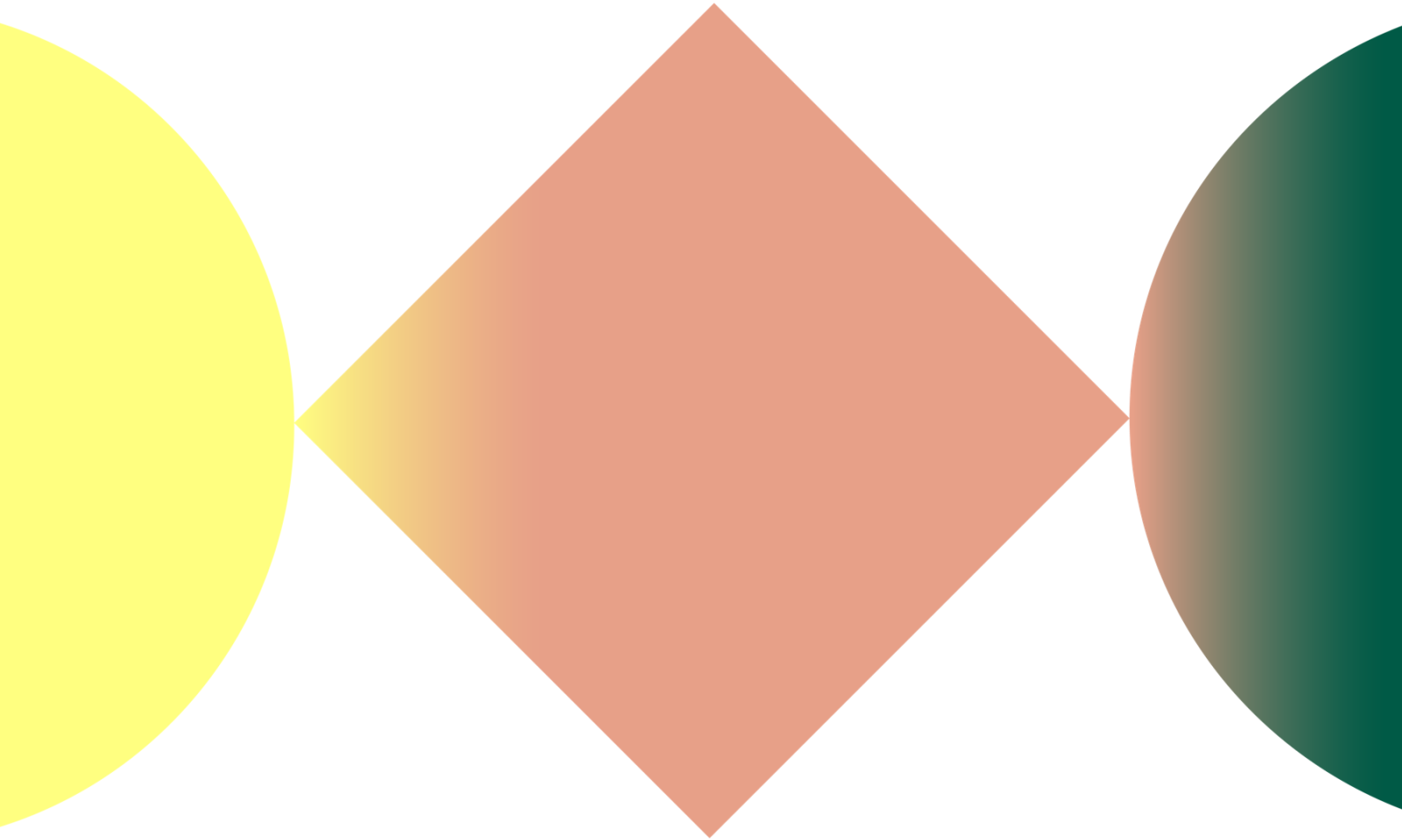




FUTURE UNILAB

Sustainability vs Mobility

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Table of Contents

Introduction	2
Executive Summary	3
Why Sustainability vs Mobility?	4
1. Re-thinking the value of mobility to reduce emissions and inequalities	5
2. A Una Europa Forest funded by a carbon travel tax	6
Annex:	9
1. Data collection and standardization	9
2. Decision tree tool and post-travel survey	11
3. Nature based solutions	12

Introduction

The Visionary Team

The Sustainability vs Mobility team started in April 2024.

