



futureEU **COMPETITION**

REPORT

2022-2023

TABLE OF CONTENTS

- 1** Introduction
- 2** Message from futurEU
- 3** This edition in numbers
- 4** Winners of the Third Edition
- 5** The Finals
- 6** The workshops
- 7** The Observer Track

FOREWORD



Thank you to all the participants, organizers, and partners for making the third edition of the futurEU Competition possible.

The futurEU Initiative would like to give a special thank you to Enora Palaric and the Jacques Delors Centre for supporting us throughout the years.

1. INTRODUCTION

futurEU, an initiative by students for students to bridge the gap.

In 2020, futurEU launched the futurEU Competition for its first edition. With the competition, futurEU strives to bridge the gap between young people's voices and opinions on one hand and public discourse and academic research on the other. The futurEU Competition is an opportunity for all CIVICA students to learn, explore and network with each other. More importantly, the Competition is a platform that encourages students to actively find and propose policy solutions on reforming the European Union. It is open to all students and PhD researchers of the CIVICA alliance.

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1. INTRODUCTION

Message from Lea Mathies

“ The idea behind futurEU is to create a space for experimentation. A space for students – created by students – to come together, to share, to discuss, to dare. With the goal of providing a platform for students’ ideas not only at one institution but across the EU.



Focusing on climate action and sustainability, the 2023 edition reached the largest audience thus far. It was an honour to have students from different Ukrainian universities join us in Berlin this year as well.

I hope that this report encourages readers to not only share their own ideas, but to discuss them and to shape solutions to big and small policy questions alike. ”

1. INTRODUCTION

Message from Francesca Minetto, founder

“*The 2023 edition of the competition marked a new milestone, as it brought together a fresh new team that organised the most successful event to date. The competition was centred around the theme of sustainability in our turbulent world and featured innovative and diverse ideas from students across all ten universities of the CIVICA Alliance.*



It also had the honour to have students from different Ukrainian universities join us in Berlin to discuss sustainability questions and remind us that the environment and its fragility must be protected at all times.

”

2. MESSAGE FROM FUTUREU

THIS EDITION

The third edition of the futurEU Competition 2023 is now completed! This year's edition was focused on "*Climate Change and Societal Transformation: How Can EU Policy Advance Climate Protection and Sustainability in a Turbulent World?*".

The futurEU Initiative had the honor to host ten students from Ukraine as part of its new Observer Track. Starting at the end of December, the futurEU management team had the pleasure of organizing four workshops to help students.

OUR MISSION

As active citizens, we are engaged in the current and future challenges of the EU. The quest for an improved EU is not new, yet students are often uninvolved. Students are rigorous challengers of notions and often dare to dream, and we firmly believe student engagement in these debates is critical.



3. THIS EDITION IN NUMBERS

10

UNIVERSITIES

258

STUDENTS

104

TEAMS

8

SEMI-FINALISTS

1

OBSERVER TRACK

3

PARTNERS

3. THIS EDITION IN NUMBERS



4. WINNERS

OF THE 3RD EDITION

The Climate Divide

Why the EU's Border Adjustment Mechanism Needs Rethinking for Developing Countries



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ABSTRACT

“CBAM was developed with very little interaction with developing countries [...], their interests play a very little role.”

This policy brief investigates the potential detriment of the Carbon Border Adjustment Mechanism (CBAM) proposed by the European Union (EU) on the economic development and welfare within developing countries. We argue that the EU Commission must design the CBAM in a way that is attuned to the concerns of developing countries, particularly LDCs and SIDs, to avoid compromising its own development agenda and a global approach to climate mitigation. We recommend a three-pronged solution, which includes targeted exemptions, fostering dialogue, and increased climate finance efforts, to ensure our aim of creating an equitable and inclusive CBAM.

Introduction

The proposal for the Carbon Border Adjustment Mechanism (CBAM) put forth by the European Union (EU) Commission in July 2021, and since approved by the European Parliament on April 18 2023, has come under intense scrutiny worldwide. CBAM is a unique tariff introduced to level the playing field between EU companies and importers. It imposes an equivalent carbon price on imports of energy-intensive goods as that on domestic goods through the Emissions Trading Scheme (ETS). However, expecting developing countries to pay the same tariff as far more advanced economies puts an unfair strain on their exports, potentially impacting their development. This may be in violation of the internationally-recognized 'common but differentiated responsibilities and respective capabilities' principle that has guided multilateral climate action thus far.

In order to avoid compromising a multilateral approach on climate mitigation and its own development agenda, the EU Commission must design the CBAM in a way that is attuned to the concerns of developing countries. This brief investigates how the CBAM can be designed for greater equity while still meeting its goals of reducing the relocation of EU companies, referred to as carbon leakage, and incentivising non-EU countries to act on mitigation.

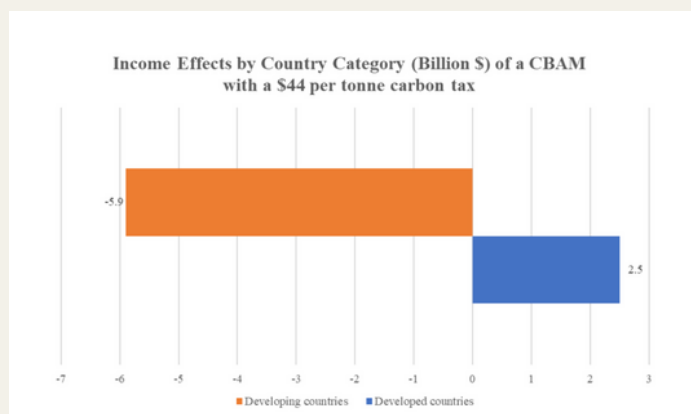
The Problem

Leaving the Vulnerable Behind

Despite the CBAM's benefits for the internal economy of the EU, its potential for significant and harmful impacts on the development and welfare in developing countries must not be underestimated, especially for those with a high share of carbon-intensive exports to the EU. Its implementation could result in a drastic reduction in developing countries' export revenues without necessarily leading to increased sustainability objectives in their national plans (Ameli et al., 2021). Figure 1 shows the discrepancy between projected income effects of the CBAM on developed and developing countries.

Figure 1

Income Effects by Country Category



Note. Adapted from "A European Union Carbon Border Adjustment Mechanism: Implications for developing countries", by UNCTAD, 2021, p. 21.

Indeed, Eicke et al. (2021) find that it is African and Asian developing economies that will most likely face the highest tariffs for several reasons. Firstly, developed-world producers tend to use less carbon intensive production methods in the targeted sectors than their counterparts (UNCTAD, 2021). Secondly, developing countries tend to be more dependent on their trade with the EU compared to more advanced economies. Exports to the EU generally make up a significant chunk of their export revenues, referred to as a high level of exposure* to the CBAM. Additionally, developing countries' exports tend to be less diversified, making it difficult to switch away from the target industries of the CBAM, and resulting in greater vulnerability** to the tariff.

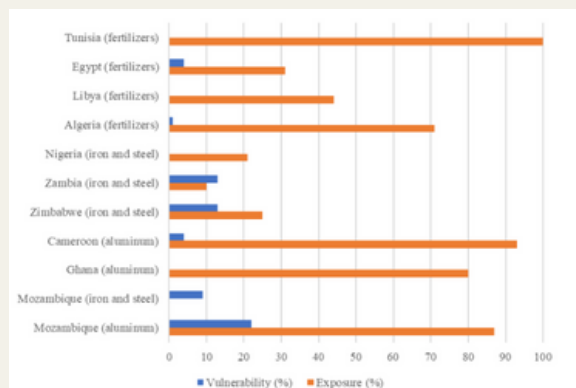
Some Climate Vulnerable Countries (CVCs) have it even worse. Take the case of Mozambique — a Least Developed Country (LDC), the fifth most CVC from 2000-19, and among the economies that are projected to be most impacted by CBAM (Eckstein et al., 2021; Gore et al., 2021). Unfortunately, Mozambique is not alone: Figure 2 shows the impact of the CBAM on the target industries in certain developing, climate vulnerable countries. (Gore et al., 2021).

*Calculated as total Energy Intensive Industries (EII) export relative to overall export to the EU.

**Calculated as the share of EII exported to the EU on the overall country's export worldwide.

Figure 2

Trade Relations between CVCs and the EU



Note. "What Can Least Developed Countries and Other Climate Vulnerable Countries Expect from The EU Carbon Border Adjustment Mechanism (CBAM)?", by Gore et al., 2021***

Risks to the EU's Agenda

Recognizing the need to champion ideas that appeal to the EU legislative bodies, this brief bases its argument on three implications of the current CBAM that may prove detrimental to the EU's interests. Firstly, developing countries most affected by CBAM and vulnerable to climate change lie in regions of "geostrategic importance" (Hornidge, 2023), that comprise the Middle East, North Africa, Eastern Europe, and Central Asia. Secondly, the EU must recognize that the perception of the CBAM among its stakeholders in the developing world will determine whether it can continue being an international leader in climate action. Finally, compromising the development of these countries could damage the Commission's own development agenda.

Problem Statement

As the data shows, the CBAM will likely disproportionately impact development in LDCs and SIDs that lack the resources to transition to low-carbon industry without compromising their own development. Additionally, it does not align with the EU's diplomatic and political interests among developing countries. As such, the adaptation of the CBAM requires the immediate attention of the Commission before the implementation of an indiscriminate tariff in 2026.

Towards an equitable, and inclusive CBAM

Figure 3

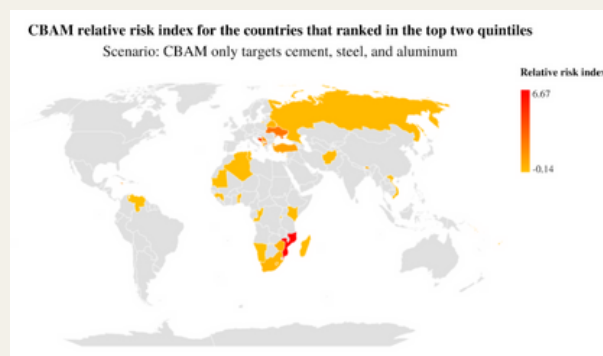
Authors' criteria to evaluate policy options on the CBAM



Given the information available at the time of writing, this policy brief argues that the CBAM tariff has fallen short of the aforementioned equity rules that would ensure an equitable and inclusive effort to decarbonize. Unequal risk dispersion of the CBAM, both in terms of exposure and vulnerability, may further entrench global inequalities, as highlighted by Figure 4. This policy brief therefore argues for the addition of supplementary measures to reduce the adverse impacts of the CBAM on LDCs and SIDs and avert the threat to their development.

Figure 4

CBAM relative risk index



Note. Adapted from "Pulling up the carbon ladder? Decarbonization, dependence, and third-country risks from the European carbon border adjustment mechanism", by Eicke et al., 2021.

*** Tunisia: fertilizers, mineral or chemical: nitrogenous ammonium nitrate, whether or not in aqueous solution, HS 310230; Egypt: fertilizers, mineral or chemical; nitrogenous, urea, whether or not in aqueous solution, HS 310210; Algeria, Libya: ammonia, anhydrous or in aqueous solution, HS 2814; Nigeria, Zambia, Zimbabwe, Mozambique: iron and steel, HS 72; Cameroon, Ghana, Mozambique: aluminum, HS 76.

Exemptions, Dialogue, and Financing

This brief recommends a three-pronged approach to achieving an inclusive CBAM. Firstly, exemptions should be granted to Least Developed Countries (LDCs) and Small Island Developing States (SIDs). Secondly, the exact nature of these exemptions (partial, conditional or transitory) ought to be determined following a multilateral effort to include these countries in the design of the CBAM. Finally, taking out the administrative costs of the CBAM, the funds raised from it should be redirected to financing the low-carbon transition in these countries.

