public transportation.²⁰

Local taxes or bans could be linked to the travel mode or other tourism facilities, such as accommodation. Finally, reducing the 'supply' side of the tourism sector, might be the most effective. Reducing the number of visitors and overnight guests can be achieved in many ways: limiting the number of cruise ships/flights per day, placing a moratoria on the expansion of local airports and/or on the construction of new touristic accommodation, or imposing a reduction of tourist accommodations by banning the use of Airbnb or reregulating parts of the city.

FURTHER READING

BUND - Bund für Umwelt und Naturschutz Deutschland (2015). *NGO-Luftverkehrskonzept (NGO aviation conception for Germany: summary in English)*. Berlin. https://www.bund.net/fileadmin/user_upload_bund/publikationen/mobilitaet/mobilitaet_ngo_luftverkehrskonzept.pdf

Friends of the Earth Europe (2018). *Sufficiency: Moving Beyond the Gospel of Eco-efficiency*. https://www.foeeurope.org/sites/default/files/resource_use/2018/foee_sufficiency_booklet.pdf

Friends of the Earth Europe (2000). *From Planes to Train. Realising the Potential from Shifting Short-Haul Flights to Rail*. https://friendsoftheearth.uk/sites/default/files/downloads/planes_trains.pdf

Öko-Institut (2015). *Emission Reduction Targets for International Aviation and Shipping*. <https://tinyurl.com/pyhhwsy>

Transport & Environment (2018). *Roadmap to Decarbonising European Shipping*. <https://www.transportenvironment.org/publications/roadmap-decarbonising-european-shipping>



INFO BOX 4: A VISION FOR LONG-DISTANCE TRAVEL BEYOND AVIATION

While many understand the critique of aviation and support some of the policies proposed to curb aviation growth, it is difficult to imagine the long-term degrowth of aviation. What would long-distance travel look like? How would people work and travel on holidays? Visioning exercises are useful when trying to imagine a different future. So, let's travel to the future and imagine a new reality! We can imagine that we are in the year 2035 and that things have fundamentally changed. What would the world be like if the aviation industry has radically shrunk?

Policies and institutions have limited aviation to a minimum: people only fly during exceptional circumstances, and long distance travel by other means is available to everyone, not just the privileged few. Long distance trips are reserved for once every few years. Then people really take some time for travelling. Decelerated lifestyles and work time arrangements enable slow travelling. We now have longer holidays, the possibility for switching working spaces, as well as sabbaticals. There has been a process of just transition for those working in aviation and aviation-dependent sectors, such as mass tourism sites or airports. Social justice legislation enables long-distance travel for people with families in distance places, acknowledging the differences in how difficult it is for certain groups not to fly.

Other means of transportation enable long-distance and climate friendly travel: night trains, coaches, sailing and solar ships with renewable gears as well as air ships are used. They are somewhat slower, but quite comfortable. People still travel, visit and explore. Cross-border trains can be easily booked, have good connections and are affordable. They include separate carriages for families, sleeping, chatting and eating. Everyone loves train stations—they are a space where people from all over meet in the clean, comfortable and convenient waiting rooms, while childcare is offered at the playing sites. Train rides and bicycles are often combined, and there is enough space for taking bicycles on the trains.

There are still a few planes that are used for special circumstances, such as when people with migration background need to join his or her family for an emergency situation, or catastrophes are to be averted. International cooperation and exchange has deepened.

While people travel less distance in total, they experience deeper connections to places and people with slower modes of travelling. The journey itself is just as valuable as the destination. We travel less and slower, and have longer stays. We have accepted that 'fast and long distance' travel is not possible anymore (the same way that it is not possible to go to the moon for a visit). This means re-localised networks, where world diversity is recreated in each locality, and good coordination and cooperation within this diversity. While visiting Algerian bars and Algerian friends it seems not so necessary to travel to Algeria. We experience more storytelling by travellers who tell about other parts of the world. There are no more tourists of the old kind, but rather visitors that we welcome in our homes—reconnecting with this part of humanity that used to welcome each other. It also means more solidarity at the local level, including reduced consumption of products from far away. Instead, such products have become very special, and not for everyday consumption. Some formerly imported products are now produced locally instead. We give more value, in each locality, to local archaeology and nature, instead of focusing on touristic mythic monuments. This way, we have reconnected with the diversity around us. Airports are recuperated for other purposes like adventure parks and museums of the old fossil history, and secondary houses have been recuperated for local inhabitants. There are quiet skies and healthy environments for everyone.

Societies have always and will continue to transform, and there are many futures possible. It seems easier to imagine climate breakdown than a world after capitalism — let's try to create more vivid imaginations of the future we want!

¹ Department for Transport (2014)

² The Conversation (2018)

³ New York Times (2019)

⁴ Back on Track (2018)

⁵ BUND (2015)

⁶ UBA Germany (2019)

⁷ The Man in Seat 61 (n.d.)

⁸ Back on Track (n.d.)

⁹ Fairtransport (n.d.)

¹⁰ e-Ferry (n.d.)

¹¹ Race for Water (n.d.)

¹² Sail to the COP (n.d.)

¹³ ecolize (n.d.)

¹⁴ Climate Care (n.d.)

¹⁵ ITF (2017)

¹⁶ Via Campesina (n.d.)

¹⁷ Konstantinus (2018)

¹⁸ Coffey (2018)

¹⁹ Fox (2019)

²⁰ Venezia Unica (2014)



Conference Degrowth of Aviation, July 2019 in Barcelona.
Photo credits: Christine Tyler / Stay Grounded



7.

INSTITUTIONAL CHANGE OF TRAVEL POLICIES

Travel policies of organisations mostly follow this pattern: the cheapest and fastest way to travel will be refunded. This often supports the current norm of flying for convenience, and forces people to take the plane even if they don't want to. However, individuals and organisations are now increasingly challenging this way of doing things, and many bottom-up initiatives within organisations are currently developing more sustainable travel policies.

As the detrimental climate effects of flying become more evident, many organisations and businesses are starting to consider what role they can play through fostering sustainable travel practices. These vary from voluntary measures (e.g. you can take the train if you want) to strict rules (e.g. ban on short-haul flights). Such travel policies can complement top-down approaches like taxes, restrictions or bans, by raising awareness about the negative impact of flying and by initiating changes in norms and behaviour within organisations. They can also be seen as a bottom-up political action to create conditions for institutional change (e.g. regulations and norms) more generally.

The development of progressive, broad and strict travel policies has begun to occur in many places. However, it seems that academic and research institutions are particularly ahead on these development, and even more so, departments working on climate change and sustainability. However, we also find examples of progressive travel policies in a wider range of sectors, including municipalities (e.g. Malmö), cultural centres (e.g. Helsingborg concert hall), the media (e.g. Politiken, one of the largest Danish daily newspapers), public organisations (e.g. BBC Worldwide) or private firms (e.g. Lush, Novo Nordisk).

The types of travel policies, however, vary considerably. Many organisations have some kind of general environ-

mental certification, such as EMAS or ISO 4001. The problem with many of these certifications is that they do not specifically address flying or transport, nor strategies to cut emissions. Other organisations focus on economic incentives, like internal offsetting or subsidies (e.g. UCLA). Offsetting emissions from flights is one of the preferred measures. It imposes higher costs, but means no real change in behaviours and policies. According to several studies it is basically useless in terms of emissions reductions (see **Info Box 5**).

A progressive travel policy is a policy that aims to reduce emissions. Within organisations which have an active policy with respect to travelling, there are typically 3 types of policies (according to degrees of enforcement):

- *allowing* employees to take the time needed to travel by train (and pay any extra costs),
- *actively encouraging* environmentally friendly travel or less travel, or
- *imposing* more sustainable travel arrangements – that is, enforced internal rules.

In the following, a focus will be put on the latter kind of policies.

Ghent University is an example of an organisation which has adopted an organisation-wide travel policy with some absolute and enforced internal rules that imposes certain limits on staff's travel. For example, it has banned reimbursements for plane travel to any location that is accessible by a six-hour train ride. Similarly, BBC Worldwide's travel policy stated in 2009 that staff are only permitted to fly if train travel adds more than three hours to the journey.¹ Another example is the German initiative *Einfach Jetzt Machen*² featuring companies that promise to avoid domestic flights and flying for distances shorter than 1000 km. A best practice example of an organisation that has developed an elaborate, strict and awareness-raising travel policy, comes from LUCSUS (Lund University Centre for Sustainability).³ A two year process led to the adaptation of a travel policy in December 2018. The adopted travel policy aims to reduce emissions while also creating awareness and ownership to one's own process of reducing flying, and involves, amongst other things, a structured decision tree to help employees in this process. Other organisations focus on aspects such as including visiting guests in addition to staff and management in their travel policies. Some also focus on work-life balance, i.e. they encourage and reward avoided personal flying by giving extra days off for travelling slow during holidays (e.g. Weiber Wirtschaft or 1010uk.org).

ADVANTAGES AND DISADVANTAGES OF PROMOTING CHANGE IN TRAVEL POLICIES

For many organisations, travelling is by far the largest contributor to their carbon footprint, and implementing progressive travel policies could make a substantive contribution to reducing them. Hence, the motivational aspect is clearly present, and in practical terms, it is also a feasible measure. Instead of waiting for collective top-down measures (arguing that general regulation is more effective) or that others should go first, developing an organisational travel policy is available to everyone.

In practice, progressive travel policies are often initiated by the staff themselves in what can be termed an internal bottom-up process. This can have the advantage, compared to more managerially imposed internal policies, of creating more ownership of the organisation's travel policy. Existing examples show that only a few employees can achieve much within their organisations. However, for this to happen, it is necessary to overcome the belief that individual/small scale solutions do not matter.

