12th European Public Health Conference 2019 in Marseille, France:
“Building bridges for solidarity and public health”
Workshop (6.O) “Greening the European Public Health conferences, and beyond”, 22 Nov 2019

Towards quantifying [and reducing] CO2 emissions from EPH conference travel

rainer.fehr @ uni-bielefeld.de, www.rfehr.eu [19-09a]

d.zeegers @ euphaoffice.org, https://eupha.org

odile.mekel @ lzg.nrw.de, www.lzg.nrw.de

nina.bos, u wageningen

Background

International scientific conferences (incl. EPH) largely rely on personal attendance, and the strong majority of participants travels by air.

- Aviation causes substantive emissions of CO2, which is a major contributor to climate change.
- Implications of climate change for human health are largely negative

-> Issues of **responsibility** and **credibility** for all conference organizers & attendants.

Objectives and approach

Objectives:

- Raising conference attendee's awareness
- Advancing EUPHA's systematic efforts towards "foot-print" reduction

Approach:

- **Estimating** the amount of CO2 emissions associated with EPH conference air travel
- **Reflecting** on options for footprint reduction, and their implications.

Estimation methods

Determinants of aviation-related CO2 footprints include:

- trip distance, stopovers, cabin class … (+/- easy)
- fuel efficiency, atmospheric conditions ... (tricky)

Carbon emission calculators for estimating carbon footprints are offered by carbon offset* providers, e.g. MyClimate, Atmosfair etc.

* a reduction in emissions of CO2 or other greenhouse gases made in order to compensate for emissions made elsewhere, https://en.wikipedia.org/wiki/Carbon_offset

Estimation methods (ctd.)

Based on EPH attendees' empirical distribution of countries of origin for the **2017 Stockholm** and **2018 Ljubljana** conference, rough estimates were made of:

- travel distances
- CO2 emissions
- potential carbon offset costs.

In the absence of detailed travel data, simplifying assumptions had to be made, e.g. air vs. ground travel, place of departure, and stopovers.

Estimation methods (ctd.)

In **approach A**, using two different offset calcula-tors, we use a “sample” country which provided the largest fraction of foreign participants in both 2017 and 2018, then extra-polate to participants at large.
In **approach B**, we use a rough approximation of total dis-tance travelled by all participants, and an average emission value per distance unit.

Approach A (offset calculators)

2017 Stockholm:

- 1.750 participants, 370 from Sweden, 1.380 other, with largest fraction (10.4%) from Italy

Roma – Stockholm – Roma:

- Per person: c. 4.100 km, 809 kg CO2, € 18
- For group: c. 590.000 km, 129 t CO2, € 2.592

2018 Ljubljana:

- 1.550 participants, 120 from Slovenia, 1.430 other, with largest fraction (12.9%) from Italy

Roma – Ljubljana – Roma:

- Per person: c. 1.000 km, 299 kg CO2, € 7
- For the group: 185.000 km, 55 t CO2, € 1.295

(in € = cost for set-off)

Approach A (ctd.)

Assumption: the two scenarios (Roma – Stockholm and Roma – Ljubljana) roughly represent “typical” travel situations for EPH conference participants, for varying conference venues in Europe and for the various countries of origin.

Approach A (ctd.)

Per person	MyClimate	Atmosfair
“Distant” travel scenario: Roma - Stockholm return, 4.100 km	809 kg CO2 € 18	942 kg CO2 € 22
“Short” travel scenario: Roma -Ljubljana return, 1.000 km	299 kg CO2 € 7	271 kg CO2 € 10

For generalization, averaging over 2 compensation calculators and, very crudely, over 2 travel scenarios provides these estimates:

- travel distance (return): 2.550 km
- CO2 emission: 580 kg
- set-off cost: € 14, for each participant from “other country”, per conference.

Approach A (ctd.)

Based on the 2017 and 2018 conferences, there are on average c. 1.400 participants from “other” countries.