Such a recommendation satisfies the policy criteria of responsibility, since LDCs and SIDs tend to be low historical emitters yet highly vulnerable to the crisis (UNDP, 2023), and capability, since the indiscriminate application of the CBAM imposes an equal cost-sharing burden on all countries. However, it may violate the criterion of mitigation impact. Many scholars argue that exemptions may lead to increased carbon leakage — domestic companies may choose to relocate to countries that receive exemptions. In reality, however, this is unlikely: Lowe (2021) argues that low volumes of LDC imports means that the risk of carbon leakage should not increase significantly even if they receive a blanket exemption. In the event that it does, however, he argues that the EU can design safeguards to be triggered in the case that domestic companies are affected, through, for example, rule of origin regulations. Additionally, exemptions may also disincentivize developing world countries from decarbonizing. Perdana and Vielle (2022) estimate that exemptions to LDCs may add 47 million tonnes GHG emissions compared to a scenario in which exemptions are not implemented.

To mitigate this risk, it becomes all the more important to redirect the funds from the CBAM to LDCs and SIDs for the specific purpose of improving their energy efficiency, which Perdana and Vielle (2022) argue would be “affordable for European countries and welfare improving for developing countries.”

Implementation of recommendations: “The Devil Lies in the Details” (Taschini, 2023)

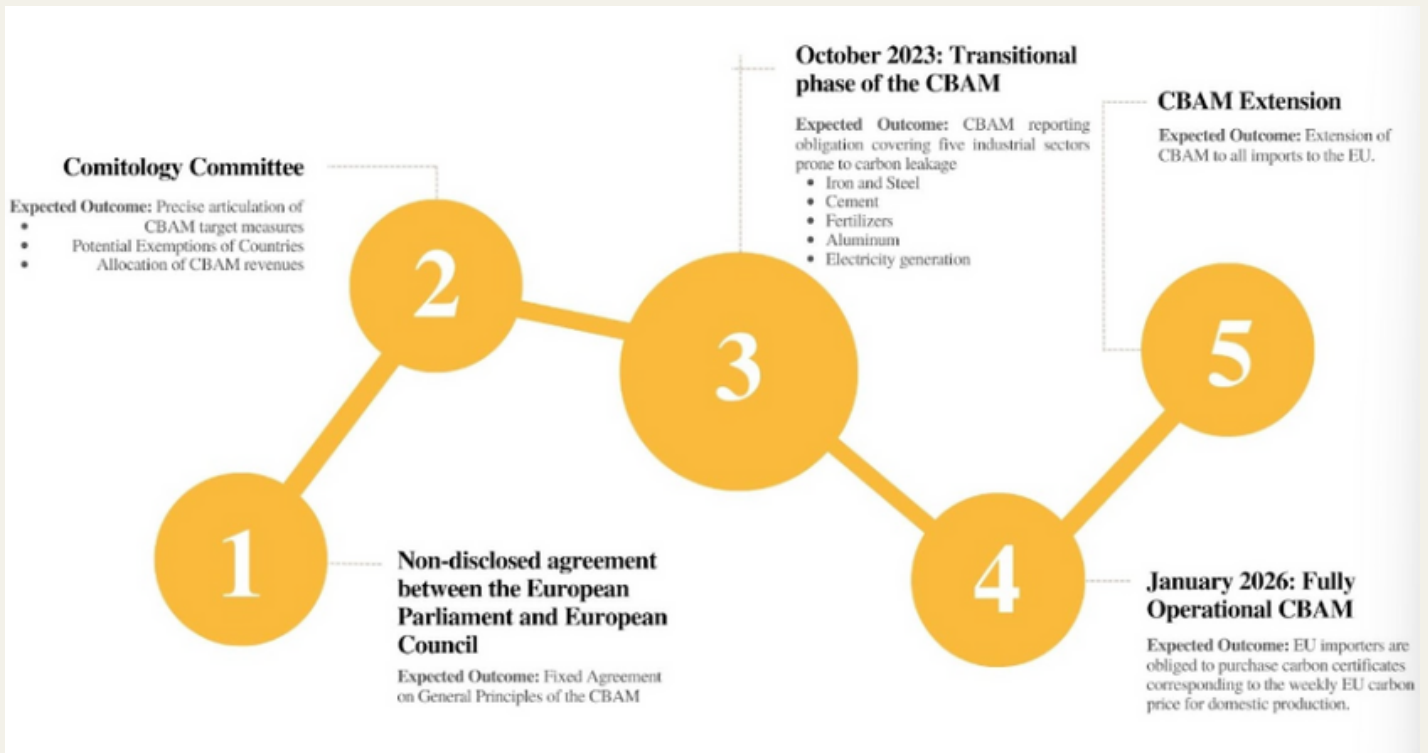
Each of the three recommendations laid out carefully prong into the EU’s legislative framework. Firstly, to foster dialogue, the Commission can use the GCCA+ as a platform to consult with LDCs and SIDs and build their capacity in the design of the CBAM.

Secondly, given that the EU applies a legal framework of positive discrimination towards developing countries, granting exemptions only contributes to the consistency of the CBAM within the present EU trade and development policy strategy (Lowe, 2021). Thus, exemptions can be considered a natural extension of the EU’s policies towards LDCs and lower to middle-income countries, based upon the “Everything but Arms” (EBA) Scheme and the EU’s Generalized System of Preferences (GSP and GSP+) targeted toward LDCs and lower to middle-income countries. It follows then that blanket exemptions should be granted to countries covered by the EBA Scheme and that the level of exemptions for remaining SIDs should be based on pre-existing trade agreements and on income level, historical GHG emissions, and their climate vulnerability.

Finally, the EU should leverage existing funds to disburse the revenues raised from the sale of CBAM certificates. To do so, the Commission should use the fund of the European Green Deal (EGD) to provide climate financing to LDCs and SIDs that is at least equivalent to the amount of revenues generated, deducting the administrative costs of CBAM (Perdana & Vielle, 2022). That would align with the Parliament’s initial intent to originate climate finance through the proceeds of the CBAM (Oxfam International, 2022). The Commission could also leverage this as an incentive mechanism, whereby investment reporting in decarbonization efforts should be conditional for exemptions. Naturally, CBAM-affected sectors should be prioritized.

Figure 5

Authors' elaboration based on the timeline provided by the EU Commission



Conclusion

Altogether, the introduction of exemptions, increased financing, and improved dialogue will contribute to designing an equitable CBAM that acknowledges varying levels of development. Moreover, a well-designed CBAM can alleviate increased risks of carbon leakage and the disincentivization of transitioning to a low-carbon industry.

In doing so, the CBAM can effectively comply with international principles of climate mitigation, as well as with the EU's own development agenda. Implementing an equitable CBAM will equip the EU with the necessary diplomatic and political capital to accelerate mitigation efforts, placing it at the forefront of the fight against climate change.

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The Winners and the Finalists



5. THE RUNNER-UP OF THE 3RD EDITION

Saving the planet on a Friday off

The 4-day workweek as a tool of EU climate policy



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ABSTRACT

The climate crisis calls our societies to widespread, radical change to reduce our impact on the planet. The world of work is changing too, as Covid-19 reshuffled our priorities away from our working life. The 4-day workweek can provide transversal improvements in both areas, making us happier and more sustainable at the same time. Existing trials have highlighted its benefits, but applying their results to the wider economy is made Difficult by self-selection problems. We call for the EU to sponsor a continental-level trial, targeting ill-equipped firms, in infrastructurally disadvantaged areas. The EU should insure firms against possible productivity losses, and enable knowledge sharing.

The energy crisis makes reducing our energy consumption more necessary than ever. Still, it is not easy.

Climate change is the foundational challenge of our era. In a world where international cooperation seems ever more weakened, the European Union is striving to be the first climate-neutral international actor. Starting from the adoption of the European Green Deal (EGD), EU institutions kickstarted the most ambitious continental framework of climate policies to date.

While achieving sustainable energy production is the cornerstone of climate policy, war in Ukraine shifted our attention towards the other side of the market. Since February 2022, Europe has been trying to reduce its energy consumption. Amidst a cost-of-living crisis, policy actions to compress energy demand risk widening the gap between climate policy and those hardest hit – working class, car commuters, and rural dwellers. Reducing energy consumption is highly unpopular, and more so if you ask ordinary people to do it.

In this landscape, recent trials are shading light on an easily popular policy option that might reduce our carbon impact. It is the 4-day workweek. In this policy brief, we advocate for a continental, EU-sponsored trial of the 4-day workweek as a tool for climate policy – with substantial social and welfare gains as a by-product.

Office closed, less commuting: the 4-day workweek makes us more sustainable.

Despite the wide-ranging scope of EU talks and action on climate and social policy, reduction of working hours has been repeatedly neglected by European institutions. The whole EGD makes no mention of working hours as an area of intervention (EEB 2022).

Direct environmental benefits of a 4-day workweek are almost self-explanatory. For an extra day, firms are closed and employees avoid commuting. Workplace and workers alike reduce their energy consumption.

Empirical research supports this statement. Across countries and research strategies, reducing working hours consistently achieves considerable environmental gains. A 1% decrease in working hours is associated with a 1.3% carbon footprint reduction (Knight 2013), a 1.2% decrease in ecological footprint (Hayden 2009), and a 0.8% fall in greenhouse gas emissions (Nässén 2015).

More recently, 4-day workweek trials have become commonplace. Despite many of them being still ongoing, initial reports are optimistic. A 2019 trial by Microsoft Japan reported a staggering 23% reduction in energy usage. Coote (2021) reports 10.5% less energy consumed by Utah State department buildings. Csala (2020) suggests the program might reduce emissions by 24%.

Table 1

Estimates of national effects of a 20% work hours reduction

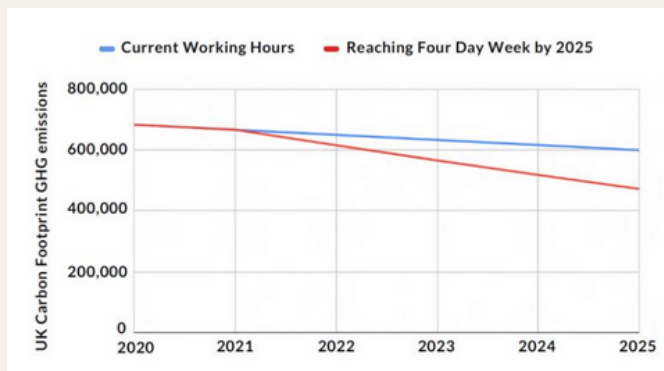
Author	Variable	Effect
Hayden 2009	Ecological footprint	-24%
Knight et al. 2013	Carbon footprint	-17.2 %
Nässén 2015	GHG emissions	-16%
Coote 2021	Energy usage	-10.5
Csala 2020	Emissions	-24%

The 4-day workweek also severely affects commuting patterns. In 2022, the 4 Day Week (4DW) Campaign has conducted the biggest pilot trial to date, involving 61 firms and more than 2,900 employees in the UK: they find a 10% decrease in all commuting activities during the pilot period (BBC 2023). Smaller trials held in highly car-dependent USA show commuting activities drop as much as 27%. This highlights an important feature of the quest towards flexible work arrangements: infrastructurally disadvantaged territories have the most to gain.

Together, energy and commuting gains may amount to outstanding benefits. A report by 4DW and Platform London (2021) estimates that widespread switch to the 4-day workweek by 2025 would reduce UK emissions by 21.3%. It is as taking 27 million cars off the road – almost the entire UK fleet.

Graph 1

Reduction in UK carbon footprint GHG emissions by introducing a 4-day week by 2025 – Source: 4 Day Week



Unfortunately, not all that glitters is gold. The environmental benefits of the 4-day workweek could be easily reversed if we chose to spend the extra day in highly-polluting activities – taking airplane rides or car trips. Existing evidence suggests that it is not likely to happen. Environmental consciousness has recently made several leaps forward.