Additionally, the managerial level of organisations have discovered that developing progressive travel policies is an opportunity for them to be 'climate leaders'. Organisations can inspire and influence others simply by being examples and role models in their respective sectors and showing what is possible. Ideally, they also engage more actively, in ways such as making the issue of travel policy more visible and creating pressure in their sector for other organisations to follow suit. Interesting examples

include initiatives like *Einfach Jetzt Machen*,⁴ individuals pledging not to fly for work,⁵ or, in the academic sector, *#flyingless*⁶ and *No Fly Climate Sci.*⁷ Another example of bringing visibility to the way we travel is the idea of the European Society for Conservation Biology, which gives an award to the person(s) who have travelled in the most environmentally friendly way to their biannual conference.

Organisations can become ambassadors for broader policy changes that are necessary to reduce flying on a societal level. Changing internal practices helps raise awareness. Staff who are forced to change their travel practices at work might transfer their new experiences and awareness to their private lives. Organisations can also push for regulations that makes progressive travel policies mandatory for everyone. They can work politically to address obstacles that become obvious as they try to change travel habits at the organisational level. Such obstacles include public travel refund laws, travel policies of funding institutions, and the general shortcomings of alternative modes of transport (see **chapter 6**).

For example, public sector bodies and other organisations receiving public funding in Germany (e.g. universities, NGOs) cannot freely choose their own travel policies, as they must follow the centrally decided travel policy (the *Bundesreisekostengesetz*⁸). Centrally changing public sector travel regulations would have a huge impact on overall emissions since these policies often inspire other organisations' travel policies.

Finally, developing and promoting progressive travel policies need to happen within a broader discourse, which also questions the necessity of business trips. In person work meetings could be converted to online conferences (see **chapter 6**). This also means that competences and infrastructures must be formed within organisations (skill and knowledge sharing) that enable employees to participate in meetings virtually. It also means a change of norms regarding how to conduct business meetings. For the organisation travelling less it can save costs, and for employees, it would afford more time at home and less stress. There is also a gender dimension to this: as men generally fly more, reducing flying can also make care work conditions more even.

Fostering train travel can result in a direct advantage for staff: the time on a train can be used for work or exchange with colleagues (working conditions there are generally better than on planes), trips are only taken as necessary (the overall amount of travelling is reduced, therefore there is an improvement of the work-life-balance), and with trains you usually arrive directly into city centres causing less stress with security checks. Regarding train travel, the development of awareness and competences amongst employees has to be supported (e.g. regarding how to get from A to B, how to find the cheapest option, how to plan meetings in a way that everyone can attend by taking the train, how to work on trains, etc.).

The main disadvantage with respect to achieving wide implementation of sustainable travel policies is that they are (so far) voluntary measures. Implementation depends on the goodwill of organisations, meaning it can end up being the progressive and ecological ones who lead the way, while big business continue with their emissions intensive and high-speed practices. There is also a potential for sustainable travel policies being misused for greenwashing and PR.

STRATEGIES FOR FOSTERING PROGRESSIVE TRAVEL POLICIES

Promoting the implementation of sustainable or fly-less travel policies can be a way to engage actors who want to make a contribution to reducing their carbon footprint without having to wait for policy changes from above. Putting in place or changing organisational travel policies is a bottom-up measure which can be combined with other public policy initiatives, thus supplementing the top-down measures discussed in previous chapters.

Strategies for fostering progressive travel policies should focus on two main issues:

1. supporting the introduction of progressive travel policies within organisations, that is, travel policies which enforce flying less policies;
2. supporting organisations who aim to spread good practices, inspire peers, and who push for stronger regulation to address aviation growth and, more generally, the climate crisis.

Campaigns might focus on how companies and other organisations can reduce their environmental footprint through progressive travel policies. Although the most progressive travel policies seem to have been developed through internal bottom-up processes by a few engaged people, we could also envision a larger role for local trade unions as an alternative way of pushing for more progressive travel policies from within organisations.

Shaming campaigns, like the Swedish #flygskam, can have large impacts on behaviours and impact the public discourse. Still, there might be as much to gain from highlighting and promoting best practices, and facilitating learning between organisations and initiatives. By exposing best practices, organisations can inspire and learn from each other. A range of examples exist from which to draw inspiration and build upon. Campaigns could also appeal to organisations who want to be in the forefront in terms of addressing climate change, and help distinguish those who make genuine contributions from those who might use the travel policy as a greenwashing strategy. In this case, commitment at the management level is imperative. The *Let's Stay Grounded!* campaign aims to collect pledges from organisations to change their travel policies by reaching out to NGOs, universities, cities, mi-

nistries, trade unions and companies and proposing concrete measures to reduce flights in their institutions. Best practice examples will be shown on the campaign platform.⁹

In particular, campaigns could identify and support those organisations who work beyond their own organisation by sharing examples and pushing for change at the policy level. A concrete case to draw inspiration from, in this regard, is the former smoking policy in Denmark: workplaces of a certain size were obliged to formulate a smoking policy (the public did not interfere with the content of this internal policy, it just demanded that a policy was formulated). We could explore whether something similar might be a first step on the way to more top-down restrictions on organisations' travel habits.

Campaign efforts should also address large corporations and national public sector bodies, who would have significant aggregate effects on emissions if they changed their travel policies.

An important part of a 'changing travel policy' campaign is to link to wider questions of systemic change. This would entail not only promoting restrictions on short-haul flights, but to raise awareness about travelling more generally. To what extent is business travel necessary?

There is a range of actors to involve in the promotion of more progressive travel policies. One group to reach out to is journalists—to encourage critical journalism that can write about the whole range of issues related to the topic. Another actor is trade unions. In particular the issues of health and stress related to travel, should be a topic of common interest, but also trade unions should be involved in contributing to establish more progressive travel policies.

Travel agencies are notoriously bad at providing good information on non-flying travel alternatives. It is a skill to learn to travel differently and take the train again, a practice which was normal for business trips until the 1970s. In this regard, sustainable travel agencies have an important role to play.

There is also a need for more research. For example: does sustainable travel necessarily mean higher travel costs and more time spent on travelling in total? This seems to be the general perception, but there is also evidence pointing against it. Maybe it is as simple as this: slower travel = less travelling = lower costs?

Another area in need of further development, is emission calculators related to travelling. Both better data and improved methods are necessary to ensure that calculating the climate impact from aviation take into account non-CO₂ related impacts. The issue links to another accounting and reporting issue, namely, what kind of emissions do companies and organisations account for in their environmental reports: only direct emission, or also indirect

emissions? In France, for example, companies with more than 500 employees are required to report their carbon emissions, but only the direct ones. A campaign for progressive travel policies, should challenge this rule and general practice.

FURTHER READINGS

Burian, Isabell (2018). *It is up in the air. Academic flying of Swedish sustainability academics and a pathway to organisational change*. LUCSUS Master Thesis, no 2018:013, Lund University.

de Decker, Kris (2017). *Why do Business People Travel?* <http://www.demand.ac.uk/why-do-business-people-travel/> (with a lot of other resources in the literature list)

Kimberly, N. and S. Wynes (2019). *Changing Behavior to Help Meet Long-Term Climate Targets*. World Resources Institute. <https://www.wri.org/climate/expert-perspective/changing-behavior-help-meet-long-term-climate-targets>

LUCSUS - Lund University Centre for Sustainability Studies (2018). *LUCSUS Travel Policy*. https://www.lucus.lu.se/sites/lucus.lu.se/files/lucus_travel_policy.pdf

Wynes, S. and et al. (2019). *Academic Air Travel Has a Limited Influence on Professional Success*. In: *Journal of Cleaner Production* 226: 959-967.

1 The Guardian (2009)

2 Einfach jetzt machen (n.d.)

3 LUCSUS (2018)

4 Einfach jetzt machen (n.d.)

5 Loving the Atmosphere (n.d.)

6 Academics Flying Less (n.d.)

7 No Fly Climate Sci (n.d.)

8 Bundesministerium der Justiz und für Verbraucherschutz (2005)

9 Stay Grounded (2019c)



INFO BOX 5: EMISSIONS OFFSETTING— A MODERN SALE OF INDULGENCES

Offsetting emissions from flights is a popular measure amongst organisations trying to implement more sustainable travel policies. However, offsets generally means no real change in behaviours and policies, and is virtually useless in terms of emissions reductions.¹

Offsetting projects can involve generating energy from methane (which is produced in large quantities in industrial livestock farming) or building hydropower plants that claim to prevent production of energy from fossil fuels. Forest conservation projects and operators of tree plantations can also sell such offset credits representing supposedly achieved emission savings for the aviation industry.

Studies show that a majority of projects miscalculate their savings. Öko-Institut investigated the effectiveness of existing offsetting projects for the European Commission and concluded that only 2% of the offset projects have a high probability of resulting in additional emissions reduction.² If for example a hydropower plant is being built anyway, such a project should not be eligible for selling carbon credits, which in turn allow others to pollute more.

Additionally, offsetting projects are largely located in the Global South and often lead to local conflicts or land grabbing. This is especially the case with land or forest-based projects like REDD+ (Reducing Emissions from Deforestation and forest Degradation).³ Often, small-holders and indigenous people are restricted to use the forest in their ancestral way in order to store the predicted amounts of carbon in the trees. Ultimately, offsetting is unjust and a form of carbon colonialism.

To enable a small share of the world population to fly indefinitely with a clear environmental conscience, others bear the costs: people whose emissions are often already very low, whose historical contribution to climate change is negligible, and who are already experiencing the impacts of the climate crisis. Some have argued that if we make offsetting possible only as a 'last resort,' and try to offset emissions locally (for example in the local town or even inside the organisation), we do not contribute to further injustice. However, the fact remains that offsetting then becomes a license to pollute and help preserve the status quo. In this way, offsetting *prevents* the necessary fundamental changes of our mobility system.

