FAST TRACK?

European climate diplomacy after COP26

Edited by Patrick Hall, Ryan Shorthouse and Rebecca Foster

bright blue

KONRAD ADENAUER STIFTUNG

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Foreword

Matthias Barner and Magnus Smidak

The climate crisis has repercussions for every country on earth. Acting alone, nation states cannot hope to counteract the worst impacts of extreme weather events, including flooding, droughts and environmental degradation. Climate diplomacy on a global strategic level is critical to mitigating these risks.

Climate diplomacy is about mainstreaming climate change as the principal issue of our time in multilateral and bilateral forums and integrating climate objectives into foreign policy. The UK and the EU were early to recognise the importance of climate diplomacy, establishing the connection between climate change and competition over strategic resources, migration pressures and conflict.

Important milestones for the EU include publishing the first ever report which identified climate change as a 'threat multiplier' – that is, it exacerbates other societal tensions – for security and stability across the globe.[1] In 2018, the EU adopted the Council Conclusions on Climate Diplomacy which reiterated the commitment to tackling climate change as an 'existential' issue of international security.[2] More recently, the

1. High Representative and the European Commission to the European Council, "Climate Change and International Security", https://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressdata/EN/reports/99387.pdf (2008).
2. Council of the European Union, "Council Conclusions on Climate Diplomacy," https://www.consilium.europa.eu/media/32953/st06125-en18.pdf (2018).

European Commission's European Green Deal, published in 2019, set out a pathway for making Europe the first climate-neutral continent by 2050. It proposed an upgraded 'green deal diplomacy' across the world and promised to build 'green alliances' through foreign policy instruments.[3]

Through ambitious targets and green finance, the UK has established itself as a credible actor in climate diplomacy. The UK's Climate Change Act 2008 was a groundbreaking piece of legislation which introduced the first legally binding emissions reduction target set by any country. It stipulated that by 2050 the UK must reduce its greenhouse gases by 80%, based on 1990 levels.[4] Once again, the UK became a world leader on climate change when, in 2019, this target was made even more ambitious, committing the UK to net zero emissions by 2050 – the first major economy in the world to do so.[5]

The UK's legitimacy in climate diplomacy has been extended through financial initiatives as well. Established in 2011, the UK's International Climate Fund supports developed countries to combat climate change by investing in programmes which deliver decarbonisation and bolster climate resilience.

> "Climate diplomacy is about mainstreaming climate change as the principal issue of our time in multilateral and bilateral forums and integrating climate objectives into foreign policy"

One of the most successful examples of climate diplomacy in recent years culminated in the 2015 Paris Agreement at the 21st Conference of Parties (COP21). Over 190 countries came together in agreement to limit global temperature rises to well below 2°C compared to pre-

3. European Commission, "Communication on the European Green Deal," https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN (2019).
4. GOV UK, "Climate Change Act 2008", https://www.legislation.gov.uk/ukpga/2008/27/contents (2022).
5. Department for Business, Energy & Industrial Strategy, "UK becomes first major economy to pass net zero emissions law", https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law (2019).

industrial levels, and ideally below 1.5°C. For the first time, a binding agreement brought all nations into a common cause to undertake ambitious efforts to combat climate change.

> "Through ambitious targets and green finance, the UK has established itself as a credible actor in climate diplomacy"

However, climate diplomacy is far from a harmonious exercise. In a diplomatic blow the world's second largest greenhouse gas emitter, the United States, announced its withdrawal from the Paris Agreement under the Trump Administration in 2017. Fortunately, this proved to be short-lived as the official withdrawal was reversed only four months later when President Biden signed an executive order to bring the United States back into the Paris Agreement on his first day of taking office.

Most recently, the UK played host to COP26 in Glasgow at the end of last year. It was hailed as the most important climate conference since the Paris Agreement, as it revisited that treaty for the first time in five years. Countries had to show how they had met their national targets for decarbonisation, as well as establish new commitments to combat climate change.

The UK Presidency of the COP set itself the ambitious task of "keeping 1.5°C alive".[6] This was cited as the UK's key metric for which success would be measured, not just of the COP itself, but of the UK's diplomatic capability as well. With the failure to reach an agreement to phase out coal – only to "phase down"[7] – and the fact that the new national commitments are a long way off keeping global temperature rises below 1.5°C, it is debatable whether this goal was achieved.