In a 2020 survey by the Boston Consulting Group, 70% of people reported being more mindful of their ecological footprint than before. During the pandemic, sustainable habits became more common (Bulb 2020). Research on working hours suggests that working less may lead to more sustainable behaviour within the household (Fitzgerald 2018). Workers surveyed by Walker and Fontinha (2019) suggested they would mostly employ their extra day to stay with their families, home-cooking and volunteering. Overall, more free time pushes people to take ownership of their consumption choices. At home, we both pay the bills and decide what to do. A reduction in working hours may be able to materialise recent improvements in environmental consciousness.

Lower stress levels, and stronger work-life balance: the 4-day workweek makes us happier.

Covid-19 was a watershed moment for Western work culture. Across the developed world, many are asking that work does not prevail over their well-being, fuelling the striking wave of voluntary quits that economists are calling the Great Resignation. When asked if they ever perceived to be close to work-related burnout, 45 out of 100 Frenchmen answered yes. It is the lowest result among European economies (Statista 2021). Evidence shows that the 4-day workweek helps. Employees involved in the most recent UK trial – the biggest yet – report being 39% less stressed, with 71% feeling farther from burnout than before. Likewise, they report lower anxiety levels, less fatigue and better sleep. Both physical and mental health appear to be improved (4DW 2023).

Working less can also give a considerable push towards a more equitable distribution of family responsibilities, supporting progressive gender norms and incentivising female employment. 60% of UK participants report achieving stronger harmony between work and family, better balancing of domestic responsibilities and greater satisfaction in their romantic relationships.

Productivity gains are a necessity. This calls for firms to shake up their own production process and some can do it better than others.

Reaping the benefits of working less is only feasible if we manage to increase our hourly productivity. To preserve purchasing power, hourly salaries will have to increase. If productivity does not increase to match them, an unpredictable number of low-margin firms would simply go bankrupt. Strong, widespread reductions in working hours without substantial efforts at increasing productivity would be a great idea for a quick recession.

That is why the 4-day workweek is still at experimental stage. For firms, entering such trials means trying to change for the better – to achieve the same results, in 8 hours less. Turns out, they are managing wonderfully. Still, we cannot say if others would do the same.

Firms participating in the UK 2022 trial increased revenues by 1.4% over the six-month period. Relative to a comparison period, revenue growth is 35% higher. The same project with US and Ireland firms found an 8.14% increase in revenue or a 37.55% growth increase.

Microsoft Japan's 2019 trial reported a 40% increase in hourly productivity, along with a reduction in time taken off by employees (Guardian, 2019). A trial in Utah State departments reported unvaried user satisfaction with public services (Coote, 2021), while a Japanese architectural design firm found that their teams were 7.6% more productive (Shangguan, 2021).

There is no one-stop approach to productivity increase: every firm needs to find its own way to reorganize its own production. UK trial organizers spent 2 months on in-company trainings and best-practise sharing for an effective transition. They ended up developing tailored firm-level plans of adaptation – including taking different days off and partial reductions. Companies are not made equal: smaller, nimble organizations are much simpler to re-organize than big and stratified companies.

While knowledge-intensive activities rely on few physical inputs, most firms must coordinate with the rest of the economy – who work on Fridays.

Firms self-select into most trials. Existing evidence is thus restricted to a well-equipped sample of firms, which hinders our ability to assess program feasibility at a larger scale. We simply cannot know, based on existing evidence, if wider swaths of our economies could be able to implement it. We need more trials, targeting firms that would not otherwise choose to participate.

We call for an EU-level continental trial of the 4-day workweek, insuring against possible productivity losses and targeting ill-equipped firms.

The time has come to broaden the scope of 4-day workweek trials beyond private and national attempts. We call European MPs to propose an EU Preparatory Action with the following characteristics:

- Sponsored by the EU Commission, under the leadership of the Directorate for Employment, Labour and Social Affairs. This would provide firms with the Commission's internal competencies, to provide the proper guidance for tailored organizational change;
- Providing financial insurance against productivity losses: this is crucial to ensure participation by sceptic firms – those most likely to struggle with a 4-day workweek implementation;
- Diffused throughout the internal market, as to 'plant the seed' of sustainable working time reductions equitably across all Member States (MS). Specifically, we propose to include at least one firm from each MS;
- Targeting multinational corporations, proved to be among the most recalcitrant towards 4-day workweeks, due to their large and stratified organizational structures. Specifically, we propose to include at least 5 European multinational corporations;
- Targeting infrastructurally disadvantaged areas, where environmental and well-being gains are stronger, working in cooperation with the European Regional Development Fund (ERDF). Specifically, we suggest a 20% quota of firms from such areas.

European institutions are better equipped to broaden the scope of 4-day workweek trials beyond the national or sectoral level. They can foster sharing of knowledge, strategies and best practices across trial participants, within existing efforts at harmonising labour standards throughout MS. They work in closer contact with European multinational corporations, thus managing to better cater to their specific needs. Perhaps most importantly, EU intervention mobilises European political capital – to make sustainable working-hour reduction a truly European strategy.

Conclusion

The 4-day workweek can have a substantial impact on two of the most relevant issues of our time: saving our climate, and making our working life serve our well-being. As everything worthwhile, it is not easily done. We call for EU institutions to try.

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6. THE SEMIFINALISTS OF THE 3RD EDITION



“Leading the climate policy advancement by including women’s voices: Closing the gender gap in education is the first step for an inclusive decision-making process.” - Annex I
Iris Landi & Federica Sirressi (Bocconi University)

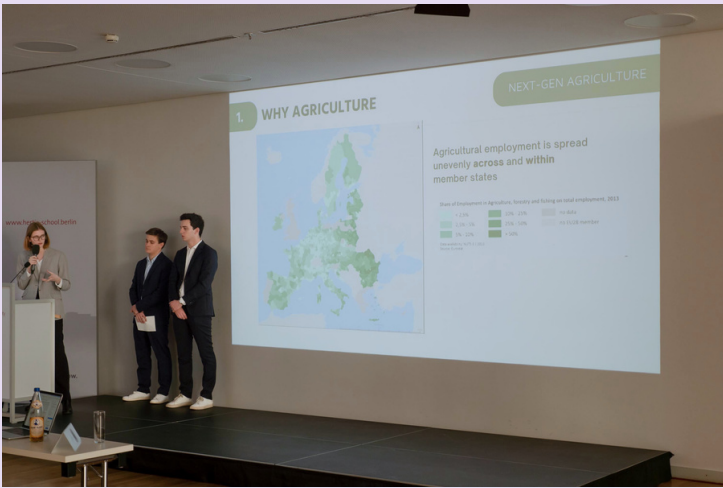
“A night train named desire. How night trains could represent the future of sustainable travel in Europe.” - Annex II
Simone Botticini, Luca Lionetti & Giorgia Salaorni (Bocconi University)

“Air justice: a social compass through climate turbulences.” - Annex III
Alexia Meynier & Manon Erimo (LSE)

“Fighting fire with fire: geoengineering in the EU.” - Annex IV
Corentin Dubreucq-Perus & Clémence Thauhaut (Bocconi University & SciencesPo)

“Leveraging public markets for sustainable growth.” - Annex V
Giovanni Cecchi, Luca Delorenzi & Fabio Metta (Bocconi University)

“Next-Gen Agriculture: unlocking the potential of flexible state aid.” - Annex VI
Justine Cousin, Simon Géréux & Thomas Romano (Bocconi University & LSE)



7. OBSERVER TRACK



Under the sponsorship of the NAWA and the SGH Warsaw School of Economics and the support of the CIVICA Alliance, the futurEU Team was honoured to host ten Ukrainian students from an array of universities in the third edition of the Competition.

The Observer Track played an active role in the workshops organised, especially the one about Ecocide and its legal status in the EU. The theme of the workshop was then picked up during the competition, where the students gave a presentation on Ecocide in Ukraine.

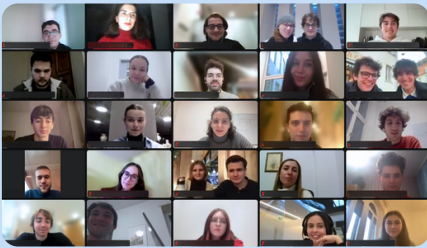
Partner Universities from Ukraine: Kyiv National Economic University named after Vadym Hetman (KNEU), Kyiv School of Economics (KSE), National University of Kyiv Mohyla Academy (NaUKMA), Vasyl Stus Donetsk National University (DonNU), Ukrainian Catholic University (UCU)

Read more about it on the [Observer Track Report](#).

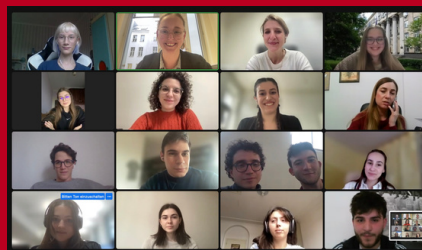
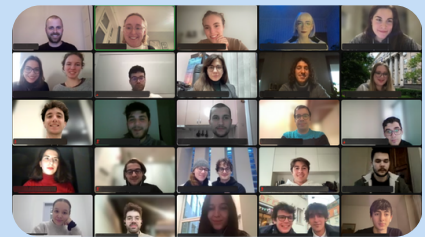


8. THE WORKSHOPS

In order to prepare the participants to the Competition, we offered skill-based workshops (Policy-brief writing, EU policy-making and public speaking). In light of current events, we also organised two thematic workshops, one on enlargement and one on ecocide.

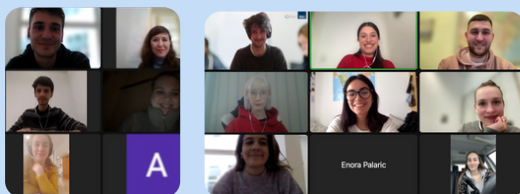
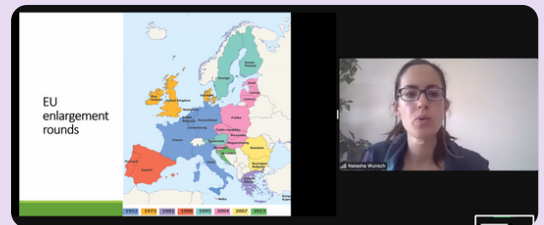
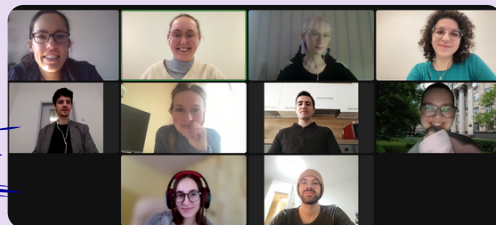


**Policy Brief
Workshop
2023**



**EU policy-
making
Workshop**

**EU
Enlargement
Workshop**



**Ecocide
Workshop**

**Public Speaking
Workshop**



ACKNOWLEDGEMENTS

A huge thanks to the Management Team, who made all of this possible: Ambre, Kira, Greta, Camille, Victor and Patrick.

A special thank you to **Francesca** and **Lea** for their flawless guidance, immense dedication and tireless work. Without you as leaders, this third edition would not have been possible!

And thank you to all the participants who made this edition the biggest and most successful to date!



THANK YOU!

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Annexes

Annex I

"Leading the climate policy advancement by including women's voices: Closing the gender gap in education is the first step for an inclusive decision-making process."

Iris Landi & Federica Sirressi (Bocconi University & Hertie School)

Annex II

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ANNEX I

Leading the climate policy advancement by including women's voices

Closing the gender gap in education is the first step for an inclusive decision-making process



Iris Landi
Bocconi University



Federica Sirressi
**Bocconi University,
Hertie School**

ABSTRACT

The International Declaration of Human Rights recognizes gender equality as a fundamental human right (1948). When it comes to climate change, the disastrous effects disproportionately affect women, especially in developing countries. The overwhelming urgency of resolving this gap provides an opportunity to look at combating climate change through gendered lenses.