¹ Stay Grounded (2017)

² See e.g. Cames et al. (2016)

³ WRM (2014)

8.

OTHER MEANS FOR REDUCING AVIATION

In addition to the measures outlined in the previous chapters that were discussed in working groups at the conference Degrowth of Aviation in July 2019, there are numerous other measures that could be explored further. Several of them are listed briefly here. They are not extensively researched but can serve as a starting point for future discussions, campaigns and policy changes. If you know of additional approaches to stop aviation's growth, please get in touch.

IMPROVE THE ACCOUNTING OF AVIATION'S CLIMATE IMPACT

Currently, different numbers on the climate impact of aviation are misleading both public and policy discussions. Industry, governments and media often only include national flights in their numbers (since this is what is reported to the UNFCCC), and almost never mention the overall climate impact of aviation—beyond CO₂. Important measures are therefore to seek the following improvements by those entities:

- Include non-CO₂ effects in GHG emissions accounting and online calculators. This should be done using a widely agreed-upon multiplication factor. Some countries already use such a factor: 1.9¹ in the UK, 2 in France² and Germany,³ 2.7⁴ in Austria. A wider review is underway, towards an agreed number. What is important to note is that the non-CO₂ impact is not a uniform factor, but that it differs according to aircraft type, route, altitude, season and day vs. night time. For example, a flight across the North-Atlantic from Europe to North America can have a non-CO₂ impact of 4.5 times the CO₂ impact.
- Make it mandatory for countries to include emissions from international aviation (and international shipping) in their reporting to the UNFCCC. Until this requirement is in place, international aviation (and shipping) should be included in each country's accounts for greenhouse gas (GHG) emissions. This also means including international aviation and shipping when trying to achieve own carbon neutrality objectives (as e.g. the UK⁵ and France⁶ are considering to do).
- Calculate and make available the indirect emissions of aviation, i.e. CO₂ emissions related to the production and distribution of jet fuel (regardless of fuel type, i.e. also including biofuels and synthetic fuels), the trips of the passengers and goods to and from the airports, the manufacture of aircraft, and airport activity.
- Require airlines to state an accurate estimate of the carbon emissions and non-CO₂ effects of each flight on the tickets.
- Require companies and organisations to include business trips in their carbon accounting and environmental reporting.
- The climate impact of aviation should be included in airports' GHG accounting/reporting and budgeting.
- The climate impacts from surrounding airports should also be included into cities' emissions accounting.

LIMIT AIR TRAVEL ADVERTISING

Air travel, although the most carbon intensive form of transport, remains highly advertised. The Stay Grounded position paper, outlining 13 steps to reduce aviation, demands in step number 10 that: “Systemic incentives for air travel should end. These include flight-related ads or other marketing by the travel, airline and aircraft manufacturing industries. [...] These strong actions have precedent. Some nations banned cigarette ads decades ago, despite the ubiquity of smoking (and the ads) and the perceived rights of smokers”.⁷

One strategy is to demand a ban or limit on advertising for flying, due to its harmful effects on the climate. Another strategy is to require that statements about climate impacts, and aviation’s contribution to them, be included on reservation websites, on tickets, at check-in stands and (unless they are banned) in advertisements. There are already several initiatives working towards changes in this direction: The Swedish campaign *20% Klimatvarning* demands that EU-wide, 20% of the advertising space for air travel and fossil-fuelled cars should include information about climate change effects.⁸ The German group *Am Boden Bleiben* calls for a stop to aviation advertising. The goal is to emulate the anti-tobacco campaigns that achieved governmental bans on print and broadcast advertising of tobacco products, as well as health impact labels on cigarette packages.

A by-invitation report to the UK’s Committee on Climate Change discusses air travel marketing and makes this recommendation: “Encourage more responsible flying by mandating that all marketing of flights show emissions information expressed in terms that are meaningful to consumers (e.g., as proportion of an average household’s annual emissions now and under Net Zero)”.⁹

BAN FREQUENT FLYER PROGRAMMES

The primary function of frequent flyer programs (FFPs) is inducing a norm of excessive—and often unnecessary—travel,¹⁰ to help boost the growth of the air travel industry. They cannot be justified in an era of dire climate crisis and should therefore be banned. Major airlines commonly make around half of their profits from their FFPs,¹¹ resulting from high mark-ups on frequent flyer plan ‘miles’ sold to credit card companies, car rental companies, hotels, etc., as well as merchant charges on airline-branded rewards credit cards.¹² In many cases, American Airlines’ flight operations have run at a loss, with its sole source of profit being its FFP.¹³

Such bans have already been tested: Denmark¹⁴ had bans for domestic frequent flyer programs in the past, to equalise competition among airlines. A report from 2019 by the UK government’s Committee on Climate Change¹⁵ includes recommendations for a ban on air miles and on frequent flyer programs, and proposes emissions labelling in air travel marketing.

BAN STATE FUNDING FOR AVIATION

Another approach is to campaign for a general ban on state funding for aviation. State support for aviation is widespread. It ranges from indirect subsidies to exemption of VAT (as outlined in **chapter 2**). Other examples include support to Airbus (which caused trade penalties issued by the US), free infrastructure that is brought in place to enable people to get to and from airports, extremely low lease costs of grounds for airports to state-funded research for aviation, artificially low landing fees, costs of police and security, and investments in (partly) state owned airliners. Additionally, the cost of air traffic control is borne by taxpayers. Topped by free CO₂ emissions under emission trading schemes and CORSIA. These exemptions and subsidies cost taxpayers tens of billions of euro and dollars. Each time a traveller buys a ticket, taxpayers pay at least the same as the ticket price for these hidden costs. This also increases the gap between rich and poor: the poor pay for the travelling habits of the privileged few.

REGULATE INTERNATIONAL AVIATION’S (SUPPOSED) REGULATOR - ICAO

The UN Framework Convention on Climate Change (UNFCCC) has delegated the task of regulating non-technical aspects of aviation’s climate impacts to the UN International Civil Aviation Organisation (ICAO). However, the UNFCCC must reclaim this authority for several reasons. ICAO is deeply conflicted on climate matters because one of its main goals is the growth of aviation. In addition, ICAO’s process is secretive, and organisations that lobby on behalf of the aviation sector have strong insider positions. If the UNFCCC does not take that step, it should prohibit ICAO from continuing to use and adopt regulations that rely on offsetting (see **Info Box 5**), and require that ICAO operates with utmost transparency on climate matters, including allowing unfettered observation of its meetings by the public, and free public access to all climate- and environment-relevant documents.

BAN AVIATION INDUSTRY’S LOBBYING

One large campaign, which started at the end of 2019, demands that the EU cuts fossil fuels out of its politics, and pushes for change at the national and UN level.¹⁶ The goal is to hinder the industries from profiting from the climate crisis and from influencing policies aimed at addressing it. There is a precedent: the World Health Organisation introduced a firewall to protect public health officials from tobacco lobbyists. The campaign on fossil fuels could also have an impact on aviation, since kerosene is mostly made up of fossil oil, but biofuels which can sometimes be even more harmful are excluded from this approach. Another possibility is to demand a firewall for the aviation industry, biofuels and related sectors.

RESTRICT AVIATION'S FUEL SUPPLY

A declining cap on aviation fuel production and importation, regionally as well as (eventually) globally, would directly reduce climate-harming emissions and provide a clear signal to not expand airports.¹⁷ The feasibility of this measure has not yet been studied.

USE EXISTING PERMITTING PROCESSES

Some local and regional campaigns could strategically make use of existing permitting processes to oppose new jet fuel supply pipelines and fuel farms. This could be an indirect way to oppose a specific airport project, through attacking the supply chain. Although similar to the aforementioned strategy of restricting the fuel supply of the entire regional or global aviation industry, the strategy here is specific to a local airport project and its overall impacts, as well as those caused by a long-distance fuel pipeline and the local storage facility.¹⁸

COUNTER LOW-COST AIRLINES AND SUPPORT A JUST TRANSITION

The relatively new existence of low-cost carriers is a major reason for the new 'normality' of flying. While deregulation and absence of taxes account for cheaper prices, low-cost carriers also skimp on workforce costs. In the USA, for instance, the wages of airport staff fell by 19% between 1991 and 2001. Qualified staff are increasingly being replaced by inexperienced, cheaper part-time labourers. While quality and safety decline, stress and burnout are on the rise.¹⁹ There have been many strikes recently, demanding collective labour agreements, higher payments and better working conditions.

Supporting the demands for good working conditions in the aviation industry may at first seem counter-productive for achieving emission reductions, but it may actually be an important step: if low-cost carriers cease to be low-cost due to improved working conditions, this could decrease the demand for flights. If combined with both a reduction of employees' working hours and the creation of good 'climate jobs' (railway/renewable energy sector), the result could be a reduction of aviation. Supporting a just transition in alliance with trade unions is a necessary step for eliminating the supposed 'jobs versus climate'-dilemma, and can bring new allies to the climate justice movement.

DIVESTMENT FROM AVIATION INDUSTRY STOCKS AND BONDS

There are existing campaigns pressuring investors (especially large ones like pension funds, investment firms, insurance companies and universities) to shift the fos-

sil fuel stocks and bonds (or mutual funds that include them) in their portfolios to other kinds of assets. These campaigns have succeeded in diverting several trillion dollars of investments. A similar strategy could focus on investments in airlines, aircraft manufacturers, airport corporations, and airport construction companies.

