Travel emissions, carbon offsetting and the climate crisis: questions, dilemmas and suggestions


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Abstract

Carbon offset programs in the travel industry are based on the idea that the carbon emissions of a journey can be removed from the atmosphere by paying for an action or project, making the journey carbon neutral. The effectiveness and the limitations of offset programs, such as planting or protecting trees, have been evaluated by the authors of this article. It was found that most offset programs do not have the impact that is suggested. 85 percent of offset projects have a high likelihood of overestimating their effectiveness and not being additional, meaning that the project activity would have occurred even if it was not implemented as an offset project. Moreover, estimated emissions and offset costs provided by various travel companies vary greatly and are often far lower than what would be considered fair compensation. It is argued that offering offsetting as a simple, cheap option to compensate for travel emissions will help continue business as usual, with no incentive for real change and with no serious contribution to the Paris Agreement. Travellers looking for a way to address their travel impact are advised to reduce emissions first, with compensation only as a last resort. The article provides suggestions on how to reduce travel emissions, what to do instead of offsetting, and how to make informed decisions if you choose to offset.

1. Introduction

In 2019, aviation accounted for approximately 3 percent of human induced greenhouse gas (GHG) emissions, a percentage that is likely to increase to approximately 5 percent in the next decades (Lee et al., 2009; Berwyn, 2019). Air traffic has heavily decreased due to COVID-19 (Topham, 2020) but is expected to restart swiftly when markets open again (Watts, 2020). In many countries public funds are already used to rescue national airlines (Watts, 2020). Therefore, climate issues associated with aviation are expected to remain relevant.

Today, most airlines offer the option to offset or compensate for the CO2 emissions generated from flying. With a simple mouse-click and by paying a small fee, we are told that our emissions are cancelled out through a particular carbon offset program, for example by planting trees. The travel industry widely embraces carbon offsetting of travel emissions, offering it in most cases as a voluntary option.

At first glance, carbon offsetting may appear to be an easy solution for the contribution of travel-related emissions to the climate crisis. However, in spite of the very small offsetting costs (usually 1-2% of the airfare), the take-up rates of voluntary offset schemes have always been very low, and only around 1% of travellers opt-in (Johnson and Hewitt, 2019). Furthermore, experts and environmental organisations have been warning about issues associated with carbon offsetting programs for many years. As early as 2009, carbon offsetting was called ‘a dangerous distraction’ by Friends of the Earth (Bullock, 2009) and ‘a scam’ by Greenpeace (Greenpeace International, 2009). Although steps have been taken towards improving the reliability of carbon offsetting programs over the years, the controversy regarding their effectiveness still exists today (Childs, 2020; Al Ghussain, 2020).
In this article we focus on travel emissions, carbon offsetting, and the climate crisis, with the aim of providing travellers, travel businesses, and destinations with advice and tools to make responsible decisions in regard to their travel impact. The first part of this article discusses whether carbon offsetting programs help solving the climate emergency; the second part emphasises the importance of reducing travel emissions; and the third part provides meaningful alternatives for travel compensation.

2. Will offsetting help tackle the climate crisis?
How do Carbon Offset Programs Work?
Carbon offset programs offer organisations and individuals the opportunity to compensate for their generated emissions by financially supporting an action or project that removes CO₂ emissions from the atmosphere. Most offset programs focus on planting trees and maintaining forests, creating renewable energy plants such as solar or wind farms, and providing more efficient cooking stoves to people in developing countries. They are built on the idea that sectors and countries can trade emissions, which has been defined in the Clean Development Mechanism (CDM) and adopted by the 1997 Kyoto Protocol. Under the CDM, anyone can pay someone else to additionally remove a given amount of their emitted greenhouse gases (GHG) from the atmosphere and claim to have reduced his or her own emissions. This article focuses specifically on carbon offset programs aimed at addressing GHG emissions from the travel sector.

In the case of carbon offsetting for flying, the price that you pay as a passenger depends on the CO₂ emissions generated by your flight (per passenger) and on the costs for offsetting this amount of CO₂. Generated flight emissions depend on many different factors such as flight distance, aircraft characteristics, and airline operational practices, while offsetting costs are based on the type of projects offered by the offset program (Infar, 2020).