6. The Cabinet Office and The Rt Hon Alok Sharma MP, "COP26 President speaks at closing event of London Climate Action Week", https://www.gov.uk/government/speeches/cop26-president-speaks-at-closing-event-of-london-climate-action-week (2021).
7. Shivani Singh, Aaron Sheldrick and Noah Browning, "'Down' and 'out'? COP26 wording clouds way ahead on climate", *Reuters*, https://www.reuters.com/business/cop/business-usual-global-fossil-fuel-firms-now-after-un-climate-deal-2021-11-15/ (2021).

However, it would be wrong to overlook the achievements which came out of COP26; there were many examples of successful climate diplomacy. For instance, an agreement was reached to revisit and strengthen countries' own decarbonisation targets (nationally determined contributions – NDCs) by the end of 2022, and a new annual high-level ministerial meeting, as well as a leaders' summit in 2023. All this will help maintain pressure on countries to reach their decarbonisation targets at a faster rate.[8]

Crucial progress was made on the unsettled section in the Paris Agreement 'rulebook' on international cooperation and emissions trading (Article 6), which closes loopholes, increases transparency and helps prevent the double counting of emissions budgets, finally unlocking the global carbon market.[9] And significantly, the newly established Glasgow Financial Alliance for Net Zero committed $130 trillion (£95 trillion) of private capital to accelerate the transition to a net zero economy.[10]

Yet, significant challenges remain. Technology-based solutions to mitigate climate change and bolster climate resilience to its effects are vital. However, cost is a key barrier to the roll-out of both existing and future technologies, particularly for countries in the Global South. Developed nations failed to secure the $100 billion per year in climate finance by 2020 as promised at COP15 in Copenhagen, instead delaying until 2023.[11]

Environmental migrants, also known as 'climate refugees', already exist, with those in Pacific Island states such as Kiribati and Tuvalu being displaced due to rising sea levels, and farmers in West Africa forced to leave their land because of drought and flooding. Policymakers will need to decide how they respond to an increasing number of

8. The Law Society "Reflecting on COP26: what were the key outcomes?", https://www.lawsociety.org.uk/topics/climate-change/reflecting-on-cop26-what-were-the-key-outcomes (2021).
9. Ibid.
10. Ibid.
11. Kate Abnett and Susana Twidale, "Climate finance could make or break the COP26 summit. Here's why", *Reuters*, https://www.reuters.com/business/environment/climate-finance-could-make-or-break-cop26-summit-heres-why-2021-11-01/ (2021).

displaced peoples as a result of climate change.

As economies shift away from being rooted in fossil fuels towards a low-carbon model, demand for resources will change. For instance, batteries for zero emission vehicles require rare earth minerals such as cobalt and lithium in order to be produced. However, China's control over global supply chains for large amounts of these minerals may threaten decarbonisation agendas for the West, particularly as relations between Beijing and the West have deteriorated.

> "One of the most successful examples of climate diplomacy in recent years culminated in the 2015 Paris Agreement at the 21st Conference of Parties (COP21)"

This essay collection, *Fast track? European climate diplomacy after COP26*, is a timely examination of three important topics on climate: security, migration and innovation.

Climate change is the greatest challenge we face. The Konrad-Adenauer-Stiftung, with its network of more than 100 offices worldwide and regional energy security and climate change programmes in Africa, Asia, Latin America and the Middle East/North Africa region, meets these challenges by establishing and strengthening networks of political and social decision makers, building platforms for personal and professional exchange, participation in scientific discourses, and the development of best practice. For this reason, we are delighted for the opportunity to collaborate with Bright Blue on this project.

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Introduction

Patrick Hall, Ryan Shorthouse and Rebecca Foster

Late last year, the UK Government played host to some 25,000 delegates from across almost 200 different countries as the world came together for the United Nations Climate Change Conference, COP26. Climate change has no respect for national borders and as such can only be mitigated through international cooperation.