The aforementioned aviation corporations will likely be affected to some degree by any impacts caused by the more general fossil fuel divestment campaigns, but a specific campaign could intensify the results. An aviation divestment campaign could be run under the aegis of the existing fossil fuel ones, or independently.

It is relevant to investigate how effective divestment campaigns actually are (apart from raising public awareness of fossil fuels' climate impacts). These campaigns only have a direct effect on an industry if a smaller market for the stocks and bonds reduces the value of new offerings of those financing instruments. Any devaluation of existing stocks and bonds as a result of the campaigns only reduces their value in trades between investors, and is inconsequential to the industry itself, but in practice there is little devaluation. As a result, substantial benefit, if any, of divestment campaigns for the climate is delayed and dependent on when corporations issue new securities.²⁰ Another matter is that while fossil fuels are widely viewed as problematic for the climate, an aviation divestment campaign has the added burden of changing public mindsets regarding air travel in order to get significant traction. But divestment campaigns can raise public awareness, helping to build a movement. Also, it is usually easier to call for divestment from dirty industries than proposing new investment in 'green' assets (which can, in any case, be problematic and drive land grabbing).

UNINSURE AIRLINES AND AIRCRAFT MANUFACTURERS

Large corporations depend on insurance to guard themselves against legal liabilities. This year, insurance companies have refused to renew or initiate insurance policies for several coal companies due to liabilities for climate change. Several cities have sued major oil companies over fraud and harms regarding their role in climate change. These companies may eventually also find insurance difficult, very expensive, or impossible to obtain. Campaigns to highlight the risk-exposure of airlines, aircraft manufacturers and airports to legal liabilities—or to sue them—may hinder these companies' ability to obtain insurance, operate profitably or to attract investors. Campaigns that have helped make coal operations uninsurable may serve as a model for how to proceed concerning aviation. The most successful model to date is *Unfriend Coal*.²¹ Their 2018 scorecard doesn't shy away from their achievements.²² For now, forcing de-insurance of aviation companies faces a higher hurdle than for coal, because aviation still has a positive public image. But that image is beginning to change. For inspiration, in 2015 the world's largest in-

insurance company (Allianz) divested from coal,²³ and last December, 73 environmental organisations urged re/insurers to pull out support for Australian coal mine.²⁴

CHALLENGE MILITARY AVIATION

Climate harming emissions by military aviation of some nations are enormous, particularly in the USA, UK, several European nations, Russia and China. It is a matter not only of the conduct of war, but of ongoing logistics of moving personnel and material by air, and of maintaining readiness in a tense world. These emissions have so far been intractable, with no NGOs finding a way to effectively confront the problem. Nonetheless, it deserves attention and should be part of a wider strategy that challenges both the climate impact of the military and its other inhumane consequences.²⁵

BEHAVIOUR CHANGE CAMPAIGNS

In Europe in recent years, several campaigns started raising awareness about the negative impacts of flying and encouraged people to pledge to fly less or not fly the next year/summer. Their goal is to start a snowball effect of individuals changing their travel behaviour. A prominent example is the ‘flygskam’ or ‘flying shame’ concept that went viral in social and conventional media, with people confessing to feeling ashamed when flying. In Sweden, it seems to have caused a slight reduction in flights and notably higher demand for trains in 2019.²⁶

Conversely, there are also critical voices concerning the effectiveness of behaviour change campaigns—the praxis theory points out several of them.²⁷ They foment the idea that individuals can only create change by consuming differently—while there are also many other ways for political engagement. They also ‘desocialise’ people and do not take into account the factors that drive people to fly, for example the social and cultural background, the economic situation, or the existing infrastructures. If flights remain ‘normal’—with advertisements placed at every corner, tickets continuing to be extremely cheap and few night trains available—there will be few people receptive to pledge campaigns, while millions of new people around the world discover the coolness of flying.

Still, especially in environmentally attuned sectors of society, the normality of flying can be challenged by role models like Greta Thunberg or people in one’s circle of friends, who show that living or travelling without flying is possible, exciting and ‘the new cool’. Being able to spark a movement of grounded or ‘terran’ people can, as has been the case with veganism, have an effect, especially if this leads to increased political pressure for policy changes.

For these reasons Stay Grounded is organising the European campaign *Let’s stay grounded!*,²⁸ incentivising people not only to pledge to fly less, but also to engage in activism combating aviation through a variety of means.

FURTHER READINGS

Larsson et al. (2019). *International and National Climate Policies for Aviation: A Review*. In: *Climate Policy* 19 (6). <https://www.tandfonline.com/doi/full/10.1080/14693062.2018.1562871>

Stay Grounded (2018a). *13 Steps for a Just Transport System and for Rapidly Reducing Emissions*. <https://stay-grounded.org/position-paper/>.

¹ Department for Business, Energy & Industrial Strategy (2018: 82)

² BilanGES (n.d.)

³ UBA Germany (2018: footnote 4)

⁴ UBA Austria (2019)

⁵ Committee on Climate Change (2019: 263)

⁶ Direction Générale de l’Energie et du Climat (2019: 3)

⁷ Stay Grounded (2018a)

⁸ 20% Klimatvarning (n.d.)

⁹ Carmichael (2019)

¹⁰ Gössling and Nilsson (2010)

¹¹ Leff (2017)

¹² Sorenson (2011)

¹³ Leff (2019a) and (2019b)

¹⁴ Storm (1999)

¹⁵ Carmichael (2019: 33)

¹⁶ Corporate Europe Observatory (2019)

¹⁷ Stay Grounded (2018b)

¹⁸ Market Industry Reports (2019)

¹⁹ ITF (2014) and (2016)

²⁰ Feasta (2014), *New Yorker* (n.d.)

²¹ Unfriend Coal (n.d.)

²² Unfriend Coal (2018)

²³ m350.org (2015)

²⁴ Sheenan (2018)

²⁵ Crawford (2019)

²⁶ de Zárate (2019)

²⁷ Walker (2015)

²⁸ Stay Grounded (2019c)



Activists draw a red line to demand a stop of the expansion of Barcelona airport. The action took place during the “Degrowth of Aviation” Conference in July 2019. Photo credits: Christine Tyler / Stay Grounded



BRINGING IT ALL TOGETHER. A SUMMARY

A multitude of measures have been discussed in this report. How do they fit together? What is necessary to bring them forward? Which actors are key in promoting them? Choosing a combination of measures must take into account cross-cutting concerns like social justice. The systemic change needed in order to avoid climate crisis is complicated but achievable step by step, when building a strong movement.

To reduce the negative impacts of aviation, we need to reduce aviation, that is, the amount of flights and planes. There is no alternative. As this report discusses, we have a wide range of measures to choose from for constructing the most effective strategy. They vary from fiscal measures, such as taxes and subsidies, to regulatory law, like absolute caps and bans. They can be either top-down or bottom-up strategies, but a combination would probably be most effective. Measures can include incentives that are negative (e.g. taxes on flying) or positive (e.g. inspiring more meaningful tourism and travelling). Fundamental to applying any of the measures is the importance of widespread communication about the need to reduce aviation.

Each measure has advantages and disadvantages in how easily it can be implemented, and to what extent it might help address wider systemic issues such as climate justice and transitioning to an ecologically sound mobility system. Some measures might work within the current system, while others might challenge it. If measures are only bottom-up and small-scale, without tackling the power and privileges of the aviation industry, they will not result in slowing down our current climate crisis. In formulating a strategy for degrowing aviation, one needs to think about how these measures can best be combined, how they can be brought forward, and by whom.

THE ROLE OF FISCAL MEASURES

While flying is virtually tax free, other forms of transportation are subject to excise duty, value added tax, and other levies. Hence, a main argument for introducing fiscal measures is to counter the ongoing, massive indirect subsidising of the aviation sector. Conventional economic theory holds that taxation will decrease demand for a service. However, a much discussed question concerns how high aviation tax rates have to be to cause a significant decrease in flying. For example, levying a standard VAT (Value Added Tax) on kerosene could lead to an 18% reduction in CO₂ emissions in Europe. A smaller tax would merely cancel out some of the (indirect) subsidies that the aviation industry receives, without having much impact on emissions reduction.

Market and price instruments have been the most favoured environmental instruments during the era of neoliberalism that started in the 1980s. From a social perspective, taxes on goods and services are often disfavoured because they apply equally to everyone—rich or poor. The wealthy can continue to consume, while the poor cannot. The frequent flyer levy (FFL) or the air miles levy (AML) attempt to address this social injustice, by making frequent or far flying progressively more expensive. Because lower income groups fly much less often, the FFL would mainly affect wealthier persons or companies that pay for work travel. This would be especially effective if the FFL or AML levy would increase for business or first class. For campaigning, it would be a key advantage. This suggests that the FFL or AML might be

among the introductory measures of policies for shrinking the aviation sector, being much more socially acceptable than other policy proposals. Since the focus of the FFL is on the number of flights, rather than distance travelled, it favours people with a migration background who have families living far away and those wealthy enough, despite the levy, to continue taking many long-distance flights per year. Reducing the *number* of flights is also the key demand of communities impacted by noise around airports. The AML escalates with air miles travelled rather than simply the number of flights taken. It more effectively discourages long-haul flights, shifting travel to surface transport—or to shorter distance flights. It is more closely linked to emissions and falls more heavily on those polluting more. An additional idea related to taxation is that the revenues generated could be earmarked and redirected towards developing more sustainable modes of transportation. The revenues collected in countries of the Global North should also be used to support climate friendly alternatives in the Global South (see **Info Box 2** on Climate Justice). Earmarking of taxes, however, is not common practice. Therefore, this part of a tax or levy policy might be more difficult, and in conflict with the legal system in some countries. Additionally, the aviation industry seeks to ‘ring-fence’ the revenues for its exclusive use, when tax or levy proposals are under consideration.