Participants in the visionary team:

Name	Last Name	University Nomination
Andrew	Whitehead	Una Europa (vzw)
Jake	Broadhust	Una Europa/ The University of Edinburgh
Arno	Verhoeven	The University of Edinburgh
Guido	de Wilde	vzw
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Kelly	Brito	Una Europa
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The Process

- Online meetings: 19/4/2024: kick off; 23/05/2024; 08/07/2024; 03/09/2024, 15/2024 4/11/2024
- Face to face in Berlin: 17 – 18/09/2024

Executive Summary

Background

As global networks like Una Europa facilitate increased academic mobility, balancing this against climate impact becomes essential. Current estimates indicate that staff travel across Una Europa universities accounts for approximately 72,000 tons of CO₂e annually, or around 900 kg per person. This figure overshoots the UN's climate target of 2.1 tons of CO₂e per person by 2030 (roughly half the average footprint of every person on Earth today¹), underscoring the need for a more sustainable approach to academic travel.

Key Discussion Points

1. Rethinking Mobility's Purpose and Necessity: Academic travel brings unique cultural, collaborative, and knowledge-sharing benefits, yet not all travel yields equal impact. Students and early-career researchers often depend on mobility for skill-building and networking, whereas more established academics might focus on maintaining existing networks. Distinguishing essential travel from avoidable trips will be central to Una Europa's efforts.
2. The Role of Virtual Alternatives: The recent increase in virtual conferences and online collaborations presents opportunities for reducing travel without sacrificing connection. Strategic adoption of virtual options can support academic work, particularly where the environmental cost of travel outweighs its benefit.
3. Informed Decision-Making through Emissions Data: An informed travel policy requires robust, transparent data on emissions. The University of Edinburgh's standardized data approach offers a model, enabling a collective, data-driven effort across the Una Europa alliance to accurately assess and manage travel's environmental impact.

Decision-Making Aspects

- Decision Tree for Travel Choices: Una Europa could adopt a decision tree tool to guide travel considerations based on the trip's purpose, expected outcomes, and alternatives. Options like longer or multi-purpose stays and low-emission travel modes could be prioritized.
- A Una Europa forest and carbon tax: A potential carbon tax on travel emissions, such as KU Leuven's initiative, could finance offset projects, like reforestation or renewable energy efforts within partner communities, promoting a commitment to environmental sustainability.

Next Steps

1. Engage Stakeholders for Policy Alignment: Facilitate consultations with faculty, researchers, and administrative staff across Una Europa institutions to refine and build consensus on travel guidelines that balance academic benefits with environmental responsibility.
2. Develop better and open Data Collection Systems: Establish platforms and mechanisms to easily capture and report travel emissions data, promoting transparency and accountability across universities.
3. Pilot Offset Programs and Community Initiatives: Launch pilot carbon offset projects, such as an "Una Europa Forest," to explore scalable models for offsetting emissions within academic networks.

The visionary team wants to point out clearly that we do not see the Una Europa forest funded by a carbon tax as a solution for keeping travel untouched. We hope to have made clear above that mobility should be carefully rethought. For those journeys that are considered valuable, and that should in the future be distributed in more equitable ways, the forest should complement, rather than replace, efforts to cut down direct emissions from air travel and other activities. We are aware that this scheme only tackles mobility emissions "inside the European bubble", but we think that Una Europa should set an example in taking responsibility for environmental impacts from our academic lifestyle that, as pointed out, includes travel as a vital element. This framework enables Una Europa to lead in sustainable academic practices, paving the way for balanced, responsible academic mobility.

¹ Oxfam International <https://www.oxfam.org/en/press-releases/carbon-emissions-richest-1-set-be-30-times-15degc-limit-2030#:~:text=To%20stay%20within%20this%20guardrail,every%20person%20on%20Earth%20today>

Why Sustainability vs Mobility?

The “versus” in the topic given to this visionary team is evident if one looks at greenhouse gas emissions caused by mobility, especially by fossil fuel-based means of transportation like cars and planes. As one example, a rough estimate of emissions caused by staff travel from all members of all Una Europa universities is 72000 tons of eCO₂ per year per year, or on average 900 kg per person per year – almost half of the UN 2030 target of 2.1 tons eCO₂ per capita. From a purely climate change-focused point of view, decreasing mobility might seem to be the most sustainable thing to do.

However, sustainability is much more than climate protection; as illustrated by the 17 Sustainable Development Goals by the UN², it also comprises good health and well-being, quality education, reduced inequalities, and peace, justice and strong institutions, to name just a few. Some of these goals require mobility. For example, offering students and staff from the Global South equitable access to education and research opportunities often necessitates international mobility.