In 2018, global CO₂ emissions were equal to 33.100 million metric tons. The market for voluntary offsets traded almost 0.3% of these emissions, equal to 100 million metric tons (Infar, 2020). Although offsetting programs may seem to offer (part of) the solution for the climate crisis, many have argued that they do not have the impact that is suggested. The following sections highlight six dilemmas that should be considered by anyone who wishes to compensate for generated CO₂ emissions through a carbon offset program.

Dilemma #1: No consensus on emissions calculation

The first issue associated with carbon offset programs is that no consensus exists on how to calculate the amount of carbon that is emitted during a flight. The amount of emissions per person depends on a number of factors, such as the type of aircraft, the route that is taken, weather, and seat occupancy. Significant disparities were found when multiple studies asked a variety of offsetting companies to calculate the CO₂ emissions incurred from travel and the resulting cost of offsetting (e.g. Vidal, 2020; BNN VARA RamBam, 2020; Baumeister, 2017). For example, considerable differences between emission estimation models for an Amsterdam-Tokyo return flight were found by the Dutch public broadcasting channel BNNVARA (see Table 1).

The difference in emissions partly results from including or excluding non-CO₂ emissions (BNN VARA RamBam, 2020). Non-CO₂ emissions are released from airplanes burning fuel and through the heat-trapping effect of contrail cirrus clouds (Berwyn, 2019; Atmosfair, 2020). It is suggested that non-CO₂ emissions are likely to equate to the same impact that the accumulated aviation CO₂ emissions have since 1940 (Sausen and Schumann, 2000; Lee, 2018). This additional impact is often indicated as contrail cirrus radiative forcing and expressed in a radiative forcing factor (RFF), which is usually estimated between 2 and 5 (Porcelijn, 2020).

We therefore believe that there should be more transparency among the emission calculation models used by offset programs, with a clear statement of which emissions are included. Furthermore, it should become the standard for the emission estimates to include all harmful emissions, including non-CO₂ emissions, to facilitate fair and complete compensation for our impacts.

Table 1: Estimated emissions for an Amsterdam-Tokyo return flight (early 2020), results from different emission calculation models. Source: BNN VARA RamBam (2020) and Porcelijn (2020).

<table>
<thead>
<tr>
<th>Provider</th>
<th>Emissions (kg)</th>
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<tbody>
<tr>
<td>KLM</td>
<td>1294 kg</td>
</tr>
<tr>
<td>Greenseat</td>
<td>1520 kg</td>
</tr>
<tr>
<td>Trees for All</td>
<td>2740 kg</td>
</tr>
<tr>
<td>FlyGRN</td>
<td>2820 kg</td>
</tr>
<tr>
<td>Atmosfair</td>
<td>3367 kg</td>
</tr>
<tr>
<td>Porcelijn (2020)</td>
<td>5500 kg</td>
</tr>
</tbody>
</table>

Dilemma #2: No consensus on offsetting cost

The second dilemma in regard to carbon offset programs relates to the offsetting price to be paid by the consumer. The price depends on the estimated amount of emissions (see above), the costs for compensating CO₂ in the various offsetting projects (variable) and on the market (the concept of market trading). As illustrated in Table 2, which is also based on the example of an Amsterdam-Tokyo return flight, the estimated offsetting price differs greatly across different organisations and providers. Airlines especially tend to generate lower estimates of offsetting prices per kg CO₂ and many companies offering offsetting are believed to underestimate the true offsetting costs because asking a substantially higher contribution could be the end of their offsetting program (Rambam, BNN VARA, 2020).

According to Dutch sustainability expert Babette Porcelijn (2020), the price to be paid should be almost three hundred fifty times higher than what the Dutch airline KLM is suggesting. This big difference is partly attributed to Porcelijn’s inclusion of the costs hidden in infrastructure, production, maintenance, and creating fuel (Porcelijn, 2016); and partly to the incorporation of a contrail cirrus radiative forcing factor of 2.7. Moreover, prices can also differ between the great variety of projects and their quality standards. Unfortunately, verifying whether the offsetting price is a fair price to pay proves to be extremely difficult due to a general
lack of transparency among calculation methods. This issue illustrates the important role of third-party verification and regulation in the offsetting market.