VAT, kerosene or ticket taxes, as well as a carbon tax, fit with current economic policy and the use of economic instruments, and could easily be implemented technically. Such taxes already exist in many countries. An advantage of ticket taxes is that they can be introduced at the national level without significant legal hurdles, and can be designed freely regarding rate, distance bands, and other features. A carbon tax would in theory apply to all fossil fuel use, while the other taxes would be specifically targeted towards aviation.

More generally, one disadvantage of a tax-based approach fundamentally ties in with the limits of market-based approaches and, as a result, fall short of offering a profound critique of systemic problems. Given the modest goal of any tax, it is not of utmost importance what kind of tax is introduced. The vital aim is that aviation is not given an unfair advantage over other transport modes. It should be feasible to receive support for levelling this competition. The FFL or AML would indeed tackle flying habits more than usual VAT, ticket or kerosene taxes, and should be applied in addition. Increasing the price for flying can by itself give a boost to alternative modes of transport, making them relatively cheaper. On the other hand, fiscal measures will not go far enough in terms of the needed emission reduction. Hence, to really have such an effect, it is necessary to also foster sustainable alternatives, and to implement regulatory measures like limits to the numbers of flight, moratoria on airport projects, shutting down certain airports, limiting air travel advertisements or other measures discussed in this report.

THE ROLE OF ABSOLUTE LIMITS

Setting absolute limits on aviation is, in principle, the easiest and most secure way to guarantee that the aviation industry does its fair share for climate mitigation. Arguably, setting limits is also preferable from a fairness perspective as hard caps and bans affect all concerned parties equally, rich and poor alike. The main challenge is that implementing absolute environmental limits does not seem to be politically feasible currently, as straightforward regulation or limiting people’s freedom are generally opposed. However, impacts of climate change are now worsening at an increasing rate, meaning a social tipping point might be in the near future. Moves in recent years to attempt soft caps through taxation, offsetting or emissions trading (cap-and-trade schemes) are examples of reluctance to set absolute limits. They allow the possibility (for those wealthy enough) to buy themselves out of the commitment. Still, the idea of banning especially easy-to-substitute short-haul flights has gained support in recent years and should be pursued.

Limits are necessary for more than just the number of flights or their specific distances. Chapter 8 proposed banning frequent flyer programmes, low cost airlines, state funding for aviation and industry lobby in certain democratic institutions. Other regulatory measures might include limiting the amount or presentation of air travel advertising, or restricting the amount of available aviation fuel. In addition, we have to start limiting tourism, especially in areas heavily affected by it. Such limitations could be formed through regulating the construction of new hotels or through a tourist tax. Also, divestment campaigns demanding limits to fossil or aviation investment, or campaigning for uninsuring harmful industries are possible strategies.

A **red line** also needs to be put on airport expansions. Currently, 550 new airports or runways are planned or are being built around the world, plus runway expansions and new terminals etc.—all in all, more than 1200 infrastructure projects. Constructing new airports is the aviation industry’s surest way to secure its future growth. Effective resistance against airport projects can prevent ‘stranded investments’ in a hopefully soon outdated infrastructure. In some of these sites, local resistance is already large and organised. Making alliances with stakeholders like trade unions might be a challenging but necessary strategy here. An advantage of a moratoria on airport expansion is that it is a direct hard stop on the local problem and does not necessarily involve extensive national or international legislative processes in order to be established. Calling for regulations on flying can also support the struggle against an airport project, as well as demanding alternatives to aviation.

DEVELOPING SUSTAINABLE ALTERNATIVES TO AVIATION

Boosting the use of alternatives to flying requires investing in expanding the network of long-distance inter-city train and bus routes, including larger numbers of and more comfortable night trains and buses. This does not necessarily mean building high-speed train lines, which should be avoided due to climate and environmental damage during construction, along with high operational energy use. Ferries should become an alternative to flying; however, they need to be modernised with vessels having renewable propulsion (wind, solar, batteries, etc.) and reopening closed routes should be considered.

The degrowth of the aviation industry will therefore combine with a certain growth in other climate-friendly sectors. Jobs will not be lost, but be directly transferred in a 'Just Transition'. This requires negotiations and collaborative planning, and includes improvements in the quality of work, including a reduction of work hours. Privatisations should in most cases be replaced with climate-friendly local initiatives, public ownership and democratic accountability.

A maximal shift in patronage from flying to long-distance surface (and sea) transportation requires the establishment of integrated and user-friendly international booking systems and improved transfers between trains, buses and ferries. A decline in air freight is also necessary to help stabilise the climate. Successes in reducing air travel by any of the means discussed in this report will contribute to that decline by reducing the airlines' aggregate belly-freight capacity. However, aviation is not only about transporting people, but also about transporting goods. Efforts to make economies more local for providing food and goods, ongoing in some places, need to be replicated elsewhere and will undercut some of the demand for air freight (as well as problematic sea shipments). Working for the relocation of economies is one way to challenge the massive international transportation of goods. Given the close links between the current fast mobility system and our current economic system based on constant growth, international free trade and globalised structures, such a measure will necessarily be viewed as problematic by those in favour of upholding the economic system in its current form. Military aviation is yet another aspect of aviation that must be addressed both due to its environmental impact and its humanitarian side.

THE ROLE OF BEHAVIOURAL CHANGE

All the above mentioned strategies need to be combined with raising public awareness of the fact that aviation is the fastest way to fry the planet. Communicating the total impact of aviation, and including the climate effects additional to CO₂ in different accounting is core for this (see **chapter 8**). For campaigning, language that uses metaphors, creates concrete pictures of problems or alter-

natives, and the ability to formulate new narratives and visions (see **Info Box 4**) are important tools for both seeking support for policy changes as well as incentivising individual behaviour change.

Seeking lifestyle changes by individuals that include less flying or even reducing one's overall amount of travel is a campaign strategy already practiced by flight shame and flight free organisations. These campaigns challenge the aviation industry's dominance by creating different narratives about travel and tourism. The aforementioned improvements to long-distance surface transportation, in addition to measures limiting aviation, are enablers of this shift in norms and practices.

Among the progressive narratives are, when possible, do not travel far if at all (e.g. stay local, use video conferencing); make fewer trips but with longer stays; enjoy the benefits and reduced stress of slow travel, as well as the opportunity (for a professional or student) to do productive work while *en route*. The need is to create a positive vision and desire for environmentally sound tourism and travelling.

Another campaign opportunity is behaviour change by organisations whose climate and environmental footprints include a large component from travel. The objective is getting them to adopt a progressive travel policy that leads substantially to travelling less and using the least impact mode of travel for each trip (even if the cost may be somewhat higher). Examples of such travel policies are already operative, and expectations for the content of a satisfactory plan should increase over time as societal travel norms shift for the better.

It is likely that for now only a few progressive organisations will adopt good travel policies. But these can be exploited as showcases, toward increasing acceptance of this new kind of thinking and practice. Collectively, voluntary behaviour changes by individuals and organisations can lead to a stampede of others making similar changes and eventually to the feasibility of achieving systemic changes that greatly diminish the aviation industry. For climate activists, campaigners and scientists, or people struggling against airport expansion, it is also necessary to stay grounded in order to be coherent and credible.

Only opting for campaigns targeting individuals or institutions to change their consumption are not enough—they need to be combined with the push for the structural changes mentioned above. The *Let's Stay Grounded Campaign!* is aiming to do just that.

INCORPORATING SOCIAL JUSTICE

The report suggested ways for taking social justice into account in campaigns for reducing aviation. It is vital that climate mitigations do not harm or burden the already

vulnerable groups in society, for example through unfair taxation or through destructive projects (e.g. biofuels plantations that put food security of poor people at risk). Some measures discussed in this report, like the FFL or AML, specifically address the topic of social justice, while other measures have a more indirect impact. Fiscal measures could create revenues to achieve more climate justice, including financial payments from countries of the Global North for liability and redress. At the same time, none of the measures discussed in this report will, alone or in combination, lead to social justice. Unequal distribution of wealth and power has to be tackled by other means, such as directly taxing the wealth.

One of the unresolved issues is how to take into account the needs of migrants. While migrants may desire to see family on other continents regularly, the relevant question in this era of climate crisis is to what extent it is reasonable to accommodate this special need. The dilemma cannot be ignored that forced migration will also most likely skyrocket with worsening climate catastrophe. Further, most refugees currently are excluded from taking flights because of exclusive visa and border regulations, and economic status. When discussing this topic, we also need to keep in mind the global injustice of the climate crisis at large. Still, the Frequent Flyer Levy is a measure that could allow regular visits to family living far away. Other strategies include contingents for every person, higher contingents for those with close family in other continents, or the possibility for applying for urgency-flights might be possibilities to explore for the future.

STRATEGY, ACTORS AND SYSTEMIC CHANGE

Aviation is closely linked with our transport system, with tourism, energy and global trade, and with our economic system based on constant growth and competition. Fast mobility is a key element of globalised capitalism, yet the faster the mode of transportation, the more climate-harmful it is. Climate justice can only be achieved by challenging this model, by reorganising mobility, regionalising the economy, and overcoming global inequity. This sometimes seems too big of a task - but step by step, with many different civil society actors, social tipping points are possible.

Until recently, flying was not viewed as a problem. However, in 2018 and 2019 a shift in the debate began in Europe and other parts of the world, due to the *Fridays for Future* movement, the *Flying Shame* debate, the *Stay Grounded* network, and rising media attention to the issue. In a YouGov poll, conducted in the United Kingdom in August 2019, two thirds of those interviewed said that air travel should “definitely” or “probably” be limited to handle the climate crisis. Scientists, decision-makers and public figures are starting to raise the issue—even though problematic measures like offsetting, biofuels or beliefs in technological miracles still hold and shift away attention from the needed reduction.