This policy brief shows how including women's perspectives in climate-related issues not only is the fairest choice, but also the necessary ingredient to build long-lasting and resilient plans to face the incumbent climate challenges. The main recommendation is to advance climate protection and sustainability is to promote the empowerment of women in the African continent starting with a more accessible education system that integrates climate-related issues into the discussion.

The double burden to foster gender equality and sustainability in LDC

On 28 July 2022, the UN General Assembly passed a landmark resolution recognizing that a clean, healthy, and sustainable environment is a universal human right. Least Developed Countries (LDCs) are on the front lines of the climate crisis and ultimately, due to a succession of global economic shocks, they have to pursue their different development agenda in an exceptionally challenging context. The adverse economic and social consequences of the COVID-19 pandemic not only pushed countries into recession, but also reversed several years of development progress in terms of poverty, education, nutrition, and health. Moreover, the worldwide effects of the war in Ukraine have further degraded the living conditions of LDCs populations.

Throughout history, the most affected victims by these turbulent events have been women. Under the International Declaration of Human Rights, which recognizes gender equality as a fundamental human right (1948), it is imperative to challenge this unfolding narrative. Gender equality must be fully recognized as the most powerful tool for attaining sustainable development and a potent force for progress and social fairness, especially within the climate change arena.

In this policy brief, we aim at emphasizing the crucial role of a trend towards a better empowerment and education of women, in order to fight the battle against climate change, with particular emphasis on the African context. The necessity for real advancement in incorporating gender equality into climate change solutions and promoting a system in which women's voices are heard through a better education process is the main recommendation. A substantial and systematic change in the gender relations between societal institutions is a fundamental requirement in order to obtain our goal.

The untapped potential of Africa-EU relationship

Climate change and environmental degradation are global challenges that require a global response. The EU has been implementing worldwide ambitious environmental, climate, and energy policies, deploying a vigorous 'Green Deal diplomacy' aimed at persuading other States, particularly underdeveloped ones, to play their part in promoting more sustainable development and to support them in their efforts. Acknowledging the support LDC needs, the European Union (EU) stands out as the most important donor of Official Development Assistance (ODA) worldwide. Such involvement comes also as a result of the moral need to help LDC to face the environmental consequences caused by an history of stressing natural resources to which LDC have contributed little.

For a long time, the narrative was one of a top-down approach, with the EU providing aid to African countries. Today, the African Union (AU) and the EU are confirming the strategic value of their equal, continent-to-continent relationship, that building on a people-centered partnership aims to promote more sustainable development for all. In the global context, the importance of this link can lead to a joint push to avoid reversal of progress made in critical areas in recent decades, and to advance change.

"We cannot comprehend how we are going to bypass climate issues without a gender lens"

Patricia Biermayr-Jenzano, a gender and agriculture specialist at Georgetown University who has worked for U.N.'s Food and Agriculture Organization, told by Earth Day Network.

While both the AU and the EU have adopted policy frameworks for advancing gender equality and sustainable development, the interrelated connection among the two are still far from the focus of the partnerships. As long as gender equality is not seen as a crucial point to tackle climate change, no joint effort will ever improve the status quo.

The missing opportunities of neglecting women in the climate debate

Gender disparities in decision-making, labor market inequalities, and uneven access to resources, can block women from fully contributing to climate-related planning, policy making and implementation.

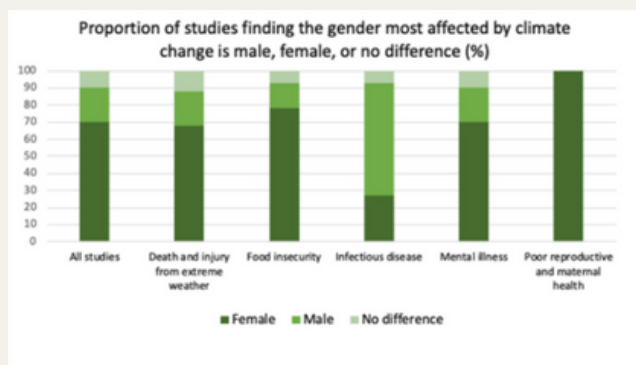
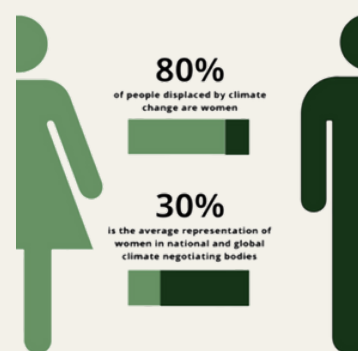


Figure 1. Bar chart showing the proportion of men and women affected by climate change impacts, including death and injury from extreme weather; food insecurity; infectious disease; mental illness; and poor reproduction and maternal health. (Source: Carbon Brief)

The disproportionate impacts felt by women and their unequal position in African society call even more loudly for inclusive governance. It is thus fundamental to identify gender-sensitive strategies to respond to the environmental and humanitarian crises caused by climate change. The most effective way to do so is by leveraging on women's life experiences, that have given them unique viewpoints, priorities, and strengths. Better integration of women and marginalized groups into decision-making at all levels would help improve climate mitigation and adaptation policies, as also claimed during the United Nations Framework Convention on Climate Change (UNFCCC).



As a supporting example, one can mention the preservation of biodiversity, widely recognized as essential to food security. Because women are responsible for supplying their families with food and care, they often have special knowledge of the value and diverse use of plants for nutrition and health. Consequently, they are frequently the preservers of traditional knowledge of indigenous plants. Their lack of involvement in decision-making, however, limits their contribution towards establishing more inclusive and effective climate-resilient policies.

Girl's education would reduce carbon by 85 gigatons by 2050.

Closing the gender gap in education is the first step for an inclusive decision-making process

Empowering women and girls in developing countries ranked second among 76 solutions for curbing global warming to 2 degrees Celsius according to a new report by the climate research organization Project Drawdown. The research estimates that girls' education would reduce carbon by 85 gigatons by 2050.

Schools represent the principal mechanism to prepare youth for success in broader social and economic settings. Formal education that is both gender-sensitive and climate-conscious connects those fundamental soft skills with efforts to improve climate literacy and awareness, resulting in a catalysis of climate leadership. Empowering girls through high-quality education can help them challenge notions of passive victimhood and become powerful change agents for sustainability in their communities.

With a long-term perspective, schools and the education process represent the key source towards climate-resilient economies. The urgent nature of the climate crisis necessitates the pursuit of a multitude of strategies that require high technical skills. To this end, incorporating green skills into the learning environment and curriculum can prepare the next generation, including women, to participate and thrive in existing economic shifts to greener technologies and the creation of green jobs.

The proposed Africa-EU "Global Gateway Investment Package" includes investments of 150 billion, with the aim of supporting the shared ambition for the EU's Agenda 2030 and the AU's Agenda 2063. However, there is still a lack of a cross-cutting investment perspective that targets environmental protection policies and gender issues as interconnected challenges.

This policy brief stresses the potential synergies among Africa-EU relationships to improve the effectiveness of climate-resilient policies while presenting an opportunity to empower women.

In particular, sharing good practices related to data collection and analysis, gender analyses of policies and budgeting could help to promote coherence and communication between stakeholders involved at all levels in order to improve identification of synergies between gender initiatives and climate-related issues.

Leading the climate policy advancement by including women's voice

Given the availability of funds and the urgency of the parties to build climate-resilient economies, initiating further strategies toward sustainability that ignore the role of women would mean missing another opportunity to address the root cause of climate change, as well as wasting resources. To date, none of the existing international initiatives leverage the simultaneous promotion of women's empowerment and sustainable development.

This policy brief emphasizes the key role of women in creating effective and climate-resilient policies over the long term, with a focus on developing countries. The need to reorient current Africa-EU partnerships toward the goal of including women in decision-making processes related to environmental issues is emphasized. In particular, emphasis is placed on the key role played by accessible and climate-sensitive education for women to ensure that women's voices can be heard to overcome the most pressing crisis of this century.

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Women's poverty, empowerment must be addressed to meet development goals, commission on status of women told, as 46th session opens. (2022, March 4). OHCHR. Retrieved February 6, 2023, from <https://www.ohchr.org/en/press-releases/2009/10/womens-poverty-empowerment-must-be-addressed-meet-development-goals>

ANNEX II

A night train named desire.

How night trains could represent the future of sustainable travel in Europe



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Hertie School**

ABSTRACT

Although the EU commitment towards reducing greenhouse gasses (GHG) shows positive results, the transport sector seems to be going in the opposite direction. Indeed, its demand is constantly increasing, urgently requiring innovative and sustainable solutions.

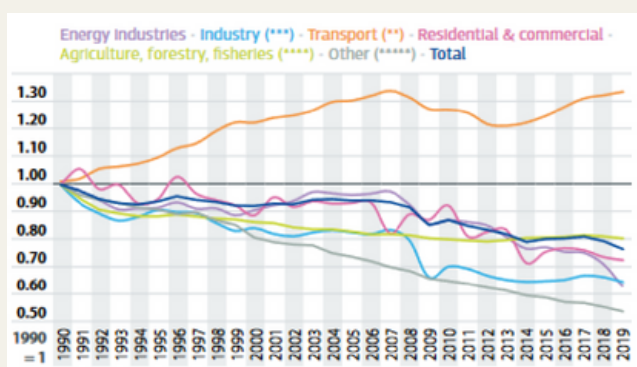
Night trains could represent a greener alternative to planes, especially for travelling purposes in continental Europe.

Through a system of cashback incentives, the EU will be able, initially, to raise awareness about the advantages and the benefits of this neglected transport mode, with the aim of stimulating the demand. This will be the main focus of our policy brief. The next step would be to increase infrastructural investment to consolidate the newly increased demand.

Have you ever wondered how it feels to go to sleep looking at the Eiffel Tower and wake up on the steps of the Duomo of Milan? (Symons, 2023).

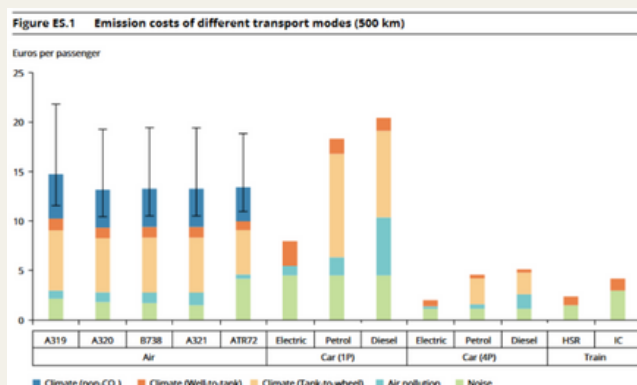
Now it could be easier than ever!

EU members signed the European Green New Deal targeted at reaching carbon neutrality by 2050. Although we are going in the right direction, the transport sector represents nowadays the black sheep of GHG emissions reduction, with a remarkable increase since the '90s.



Source: European Environmental Agency (EEA), 2021.

Indeed, the sector is responsible for one-quarter of total EU emissions; in particular, aviation is accountable for 13% of its emissions, with the largest per passenger kilometre emission. Conversely, rail transport remains the most environmentally friendly mode, responsible for only 0.4% of the GHG emissions caused by transport (EEA, 2021).



Source: EEA, 2020.

Would you prefer waking up at 4 am to catch a two-hours flight or rather getting a good night sleep in a comfortable train while knowing you are travelling in a much greener way?

Currently, the most frequented flights in Europe work on short-haul routes covering a distance that is, in most cases, lower than 1000 km (Jochim, 2021). Solving this problem represents a big potential for a new improved system of night trains connections. Night trains usage has declined in recent years mainly due to high competition from other modes of transport – such as low-cost airlines and day-time high-speed services – and the high operating cost per passenger (Kantelaar et al., 2022).

Though these reasons are still valid, both train companies and governments are recognizing the potential benefits of night trains. Indeed, the EEA and the European Commission (EC) (with its “Pilot Project on the Revitalization of Cross-border Night Trains”, 2020) underlined how night trains could be an alternative to flying (Curtale et al., 2023).