**Table 2: Estimated offsetting cost for a return flight Amsterdam-Tokyo early 2020, using different models. Source: Rambam, BNN VARA (2020) and Porcelijn (2020). Babette Porcelijn does not offer any offsetting products, but only analyses the cost structure of offsetting projects.**

<table>
<thead>
<tr>
<th></th>
<th>Cost (€)</th>
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</thead>
<tbody>
<tr>
<td>KLM</td>
<td>11,00</td>
</tr>
<tr>
<td>Greenseat</td>
<td>12,54</td>
</tr>
<tr>
<td>Trees for All</td>
<td>34,25</td>
</tr>
<tr>
<td>FlyGRN</td>
<td>40,91</td>
</tr>
<tr>
<td>Atmosfair</td>
<td>78,00</td>
</tr>
<tr>
<td>Porcelijn (2020)</td>
<td>3800,00</td>
</tr>
</tbody>
</table>

Tables 1 and 2 illustrate what happens when airlines and offset programs can choose to ignore other greenhouse gas (GHG) emissions apart from pure CO₂ emissions, without having to justify it. Especially airlines also tend to use a low estimation of offsetting prices per kg CO₂, evidently suggesting the climate impact of flying is very small.

**Dilemma #3: Only 2% of offsetting projects may really achieve what they promise**

The European Commission contracted a study to investigate the offsetting projects under the Clean Development Mechanism (CDM), one of the more established offset programs. The CDM allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol to implement an emission-reduction project in developing countries. The study found that these projects have fundamental flaws, as it is likely that the large majority “are not providing real, measurable, and additional emission reductions,” and that only 2% are highly likely to do what they promise (Cames et al., 2016, p. 11).

Moreover, 85% of the projects were found to “have a low likelihood that emission reductions are additional and are not overestimated” (Cames et al., 2016, p. 11). Additionality is the idea that an initiative for reducing emissions can only take place with additional funding, such as an offset program. For example, if you were to financially support a company that proposes to build a wind farm, it is possible that this wind farm would have been built without your contribution anyway. This would mean that your individual support did not lead to any additional reduction of CO₂ emissions, and therefore did not offset your emissions (Irfan, 2020). Additionality is a crucial factor, but proving that carbon offset programs are additional is considered to be extremely difficult (Brown, 2019).

It is important to note that the CDM-projects reviewed above are not the same as the voluntary carbon offsetting market, which can have additional community benefits. However, the rapid growth of the voluntary carbon offset market and the corresponding rise in concerns regarding the credibility of the programs has resulted in the development of voluntary offset standards, particularly since 2007 (Lovell,
illegal Indonesia, 2019). Different methodologies are required to compensate for the losses incurred by carbon storage, and other environmental, social, and economic factors concerning sustainable development (e.g., biodiversity protection, community benefits, job creation, avoiding child labour) (Lovell, 2010; Sustainable Travel International, 2020). The Taskforce on Scaling Voluntary Carbon Markets has been created to review and revise the voluntary market methodology.

While carbon offsetting standards have made progress in formalising and legitimising offsetting practices, the European Commission report stated that their concerns are to a large extent also relevant and valid for these international carbon offset programs, including the ones that are widely considered as reliable assurances of offset program effectiveness, such as the Gold Standard (GS), the Verified Carbon Standard (VCS), and the Carbon Offset and Reduction Scheme for International Aviation (CORSIA) (Cames et al., 2016, p. 161). Although standards possibly help to increase transparency, the findings in the European Commission report (Cames et al., 2016) illustrate the importance of critically looking at their assessment criteria and process rather than accepting their quality assurance at face value.

Dilemma #4: Planting trees: too little, too late

Some carbon offset programs focus on planting young trees to compensate for CO₂ emissions, but the effectiveness of this approach is questionable. First, because it takes a long time before trees can actually store the amounts of carbon that are used to illustrate the value of such initiatives. These amounts cannot be reached until trees are between 15 and 35 years old (Donadieu, 2019) or even of 60 years and more (Tocchi, 2018). Carbon sequestration to meet the Paris Agreement is required now.

Additionally, carbon storage in trees is often not long-lasting since trees are exposed to fires, diseases, storms, legal and illegal logging, natural decay, or simply planting failure due to drought (Donadieu, 2019). In Turkey, it was found that a mass planting project largely failed when an inspection in November 2019 revealed that up to 90% of the planted trees had already died a few months after the project started (Kent, 2020). When trees die, the stored CO₂ is released into the atmosphere (Irfan, 2020). As such, planting trees to compensate for CO₂ emissions means that safely stored carbon (oil deep in the ground) is exchanged with unsafely stored carbon (Heck et al., 2018).