Instead of *turning* Mobility *against* Sustainability – as the topic’s initial formulation would seem to suggest – the visionary team looked for ways to reconcile the two. We propose such a reconciliation is possible on two levels:

1. At the level of ideas, we propose a deep rethinking of travel, if only to make university-related mobility more equitable, less polluting, and more valuable, while
2. At the level of practical implementation, we propose that a combination of measures already in place in at least one of the Una Europa partner universities be extended to the whole group, in order to promote shared responsibility and accountability for those emissions produced by mobility.

Both proposals come with concrete recommendations and measures that we think can foster steps on a path towards sustainability *and* mobility.

It is worth highlighting that the rough estimate of emissions produced by Una Europa’s staff travel outlined below includes neither student mobility nor daily commuting for either staff or students, owing to a lack of available data. Hence, our first recommendation, which we take to be a prerequisite to knowing what precisely one is talking about when considering sustainability and mobility in Una Europa, concerns data collection and related mechanisms for reporting.

Data collection on the travel of faculty, staff and students, as well as on daily commuting, with the emissions related to this mobility would provide information about major contributors to emissions. Regular reporting would further inform about changes of travel practices and emissions over time. An open standard for this data collection, commonly defined and used by the Una Europa partners, could then be taken up also by other universities. [See Annex 1.](#)

Una example: The University of Edinburgh is a good practice example of collecting and reporting data on university staff travel. The report is publicly available and includes information on emissions, travel costs, distance, and mode of transportation. The data presented in the report dates back to 2012, which allows for a better view of changes in mobility emissions. Unfortunately, the report is limited to academic staff mobility and does not take into account student mobility and commuting.

(<https://www.ed.ac.uk/sustainability/operations/travel>)

² <https://sdgs.un.org/goals>

1. Re-thinking the value of mobility to reduce emissions and inequalities

The two examples above clearly evidence that mobility comes with both positive and negative effects, and suggest that, as things currently stand, mobility and its impacts are unevenly distributed. Such inequality is present both between the Global North and the Global South, as well as at the level of individuals in terms of career stages. In particular, reducing the total emissions caused by long-haul airline travel in academia is inevitable if the sector is to successfully contribute its share to overall cuts in carbon dioxide emissions. However, a general goal such as simply cutting all mobility by say 20 per cent would seem to miss the point, as measures need to be different for different stakeholder groups.

In reformulating the issue in terms of economics, we propose there is a need to weigh the (educational and academic) benefits of any given mobility experience against its (environmental) cost. To minimize costs and maximize benefits, three general lines of action can be sketched: reducing travel itself, reducing its environmental impact, and increasing its positive effects. A broader view needs to be assumed and further explored, and the specific context will no doubt play a role.

For example, benefits from mobility differ for different groups of people. Many international degree students gain access to educational opportunities they would not have in their home countries. Exchange students benefit at least as much from being exposed to other scientific practices and intercultural diversity as they do from the academic program, which may be similar to the offer at their home institution. Early Career Researchers travel in order to have access to facilities (labs, libraries, advisors) they do not have at home, and they are also required to build lifelong networks for their careers. More established researchers mainly travel to interact with colleagues, and to present their own methods and findings. Much of the benefit of international face-to-face interaction cannot and should not be organised: it is the experience of the unexpected (and sometimes even unwelcome) that has the most lasting impact. It is difficult to learn from afar precisely how academic cultures differ, and this not only with respect to the humanities and social sciences. Looking at the same issue from different perspectives can lead to entirely new insights. Last, though certainly not least, staying abroad for a longer period of time allows one to look at their own country and culture anew. The benefits of travel can be augmented further through increased preparation, and by combining trips or longer stays if and where possible. (e.g., a person with care responsibilities at home generally has stricter time constraints).

Lessons learnt from the pandemic

When in 2020 very suddenly face-to-face meetings needed to be suspended, people in academia learned to use online alternatives to build meaningful connections. Meeting people online and face-to-face is of course not the same - and while some argue that online cannot produce all benefits of meeting in person, it is worthwhile considering that both have positive and negative sides.

Good online meetings (like good in-person meetings) can be made more likely by the right kind of preparation and facilitation. Rather than starting with the question of whether or not to travel, it may be more helpful to start with curiosity about how best to build relations, knowledge exchange and collaboration. Best practices for online collaboration and exchange should be collected and shared among Una Europa members.

