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ERASMUS+ STUDENT TRAVEL SUSTAINABILITY REPORT

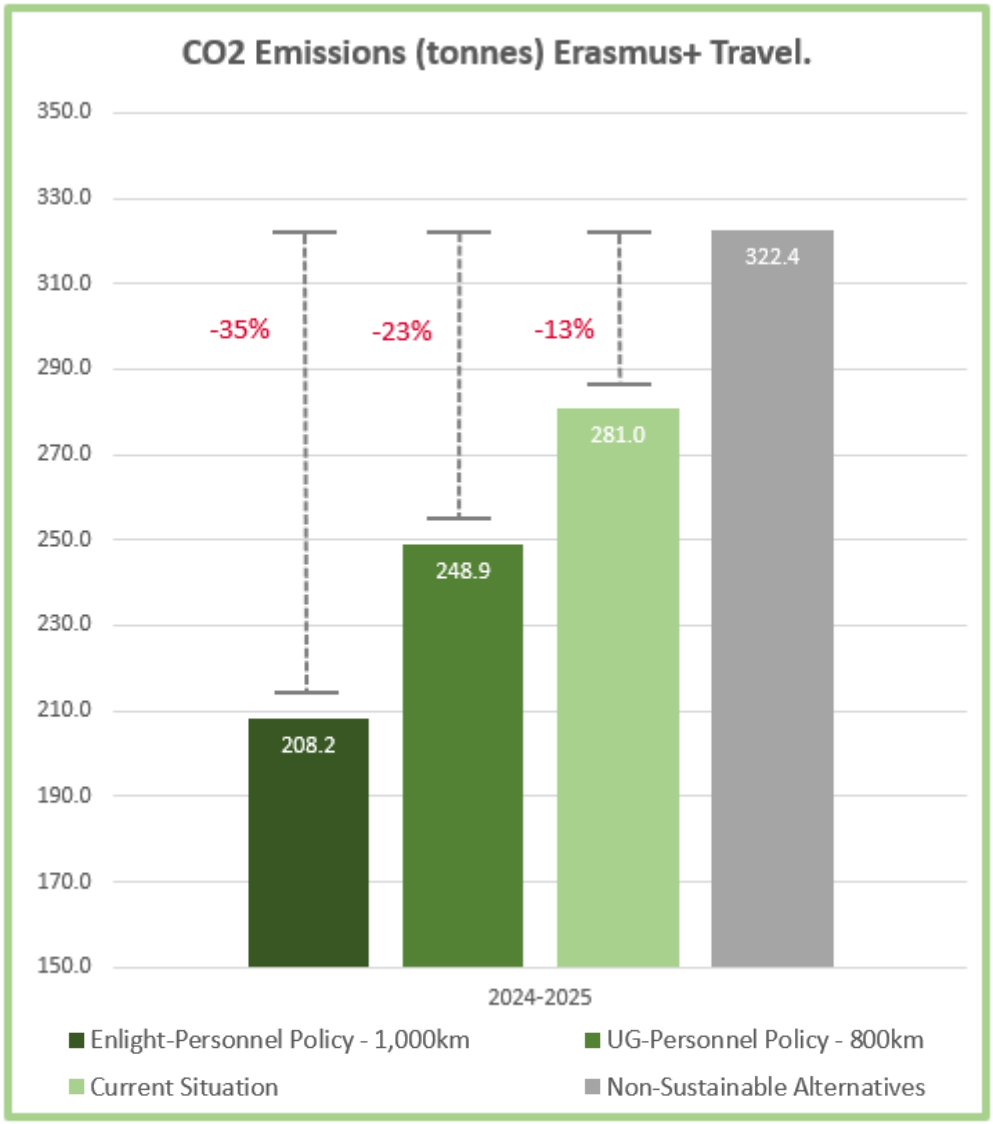
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SUMMARY

The Green Office of the University of Groningen analyzed the travel patterns and CO_2 emissions of outgoing Erasmus+ exchange students in the academic years 2023-2024 and 2024-2025. The most popular destination countries included Spain, Sweden, Italy, Germany, France, and Norway, accounting for approximately 58% of all trips. Students traveled an average of about 1,020–1,025 km per trip.