When reviewing the various measures outlined in this report, we see that they complement one another. Hence, working to implement a fiscal tax, while also calling for regulation of aviation activity as well as promoting alternatives makes sense. However, campaigns usually require focus and concrete demands, especially if brought forward by only a few stakeholders. Not everything can be done at the same time. It is important to choose demands and strategy carefully, while also allowing others to have *their* strategies, but also to keep the overall vision in mind when communicating about the specific case. This report, for example, recommends that we do not discuss ‘green’ or ‘decarbonised’ aviation, but a needed reduction of flights. It also makes a strong case for continually checking the proposed measure for its social justice implications.

The measures promoted in this report to reduce aviation are in line with those of the wider social movements for systemic change, including airport resistance groups, environmental NGOs, the tax justice movement, the climate/environmental justice movements, land and indigenous rights movements, and the degrowth movement. Additionally, reaching out to new alliances might be necessary: trade unions demanding a just transition; migrant organisations; human rights organisations; doctors calling for fine dust regulations, or others.

Tactics can range from raising awareness to organising affected residents of airport noise; effective media work (social media, press, adbusting, etc.) and working together with critical journalists in order to change discourses; looking for allies in policy making institutions; direct action and civil disobedience; creative, funny or artistic initiatives; lawsuits; petitions and more. When the movement becomes strong enough to challenge corporate interests, repressive tactics can be expected from the industry, as well as attempts to divide the movement. Special attention needs to be paid to not allow splits in the movement for climate justice and aviation reduction, but to respect different tactics or campaign focuses, and exchange experiences. Building solidarity through networking is key to bringing about the systemic change needed.

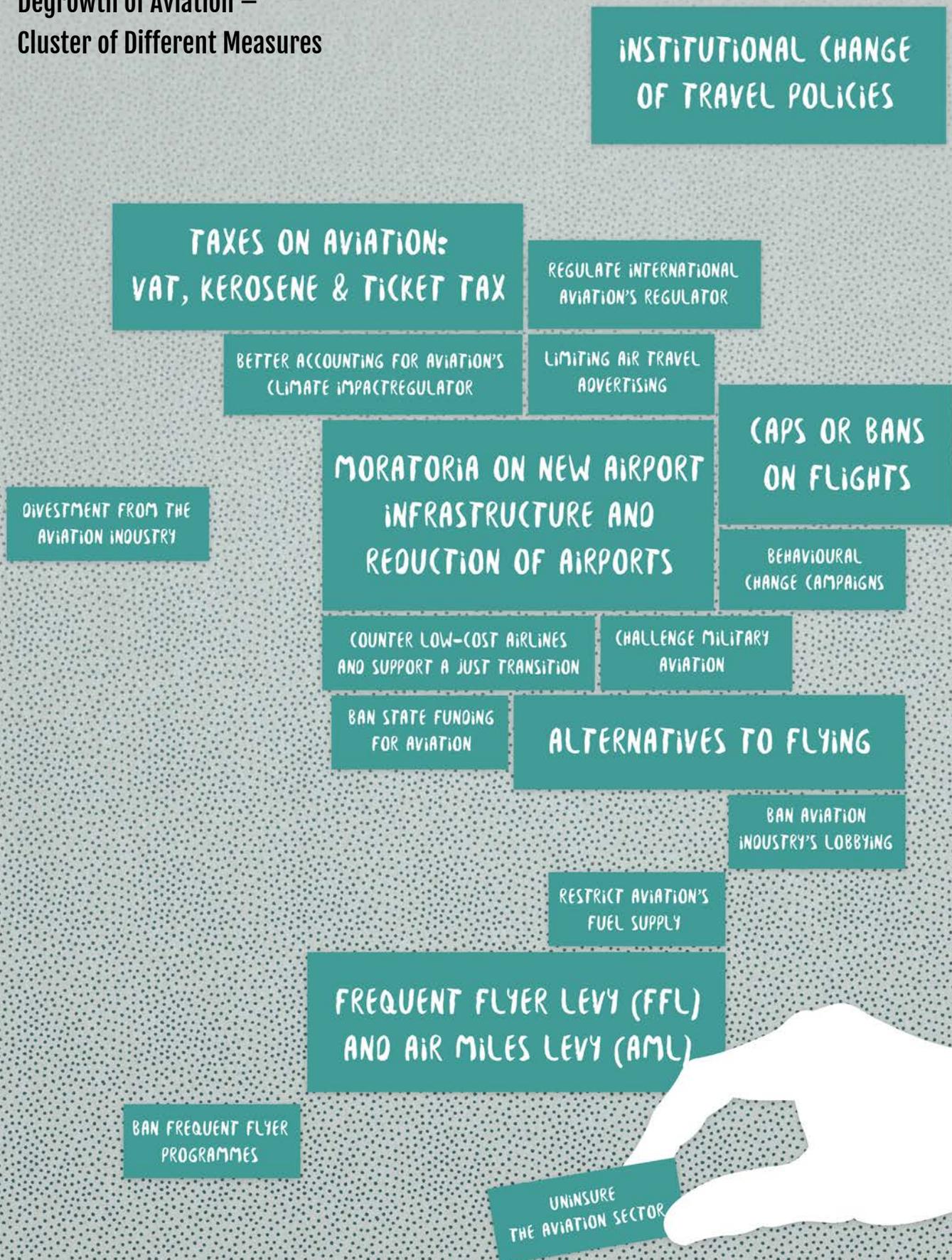
LITERATURE

- 20% Klimatvarning (n.d.). <https://klimatvarning.wordpress.com/in-english>
- 350.org (2015). *World's Largest Insurance Company Allianz Divests from Coal*. <https://tinyurl.com/v8f64nv>
- A Free Ride (2017). <http://afreeride.org>
- ACA - Airport Carbon Accreditation (2017). <https://www.airportcarbonaccreditation.org>
- Academics Flying Less (n.d.). <https://academicflyingblog.wordpress.com>
- Airport Watch (2018). *PCS Union Reiterates Its View That Heathrow Job Claims Cannot Be Trusted, and 3rd Runway Would Be Too Damaging*. <https://tinyurl.com/ty29utz>
- Ajuntament de Barcelona (2017). *Estratègia De Mobilitat Turística de Barcelona*.
- ATAG - Air Transport Action Group (2016). *Aviation: Benefits Beyond Borders*. <https://tinyurl.com/yx3jto73>
- Back on Track (2018). *Analysis of the Decline and Prospects of European Night Train Traffic*. <https://tinyurl.com/th7tvqb>
- Back on Track (n.d.). <https://back-on-track.eu>
- Bankrate (n.d.). *Building Moratorium*. <https://www.bankrate.com/glossary/b/building-moratorium>
- BBC News (2019). *Extinction Rebellion Heathrow Activist Charged over Drone Plans*. www.bbc.com/news/uk-england-london-49716251
- BilanGES (n.d.). <http://www.bilans-ges.ademe.fr/fr/accueil/documentation-gene>
- Bishop, S. and T. Grayling (2003). *The Sky's the Limit: Policies for Sustainable Aviation*. <https://tinyurl.com/sx7tcse>
- Blázquez Salom, M. and E. Cañada (2011). *Turismo Placebo. Nueva Colonización Turística: Del Mediterráneo a Mesoamérica Y El Caribe*. <https://tinyurl.com/rekczfz>
- Brand, U. and M. Wissen (2018). *What Kind of a Great Transformation? The Imperial Mode of Living as a Major Obstacle to Sustainability Politics*. In: GAIA – Ecological Perspectives for Science and Society 27 (3): 287-292.
- Bridger, R. (2015). *What Is an Aerotropolis, and Why Must These Developments Be Stopped?* <https://tinyurl.com/ydc27x6b>
- Buades (2006). *Exportando Paraísos - La Colonización Turística Del Planeta*. <https://tinyurl.com/w6a3gwj>
- BUND - Bund für Umwelt und Naturschutz Deutschland (2015). *NGO-Luftverkehrskonzept (NGO Aviation Concept for Germany: Summary in English)* <https://tinyurl.com/ubjlsw9>
- Bundesministerium der Justiz und für Verbraucherschutz (2005). *Bundesreisekostengesetz*. <https://tinyurl.com/ydbuo7td>
- Cames, M., R. O. Harthan and et. al. (2016). *How Additional Is the Clean Development Mechanism?* https://ec.europa.eu/clima/sites/clima/files/ets/docs/clean_dev_mechanism_en.pdf
- Carbon Brief (2016). *Analysis: Aviation to Consume Half of UK's 1.5C Carbon Budget by 2050*. <https://tinyurl.com/zesjurv>
- Carmichael, D. (2019). *Behaviour Change, Public Engagement and Net Zero: A Report for the Committee on Climate Change*. <https://tinyurl.com/y6jcvopw>
- CE Delft (2018a). *A Study on Aviation Ticket Taxes*. <https://tinyurl.com/y2duav5m>
- CE Delft (2018b). *Taxing Aviation Fuels in the EU*. <https://cedelft.org/en/publications/download/2693>
- CE Delft (2019). *Taxes in the Field of Aviation and Their Impact*. <https://tinyurl.com/u3xsxpx>
- Centre for Climate Change and Social Transformation (2019). *Public Opinion in a Time of Climate Emergency*. <https://tinyurl.com/vxde96d>
- Clean Energy Wire (2019). *Leading Climate Researcher Calls for Ban on Domestic Flights in Germany to Save Emissions*. <https://tinyurl.com/vqbaooo>
- Climate Care (n.d.). *Infographic: The Carbon Footprint of the Internet*. <https://tinyurl.com/zqwhvgf>
- Climate Change News (2019). *Marseille Airport Expansion Stalled on Climate Grounds*. <https://tinyurl.com/synmlpu>
- Coffey, H. (2018). *Why This Social Media Influencer Is Campaigning to Make Travel Instagrammers Behave More Responsibly*. In: Independent. <https://tinyurl.com/tradan6>
- Committee on Climate Change (2019). *Net Zero – the UK's Contribution to Stopping Global Warming*. <https://tinyurl.com/yyqqoed9>
- Corporate Europe Observatory (2019). *We Demand #Fossilfreepolitics*. <https://tinyurl.com/s6zx6m6>
- Crawford (2019). *Pentagon Fuel Use. Climate Change and the Costs of War*. <https://tinyurl.com/y4npyu8u>
- Cwerner, S., S. Kesselring and J. Urry, eds. (2009). *Aeromobilities: Air-Time Spaces: Thinking through Mobilities Research*. London: Routledge.
- Davenport, C. (2019). *Judge Delivers Major Setback to Trump Policy to Increase Coal Mining on Federal Land*. In: The New York Times. <https://tinyurl.com/y2ptkx32>
- de Zárate, F. (2019). *El Movimiento Que Pone En Solfa La Aviación*. <https://tinyurl.com/suy8wkv>
- Demaria, F., F. Scheider, F. Sekulova and J. Martinez-Alier (2013). *What Is Degrowth? From an Activist Slogan to a Social Movement*. In: Environmental Values 22 (2): 191-215.
- Department for Business, E. I. S. (2018). *2018 Government GHG Conversion Factors for Company Reporting. Methodology Paper for Emission Factors: Final Report*. <https://tinyurl.com/s3m7mx4>
- Department for Transport (2014). *National Travel Survey: Change in Travel since 1965*. <https://tinyurl.com/whycrsy>
- Der Standard (2019). *AUA-Chef: „Lufthansa-Gruppe Stößt So Viel CO₂ Aus Wie Ein Kohlekraftwerk“*. <https://tinyurl.com/tzrze93>
- Devlin, S. and S. Bernick (2015). *Managing Aviation Passenger Demand with a Frequent Flyer Levy*. <https://tinyurl.com/yx3cpfwu>
- DGAC (2017). *Enquête Nationale Auprès Des Passagers Aériens. Résultats Annuels 2015-2016*. <https://tinyurl.com/ryrbev7>
- Die Zeit (2019). *Flugverzicht Klimapolitik*. <https://tinyurl.com/y3bgqzp6>
- Direction Générale de l'Energie et du Climat (2019). *Synthèse Du Scénario De Référence De La Stratégie Française Pour L'énergie Et Le Climat*. <https://tinyurl.com/swy4p5n>
- e-Ferry (n.d.). <http://e-ferryproject.eu>
- ecolize (n.d.). <https://www.conferize.com/ecolize/2019-ga/no-travel>
- EEA – European Environment Agency (2019). *Data Viewer on Greenhouse Gas Emissions and Removals*. <https://tinyurl.com/ybewwyq7>
- Einfach jetzt machen (n.d.). <https://einfach-jetzt-machen.de>
- Environmental Justice Atlas (2018a). *Bangabandhu Airport, Arial Beel Wetlands, Bangladesh*. <https://ejatlas.org/conflict/airport-arial-beel>
- Environmental Justice Atlas (2018b). *ZAD at Notre-Dame-Des-Landes, Aeroport Du Grand Ouest, France*. <https://tinyurl.com/yxkg6oql>