Moreover, the use of night trains as a sustainable transport mode is highlighted by the Europe’s Green Deal and the EU Year of Rail (2021) (Kantelaar et al., 2022).

What are the advantages of taking cross-borders night trains instead of planes?

The most straightforward one is the possibility to be well-rested in the morning once at destination. Typically, due to the central location of train stations, one can reduce time and money spent going from the airport to the city. Furthermore, the viability of night trains is strengthened by their flexibility: airplanes only connect two specific points, while trains can stop in different important cities. Obviously, travel time will be longer than in a comparable flight, but empirical studies found that travelers are less sensitive to travel time changes for night trains than for morning planes (Kantelaar et al., 2022).

How would an ideal night train look like? How can we attract people towards choosing night trains?

Firstly, the covered distance must be long enough to provide for an optimal travel time to have a restful night; research shows that such a figure ranges between 640 km and 1,120 km at an average speed of 80 km/h (Jochim, 2021).

One of the most important determinants of the choice of using night trains is departure and arrival time: the ideal night train should leave between 7 and 11 pm and arrive at destination between 7 and 9 am (Jochim, 2021). For instance, the London-Glasgow route or Vienna-Warsaw are two great examples of suitable rides (Jochim, 2021).

From different behavioural studies, the two most important factors that emerge in determining the shift from airplanes to trains are comfort level and privacy aspects (Curtale et al., 2023). It has been shown that there is a relevant interaction between the comfort level and the perceived travel time parameter, meaning that a high comfort level reduces drastically the perceived effect of travel time (Jochim, 2021). Privacy aspects are also fundamental. Evidence shows that night trains with basic facilities (i.e. no shower, no food/beverages) and double compartments are more appreciated than night trains that do have those features, but also have shared compartments of six (Kantelaar et al., 2022). Furthermore – due to the length of the trip – having the possibility to perform different activities on board is of prime importance for users and for train companies to increase their attractiveness (Kantelaar et al., 2022).

Among socio-demographic determinants, the fear of flying is worth mentioning: a portion of travellers showed some concerns about flying, and therefore they could be interested in the night train alternative. Finding shows that they are less price sensitive, thus they would require a lower incentive to shift into using night trains (Curtale et al., 2023).

Realistically, what do we suggest?

Our proposal consists of creating a European cashback system in the night train sector. To support EU efforts to revitalise such a sector, it is paramount to raise awareness and incentivise the general population (Symons, 2023).

For these reasons, a 5-years 30% cashback plan will be offered on any transactions related to the purchase of night train tickets. The feasibility of the project is proved by the Italian example: the Italian “cashback di Stato” in 2021, indeed, involved about 15% of the Italian population (io.italia, 2023). We believe in a more defined area of action, as it will specifically aim at boosting demand in the sector. Additionally, forms of cashback prizes – modelled after the Italian ones – could be taken into considerations. We believe in the effectiveness of randomised prizes: each user will compete in the Europe-wide lottery. For every 10 million transactions, a European extraction will gift the lucky winner €1500. We consider such a measure to further encourage the use of night-trains.

Another benefit of our scheme consists, by strongly focusing on demand, of working on existing infrastructure, without needing to expand existing railways. We firmly believe in the power of people, and, therefore, in the power of demand to shape offer. If an increasing number of European citizens use cross-border night trains as their means of transportation, a habit will be created. Even after the end of our 5-years plan, they will have experimented the comfort and convenience of using night trains over flights and, therefore, they will be likely to continue using such a traditional, but highly effective, conveyance. Consequently, a high demand for the service will push both national railway operators and, even more, private operators – as they are highly sensitive to customers' demand – to offer an increasing number of cross-border night train services between European cities, thus creating a powerful virtuous cycle. This phenomenon will further offset CO2 emissions, move Europe closer to the objectives of the Green New Deal, and ultimately contribute to reach carbon neutrality by 2050.

Additionally, by offering a 30% cashback, we aim at tackling another problem: ticket prices. As prices are one of the most important factors for which low-cost airlines companies are preferred over other means of transportation, effectively reducing ticket prices will increase competitiveness of the night train sector against its main competitor (Kantelaar et al., 2022).

Our proposal is perfectly aligned with the principles of the Green New Deal, as it contributes to decarbonise our transport sector. Additionally, it also works in synergy with the EC's decision of supporting 10 new cross-border pilot projects, amongst which night train lines (EC, 2023).

Financially speaking, our proposal is not expensive. Out of the 71 most popular air routes in Europe, 9 of them already have existing railways infrastructure which could be used as an alternative to air travel. Out of those 39, 22 already have night train services. In our time framework, we aim at boosting the usage of existing rail network. Therefore, if all existing 22-night train lines were to be properly used, we could assume a total number of passengers of about 1,980,000 per year (90,000 passengers is the average estimated capacity of a line * 22). Assuming an average price of about €100 a return ticket, the total annual spending for tickets would amount to approximately 198,000,000 (EURail, 2023). Therefore, a 30% cashback would be tantamount to spending about €59,400,000 per year. Similarly, we could work out the maximum financial cost of the project in case all 39 lines were to be used and privates or national operators decided to implement night train service also on all existing lines. Following the same procedure, the total number of yearly passengers would amount to 3,510,000.

The latter figure multiplied by €100 gives us the total spending for tickets: €315,000,000. Consequently, with a 30% cashback we could expect to spend about €94,500,000 per year. In conclusion, our project entails a yearly total expenditure ranging from €59,400,000 to €94,500,000. This number must be deemed as a necessary token to boost demand. To cover this expenditure, we could apply for the Connecting Europe Facility fund, which aims at reducing the emissions in the transport sector.

This policy represents only the first crucial step with the aim of stimulating demand. Night trains, if used at their fullest potential, can shift up to 32% of passengers to this transport mode and save about 3% of GHG emissions (Maier, 2022).

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ANNEX III

Air justice

A social compass through climate turbulences



Alexia Meynier
**London School of
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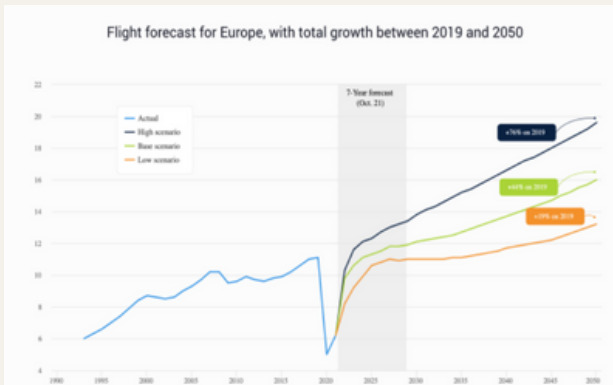
Manon Erimo
**London School of
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ABSTRACT

Technological advances in aviation are necessary to reduce greenhouse gas emissions from air travel. However, they are not sufficient to curb the alarming rise of air traffic and meet Europe's ambitious climate targets. In addition, the rise in air traffic is disproportionate to high-income groups, reinforcing justice and equity concerns over carbon footprint inequalities. Transformative policies that provide clear fiscal incentives for regular flyers to reduce air travel consumption are urgently needed. The Fair Mobility Pact offers a compelling solution by proposing a threshold taxation on flight tickets. By unlocking a new potential for emissions reduction and distributing transition costs more fairly, the Fair Mobility Pact complements existing mechanisms and paves the way for a cleaner and more equitable future.

Policy problem: the alarming rise of air traffic threatens European Climate Goals

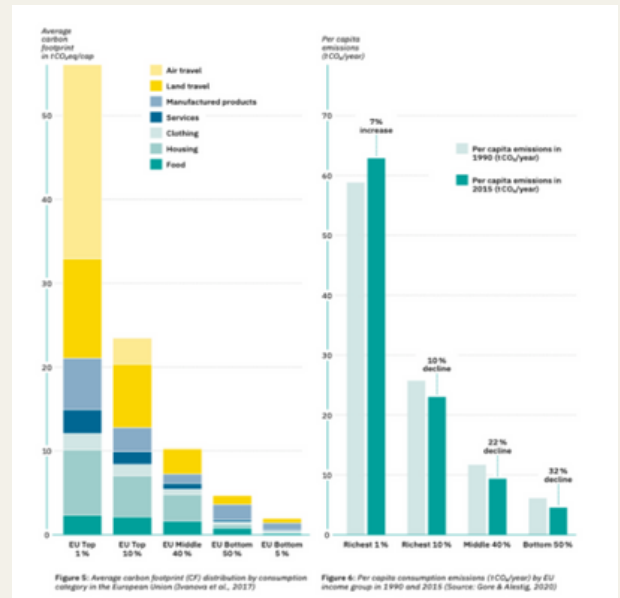
Air traffic in Europe doubled between 1990 and 2019, and the industry forecasts an additional **44% increase in 2050** compared to 2019 (EUROCONTROL, 2022).



Source: EUROCONTROL, 2022.

This rise in air traffic is a major challenge to reducing GHG emissions and meeting Europe's climate targets. Technological improvements have been outpaced by the growth in air traffic, resulting in overall increasing carbon emissions from the aviation sector. This requires an innovative approach to European policies: technological advancements will enable a decrease in emissions per flight, while societal changes are necessary to mitigate the projected increase in air travel (Carbone4, 2022).

The rise in air travel and related emissions is disproportionately driven by high-income groups. **A European citizen in the top 1% of the income distribution contributes on average 12 times more to GHG emissions than a European citizen in the bottom half of the income distribution.** This uneven contribution is even sharper when only air travel-related emissions are considered.



Source: ZOE Institut, 2021.

To support its ambitious climate targets, the European Green Deal should further promote policies that require a significant effort from high-income groups. First, it would establish a sense of solidarity and effort-sharing, which is crucially needed for a successful Just Transition. Second, it would unlock significant potential for emissions reduction.

The integration of aviation in the European Union Emissions Trading Scheme (EU ETS) and the aviation fuel taxation planned by the new Energy Taxation Directive (ETD) mostly aim at fostering technological changes necessary for a future low-carbon European aviation industry (Tvinnereim and Mehling, 2018). Policies aiming at a societal transformation - which must be the flip coin of a coherent strategy - are still lacking. The Fair Mobility Pact is a proposal to address the rise in air travel and the underlying social inequalities through threshold taxation on flight tickets.

Filling the gap in European policies

The revision of the EU ETS: market incentives for aviation decarbonization

The EU ETS is a Europe-wide GHG emissions scheme in which a maximum cap is set on the amount of greenhouse gases that can be emitted by participants. Since 2012, it includes flights taking place within the European Economic Area. Its revision intends to phase out free allowances for the aviation industry by 2026, hastening the implementation of the polluter-pays principle (European Commission 2022).

This recent approach places a financial burden on airlines, incentivizing them to reduce their carbon footprint. International flights will not be covered by the EU ETS, but by the CORSIA scheme (Carbon Offsetting and Reduction Scheme for International Aviation). CORSIA aims to offset any annual increase in CO₂ emissions above a baseline, which is set at 85% of 2019 emissions. In 2026, the commission will assess the effectiveness of the CORSIA with respect to the Paris Agreement. If it does not meet expectations, the EU ETS could be extended to all flights departing from the EEA (Gotev, 2022). This market mechanism will promote investments in low-carbon aviation, but it is unlikely to significantly impact the rise in air travel.

The new Energy Taxation Directive: taxing aviation fuels to promote sustainable aviation

A carbon tax on aviation fuel compels the aviation industry to embrace cleaner technologies, complementing the EU ETS incentives. The Energy Taxation Directive (ETD) revision is currently being examined by the Economic and Monetary Affairs Committee of the European Parliament (European Parliament, 2023). The tax would be gradually introduced for domestic and intra-EU flights, and its minimum rate of 10,75€/GJ would be achieved ten years after the directive's entry into force (European Commission, 2021).