In order to more effectively make the benefits and costs of travel transparent, we recommend preparing a decision tree tool to help people actively reflect on the value of the travel they are planning (see box below and Annex 2). Prior to traveling, individuals should be encouraged to think about the goals of their mobility experience and whether these goals cannot be fulfilled by other means. At an institutional level, benefits could be increased by *slowing down* collaborations. Rather than many short-term projects, we could consider pursuing fewer collaborations, possibly prioritized based on the goal of reducing inequalities, ultimately affording researchers more time to prepare for every single encounter that requires mobility. Una Europa could aim to foster such a longer-term perspective.

Negative impacts of mobility also differ between different groups. International students coming from the Global South may travel far but tend to do so only twice: once at the beginning and once at the end of their study program.

Whereas many “domestic” students travel abroad for a semester or a year under the Erasmus program, mainly to other European institutions that can frequently be reached by train. Many faculty and some administrators travel frequently (i.e. several times a year) for short periods to attend conferences or to visit colleagues, and sometimes solely for representative purposes.

To reduce the negative impact of travel, we propose avoiding any travel that provides comparatively little by way of benefit. Negative impact should be understood to extend beyond concern for the environment, to the personal level; to those cases where frequent travel can lead to elevated stress or a monopolizing of time and resources. Travel that is considered valuable should then be carried out using sustainable means of transport – using trains rather than aircraft or opting for economy class rather than business class – whenever possible and practical. Of course, the geographical position of the Una Europa partner universities constitutes a privilege in itself: many non-European institutions do not have the option to reach collaborating institutions without boarding an aircraft. Fostering a longer-term perspective by stepping outside of the European research/academic bubble will be necessary if we are to succeed in reconciling sustainability with mobility.

We therefore recommend a post-travel survey to complement the pre-travel decision tree tool.

A decision tree tool to be used before travel as well as a post-travel survey would raise awareness about costs and benefits of travel. The tool would help individuals reflect explicitly and honestly how urgent and useful a potential trip may actually be, as well as what the environmental and possibly other impacts would be, perhaps to come to the conclusion that *some* travel can be replaced by online meetings. If the decision for traveling has been made, next branches in the tree should raise awareness about the differentiated impacts in terms of means of transport, perhaps to come to the conclusion that some travel can be shifted from planes to trains, etc.

A universal mandatory survey after every mobility experience for all stakeholder groups should (even in anonymous fashion) elicit whether the expected benefits of the travel experience have been reached, which might lead to a different decision the next time around. In addition, it could help fill gaps of information gathered by other means, e.g. on means of transport, emissions produced etc, to complement the data collection efforts discussed earlier. (See Annex 2 for further detail)

In summary, by facilitating a thorough re-thinking of existing travel practices and the motivations behind these, the visionary team hopes to convince individuals to make better decisions concerning their travel and to encourage relevant decision makers within the Una Europa partner universities to increase value-adding participation through mobility. This means more mobility for students globally; the political aim of offering an experience abroad to more students (up to 50 per cent of a cohort according to EU policy documents) is laudable, and should consider also those student mobility experiences originating from those regions that make up the greater part of the world, i.e. outside Europe. Student and Early Career Researcher mobility is typically longer and involves less emissions per person and year than faculty and administrative travel. It is vital to the educational mission of universities and can less easily be substituted by online communication. Students and Early Career Researchers can also be more easily convinced (or forced) to choose the most climate-friendly means of transportation. Increasing participation also means more mobility for faculty, researchers, and administrative staff from the Global South. This can only be achieved in a climate-friendly way if European faculty and administrators travel less and in more sustainable ways.

2. A Una Europa Forest funded by a carbon travel tax

International travel is integral to many academic activities. Much of this travel cannot be shifted to low-emissions transport means. We therefore propose that Una Europa’s partner universities track, tax, and compensate for their emissions caused by traveling. Introducing a mobility carbon tax would help to partially offset the false understatement of the full costs of high-emission modes of transport in that it makes the environmental costs of emissions more visible by increasing the price of carbon-intensive activities, such as air travel. A system of taxing carbon from travel is already in place at KU Leuven.

Una example: In 2018, KU Leuven began requesting a voluntary contribution to offset the CO₂ emissions of work-related flights (€40 per ton of CO₂). By 2020, this evolved into a mandatory contribution with an opt-out option. In January 2024, the travel policy was revised and strengthened based on advancing scientific insights. Most significant changes concern average ETS price per ton of CO₂, precise calculator (Greentripper), and differentiation in cabin classes. The revenues from this carbon tax go into an internal climate fund, and those funds are allocated to CO₂-reducing or offsetting objectives (Use of funds: internal climate fund — Sustainability).