Approximately 19–21% of students chose sustainable transport options such as train, bus, or carpooling. An analysis shows that travel distance plays a significant role in this choice, but it explains 10.1% of the variation. Other factors such as price, convenience, and personal motivation likely also play a role.

The analysis compares three scenarios for CO_2 emissions. In the current situation, voluntary sustainable choices already avoid **11–13%** of emissions compared to a fully non-sustainable scenario. If the UG personnel policy (no flights under 800 km) were also applied to students, the reduction could rise to **21–23%**, equivalent to an additional savings of about 15–16 tons (±10%) of CO_2 per year. A stricter threshold of 1,000 km could potentially increase the reduction to **35–37%** (26–30% extra compared to the current situation).

The results suggest that extending the personnel policy to students could yield significant sustainability gains without strongly limiting long-distance mobility.

INTRODUCTION

To provide insight into the travel patterns and associated CO_2 footprint of outgoing exchange students at the University of Groningen (UG), the Green Office conducted an analysis. This analysis covers all exchange students who, in the academic years 2023-2024 (804 students) and 2024-2025 (865 students), participated in an exchange within Europe and received an Erasmus+ grant. Erasmus+ is an EU subsidy for study and internship exchanges within Europe, amounting to €330–390 per calendar month depending on the destination country[1]. The dataset is sourced from internal UG databases and only contains the students' initial outgoing flights and final returning flights, any flights taken during the exchange period are not part of the analysis.

Since 2023, UG policy has prohibited flying within a distance of 800 km (or if the train journey takes less than 9 hours)[2]. This policy currently applies only to personnel and not to students. To investigate the potential sustainability gains if this policy were also applied to students, we include this scenario in the analysis.

COUNTRIES OF DESTINATION

For the analysis, it is important to identify the most popular destination countries. In the academic year 2024-2025, Sweden, Spain, Italy, Norway, Germany, and France together accounted for