However, only 25% of EU's aviation fuel use comes from flights within the EU (Gardiner, 2021). This taxation directive will further incentivize airline companies to integrate sustainable aviation fuels, but it might not achieve the necessary curb in air traffic trends.

Energy Taxation Directive

- Tax on aviation fuels in euros per gigajoule
- Tax amount per gigajoule is the same for each airline company
- Incentivizes airline companies to reduce their emissions through efficiency and integration of sustainable aviation fuels
- Covers commercial flights, private jets, cargo flights

The Fair Mobility Pact: fair incentives to reduce air travel

The Fair Mobility Pact is a new proposal to complement the EU ETS and the taxation of aviation fuels. It fills a critical gap between the two first policies: clear incentives for regular flyers (business and leisure) to reduce their air travel consumption. The core concept behind the pact is that those who contribute the most to aviation emissions will pay higher rates for flight tickets. It embeds social justice as a central pillar of Europe's low-carbon strategy. The tax will apply to all intra-EU flights initially but may extend to all flights departing from the EU after 2026. The proposed progressive taxation **is expected to generate between 10 and 20 billion euros in annual revenues**, which would be channeled towards investments in low-carbon transportation infrastructure and innovation within Europe.

Fair Mobility Pact

- Tax on flight tickets in euros per ton of CO₂
- Tax amount per tCO₂ is higher for those who fly more frequently and contribute more to aviation's emissions
- Incentivizes high emitters to reduce air travel while investing in a low-carbon and affordable European rail
- Covers commercial flights only

Implementation

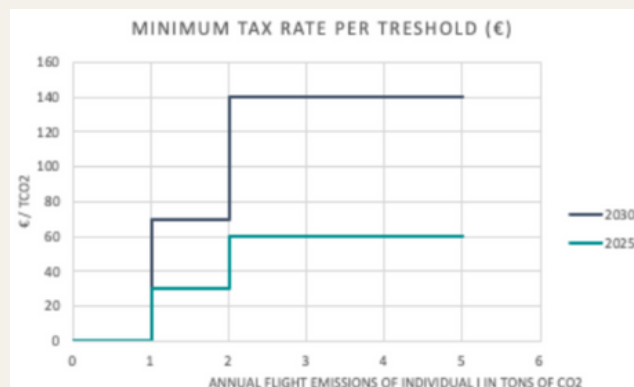
The EU should lead the development of a European database of aviation carbon accounts

The tax rate for a given flight ticket is determined by matching the relevant thresholds and tax laws of the country with a dynamic European database of aviation carbon accounts. This database connects an individual or company's ID with their previous purchases of intra-EU flights and the associated carbon emissions. To develop this database, the EU should establish a dedicated taskforce, which would closely collaborate with airline companies.

The EU should launch wide consultation to set tax threshold and minimum tax rates

The Fair Mobility Pact introduces a new approach to reducing air travel's environmental impact by levying a much higher tax rate on frequent flyers while ensuring that low-income groups who can rarely afford air tickets are not unduly burdened. The Pact's success depends on establishing the minimum tax rate in Euros per ton of CO₂ for each threshold after a rigorous cost-benefit analysis and consultation with member states and stakeholders. The minimum tax rates per threshold could be gradually increased, similar to the ETD. To ensure fairness and transparency, empirical evidence on Europeans' aviation carbon footprint should be used to determine individual thresholds, while thresholds for companies should account for the number of employees. Member states could choose the tax they wish to apply to each threshold, provided it is not lower than the EU minimum tax rate.

Each purchase of a plane ticket would add the corresponding emission to an individual's personal record. Subsequent purchases would consider this record and add, when relevant, a tax to the final price.



Member states must negotiate new bilateral air service agreements

The Fair Mobility Pact introduces a novel approach to aviation taxation by focusing on the purchase of flight tickets instead of aviation fuels. This might ease its legal implementation, as most of the legal debate around aviation taxation lies in the taxation of aviation fuels (CE Delft, 2021). However, outdated bilateral agreements between states could still pose a significant challenge. The Fair Mobility Pact will require member states to renegotiate these agreements to include provisions on the tax rates associated with each threshold. Similar negotiations would be necessary with external countries such as the United States if the policy were extended. As a major economic and aviation hub, the European Union has a critical leadership role to play in pushing for such renegotiations.

The revenues should be directed towards 3 low carbon priorities

The additional levy on air travel within the EEA aims to curb the expected rise in carbon emissions from the aviation sector. There is a risk that this could put European airlines at a disadvantage compared to their international competitors and deter investments in low-carbon solutions. Furthermore, there is a possibility that this could lead to a decline in intra-EU tourism, negatively impacting local economies (IATA, 2022).

To prevent these negative effects, it is crucial that the revenues generated from the additional levy are invested in low-carbon transportation solutions. Member states must prioritize three key areas: first, investing in research and development to accelerate the transition of the European aviation industry towards low carbon aviation. Second, developing an ambitious European Rail Plan to provide a credible alternative to air travel and limit carbon leakage resulting from a shift in intra-EU tourism to outside-EU tourism. Finally, creating a European fund to support member states and their regions in subsidizing public transportation and train tickets. This will ensure that the Fair Mobility Pact does not only limit carbon emissions but also stimulates the development of a sustainable transportation system in Europe.

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ANNEX IV

Fighting fire with fire Geoengineering in the EU



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Clémence Thounaut
Science Po

ABSTRACT

In case of extreme necessity, geo-engineering techniques may buy us time to reduce our emissions. However, such techniques and their long term global effects are still widely misunderstood. If implemented unilaterally, they may have disastrous long term ecological and diplomatic consequences. The EU should therefore research such technologies to exploit their benefits and regulate the associated risks.

In this policy brief, we argue for the creation of a European Geo-engineering Research Community, which would both promote and supervise geo-engineering research. This would be done via the creation of a European Geo-engineering Security Council tasked with reviewing research projects and the creation of a binding framework to limit unilateral action as well as the funding of new research.

Introduction

Climate engineering (or geoengineering) is “techniques for direct intervention in earth systems in order to counterbalance the warming effect of increased levels of greenhouse gases” (Virgoe, 2008). It may sound like something straight from a science fiction novel. It is, however, powerful, cheap, and very real. It offers tremendous possibilities in the fight against climate change as well as huge risks. According to the most optimistic estimates, it could revert climate change for a few hundred million dollars per year (Steven Levitt, 2009). On the other hand, critics point out disastrous potential consequences if undertaken (Bullis, 2009). As years pass and the consequences of climate change, it has become vital for us 1) to fully understand the consequences of geoengineering and 2) to set up schemes to prevent lone actors from running their own geoengineering programs.

Why it's a problem

The main issue with our lack of understanding of geoengineering is that it might have tremendous costs for humanity. Geoengineering today is seen as a last-ditch effort in case of catastrophic failure in the fight against climate change (Virgoe, 2008), in large part due to how little we currently know about the side effects it could have.

This lack of information is problematic in two ways:

We don't understand geoengineering

First off, if we one day reach the point where geoengineering becomes a necessity, doing it in the most efficient way could massively reduce the negative side effects. The most efficient method would be measured by its “effectiveness (the potential for the proposed method to work), affordability, timeliness (how long it would take to deploy it and how fast would it work) and safety” (Daniele Visioni, 2017).

In this kind of scenario, affordability and safety would likely be sacrificed for higher efficiency and timeliness, but having more knowledge might allow us to score better on all four criteria, especially safety. Previous geoengineering tests, such as the one which led to the London Protocol banning marine geoengineering (Tollefson, 2008), have had awful consequences which the environment might not be able to cope with in a time of crisis.

Secondly, by not doing enough research on geoengineering, we might be losing a precious tool that we could use today to fight against climate change to buy us time.

One of the main risks is that we are underestimating climate feedback loops which are “a process whereby an initial change that causes warming brings about another change that results in even more warming” (William J. Ripple, 2023), for example the thawing of the permafrost. If we're not able to sufficiently reduce our CO₂ emissions, using geoengineering might slow down climate change sufficiently for us to avoid triggering some of or all these loops. Thus, the earlier we use geoengineering the bigger the impact will be.



Figure 1: The Mount Pinatubo eruption released massive amounts of SO₂, which led to a global reduction of temperature of ~0.5°C (Bluth, 1992). This kind of phenomenon provides valuable data that can be used in geoengineering research. (United States Geological Survey, 1991)

Rogue geoengineering prevention

The second problem with geoengineering is that poorly done geoengineering would be disastrous and that some countries have incentives to pursue it. As mentioned above, many geoengineering experiments have had very negative side effects. However, some actors would benefit from pursuing geoengineering regardless of the side effects. This is for example the case of countries for which climate change poses the biggest risk, or companies or countries who rely on fossil fuels, which are threatened by conventional mitigation such as petrostates and vehicle manufacturers (Virgoe, 2008). Lots of methods of geoengineering functions such as SO₂ injection in the atmosphere can be done independently and take years to detect (Y.T. Eunice Lo, 2016), at which point it might be too late to reverse the process without causing greater harm through a termination shock (Andy Parker, 2018).

From this, we can conclude that there is a very strong need to increase research on climate engineering as well as to be able to prevent clandestine geoengineering from rogue actors.

The solution: the European geoengineering research community, a common framework

The creation of a European Geoengineering community will develop research on the topic and offer a binding framework to avoid unilateral action. Similar to the EURATOM (European Parliament, 2020) agreement, the European Geoengineering Research Community has two main goals: research and security.

Developing research

The EGRC will *Develop* research on geoengineering techniques and ensure the diffusion of technical knowledge inside the Union. To that end, it will stimulate Geoengineering research in regions where it is the least developed. This will be done through two main mechanics:

1. Facilitating loans provided by the European Investment Bank in order to attract additional investments in the regions concerned
2. Encouraging private investment in geoengineering, especially in Carbon Capture and Storage (CCS) and Carbon Capture Storage and Use (CCUS) sectors

The level to which the EU will co-finance the research will depend on the development of geoengineering research in the country. The maximum will be set at 70% for less developed regions and 40% for more developed ones. The allocation criteria will be based on the annual share of GDP going into research, and on the number of geoengineering research projects being carried out annually. Such grants will be funded by the multiannual Framework Programmes (FP) and by NextGenerationEU. Furthermore, the EGRC will seek to raise by 30% the number of geoengineering research projects funded by the 2028-2035 multiannual Framework Programmes, going from 50 for Horizon Europe to 65 for FP10.

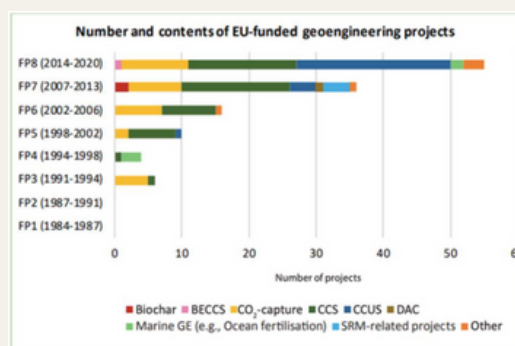


Figure 2: The EU has shown growing interest in geoengineering (Chalmin, 2021)

Guaranteeing safe geoengineering projects

The EGRC will create an independent scientific council dedicated to the risk assessment of geoengineering proposals: the European Geoengineering Security Council. The EGSC will comprise of two scientists per signatory country and three legal practitioners. Every four years, a third of the EGSC is renovated to keep the council up to date while ensuring continuity. Each country can freely determine how to select the experts seated in the council; however, no individual shall sit for more than eight consecutive years.

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Regarding the launch of geoengineering programs, the EGSC is competent to authorize, suspend or fully stop projects on the basis of reasonable safety concerns, in accordance with the Precautionary principle. In those cases, any decision shall be made through the vote of a qualified majority of 60%.

Defining a binding framework

The EGRC will define a binding legal framework for geoengineering research in the Union.