A third factor that reduces the effectiveness of planting trees relates to carbon leakage. Carbon leakage refers to a situation in which paying to protect a forest from logging subsequently leads to logging companies chopping down a different and unprotected forest instead (Irfan, 2020; Brown, 2019). Even worse, forest fires tend to increase in Brazil, Indonesia, Siberia, Australia, California and Europe, on top of illegal logging practices in Brazil and Indonesia.

Fourth, an ever-increasing amount of forests are used as a source for subsidised power plants to generate ‘green’ electricity, thereby ignoring the fact that burning wood for power is considered to be misguided and unsustainable by many experts (McKee, 2017).

Dilemma #5: Are we really trying to protect our world?

Some experts argue that the unprecedented speed of ongoing forest destruction makes the effect of tree planting especially marginal (Nunez, 2019), also because the biodiversity value of planted forests is only a fraction of that of old forests. Unfortunately, bold actions against illegal and large-scale forest destruction are not adopted by offset programs. In fact, ongoing forest destruction is often accepted as a fact and used as an argument to plant more trees.

Other experts point out that many offsetting projects have shown to be very problematic for the traditional livelihoods of the local communities involved (Brown, 2019).

In our attempts to compensate for our travel impact, it is important not to lose perspective of the issue of the climate crisis and our overall goal to protect our planet, the people, and the climate. Offset programs, while focusing on carbon removal and storage, can sometimes overlook the potential wider impacts that their projects may have on the local communities and environment. If offset programs are serious about contributing to the well-being of our world, they should consider all of their unintended negative impacts and maximise the opportunities to create positive change that goes beyond carbon storage. For example, these programs can protect forests against illegal burning and logging or support indigenous communities in their fight against the destruction of their livelihoods. Good offset providers will often also prioritise and promote ways of reducing carbon emissions, in addition to offering offsetting.

It is therefore essential for these offsetting programs to be transparent with the methodology of their projects, and especially the protocols in place to ensure good practices, as well as demonstrating their commitment to ensuring the well-being of the environment and people.

Dilemma #6: Offsetting is a distraction

Carbon offsetting programs are not inherently damaging, and there have been some promising technological innovations in the field of offsetting, such as the University of Iceland’s CarbFix project that focuses on accelerating the natural processes that turn CO₂ into stone underground. However, many experts have pointed out that these programs may have a negative impact as they distract us from the real issue, which is the need to primarily reduce (fossil) carbon emissions (Irfan, 2020; Brown, 2019). Offsetting is a band-aid solution, which deals with the effects rather than addressing the root of the problem.

Travel companies offering to compensate for carbon emissions with a small fee contribute to the idea that the climate crisis is a small problem that can be easily solved. This idea fosters a continued unrestricted use of fossil fuels in travel and an unwillingness to invest in synthetic e-fuels (Peeters in BNN VARA, 2020). In fact, researchers at Lancaster University found that pursuing Greenhouse Gas Removal (GGR) techniques, an approach used by offset programs, could significantly deter or delay emissions reductions. They call this mitigation deterrence, where the use of GGR techniques can undermine the need and urgency felt
by policy makers to focus on mitigation efforts. The researchers estimate that mitigation deterrence could cause up to an extra 1.4°C of global warming, on top of the 1.5°C ‘safe’ target (Lancaster University, 2020).

Therefore, if you choose to contribute to offset programs, we argue that it should only be approached with the mindset of supporting projects that can have some positive benefits. It should by no means be perceived as a method to directly compensate for your travel emissions, as this view is what leads to complacency and an unwillingness among policymakers and the travel industry to take meaningful action against the climate crisis.

3. How can we really reduce our travel emissions?

Considering the issues we have outlined regarding carbon offset programs, we believe that it is of the utmost importance to prioritise the overall reduction of emissions over any efforts to offset or compensate for them. It is always favourable to address the issue at its source, and eliminate the need to address the impacts at a later stage, which is always far more difficult to do. In order to reduce travel emissions, action is required at every level. Below we provide tips and tools that may help you to reduce your own travel emissions.