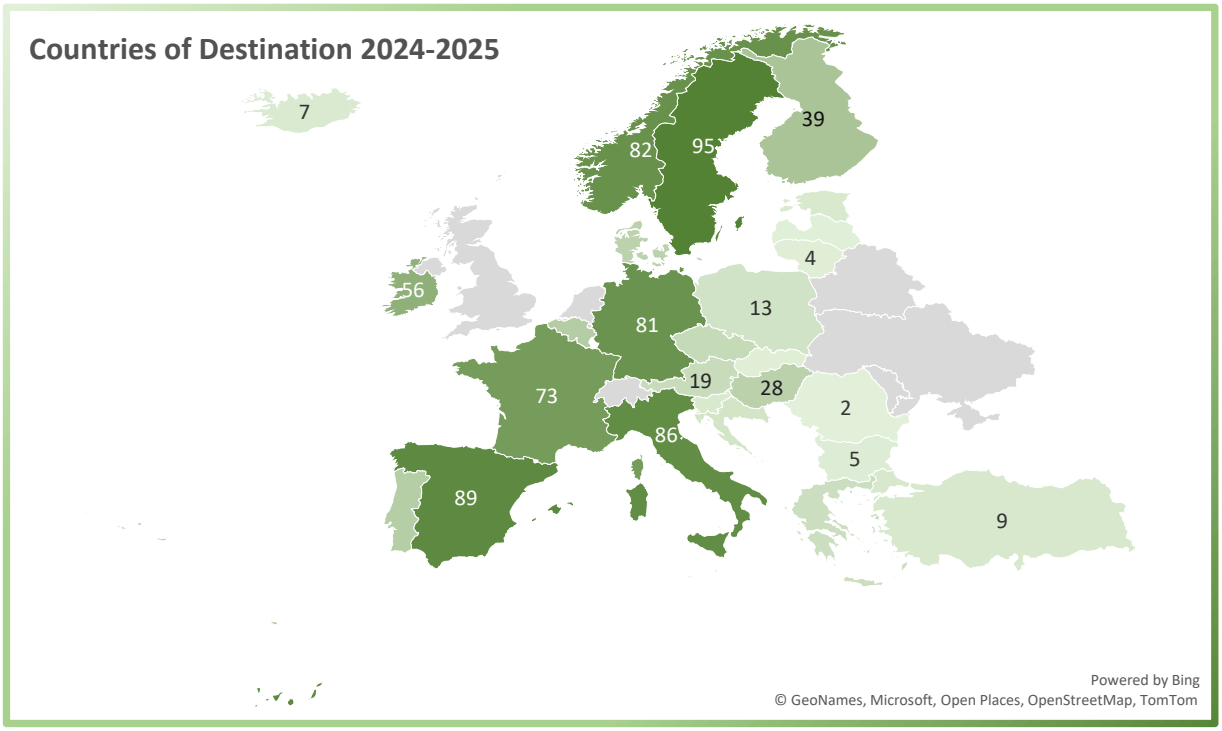


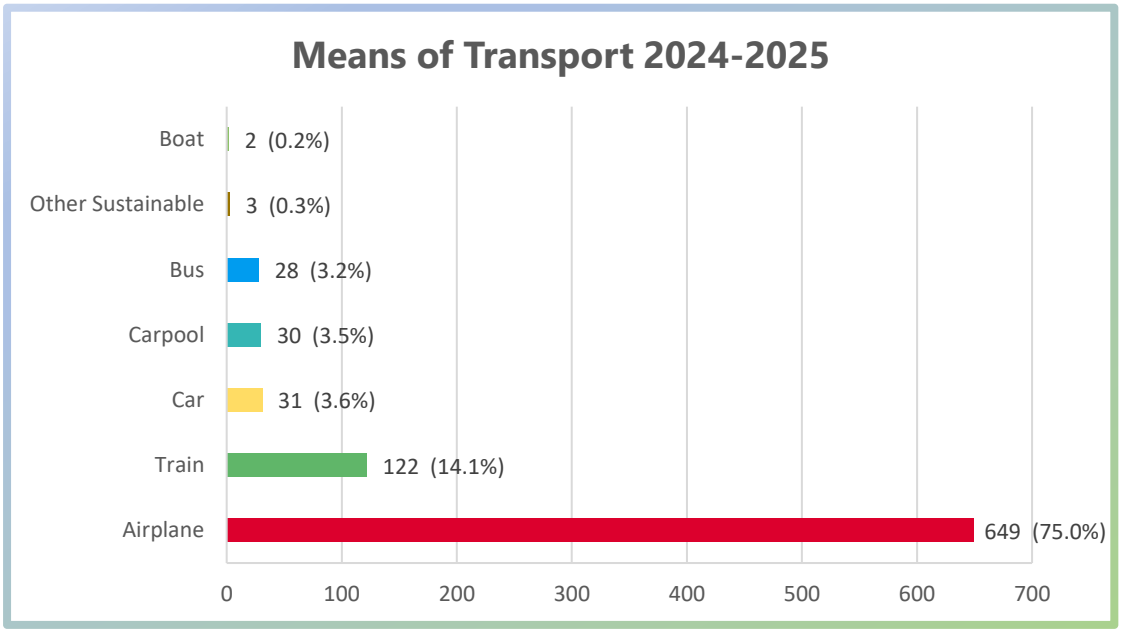
Figure 1: Country Popularity 2024-2025.

[1] https://student.portal.rug.nl/infonet/studenten/opleidingen/meer-studiemogelijkheden/studeren-buitenland/erasmus/
[2] High-speed travel by train | Sustainability | University of Groningen

58% of all trips. In 2023-2024, these were Spain, Germany, Sweden, France, Belgium, and Italy (also 58%). See Figure 1 for a detailed overview and Appendix A for the full table by country.

MEANS OF TRANSPORT

The total distance traveled in the academic year 2023-2024 was approximately 1,640,000 km (average 1,020 km per trip) and in 2024-2025 approximately 1,774,000 km (average 1,025 km per trip). All distances are expressed as straight-line (as the crow flies) distances, an important nuance as actual travel distances may differ regardless of the mode of transport. Students have a choice of various sustainable and non-sustainable alternatives. The sustainable modes relevant to this analysis are train, carpooling, bus, and an overarching category 'other sustainable' (the exact modes in this last category are unknown). The non-sustainable modes in the analysis are airplane, car, and ferry. An overview of the chosen transport modes can be found in Graph 1 and Appendix B.