On the one hand, a carbon tax can further contribute to better decision-making at the level of individual stakeholders, serving to promote choosing low-emission modes of transport, especially when economic factors are a driving force in making such a decision. By raising the cost of airplane tickets, a carbon tax discourages both individuals, and, more importantly, institutions, from choosing this high-emission form of transportation. In light of existing budgetary constraints, we believe that any increase in fares would result in a reduction of travel, and that this approach can be particularly effective in reducing non-essential or "frivolous" travel, if only by encouraging a prioritization of trips with greater necessity or value. However, there are significant implications surrounding inequality, as such a tax could disproportionately affect those institutions that are less centrally located or are less able to absorb these costs. We return to this point below.

On the other hand, a carbon tax on travel would create a revenue which can potentially be reinvested in sustainable alternatives. Another very rough estimate suggests that, at the current price of emissions allowances in Europe published by Ember (non-profit organization; <https://ember-climate.org/>) of 63.61 € per ton of CO₂ (price from 01.10.2024), the total yearly cost of a mobility carbon tax among all partner universities in Una Europa would amount to approximately 4.7 M€ (see Table 1 in Annex 1). This averages to around 57 € per person per year (including all faculty and administrative staff, but excluding students).

Should such an initiative be pursued, we propose that Una Europa invest this money in nature-based carbon sequestration methods, in short, an Una Europa forest. Strategies such as reforestation, afforestation, peatland restoration, and agroforestry can offset CO₂ emissions (for details see Annex 3). They are already in place at Edinburgh University. We recommend in-house solutions rather than purchasing credits in order to ensure long-term accountability.

Case Example: Edinburgh University's Forest and Peatland Programme

The Forest and Peatland Programme at Edinburgh University demonstrates how higher education institutions can effectively contribute to carbon sequestration. The programme focuses on restoring and protecting Scotland's native woodlands and peatlands, critical areas for carbon storage and biodiversity. This initiative involves collaborative research, student-led conservation projects, and partnerships with local environmental organizations. By integrating practical restoration activities and educational workshops, the programme mitigates the university's carbon emissions and enhances academic learning and community engagement. More [here](#).

Assuming annual revenues from the tax at 4.7 million euros and taking into account average land price in the EU 10,5 k€/ha (based on 2022 Eurostat data), we can estimate that the carbon mobility tax should allow for financing the purchase of about 440 ha of land per year. Carbon sequestering by reforestation strongly depends on many factors (e.g.: soil type, land location, plants selection, forest age and man, many more) but following report for US congress form 2007 we can assume that in between 4 to 22 tons of CO₂ per hectare per year can be sequestered. While all estimates involved are very rough, orders of magnitude of carbon tax generated, land potentially bought from this investment as well as emissions produced and sequestered through forests on this land may match over the course of just 7 years (up to 30 years depending on sequestration rate), pointing out that such an Una Europa forest could make a contribution to keeping the part of academic mobility that is considered valuable.

For university partners who do not have the option of buying land or planting a forest, Una Europa brings added-value. One of the strengths of European universities is the capacity for resource sharing and the facilitation of collaborative efforts. Where a university partner is unable to benefit from proximity to the Una Europa European forest(s), they can plant a micro-forest on campus. This will increase awareness and visibility concerning the initiative, and at the same time lend itself to the virtual campus that is Una Europa.

While nature-based approaches offer environmental benefits, educational opportunities and more (see Annex 3 for more detail), it is vital to critically examine potential hurdles to implementation (such as legal possibilities for universities to buy land for planting a forest), the cons involved (see also Annex 3) and their implications for climate justice, and the potential for exacerbating inequalities.

Implications for inequality go beyond the fact that increasing travel costs through a carbon tax will impose unequal burdens. Such a scheme might be misunderstood as implying that wealthier individuals or entities owning forests can fly guilt-free by offsetting emissions, while those without financial means or land rights remain grounded, perpetuating a division between the privileged and the marginalized. Also, over-reliance on carbon offset programmes might divert attention from the need to reduce emissions at the source.

The Visionary Team wants to point out clearly that we do not see the Una Europa forest funded by a carbon tax as a solution for keeping travel untouched. We hope to have made clear above that mobility should be carefully re-thought. For those journeys that are considered valuable, and that should in the future be distributed in more equitable ways, the forest should complement, rather than replace, efforts to cut down direct emissions from air travel and other activities. We are aware that this scheme only tackles mobility emissions “inside the European bubble”, but we think that Una Europa should set an example in taking responsibility for environmental impacts from our academic lifestyle that, as pointed out, includes travel as a vital element.

Annex:

The following annexes include some ideas by the visionary team on each of the recommendations made, but are in no way exhaustive. If planning to implement any of the points below, Una Europa should involve all relevant stakeholder groups as well as experts on the respective topics, and should look to all best-practice examples that can already be found within the alliance.