**Suggestion #1. Travel less often**

While avoiding flying entirely will be challenging for many, flying less frequently is a goal that is easier to achieve. For many business travellers for example, it has become clear that videoconferencing provides an excellent alternative to on-site meetings. In addition, we believe that many Europeans could work on their ‘city-break addiction’ (Morris, 2018). Frequent trips to Barcelona, Amsterdam, or Copenhagen may be affordable, but the question is whether they can be considered responsible travel behaviour. Travelling less often truly can make a significant difference in generated emissions.

**Suggestion #2. Consider a more sustainable travel mode**

In several European countries, trains operate with near-zero-emissions. Dutch, German, Swedish, Swiss, French, Norwegian, and Austrian train networks run on low-carbon electricity. For example, the Dutch railway system is 100% wind-powered. However, transportation usually has a significant climate impact, which is why it is useful to compare emissions across the various modes.

Figure 1 shows the emissions related to different travel modes, expressed as CO₂ per 1000 km. The values represent averages based on variable factors, such as vehicle sizes, the region of their usage, and occupancy levels. The figure clearly illustrates that travelling 1000 km by car (when it is used by 1 person only) and motorbike cause the highest amount of emissions. Flying and travelling by an electric car (by 1 person only) also lead to a relatively large amount of emissions. Because flight take-offs require high amounts of fuel, opting for an alternative mode of travel is even more pertinent when it comes to short distances (less than 1000 km).

Travelling 1000 km in a (diesel, petrol, or electric) car is a sustainable alternative for flying only when it is shared with at least two others. The source of energy also plays a large role: emissions can be very high when energy is derived from brown-coal and very low when green energy is used (Eichner & Rüdiger, 2014).

Train, bus, or ferry are better choices for the climate. These travel modes are not only less carbon intensive, but also provide a valuable addition to the journey as it allows for slowing down, soaking up the scenery, and visiting hidden gems along the way. For these modes, emissions also vary across the vehicles used. For example, high-speed trains generate more emissions as energy usage increases with speed. However, seat-occupancy also plays a role, and since high-speed trains often have higher seat occupancy rates, they may still generate less emissions (Cornet, Dudley & Banister, 2018).

Although choosing the most sustainable travel mode is less straightforward as it may seem, Fig. 1. may help you to do so. However, it should be taken into account that there is no consensus regarding the calculation of emissions. Therefore, the values as presented in Fig. 1. represent the averages of the sources as listed below the figure. Additionally, research regularly provides new insights. For example, recently it was suggested that electric vehicles emit less than half of the greenhouse gasses of petrol and diesel cars (Eindhoven University of Technology, 2020).

**Suggestion #3. Consider travelling a shorter distance**

We encourage you to consider travelling to a destination close to home as this allows you to opt for a more sustainable travel mode. Especially during the corona pandemic, many have found that destinations close by can be just as wonderful as those further from home. Fig. 2. compares CO₂ emissions generated by a one-day flight to CO₂ emissions generated by travelling one day by (e-)car, motorbike, train, and coach. The difference it makes for the planet is striking. Based on these numbers, it can be concluded that forty train trips from Berlin to Italy generate a similar amount of emissions as one flight from Berlin to Thailand only. This example illustrates the relevance of decreasing the amount of long-haul flights you book for your holiday. Since many people will want to maximise their travel time in relation to the holiday duration (Porcelijn, 2020), Fig. 2 presents a comparison that is equally valid as the comparison of Fig. 1.
Emissions of a 1-day travel (example: from Berlin)

Kg of CO₂ emissions per passenger per 1-day travel

<table>
<thead>
<tr>
<th>Transport Mode</th>
<th>Emissions (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight</td>
<td>916</td>
</tr>
<tr>
<td>Car 1 pax (Italy: 1300 km)</td>
<td>286</td>
</tr>
<tr>
<td>Motorbike (Italy: 1300 km)</td>
<td>173</td>
</tr>
<tr>
<td>e-Car 1 pax (Italy: 1300 km)</td>
<td>137</td>
</tr>
<tr>
<td>Car 3 pax (Italy: 1300 km)</td>
<td>95</td>
</tr>
<tr>
<td>e-Car 3 pax (Italy: 1300 km)</td>
<td>46</td>
</tr>
<tr>
<td>Coach (Italy: 970 km)</td>
<td>26</td>
</tr>
<tr>
<td>Train (Italy: 921 km)</td>
<td>22</td>
</tr>
</tbody>
</table>