SUSTAINABLE TRAVEL

Students can receive a supplement of €50 and up to 4 extra days on their Erasmus+ grant if they choose a sustainable transport mode[3]. In the academic year 2024-2025, 21.2% of students traveled sustainably, of which 43% did so without it being mandatory under UG policy. In 2023-2024, these figures were 19.2% and 35%, respectively.

Due to a large difference in average distance between sustainable trips (696 km) and non-sustainable trips (1,105 km), a linear regression analysis (linear probability model with robust standard

[3] Travel | Green Erasmus

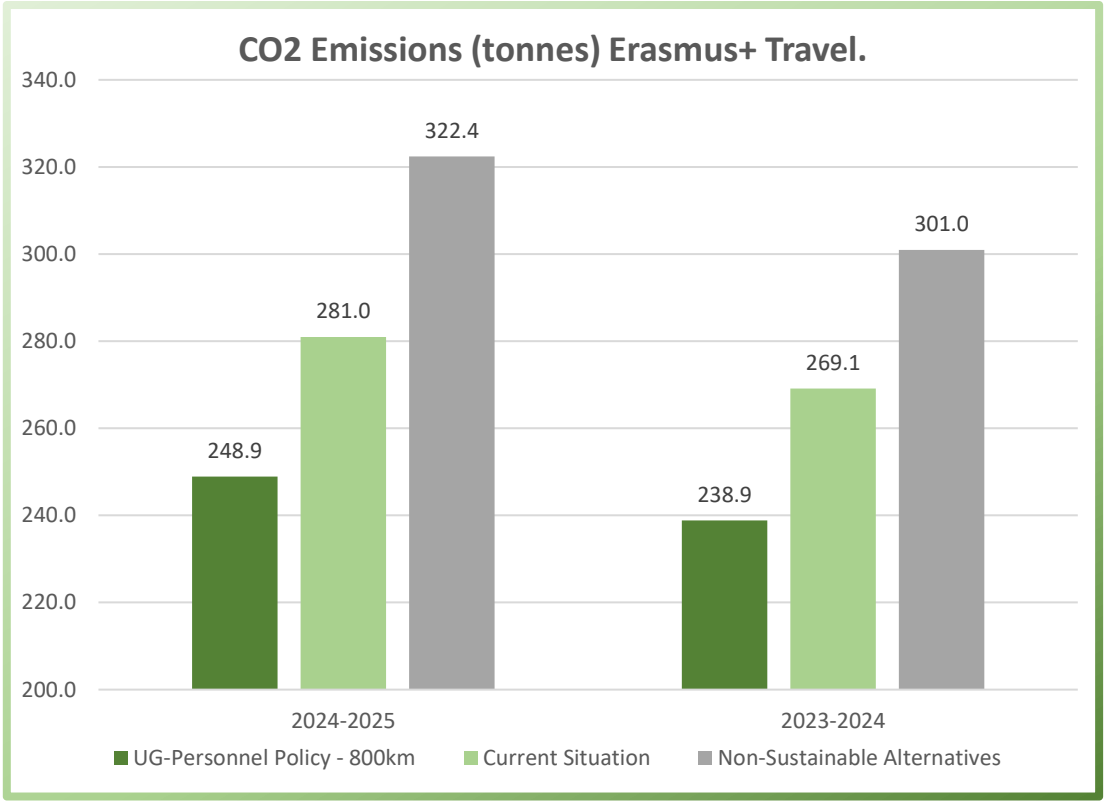
errors) was conducted on the combined dataset from both years to examine to what extent distance can explain the variation in the choice of sustainable transport. The analysis shows an R^2 of 0.101 ($\beta = -0.000251; p < 0.001$), meaning that distance explains **10.1%** of the variation in the choice for sustainable transport. This indicates that students with longer travel distances less often choose a sustainable alternative (*every 100km extra travel distance decreases the chance of traveling sustainably by 2.51 percentage points, ceteris paribus*), but distance accounts for only a limited portion of this choice behavior. Other factors that may play a role include travel price, the grant supplement for sustainable choices, and personal considerations such as climate awareness. Since no data is available on these, they were not included in the analysis.