	Per person from “other” country	All participants from “other” countries
Travel distance (return)	2.550 km	2.550 km *1.400 = 3.570.000 km
CO2 emission	580 kg	580 kg * 1.400 = 812 t
Set-off cost	€ 14	€ 14 * 1.400 = € 19.600

[19_09a] Towards quantifying CO2 emissions

Approach B

In an alternate approach, based on the distribution of countries of origin, distances travelled by the conference participants were estimated using the street distances, as indicated in Google maps.

	Street (one-way)	Street (return)
Stockholm conf 2017	3.657.418 km	7.314.836 km
Ljubljana conf 2018	2.779.743 km	5.559.486 km
	Sum	12.874.322 km
	Average per conf	6.437.161 km

Comparison of distances (A, B)

Assuming the relation of travel distance, CO2 emission and set-off cost can be transferred from approach A to approach B:

Per conference	Approach A	Approach B	Average (A, B)
Travel distances	3.570.000 km	6.437.161 km	5.003.580 km
CO2 emission	812 t	812 t * 6.437.161 / 3.570.000 = 1.464 t	1.138 t
Set-off cost	€ 19.600	€ 19.600 * 6.437.161 / 3.570.000 = € 35.341	€ 27.470

[19_09a] Towards quantifying CO2 emissions

Results

- In approach A, the emission estimates provided by the two different calculators MyClimate and Atmosfair, and the associated price tags for off-setting, were rather similar (as expected).
- The approach B created higher estimates of travel distances and consequently, CO2 emissions and set-off cost.

Results (ctd.)

- In a “typical” case, the conference air travel (to venue and return) emission of **1 person** (not from the conference country) was estimated as being about **580 kg CO2** or more, with the cost for setoff being roughly **€ 14** (or more).
- For a conference as a whole, the air travel was estimated to cause emissions of more than **800 tons CO2**, with the cost for set-off amounting to **€ 20.000** or more.

[19_09a] Towards quantifying CO2 emissions

Discussion

If the (two-way) air travel CO2 emission of 1 “typical” conference participant is about 0.58 t, how can this be put into perspective?

- current EU average per person is 8.4 t CO2 emission per year (Malta 4.6, Luxemburg 17.2)
- to bring climate change to a halt, the annual CO2 emission per person needs to be below 2.3 t (Atmosfair) or - by 2050 - even below 1.0 t (UBA).

Discussion (ctd.)

(1) What are the **options for footprint reduction**?
Options include (not mutually exclusive):

- monetary carbon compensation
- alternate travel modes (e.g., by train)
- innovative modes of EPH conferencing.

(2) What are expected **impacts** of such modes, espec. with respect to EPH conference functions?

Other professional associations and other international bodies incl. EC, WHO face similar questions.

[19_09a] Towards quantifying CO2 emissions

Discussion (ctd.)

Therefore, EUPHA could:

- … ask other associations how they deal with the issue – starting, e.g., with ISEE and IAIA
- … team up and initiate a coalition of associations (and, arguably, compensation providers) to debate the issue
- … initiate an (EC-)funded project for in-depth exploration, aiming to design a strategy towards climate neutrality and to adequately monitor progress.

Selected sources

- Atmosfair, www.atmosfair.de/en/
- EEA, EASA et al (2019): European Aviation Environmetnal report 2019.
- Myclimate (2019): Flugrechner Grundlagen, www.myclimate.org/fileadmin/user_upload/myclimate_-_home/01_Information/01_About_myclimate/09_Calculation_principles/Documents/myclimate-Flugrechner-Grundlagen_DE.pdf
- Umweltbundesamt (D), 6.9.2019: Treibhausgas-Emissionen in der Europäischen Union, www.umweltbundesamt.de/daten/klima/treibhausgas-emissionen-in-der-europaeischen-union
- Umweltbundesamt (D), 19.9.2019: Klimaneutral leben – Persönliche CO2-Bilanz im Blick, www.umweltbundesamt.de/klimaneutral-leben-persoenliche-co2-bilanz-im-blick
- WHO Europe (c. 2018): Planning healthy and sustainable meetings, www.euro.who.int/__data/assets/pdf_file/0005/373172/healthy-meetings-eng.pdf