Suggestion #4. Compare and reduce CO₂ emissions

If you do opt for flying, we recommend booking the flight that is expected to generate the lowest amount of CO₂ emissions. There is broad consensus that calculations for CO₂ emissions generated by air travel should be based on a variety of factors, such as the route, number of stopovers, number of passengers, and type of aircraft (Baumeister, 2017). Unfortunately, the aviation industry is not yet willing to provide the models used for the calculating fuel consumption of its flights. This leaves us with the best possible estimations to make better choices. Although several travel search engines allow for comparing flight options based on CO₂ emissions, most do not allow for making this comparison based on the airline that offers the flight. The only exception is Skyscanner (Paul Peeters, professor sustainable tourism transport at the Centre for Sustainability, Tourism & Transport). However, even Skyscanner does not provide clear-cut information on the calculation methods that are used.

Suggestion #5. When travelling by car, avoid SUVs

In case you opt for a journey by car, try to travel with more people, consider a car-sharing app, or evaluate whether you can use a smaller car that generates lower emissions. When possible, choose an electric car and avoid an SUV. According to the International Energy Agency, SUVs have been the second largest contributor to the increase in global carbon emissions from 2010 to 2018. The carbon impact of the dramatic shift towards the heavier SUVs has been much larger than the savings from both efficiency improvements in smaller cars and from electric vehicles (Cozzi, 2019).

4. Responsible compensation of emissions

After reducing your travel emissions, you may think about compensating for them. This section provides you with meaningful options for carbon compensation beyond supporting carbon offsetting programs. Before doing so, we provide tips to help you estimate the emissions related to your travel and calculate a reasonable price for compensation.

Suggestion #6. Calculate your emissions

Many different tools are available online that can help you calculate travel-induced emissions. As shown in Figure 1, the estimated amounts of generated flight emissions vary greatly. However, these estimations are all we have and we should use them.

As clarified before, CO₂ emissions are not the sole contributors to global warming, which is why we recommend using the online calculator of Atmosfair GmbH. This
Suggestion #7. Pay a fair price

Typically, travel companies and offset programs suggest that emissions can be compensated with amounts corresponding to less than €10 per ton of CO₂ emissions (see Tables 1 and 2), implying that climate change is a small problem that can be solved easily. However, climate change has been increasingly described as a “wicked problem” that features complex interrelationships between many social and environmental factors and requires a global and integrated response (Jiazhé & Kaizhong, 2016).

If €10 is not enough, then what is a true or a fair price to compensate for travel emissions? Although it is not possible to provide a straightforward answer to this question, it is key to consider the financial implications of replacing fossil fuels with e-fuels (Clark, 2019). Under a business-as-usual scenario, ticket prices would further reduce by approximately 10% (Schmidt et al., 2018). However, ticket prices are likely to stay constant until 2040 if airlines start mixing an increasing percentage of e-kerosine into conventional kerosine. After 2040, shares - and thus costs - of alternative fuels are expected to rise, which will lead to ticket prices that are approximately 25% more expensive than those currently offered (model calculations based on Peeters, 2017).

Another perspective that leads to a similar conclusion is provided by economists Joseph Stiglitz and Lord Nicholas Stern, co-chairs of the High-Level Commission on Carbon Prices. They concluded that a global price of $50-100 for compensating one ton of CO₂ is required to achieve the Paris Agreement goals by 2030 (Carbon Pricing Leadership Coalition, 2017). Others estimate even higher amounts, if the recommended 1.5°C limit is to be kept. These estimations range up to far over $1000/ton CO₂ (IPCC, 2018).

It is obviously up to each individual to decide what to donate to a particularly good project or program. But when there is evidence that a true price per ton of CO₂ emissions would be €100 (which on average equals to roughly 20% of the ticket price), everyone should consider why paying less or even nothing at all. Considering how cheap air travel has become and the enormous cost that the climate crisis brings, the least you can do is to seriously consider the issue before booking your next trip.

Suggestion #8. Support an awareness campaign

The publication of this article marks the start of a Good Travel Guide awareness campaign for the reduction of the climate impact of travel. Compared to the campaigns focussed on greenhouse gas reduction, led by influential non-governmental organisations such as Friends of the Earth and Greenpeace, the Good Travel Guide awareness campaign is focussed on greenhouse gas reduction in the travel sector specifically.

As a traveller, you are invited to support any of the above mentioned campaigns by spreading the message across your social media accounts and by considering donating to the climate awareness campaigns of your choice, corresponding to the volume of your travel emissions.