CO_2-EMISSIONS

For the analysis of CO_2 emissions from Erasmus trips, we compare three scenarios:

1. The current situation where students have free choice of transport mode and receive a small reimbursement for sustainable travel;
2. A situation where the current UG personnel policy is fully applied to students;
3. A hypothetical scenario with no sustainable transport modes used.

Scenario 3 has the highest emissions and serves as the reference for calculated savings. Emissions in this scenario were calculated by replacing every sustainable trip with a non-sustainable alternative, usually replacing trains with airplanes. Under scenario 1 (current situation), a significant reduction is already achieved because some students choose sustainable alternatives; this avoids about 11–13% of emissions in both years compared to scenario 3 (fully non-sustainable trips). If the UG personnel policy were strictly followed and all trips under 800 km straight-line distance were taken by train (scenario 2), savings would increase to about 21–23% compared to scenario 3. This equates to an additional reduction of about 15–16 tons of CO_2 (±10%) per year on top of the current situation. See Graph 2 for CO_2 emissions under the different scenarios.



Graph 2: CO_2-emissions with different scenarios.

CONCLUSION

The analysis shows that the current policy already achieves **11–13% CO_2 reduction** through voluntary sustainable choices by students. Applying the UG personnel policy to students (no flights <800 km) would increase this to **21–23% (±10% extra) reduction** compared to fully non-sustainable, saving an additional 15–16 tons of CO_2 per year.

Potential with 1,000 km threshold: Raising the flight threshold to 1,000 km—as already standard at Enlight partner universities—could increase savings to **35–37% reduction** (26–30% compared to the current situation). This stricter threshold was not included in the analysis as it does not currently apply to UG students and we are evaluating realized figures from 2023–2025.

Recommendation: Extending the personnel policy to students, ideally with a 1,000 km threshold, offers significant sustainability gains without substantially limiting long-distance travel.

LIMITATIONS

- The official UG travel policy prohibits flying to destinations within 800 km or when the train journey is less than 9 hours. Since this analysis only has data on straight-line distances and not on train times, only the 800 km threshold was applied. In practice, some destinations beyond 800 km are reachable by train in under 9 hours, so the actual effect of the personnel policy would likely be greater than calculated here.
- All distances were calculated straight-line (as the crow flies) using the Erasmus+ Air Distance Calculator. This likely underestimates actual travel distances, especially for non-flying options.
- All distances were measured from Groningen, while students often depart from Schiphol or another Dutch airport and must first travel there. The departure point could also be their parental home; no data is available on this, so extra kilometers are not included.
- For calculating savings in the current situation, a hypothetical scenario was constructed where all trips use non-sustainable modes. This links sustainable modes to non-sustainable alternatives with similar average distances.
    - Example: For a bus trip (average ~900 km), the non-sustainable alternative is European air travel (average ~810 km).

REFERENCE LIST

Emission factors:
https://co2emissiefactoren.nl/factoren/2025/13/personenvervoer/

Erasmus+ Grant:
https://www.rug.nl/rechten/education/law-exchange-programme/grands-and-insurance/erasmus-grant-and-marco-polo-grant

UG Flight Policy:
https://www.rug.nl/about-ug/profile/facts-and-figures/duurzaamheid/nieuws/vliegensvlug-met-de-trein

Erasmus Sustainable Travel Policy:
https://www.greenerasmus.org/before-mobility/travel

Erasmus+ Air Distance Calculator:
https://erasmus-plus.ec.europa.eu/resources-and-tools/distance-calculator

APPENDIX

Appendix A: Table with European exchange destination popularity from 2023-2024 and 2024-2025.

Country	2023-2024	2024-2025
Sweden	73	95
Spain	97	89
Italy	66	86
Norway	43	82
Germany	74	81
France	69	73
Ireland	55	56
Finland	24	39
Belgium	68	32
Portugal	29	31
Hungary	36	28
Denmark	16	27
Czech Republic	26	21
Austria	31	19
Greece	16	17
Malta	14	14
Poland	18	13
Croatia	6	12
Turkey	11	9
Estonia	2	8
Slovenia	7	8
Iceland	5	7
Bulgaria	5	5
Lithuania	0	4
Slovakia	7	4
Latvia	3	3
Romania	3	2
Totaal	804	865

Appendix B: Distribution of the means of transport in 2023-2024 en 2024-2025.