1. Data collection and standardization

In the summer of 2024, we conducted an exercise to map physical mobility among staff and students at Una Europa universities to estimate the emissions associated with it. Our experiment revealed significant differences in data availability and quality between universities. Some universities collect and analyse accurate data on distances, means of transport, and emissions of all journeys. A good example is the University of Edinburgh, which, in addition to collecting accurate data, also publishes transparent reports related to the emissions of its employees' mobility. Some universities collect only partial data that do not include key information from the environmental standpoint. Moreover, most universities do not analyse this data nor make it accessible to their community to prevent increased transport emissions; they only collect it for administrative purposes. This leads to limited data availability and increased workload for administrative units when trying to obtain and share such data. In addition, staff and student travel administration is usually handled by different units, which further complicates data collection. Data on sustainability of commuting is hardly collected, and if it is, it is collected very sparsely.

Despite this, we managed to collect data on the mobility emissions of 5 universities (excluding emissions from commuting and student mobility). Extrapolating the collected data we can roughly estimate the yearly emissions from university staff travel at **72 k tons of CO₂ equivalent** (Tab.1.), which average at around 900 kg of CO₂ equivalent per person. The collected data clearly shows that the vast majority of emissions come from air travel (96%), in particular long-haul trips, which constituted 69% of all emissions.

Based on this experience, we recommend creation of an open, universal mobility data collection standard that will allow gathering information on: distance travelled, transportation mode used and CO₂ emission. Such an open data collection standard could be prepared as part of an international scientific project using the Una Europa alliance resources.

We also recommend regular publication of annual reports on Una Europa mobility including mobility of all stakeholder groups (degree students, credit [exchange] students, younger researchers / doctoral students, faculty and other established researchers) and all types of physical mobility (long, mid, and short haul trips as well as commuting).

Tab.1. Mobility emission mapping (06-08.2024). In black data received from Universities, in grey data extrapolated based on UoE per capita emissions. Data from 2023 (except ② KUL where data are from the 2023/2024 academic year and ③ UZ where data are from 2022). ① Number of employees based on Una Europa Wikipedia entry visited 07.2024 (https://en.wikipedia.org/wiki/Una_Europa); FUB data (<https://www.fu-berlin.de/en/universitaet/profil/zahlen/index.html>); JU data (internal, status as of 31.12.2023). The price of emissions allowances in Europe on 01.10.2024 from EMBER: 63.61 € per ton of CO₂ (<https://ember-climate.org/data/data-tools/european-electricity-prices-and-costs/>).

University	Number of employees ^①	Travel													Σ CO2 emission [kg CO2e]	Estimated carbon tax
		By plane ✈️ (long-haul)			By plane ✈️ (short-haul)			all air travel	By train 🚆			By car 🚗				
		Number of trips	Distance traveled [km]	CO2 emission [kg CO2e]	Number of trips	Distance traveled [km]	CO2 emission [kg CO2e]	CO2 emission [kg CO2e]	Number of trips	Distance traveled [km]	CO2 emission [kg CO2e]	Number of trips	Distance traveled [km]	CO2 emission [kg CO2e]		
Freie Universität Berlin	4 730	733	2 742 236	1 966 218	817	1 485 727	308 695	2 274 913	1 280	1 178 812	35 873	189	97 820	13 329	2 324 115	€ 150 416,72
Università di Bologna	5 778	3 065	21 616 155	4 120 602	9 622	10 507 385	1 933 857	6 054 459	5 118	1 850 767	52 372	15 525	1 388 435	234 121	6 340 852	€ 410 386,42
University College Dublin	3 781	2 006	14 145 151	2 696 434	6 296	6 875 808	1 265 475	3 961 909	3 349	1 211 103	34 271	10 159	908 562	153 204	4 140 384	€ 268 548,12
University of Edinburgh	11 079	5 877	41 447 799	7 901 029	18 449	20 147 337	3 708 066	11 609 095	9 813	3 548 745	100 420	29 769	2 662 249	448 915	12 158 430	€ 786 893,59
Helsingfors Universitet	7 838	5 029	18 812 736	1 539 443	1 038	1 888 087	245 494	1 784 937							1 784 937	€ 115 521,12
Jagiellonian University	8 911	4 727	33 337 064	6 354 912	14 839	16 204 795	2 982 451	9 337 363	7 893	2 854 307	80 769	23 944	2 141 285	361 069	9 779 201	€ 632 909,90
Leiden University	7 100	3 766	26 561 907	5 063 391	11 823	12 911 462	2 376 322	7 439 712	6 289	2 274 221	64 354	19 078	1 706 108	287 688	7 791 756	€ 504 282,38
KU Leuven ^②	11 534	4 407	31 082 571	5 936 771	4 718	5 152 056	947 978	6 884 749	7 606	2 745 766	77 705	3 476	309 364	52 283	7 014 737	€ 453 993,78
Universidad Complutense de Madrid	11 162	5 921	41 758 311	7 960 221	18 587	20 298 274	3 735 846	11 696 066	9 887	3 575 331	101 172	29 992	2 682 194	452 278	12 248 517	€ 792 788,72
Université Paris 1 Panthéon-Sorbonne	2 770	1 469	10 362 885	1 975 436	4 613	5 037 289	927 100	2 902 536	2 453	887 266	25 107	7 443	665 622	112 239	3 038 882	€ 196 741,15
University Zürich ^③	5 753	3 052	21 522 627	4 102 773	9 580	10 461 922	1 925 490	5 416 000	5 096	1 842 759	52 145	15 458	1 382 428	233 108	5 701 254	€ 368 985,13
Σ	80 436	40 052	263 389 444	49 617 228	100 382	110 970 142	20 356 774	69 361 740	58 783	21 969 077	624 189	155 033	13 944 068	2 348 234	72 334 163	€ 4 681 467,05