- Environmental Justice Atlas (2019). *Koh Phangan Airport, Thailand*. <https://ejatlas.org/conflict/koh-phangan-airport>
- Environmental Justice Atlas (n.d.). <https://ejatlas.org>
- European Citizen Initiative (2019). *Ending the Aviation Fuel Tax Exemption in Europe*. <https://tinyurl.com/v4nsow8>
- European Commission (2001). *White Paper – ‘European Transport Policy for 2010: Time to Decide*. https://ec.europa.eu/transport/themes/strategies/2001_white_paper_en
- European Commission (2017). *Reducing Emissions from Aviation*. https://ec.europa.eu/clima/policies/transport/aviation_en
- Explane (n.d.). *Aviation Noise Reports*. <https://reports.explane.org/>
- Fahey, D. and D. Lee (2016). *Aviation and Climate Change. A Scientific Perspective*. In: CCLR 2: 97-104.
- Fairtransport (n.d.). <https://fairtransport.eu>
- Fatheuer, T., L. Fuhr and B. Unmüßig (2016). *Inside the Green Economy*. <https://www.boell.de/en/dossier-inside-the-green-economy>
- Feasta (2014). *Divestment from Fossil Fuels: A Critical Appraisal*. <https://tinyurl.com/shs672u>
- Fox (2019). *Venice Becomes the Front Line in the Battle against Over-tourism*. <https://tinyurl.com/rne5hhf>
- Friends of the Earth Europe (2018). *Sufficiency: Moving Beyond the Gospel of Eco-Efficiency*. <https://tinyurl.com/wyqvbf2>
- Global 2000 (2019). *Keine Dritte Piste Für Den Flughafen Wien!* <https://www.global2000.at/dritte-startbahn-flughafen-wien>
- Global Anti-Aerotropolis Movement (n.d.). <https://antiaero.org>
- Gössling, S. (2002). *Global Environmental Consequences of Tourism*. In: *Glob. Environ. Change* 12: 283–302.
- Gössling, S. (2019). *These Celebrities Cause 10,000 Times More Carbon Emissions from Flying Than the Average Person*. <https://tinyurl.com/y2woucyg>
- Gössling, S., J.-P. Ceron et al. (2009). *Hypermobile Travellers*. In: S. Gössling and P. Upham (eds), *Climate Change and Aviation: Issues, Challenges and Solutions*, pp.131–151. London: Earthscan.
- Gössling, S., F. Fichert and et al. (2017). *Subsidies in Aviation*. In: *Sustainability* 9 (8).
- Gössling, S. and Nilsson (2010). *Frequent Flyer Programmes and the Reproduction of Aeromobility*. In: *Environment and Planning A* 42: 241-252.
- Grebenjak, M. (2019). *Warum CO₂-Steuern kein Wundermittel gegen die Klimakrise sind*. <https://tinyurl.com/wssw9vm>
- Heinrich-Böll-Stiftung/ Airbus Group (2016). *Aloft - an Inflight Review*. <https://www.boell.de/en/2016/06/01/aloft-an-inflight-review>
- Herrero, Y. (2019). *Forced Tourism Or: Travelling without Economy Class*. <https://stay-grounded.org/forced-tourism>
- ICCT - The International Council on Clean Transportation (2017). *Mitigating International Aviation Emissions. Risks and Opportunities for Alternative Jet Fuels*. <https://tinyurl.com/rudz8sq>
- IPCC (2018). *Global Warming of 1.5°C. An IPCC Special Report*. <https://www.ipcc.ch/sr15/>.
- ITF - International Transport Forum (2017). *ITF Transport Outlook 2017 - Summary*. <https://www.itf-oecd.org/transport-outlook-2017>
- ITF - International Transport Workers' Federation (2014). *Stressed and Fatigued on the Ground and in the Sky*. <https://tinyurl.com/u2qxudh>
- ITF - International Transport Workers' Federation (2016). *Record Profits for Airlines. Airport Workers under Pressure*. <https://tinyurl.com/t9qc334>
- Jacobin Magazine (2019). *Ban Private Jets*. <https://tinyurl.com/y2nd5kqc>
- Kallis, G., F. Demaria and G. D'Alisa (2015). *Introduction: Degrowth*. In: G. D'Alisa et al. (eds), *Degrowth. A Vocabulary for a New Era*. New York and London: Routledge.
- Keleher, K. (2019). *Development Moratorium around Airport Could Be Lifted Soon*. <https://tinyurl.com/vjbphsj>
- Klimareporter (2019). *Massenprotest Gegen Flughafenausbau*. <https://tinyurl.com/qq9f2sc>
- Kommenda, N. (2019). *1% of English Residents Take One-Fifth of Overseas Flights, Survey Shows*. <https://tinyurl.com/y33gpd27>
- Konstantinus, A. (2018). *Degrowth in Tourism: Conceptual, Theoretical and Philosophical Issues*. CABI Publishing.
- Korteland, M. and J. Faber (2013). *Estimated Revenues of Vat and Fuel Tax on Aviation*. <https://tinyurl.com/utxqr6x>
- Leff, G. (2017). *Not Quite: Financial Analyst Claims ‘Airlines Make More Money Selling Miles Than Seats’*. In: *View From The Wing* blog, 1 April 2017. <https://tinyurl.com/t3hqzxp>
- Leff, G. (2019a). *Congratulations: American Airlines Finally Made Money Flying Passengers in the Second Quarter*. In: *View From The Wing* blog, 25 July 2019. <https://tinyurl.com/s9ex7p3>
- Leff, G. (2019b). *View From The Wing* blog. <https://tinyurl.com/ruglcvd>
- Lenzen, M., Y.-Y. Sun, et al. (2018). *The Carbon Footprint of Global Tourism*. In: *Nature Climate Change* 8, 522–528.
- Loving the Atmosphere (n.d.). <https://lovingtheatmosphere.org>
- LUCSUS - Lund University Centre for Sustainability Studies (2018). *LUCSUS Travel Policy*. <https://tinyurl.com/yxxeo5vb>
- Malins (2017). *What Role for Electrofuel Technologies in European Transport's Low Carbon Future?*. <https://tinyurl.com/y74dxtxu>
- Mannstein, H. et al. (2019). *Forschung für den Klimaschutz und Schutz vor Klimawirkung. Umweltgerechte Flugrouten-Optimierung (UFO) [Environmentally Compatible Flight Route Optimisation]*. <https://tinyurl.com/vuckbsz>
- Market Industry Reports (2019). *Aviation Fuel Farms Market: Present Scenario and the Growth Prospects 2017-2026*. <https://tinyurl.com/rpdlhql>
- Massy-Beresford, H. (2019). *French Politicians Want to Ban Internal Flights to Cut Emissions*. <https://tinyurl.com/y3fq94jt>
- Muraca, B. (2013). *Décroissance: A Project for a Radical Transformation of Society*. In: *Environmental Values* 22 (2): 147-169.
- New York Times (2019). *Europe Overnight Trains*. <https://tinyurl.com/y5lwvay5>
- New Yorker (n.d.). *Does Divestment Work?*. <https://tinyurl.com/s7cu4zj>
- No Fly Climate Sci (n.d.). <https://noflyclimatesci.org>
- OECD (2019). *Taxing Energy Use. 2019*. <https://tinyurl.com/yxzd-fnu2>
- Öko-Institut (2015). *Emission Reduction Targets for International Aviation and Shipping*. <https://tinyurl.com/pyhhwsy>
- Peeters and et al. (2016). *Are Technology Myths Stalling Aviation Climate Policy*. <https://tinyurl.com/r16rzmmt>
- Race for Water (n.d.). <https://www.raceforwater.org/en/>
- Reuters (2017). *Vienna Airport Appeals against Ban on Expansion*. <https://tinyurl.com/r3q3ot6>
- Rico, A. and et al. (2019). *Carbon Footprint of Tourism in Barcelona*. In: *Journal of Tourism Management* 70: 491-504.
- Sail to the COP (n.d.). <https://www.sailtothecop.com>