- In line with the precautionary principle (EUR-Lex, s.d.), such a framework will impede countries from launching wide-scale geoengineering programs, unilaterally or as a group, until there exists a solid basis proving its harmlessness

- In line with the UNEP (United Nations' Environment Programme) guidelines on weather modification, such a framework will require countries launching geoengineering programs, unilaterally or as a group, to inform and concert with neighboring countries potentially affected.
 - If no agreement is reached within six months, the opposing country may refer the matter to the EGSC for review.
 - CCS and CCUS programs will be exempt from this clause.
- In line with the Environmental liability directive, such a framework will, in case of non-respect of those two clauses, require offenders to pay reparations to affected countries. The amount of which shall be decided by the ECJ in concertation with the Joint Research Center and the EGSC.

Finally, the EGRC will encourage, jointly with Union members and international organizations the spread of similar frameworks, to promote research into a potentially precious respite while reducing the risk of unilateral action.

Conclusion

As it stands, geoengineering solutions can be a precious tool to help us buy time just as much as they may be dangerous if pursued unilaterally. The EU should establish a framework for geoengineering so as to investigate precious elements to slow climate change and prevent rogue actors from taking potentially harmful action. With the creation of the EGRC the EU would solidify its role as one of the main drivers of climate action and as a leading research center.

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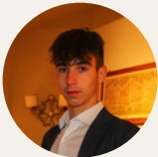
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ANNEX V

Sustainable growth

Leveraging public markets for sustainable growth



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ABSTRACT

Despite the rise in interest for sustainable investing, there seems to be a lack of instruments in the equity market to truly support the green transition. For this reason, we propose to introduce a facilitated way for companies to let their sustainable projects reach public markets through a carve-out. The aim of such procedure would be to increase the amount of capital invested in the green economy, positively reflecting on the realization of more effective and impacting works. To achieve this result, we identified the need of a public entity - the European Investment Bank - to oversee the process, functioning as an advisor in the evaluation/IPO and, also thanks to its environmental expertise, as a guarantor of sustainability principles.

The Rise of Sustainable Investing

In recent times, sustainable investment vehicles have become increasingly popular.

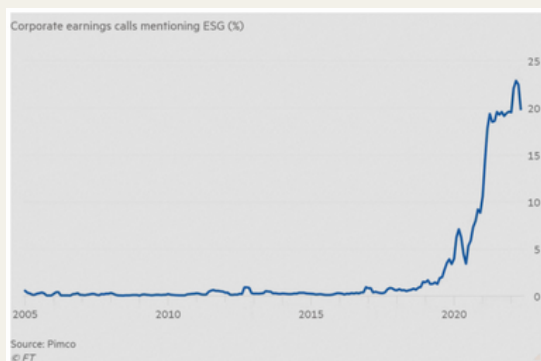


Figure 1: As an example, ESG has been rapid increasing topic in earning calls.

At the end of 2021 the number of ESG funds globally reached 5,932, an increase of more than 10% compared to the previous quarter, with AUM estimated at USD 2.74 trillion (Morningstar Manager Research, 2022). Despite that, criticisms over a widespread lack of accountability have been rampant, especially with respect to allegations of greenwashing (Agnew, Klasa, & Mundy, 2022).

We should therefore question the environmental effectiveness of the existing “green” instruments and analyze how this system can be improved to deliver a more efficient outcome for companies, investors, and society.

ESG, ETFs, and Mutual Funds

ESG ETFs and mutual funds are probably the most popular financial instruments used by investors whose purpose is not merely to earn a profit. However, recent academic research shows an unbalanced trade-off between financial performance and sustainability scores. In fact, the generally poorer financial results are not compensated by a significant difference in ESG ratings (Raghunandan & Rajgopal, 2021)*.

Indeed, a 2022 Harvard study showed that ESG funds have 68% of their assets invested in the exact same holdings of other non-ESG funds (Baker, Egan, & Sarkar, 2022). This raises legitimate doubts about this differentiation method.

Green Bonds

In the debt market, green bonds seem to represent a valid opportunity to support projects with a positive environmental impact, thanks to the higher transparency in the destination of capital (see Appendix A.1). Like all the debt instruments, they are however characterized by specific features that make them incomparable to stocks, and therefore make it impossible to consider them as a real alternative for investors seeking to own businesses.

Consequences on the Efficacy of Capital Allocation

Starting from the considerations above, it is clear that the instruments currently available to investors (at least in the equity market) make it difficult to effectively screen companies for their environmental commitment. This condition, in public markets, then translates into a misallocation of capital, which can be directed towards already consolidated firms - largely extraneous to environmental concerns - rather than impacting projects in need of fundings.

Reasoning from the point of view of the company, alternative ways of raising capital for sustainable projects, without bearing the risk of a loan, are to be sought in private markets. However, missing the chance to reach public capital may represent a considerable opportunity cost for the firms.

Introducing an EU-backed Framework for Sustainable Projects

The policy we propose aims at overcoming the aforementioned limitations and concerns. Leveraging the expertise of the European Investment Bank, we suggest the introduction of a facilitated and trusted way for companies to let projects active in climate protection and sustainability reach public markets through a carve-out.

*According to the cited source, such phenomenon applies to ESG and non-ESG funds within the same asset manager and during the same year (between 2010 and 2018).

The primary benefit that could be achieved is a larger and more direct capital injection in the green economy, exploiting the dynamics of IPOs and stock markets as opposed to private transactions. An easier access to larger funds would facilitate the realization of asset-heavy or prolonged projects, ultimately increasing the number and the impact of those. For instance, this would allow to extend the reach of current power infrastructures in addition to increasing the production capacity of low-emission plants, to invest in recycling facilities or in the technologies needed to work with new “green” materials.

Rationale behind EU Involvement

We identified the need of an EU-backed procedure for a number of reasons. First, as the EU acts on the behalf of its citizens, it has the remarkable ability to fully internalize social benefits. Therefore, its actions would not aim at gaining profits. Given the high fees charged for an IPO, if an appointed division of the EIB were to act as an advisor, it could significantly increase the convenience of the process.

Furthermore, considering that firms’ proposals would have to pass a scrutiny performed by the EIB itself, this would signal the solidity of the project both in terms of economic and environmental feasibility.

The EU involvement would also effectively “sponsor” the project, bringing it to the attention of both individual and institutional investors. Lastly, only an impartial and public entity such as the EU could effectively function as a sustainability guarantor and intervene in cases of violations or damaging deviations from the original intents.

Additional Implications

The policy we are suggesting carries further additional benefits and incentives; it introduces public market dynamics – transparency, competition, need for growth prospects – to the sustainability race, from which we could expect a positive cycle of research and innovation.

Furthermore, investing in or promoting a similar operation could be considered as a more concrete display of social commitment for both firms and investors looking for a way to practice sustainable finance. Finally, through a framework that will be discussed later (DCOS), our proposal would allow for an alignment between economic incentives and sustainability goals for all the parties involved.

Recommendations

Our proposal would be articulated in four steps, and would be based on the cooperation between enterprises and the European Investment Bank.

To this end, the EIB would need a dedicated team or division with expertise in:

- business valuation.
- financial markets and IPOs,
- environmental impact analysis,
- legal matters.

Moreover, they should identify precise criteria for choosing the projects to support. These parameters would be an objective and measurable expression of the following principles:

- positive impact on the environment (fundamental and binding attribute),
- profit aim,
- presence of a pre-existing managerial structure.

The system would be structured as follows.

I: Public Call Through a public call, companies would present their ideas for the projects. The EIB (provided that the above-mentioned criteria are respected) would evaluate:

- the technical possibilities for the project to be realized,
- the risk profile,
- the economic sustainability in the short, medium, and long run,
- the necessary funds,
- the best stock exchange to carry out the IPO.

II: Creation of the New Division for the Carve-Out. After the selection, each successful project would become the first and initially the only scope of a new division of the parent company.

These divisions would have a juridical structure in line with the legal provisions of the chosen stock exchange.

The parent company and the EIB would define together:

- the ownership structure of the upcoming listed division,
- its corporate governance,
- the specific features of the “Distributive Cash-Out Strategy” (for the sake of conciseness, we will refer to this procedure with the abbreviation DCOS) (more details later).

Two binding principles would be applied to these decisions:

- the EIB would receive exactly the amount of equity necessary to cover its operating costs related to the project (calculated on the IPO price),
- one of the committees of the Board of Directors would be the so-called “EU Committee for Environmental Consistency”, with the following characteristics:
 - its members would be chosen exclusively by the EIB,
 - its purpose would be auditing executives’ actions to avoid any shift in the company’s environmental policy,
 - it would have veto power on the major decisions of the company (for instance those considerably affecting its business model).

III: IPO and DCOS Following the carve-out, the EIB would start distributing its equity stake to existing investors by applying the agreed DCOS. This procedure, terminating with the EIB fully distributing its shares, would be structured as follows:

- the EIB (in agreement with the company) would define a specific set of goals focused exclusively on the environmental impact of the firm,

- every six months the EU Committee for Environmental Consistency would evaluate whether the objectives planned for that period were achieved or not,
- depending on this analysis the Committee would decide the number of shares to sell at a discounted price to existing investors,
- investors would receive call options with the following characteristics:
 - the strike price would be decided by the EIB every year for the following two semesters, with the first two made public prior to the carve-out,
 - the IPO price would be a binding upper bound for the strike price for the whole period,
 - the premium would be zero,
 - the maturity time would be ahead of the following issuing,
 - the number of contracts received by each investor (parent company included) would be proportioned to their equity stake.

This mechanism aims at aligning shareholders’ interests with the environmental goals set by the EIB, creating a further economic incentive for investors. At the same time, it allows the EIB to reach (in the medium run and in case of a positive trend for the stock price) a balanced budget without charging monetary fees during the carve-out.

Moreover, it could determine higher volatility and therefore encourage more intense trading activity, increasing liquidity and bringing more efficient pricing.

The mechanism for determining the strike price of the call options aims at giving the EIB the possibility to sell the equity even if the stock price went lower than the IPO price. In that case the EIB would be able to limit its loss.

IV: New Direction After completing the initial project, when the EIB has no more equity stakes, the company can either decide to liquidate the division, replicate the same business model (for instance in other geographic markets), or start a new project with the approval of the EU Committee for Environmental Consistency. This body would in fact remain as part of the corporate governance structure of the firm regardless of the equity participation of the EIB in the project.

Appendix A

European issuance of green bonds, by type of issuer (€ bn)

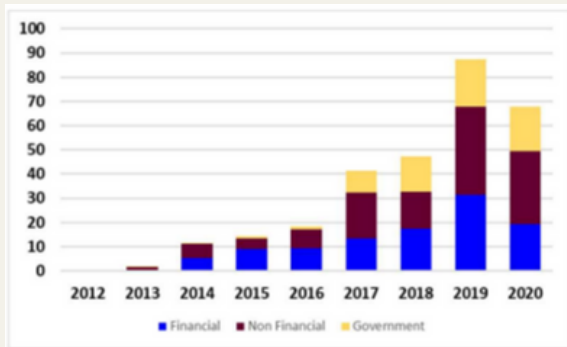


Figure A.1: Calculations based on Dealogic DCM data. Last observation: 14 September 2020.

Average reduction in direct carbon intensity (%) of green bond (GB) issuers.