2. Decision tree tool and post-travel survey

As costs and benefits of travel differ between different stakeholder groups, so does a reasonable balance between such benefits and costs. To raise awareness about these benefits and costs, the suggested decision tree tool and post-travel survey should take such differences into account. In the following, we list a few questions that could be posed to different groups in order to convince them of better decisions. These lists are by no means complete, and a good balance between eliciting relevant points and overloading a useful decision tree tool should be left to experts. Also, existing travel rules by other institutions should be consulted and evaluated. Some of the following suggestions are based on the rules set by the German Academic Scholarship Foundation (Studienstiftung), which are the strictest rules known to members of the visionary team, though they mainly refer to student travel funded by the Foundation.

Students and early career researchers: As pointed out above, most university leaders, governments and the European Commission agree that the percentage of students having international experience during their programs should increase (up to 50 per cent). Measures taken should thus not lead to less mobility, but to more environmentally efficient mobility. Some of them are financial incentives, others refer to the tailoring of exchange programs. These may include:

- no reimbursement for air travel to destinations that can be reached by train in less than 12 hours
- in the (frequent) case of travel cost being paid as a lump sum, increase of that lump sum by 20 percent on presentation of a train or bus ticket; this may also help to pay for an overnight stay on the way.
- requiring a minimal length of stay at the destination, and thus, hopefully, stronger cultural exposure, depending on geographic distance
- limiting support for shorter language courses (up to 4 weeks) to Europe (for languages spoken also in Europe) and/or to students having a basic knowledge of the language (say A2 or B1)
- mobility is more efficient if well prepared (preparation seminars, online interaction with the host institution) and followed up. Online interaction has made that much easier.

Faculty and staff: As also mentioned above, arguably, the amount of long-haul travel of faculty and staff needs to decrease. In established networks, more interaction takes place online. Faculty and staff should reflect more rigorously on the usefulness / necessity of short-term long-haul trips. This may include remarks / questions as:

- Some prohibition of long-distance travel for meetings taking less than 4 hours could be implemented.
- No reimbursement for air travel to destinations that can be reached in less than twelve hours by train.
- Does the international education community actually need to meet three times a year (EAIE, NAFSA, APAIE)?
- How can the academic impact of conferences be increased (more interactive formats rather than presentations with 5 minutes Q&A)?
- Could some intercontinental travel be avoided by sending delegates, appointed by national or regional meetings and reporting back to them?
- Can some global conferences be replaced by regional conferences with video connections among them?
- Are university leaders willing to fly (prime) economy rather than business, thus setting a rule, or at least an example, for faculty and staff?
- Can we avoid long-haul travel that is mainly ceremonial (such as presenting dignitaries to dignitaries) and serves no or little operational purpose? That would probably require a habitual change in our ways to do business.
- Do boards need to meet in person? If so, for every meeting?

Moreover, we propose the preparation of a universal mandatory survey after every mobility experience for all stakeholder groups. Questions involved in the survey could fill the gaps of information gathered by other means (i.e. travel applications, universities' internal systems) and provide data concerning reasons for travel and actual effects of mobility.