- Schlenker, W. and R. Walder (2016). *Airports, Air Pollution, and Contemporaneous Health*. In: *The Review of Economic Studies* 83 (2).
- Scott, D., M. C. Hall and S. Gossling (2012). *Tourism and Climate Change: Impacts, Adaptation and Mitigation*. London: Routledge.
- Sheenan, M. (2018). *Environmental Collective Urges Re/Insurers to Pull Support for Australian Coal Mine*. <https://tinyurl.com/uvtnx6v>
- Sorenson (2011). *Loyalty by the Billions: Ideaworks Analyzes How Frequent Flier Programs Pour Cash into Airline Coffers*. <https://tinyurl.com/yxyk2ps9>
- Spash, C. L. and T. Smith (2019). *Of Ecosystems and Economics: Re-Connecting Economics with Reality*. In: *Real World Economics Review* 87: 212-229.
- Spiegel (2011). *Nuclear Moratorium a Campaign Tactic. Merkel Cabinet Colleague Spills the Atomic Beans*. <https://tinyurl.com/wo3fvxd>
- Stay Grounded (2017). *The Illusion of Green Flying*. <https://stay-grounded.org/green-flying>
- Stay Grounded (2018a). *13 Steps for a Just Transport System and for Rapidly Reducing Emissions*. <https://stay-grounded.org/position-paper>
- Stay Grounded (2018b). *Recommending That the UNFCCC Set Policy That Directly Regulates Aviation Emissions. A Talanoa Dialogue Submission*. <https://tinyurl.com/rna4dct>
- Stay Grounded (2019a). *Activists in Sweden Block Fuel Train to Challenge Airport Expansion*. <https://tinyurl.com/twua6ud>
- Stay Grounded (2019b). *Illegal Construction Works Associated with New Mexico City International Airport*. <https://tinyurl.com/tvodc72>
- Stay Grounded (2019c). *Let's Stay Grounded Campaign*. <https://stay-grounded.org/lets-stay-grounded-campaign>
- Stay Grounded (2019d). *More Than 300 Aviation-Related Conflicts and Environmental Justice Movements around the World Mapped in Research Project*. <https://tinyurl.com/uncs9hv>
- Storm (1999). *Air Transport Policies and Frequent Flyer Programmes in the European Community*. Research Centre of Bornholm, May 1999. <https://tinyurl.com/s8l4phf>
- Süddeutsche Zeitung (2018). *Nur den Status Quo beschlossen*. <https://tinyurl.com/tcvjflhr>
- Tagesschau (2019). <https://www.tagesschau.de/inland/deutschlandtrend-1735.html>
- Tagesspiel (2019). *Nachtzug Zwischen Berlin und Bruessel*. <https://tinyurl.com/rxphzdd>
- The Connexion (2019). *French Politicians Want to Ban Internal Flights to Cut Emissions*. <https://tinyurl.com/y3fq94jt>
- The Conversation (2018). *How Have Our Travel Habits Changed?* <https://tinyurl.com/vn76rtr>
- The Guardian (2009). *Bbc Worldwide Bans Short-Haul Executive Flights*. <https://tinyurl.com/ttdn5d6>
- The Guardian (2016). *Climate Change Is a Rasist Crisis: That's Why Black Lives Matter Closed an Airport*. <https://tinyurl.com/jguk9tg>
- The Guardian (2017). *„Tourism Kills Neighbourhoods“: How Do We Save Cities from the City Break?.* <https://tinyurl.com/y7cwba2l>
- The Man in Seat 61 (n.d.). <https://www.seat61.com/>
- The Washington Post (2019). *Should Short-Haul Flights Be Banned? Climate Change Is a Major Issue in Elections in Europe and Australia*. <https://tinyurl.com/ttkawwu>
- Transport & Environment (2019a). *A Cheap Airline Ticket Doesn't Fall from the Sky*. <https://tinyurl.com/yx6noh5a>
- Transport & Environment (2019b). *Taxing Aviation Fuel in Europe*. <https://tinyurl.com/y4gigjsb>
- TWN - Third World Network (2017). *Southeast Asia Tourism Monitor*. <https://www.twn.my/title2/tourism/sea-tm.htm>
- UBA Austria (2019). *Emissionskennzahlen*. <https://tinyurl.com/rwzrpyk>
- UBA Germany (2018). *Vergleich der durchschnittlichen Emissionen einzelner Verkehrsmittel im Personenverkehr - Bezugsjahr 2017*. <https://tinyurl.com/y5t8qsmr>
- UBA Germany (2019). *Umweltschonender Luftverkehr*. <https://tinyurl.com/vtlczbs>
- UK Civil Aviation Authority (2016). *CAA Passenger Survey Report*. www.caa.co.uk
- Unfriend Coal (2018). *Scorecard 2019 Report*. <https://tinyurl.com/vm8rxm8>
- Unfriend Coal (n.d.). <https://unfriendcoal.com>
- UNWTO - World Tourism Organization (2016). *Tourism Highlights 2016 Edition*. <https://tinyurl.com/y98e84d7>
- UNWTO - World Tourism Organization (2019). *International Tourism Highlights. 2019 Edition*. <https://tinyurl.com/tze55ql>
- van Kamp, I. and A. L. Brown (2013). *Response to Change in Noise Exposure: An Update*. In: *Proc Acoustics* 1-6.
- Venezia Unica (2014). *Citypass Venezia Unica Website*. <https://tinyurl.com/v64vdkd>
- Via Campesina (n.d.). *Food Sovereignty*. <https://viacampesina.org/en/food-sovereignty>
- View from the wing (2019). *Government Wants to Ban Flights Between Amsterdam and Brussels*. <https://tinyurl.com/wzaekqu>
- Walker, G. (2015). *Beyond Individual Responsibility: Social Practice, Capabilities and the Right to Environmentally Sustainable Ways of Living*. In: Y. Strengers and C. Maller (eds), *Social Practices, Intervention and Sustainability: Beyond Behaviour Change*, pp.45-60. London, New York: Routledge.
- WHO Regional Office for Europe (2018). *Environmental Noise Guidelines for the European Region*. <https://tinyurl.com/uo6aqou>
- Wikipedia (n.d.). *International Convention for the Regulation of Whaling*. <https://tinyurl.com/uxpz2te>
- Without limits there is no future (2006). *Manifest #Senselimitsnohihafutur*. <https://senselimitsnohihafutur.com/english>
- World Travel & Tourism Council (2017). *Travel & Tourism: Economic Impact 2017*. <https://tinyurl.com/y7r85vve>
- WRM - World Rainforest Movement (2014). *REDD: A Collection of Conflicts, Contradictions and Lies*. <https://tinyurl.com/wedbkcg>

Diagram 4:
Degrowth of Aviation –
Cluster of Different Measures



The aviation industry is growing without limits. In order to legitimize this in times of climate crisis, technological improvements and emissions offsetting have been promised as solutions to reach ‘carbon-neutral’ growth. But green flying is and will be an illusion in the decades to come.

The only way to effectively reduce aviation’s climate impact is to reduce flights—to degrow aviation. Is increasing the prices for flying the only way to achieve this? Is flying a ‘human right’ for the wealthy? About 90% of the world’s population has never set foot on an airplane. A very small number of frequent flyers have an immense impact on the climate.

What could be a combination of measures that leads to a socially just and ecologically sound transport system? This report discusses six ideas in detail and touches on many more possibilities to reduce aviation. Among them are: taxes, frequent flyer levies, bans on short-haul flights, moratoria on airports, progressive travel policies in institutions, and fostering alternatives like trains, ships and online conferences.

While it is key to look for inclusive measures when degrowing aviation, this alone will not bring about climate justice. Aviation is part of a bigger picture concerning how our economy and society currently work. Tackling aviation will involve changes in many other sectors, including trade and tourism. This report shows: it is possible to envision a world with reduced aviation, to enjoy life in an open society while respecting the possibility for others to also enjoy their lives—now and in the future.