Suggestion #9. Make emissions more expensive

As an individual you can also help to reduce other people’s emissions by making them more expensive. The Carbonkiller.org initiative allows consumers to buy and destroy CO₂ emission permits that are circulating in the European Union’s Emissions Trading System (EU ETS).

The EU ETS is Europe’s main climate instrument for achieving the reduction in CO₂ emissions needed in order to reach the targets listed under the Kyoto Protocol. It is a cap-and-trade system in which governments set a cap (i.e. a limit) for businesses on CO₂ emissions over a certain period of time and issue tradable CO₂ emission permits. If a business wants to emit more CO₂ than the cap allows, it has the option to buy additional carbon permits from the market.

Annually, the government reduces the number of CO₂ emission permits, which results in overall CO₂ reduction (Bayer & Aklin, 2020). However, scientists and experts believe that this process of reducing CO₂ permits is not moving fast enough and there are still too many permits in circulation (Appun & Sherman, 2018; Lewis, 2018). As a result, the financial incentive for businesses to invest in technology to reduce the negative impacts of aviation on the environment remains small and airlines can continue burning fossil fuels relatively easily.

This is where Carbonkiller.org comes in. It uses the financial support of individuals to buy emission permits, taking them out of circulation and reducing the total amount of emissions available as part of the ETS for Europe’s biggest polluters. Additionally, it sends an important signal to politicians to support the proper functioning of the EU ETS.

Because of these impacts, compensating for travel-induced emissions via Carbonkiller.org is considered to be effective and meaningful. The price for compensating for emissions via Carbonkiller.org depends on the amount of CO₂ emissions you emit and the market price for a permit, therefore making it variable. In accordance with Suggestion #7, you may consider buying Carbonkiller permits up to the amount of money you find fair or corresponding to your personal emissions.

Suggestion #10. Sign the Fairoamine petition

The global aviation sector still benefits from tax advantages despite its significant contribution to greenhouse gas emissions. The Fairoamine petition calls for the EU to introduce a tax on aviation fuel to its member states. Making aviation fuel more expensive for airlines through taxation creates a financial incentive to reduce the amount of fuel used, and therefore also their aviation emissions. Companies would therefore be more motivated to use their financial resources to invest in renewable energy sources, facilitating the transition towards sustainable mobility.

Without taxation, it appears to be unlikely that airlines would prioritise the reduction of emission and the expansion of investment in green technology (Watts, 2020). Although many airlines started offsetting their carbon footprint, it can
be argued that this is no more than a symbolic action that delays the end of aviation fuel tax exemption. In fact, airlines are still lobbying to rewrite agreements that have been drafted to tackle industry emissions (Topham, 2020). By signing the petition, you request that by 2021, European governments start taxing kerosine for domestic flights and for flights between member states that are willing to cooperate.

5. Discussion and Conclusions

In this article we have tried to provide an insight into the issues associated with carbon offsetting. We emphasised the need for transparency to decide whether such programs are worth your financial support. In addition, we stressed the importance of prioritising the reduction of emissions over their compensation. Moreover, we provided recommendations for compensating for your travel emissions in a meaningful and effective way.

Green Destinations and the Good Travel Guide do not encourage you to stop travelling. However, we recommend you to travel with a purpose. It is argued that travellers bring benefits to local communities, especially in developing countries. That is true, but this is unfortunately a tiny fraction of international travellers. On the other hand, there is ample evidence that local communities in overtourism destinations experience nuisance and increasing cost of living from tourism rather than benefits. It is also worrying that 1% of people cause half of global aviation emissions and that airlines produced a billion tonnes of CO₂ and benefited from a $100bn subsidy by not paying for the climate damage they caused (Gössling & Humpe, 2020). The powerful airlines lobby organisation IATA has managed to keep flying so cheap, that air travel has continued to increase until COVID-19, while half of leisure flights were not even considered important by the traveller (Gössling et al, 2019). According to Dr. Stefan Gössling, “A lot of travel is going on just because it’s cheap” (Carrington, 2020).

Above all, we hope we have provided you with useful tips and tools to make sustainable and conscious choices when it comes to travel emissions, carbon offsetting and the climate crisis. If you happen to know a new or better way to reduce travel emissions, you are welcome to share this with us via the contact page of the Good Travel Guide.

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