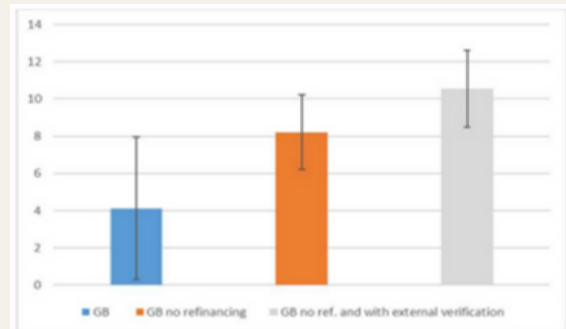





Figure A.2: Calculated with respect to comparable non green bond issuers. (Dealogic DCM data)

(Fatica, 2020)

Appendix B

Table of Benefits

 <ul style="list-style-type: none"> • Access to higher capital • Lower costs for the carve-out • Benefits in reputation from signalling a serious environmental commitment • Easier to attract investors thanks to the EU "sponsorship" • Benefits from the managerial expertise of the EIB 	 <ul style="list-style-type: none"> • Trusted financial instrument to support sustainable projects • Economic incentive in the medium term (call options) • A further possibility to diversify their portfolios • Clear risk profile made public by the EIB 	 <ul style="list-style-type: none"> • More impactful projects funded with more capital • Budget balance in the medium run • Higher awareness among investors with respect to sustainability • Public-market dynamics in the sustainability race (more competition, more innovation, more efficient resources allocation)
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Glossary

AUM Assets under management comprise the total market value of the investments that a person or entity manages on behalf of clients. *

carve-out A "carve-out" is the partial divestiture of a business unit in which a parent company sells a minority interest of a subsidiary to outside investors. A company undertaking a carve-out is not selling a business unit outright but, instead, is selling an equity stake in that business or relinquishing control of the business from its own while retaining an equity stake.*

ESG Environmental, Social, and Governance investing refers to a set of standards for a company's behaviour used by socially conscious investors to screen potential investments. *

ETF An exchange-traded fund is a type of pooled investment security (typically tracking a particular index, sector, or commodity) that can be purchased or sold on a stock exchange. *

IPO An initial public offering refers to the process of offering shares of a private corporation to the public in a new stock issuance for the first time. *

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ANNEX VI

Next-Gen Agriculture

Unlocking the potential of flexible state aid



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ABSTRACT

With the EU having made the fight against global warming one of its short and long-term priorities, tackling greenhouse gas emissions from agriculture remains a key objective, given that these have been stagnating for decades.

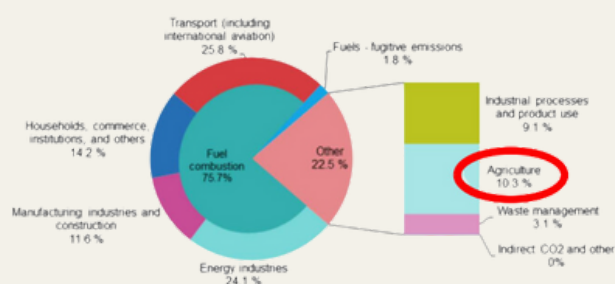
While some mechanisms exist, more flexibility in accessing potential funding is still needed to allow member countries to finance a quicker and easier ecological transition in this sector.

We propose to add a clause to the ABER allowing state aid to finance projects that respect only criteria 5 and 6 of the EAFRD. Considering the rigidity of the European agricultural calendar, this would widen the range of innovative initiatives eligible for public funding while supporting a green, socially just agriculture for the next generations.

Agriculture has a key role in the path to net-zero

The European Union's goal of reaching net-zero greenhouse gas (GhG) emissions by 2050 leads to policy changes, such as the new "green" focus of agriculture policy. A first step towards net-zero is a 55% reduction in GhG emissions by 2030 (compared to 1990 levels), legally mandated by the "Fit for 55" policy. This imperative appears in all new European policies. For example, the Common Agricultural Policy (CAP) 2021-2027 puts sustainability at its centre. This change is much needed as agriculture represents 10.3% of total EU emissions (Eurostat, 2019), and the latest report of the European Court of Auditors (ECA) (2021) highlights the previous CAP's failure to decrease GhG emissions despite a quarter of its 400 billion euros being allocated to the fight against climate change.

Greenhouse gas emissions by IPCC source sector, EU, 2019

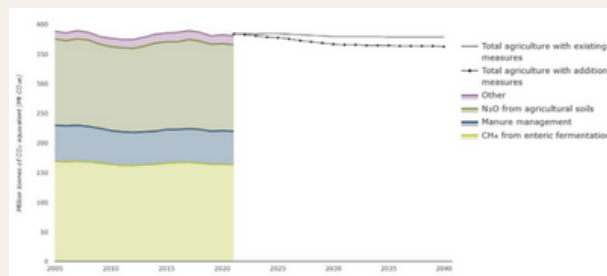


Source: EEA, republished by Eurostat (online data code: env_air_gge)

Europe has struggled to reduce agriculture's GhG emissions, and current policies mostly plan on using carbon offsetting to meet the net-zero objective.

Agriculture is a sector where it has been very difficult to decrease GhG. From 2001 to 2020, emissions dropped by only 6% (Eurostat, 2022). One of the reasons is that its GhG emissions are not mainly in the form of carbon dioxide (around 10%) but they are methane and nitrous oxide which represent 80% of agriculture's GhG in the EU (EEA, 2022). With today's policies, agriculture's emissions will not decrease sufficiently.

Figure 1. EU agricultural emissions by source and projected emissions



Source: EEA, 2022

The strict requirements of current EU financing rules are part of the reason why EU targets for agriculture seem to lack ambition.

The EU finances agriculture through the CAP and in specific cases through state aid, when allowed by the Agricultural Block Exemption Regulation (ABER). However, these options are not flexible enough (set until 2027 for the CAP), and their conditions are too restrictive. Indeed, with the CAP, Member States must ex ante create a Rural Development Program (RDP) which must be followed until 2027. This makes it hard to adapt to unexpected changes in climatic circumstances or new technology development.

The recent reactions in Europe to the USA's Inflation Reduction Act (IRA) and the absence of debates on agricultural policy before 2027 create a policy window for our proposal.

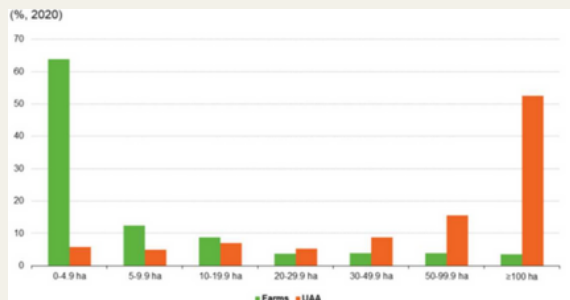
We believe state aid should be allowed to finance the extra targeted effort in agriculture's transition. With the IRA's negative effects on competitiveness in Europe, the European Council is debating how the EU and its Member States should finance the green transition. If there is fear that too much state aid could be a problem, all member states agree that targeted state aid should be used as additional financing (Blenkinsop, 2023). Additionally, with the next CAP negotiations finishing in 2027, only 3 years before the "Fit For 55" deadline: the sooner Europe will talk about agriculture, the better. Now is the best time for Europe to debate our proposal.

The existing policy framework needs adjustments

Many actors in the agricultural sector cannot finance their transition to more sustainable practices through traditional private financing. Because of agriculture's high GhG emissions, there is a question of how farmers can finance more sustainable practices. Europe's agriculture is mostly formed of small farms: 95% of farms are family farms (Eurostat, 2016).

Also, more than 60% are smaller than 5 ha. The latter often struggle financially and cannot use their own funds or market loans to finance their green transition (FI-Compass, 2022). This is why public financing exists.

Distribution of EU farms and utilised agricultural area according to farm size



Note: There are some differences in the threshold applied by some Member States, often exclude the very smallest agricultural holdings which together contribute 2% or less to the total UAA excluding common land, and 2% or less to the total number of farm livestock units.

Source: Eurostat (online data code: ef_m_farmleg)

Existing public financing for agriculture comes from the CAP and, in specific cases, from state aid. The CAP is a long-term instrument linked to the pluriannual budget, with two pillars:

1. The European Agricultural Guarantee Fund (EAGF): Mostly provides income support and is not used for investments.
2. The European Agricultural Fund for Rural Development (EAFRD): Supports investments included in member states' RDPs, under specific requirements.

The Climate Energy and Environmental Aid Guidelines (CEEAG) allows state aid to finance sustainability in some cases, however it excludes agriculture. State aid for agriculture is allowed by the ABER, if and only if these aids support investments already covered by the EAFRD (European Commission, 2023).

Agricultural actors need more flexible financing options, which must be more closely linked to the EU's main goals of carbon neutrality and just transition.

With the current financing options, whether through the CAP or the ABER, investments must respect the stringent requirements of the EAFRD (DG AGRI, 2022). However, climate conditions, technologies, and practices evolve rapidly: there should be room to support projects more flexibly than with the current rigid rules. Also, considering the urgency in transitioning, financing options should focus on the EU's main goals of reducing GhG and making this transition socially just. This includes making sure that those feeding all of us are not disproportionately bearing the cost of the transition.

Different options exist for a more flexible agriculture financing

The EU shall allow for more flexibility and more targeting when it comes to financing the just transition of agriculture.

Specifically, funding should be automatically authorised for all investments which:

- Promote resource efficiency and support the shift toward a low-carbon and climate resilient economy in agriculture, food, and forestry sectors and;
- Promote social inclusion, poverty reduction and economic development in rural areas.

There are several ways to finance these investments:

- Allowing state aid in the above cases by adding a clause to the ABER;
- Allowing state aid by reforming the CEEAG;
- Reforming the CAP to finance such projects;
- Creating an ad hoc EU level instrument to finance such projects.

Our recommendation:

The addition of a clause to the ABER which would also allow state aid to finance projects that respect only criteria 5 and 6 of the EAFRD.

This suggestion is supported by the fact that:

- ABER already includes state aid exceptions for agriculture. Our proposal would only require adding another exception. Using State aid would avoid stress on the EU budget: Member States would contribute voluntarily;
- The CEEAG also covers the scope of state aid, but it does not cover agriculture (it explicitly excludes it);
- Reforming the CAP is not feasible in the short term as the CAP is fixed until 2027;
- An ad hoc instrument would be expensive to create because of starting from scratch. It would make the EU budget bear this additional cost.

A simple policy reform to unlock the potential of flexible state aid

Practically, we propose to narrow down the priorities a project must address to get support from state aid. Currently, ABER allows state aid to finance projects already covered by the EAFRD. To be covered by the EAFRD, projects selected by Member States as part of their RDP must address at least 4 of the 6 following priorities:

- Priority 1: Knowledge Transfer and Innovation
- Priority 2: Farm Viability and Competitiveness
- Priority 3: Food Chain Organisation and Risk Management
- Priority 4: Restoring, Preserving and Enhancing Ecosystems
- Priority 5: Resource-efficient, Climate-resilient Economy
- Priority 6: Social Inclusion and Economic Development

Priorities 5 and 6 are the most urgent to reach the EU's GhG emissions reduction goals by 2030 and 2050, and to ensure a just transition. With our recommendation, ABER would include a clause allowing state aid for individual projects satisfying at least both priorities 5 and 6. This would increase flexibility above what the RDP system allows.

It would also let all solutions that directly answer the EU's most pressing issue get financing, even if they don't directly address other goals of the EU. Priority 6 ensures that the aid supports farms that would not have been able to invest in the transition by their own means. This limits market disturbances and focuses on the farms that would otherwise be left out of the transition. Priorities 5 and 6 are divided in focus areas to further detail the kind of projects supported (ENRD, 2017).

Funding would come from the member states, allowed by an amendment to ABER exceptions that allow state aid. As member states would finance individual projects, this support would come in the form of grants, loans, and loan guarantees, as it is the current approach adopted by the EU (FI-Compass, 2021). Technically, our recommendation would require an amendment to the Commission Regulation (EU) No 702/2014 of 12 December 2022 (the latest ABER) to include the requirements listed previously.

One example among many: increasing legume production

Legume-based cropping systems can be a key to accelerate climate change adaptation and mitigation (Rahman et al., 2022) and could be financed with our framework. Increasing their production reduces GhG emissions, especially nitrous oxides (Priority 5), diversifies the sources of revenues for small farms (Priority 6), and provides an affordable and healthy food source to the market (Priority 6). It cannot be financed under EAFRD as it doesn't address the first 4 priorities, but projects like this can considerably reduce the GhG emissions of agriculture. This positive externality should be financed: our framework can do it.



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