3. Nature based solutions

As mentioned, there are several types of nature-based approaches to carbon sequestration and longer lists of their pros and cons exist. This appendix defines some terms and provides such lists to complement the main text, without claim to completeness.

Nature-Based Sequestration Methods:

- **Reforestation and Afforestation:** These involve planting trees in deforested or degraded areas to absorb CO₂ through photosynthesis. Afforestation refers to creating new forests on lands that previously did not contain forests, while reforestation focuses on restoring existing but degraded forests.
- **Mangrove Restoration:** Mangroves are among the most efficient ecosystems for carbon sequestration. Restoration projects in coastal areas involve replanting mangroves and protecting existing mangrove forests, providing additional benefits such as coastal protection and habitat for marine life.
- **Peatland Restoration:** Peatlands store vast amounts of carbon and are highly effective carbon sinks. Restoring degraded peatlands is critical for enhancing their carbon sequestration capacities. Healthy peatlands can store carbon for thousands of years, making them highly significant for long-term climate mitigation.
- **Agroforestry:** This method integrates trees and shrubs into agricultural lands, enhancing carbon storage while improving land productivity and biodiversity.

Pros of Nature-Based Carbon Sequestration

1. **Environmental Impact:**
 - a. These initiatives significantly reduce carbon footprints by enhancing the natural capacity of ecosystems to sequester carbon. They contribute to global climate change mitigation and promote biodiversity conservation.
 - b. Ecosystem Restoration: Restored ecosystems, such as forests, mangroves, and peatlands, help maintain ecological balance, protect water resources, and prevent soil erosion, enhancing overall environmental health.
2. **Educational Opportunities:**
 - c. Such programs offer students and staff hands-on experience in conservation and ecological restoration. Engaging in these projects enriches academic knowledge and fosters a culture of environmental stewardship within the university community.
 - d. Interdisciplinary Learning: Programs often integrate various fields such as biology, environmental science, geography, and social sciences, providing students with a holistic understanding of ecological and social dynamics.
3. **Community and Research Collaboration:**
 - e. These initiatives encourage collaboration with local communities, conservation groups, and research institutions. Partnerships enhance the effectiveness of restoration projects and provide valuable data for ongoing scientific research.
 - f. Capacity Building: Involve local communities in training and capacity-building activities, empowering them with skills and knowledge for sustainable land management and conservation.
4. **Long-term Sustainability:**
 - g. Nature-based solutions provide long-term benefits as restored ecosystems continue sequestering carbon and supporting biodiversity over decades. This ensures continuous environmental and socio-economic benefits.
 - h. Resilience to Climate Change: Healthy ecosystems are more resilient to climate change impacts, such as extreme weather events, thereby protecting both the natural environment and human communities that depend on these ecosystems.

Cons of Nature-Based Carbon Sequestration

- **Cost and Resource Intensive:** Initiating and maintaining large-scale reforestation or peatland restoration projects require significant financial investment and resources. Continuous funding and resource allocation are essential for the long-term success of these projects.
- **Time Horizon:** Carbon sequestration through natural processes takes time. Trees and peatlands need years to mature and reach their full carbon sequestration potential, which might not align with immediate carbon reduction goals.
- **Monitoring and Verification:** Ensuring the efficacy of sequestration efforts requires rigorous monitoring and verification. This can be complex and might necessitate advanced technology and expertise, increasing overall project costs.
- **Equity and Land Use Conflicts:** Restoration projects may encounter land-use conflicts, including competing interests such as agriculture, urban development, or other conservation efforts. In some cases, carbon offset projects may not adequately benefit local communities and could lead to displacement or restricted access to resources. This can reflect power/resource control dynamics, where wealthy institutions or corporations impose solutions without fully consulting or benefiting local communities.
- **Perpetuating Inequality and Injustice:** The practice can exacerbate inequality and injustice. Wealthier individuals or entities owning forests can fly guilt-free by offsetting emissions, while those without financial means or land rights remain grounded, perpetuating a division between the privileged and the marginalized. This system inherently favours those with resources, allowing them to maintain high-carbon lifestyles while limiting the mobility of less affluent populations, often those who contribute least to global emissions.
- **Responsibility Shift:** Over-reliance on carbon offset programmes might divert attention from the need to reduce emissions at the source. Universities and other users should ensure that these projects complement, rather than replace, efforts to cut down direct emissions from air travel and other activities.
- **Security, Stability and Safety:** Despite the fact that forests play a huge role in water management and their presence reduces the risk of natural disasters, natural carbon sinks are susceptible to natural disasters, especially fires, gales and windstorms. Forest fires can reverse decades of carbon sequestering within hours.



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