Despite the UK's departure from the EU, there is still a case to be made for close cooperation between the two on climate change. The two major global actors are some of the largest donors of foreign aid, and share a challenge with respect to future migratory pressures given their close proximity. In addition, in a world where authoritarian powers such as China have become assertive, the need for deeper cooperation between liberal democracies has never been greater.

In the lead up to COP26, Bright Blue, in partnership with the Konrad-Adenauer-Stiftung, hosted three roundtables with each focusing on what we deemed to be three key areas of European climate diplomacy: security, migration and innovation. Key speakers and attendees included pan-European experts, decision makers and opinion formers. The roundtables were held under the Chatham House Rule, but some of the ideas which were mooted have made their way into this collection.

This essay collection addresses those same three key areas of European climate diplomacy. It brings together essays from UK politicians,

members of the European Parliament, academics and thought leaders to discuss the challenges and solutions associated with each of these areas. The views expressed in the essays are not always in alignment with each other, showing different sides of the debate.

> "Climate change has no respect for national borders and as such can only be mitigated through international cooperation"

Chapter One looks at security and climate change. It explores how the security landscape across Europe is changing as a result of new threats emerging from climate change. In particular, it focuses on whether China's control of global battery supply chains threatens decarbonisation in other countries, particularly those which have poor diplomatic relations with Beijing. It explores whether, and how, a secure supply of batteries from China can be established. It questions whether Europe should be seeking to improve relations with Beijing, or conversely be pursuing the creation of its own supply chains to curb China's influence over global battery supply and decarbonisation more broadly.

In his essay, Tom Tugendhat MP begins by highlighting the scale of China's dominance over global production of renewable energy and supply chains for critical components in electric vehicles, such as semiconductors. However, he notes that their dominance is built, in part, on poor environmental standards and human rights abuses, particularly forced labour from China's Uygher Muslims.

As such, Tom states that the UK needs to move to a form of 'constructive competition' with China, whereby the UK competes for the economic gains which come with shifting towards a low-carbon economy, rather than seeing cooperation with China as the only way to deliver decarbonisation. Policymakers, he argues, must recognise the gains which can be realised as early movers in the green economy rather than ceding this to China.

His essay calls for a reduction in the UK's strategic dependence on China. Tom points towards carbon border taxes currently being considered in Brussels and the UK as a positive step to achieving this.

> "There is an ongoing debate as to how significant human displacement will be, and how migratory patterns will change, as a result of climate change"

Lukas Mandl MEP assesses the changing landscape of security threats as a result of climate change. He focuses on human displacement and the destabilisation of nation states, especially those vulnerable to the effects of climate change. His essay calls for updating the EU's Common Security and Defence Policy to reflect the changing security landscape as a result of climate change. In addressing climate migration specifically, he outlines the need for an internationally accepted definition of a 'climate migrant', which is currently lacking in international law.

The minority of net zero sceptics within the British Conservative Party argue that the UK should not seek to decarbonise because it is both costly, and because the UK contributes to 1% of global emissions whilst China is the largest emitter of any country.

However, Sam Hall argues that this narrative is flawed in two ways. First, whilst there may be short-term costs associated with decarbonisation, there are long-term economic gains to be had. Second, although China is the largest emitter of carbon, the UK ranks 12th, meaning that should the UK not seek to decarbonise, it would be sending a signal to all other countries that they should not have to decarbonise either.

Despite not succumbing to the argument which seeks to apportion the blame of climate change on China, Sam remains hesitant of the UK having a close relationship with Beijing. He highlights the fractious relationship the UK has had with firms such as Huawei as a reason to be wary of the further involvement of Chinese firms in the UK's national infrastructure and pathway to net zero. Instead, he believes

policymakers should seek to onshore supply chains or deepen them with countries who are reliable international partners.

Finally, Sam calls for the introduction of a carbon border adjustment mechanism by the UK and the EU to stop businesses being undercut by their carbon-intensive Chinese counterparts. Additionally, he believes that these carbon border adjustment mechanisms should be extended to include Canada and the US, increasing pressure on Chinese businesses to decarbonise.

Georgios Krytsos MEP takes a similarly hawkish view of China with respect to decarbonisation. He notes that whilst not being minerally-rich itself, through long-term strategic planning, China has gained control over many global mineral supply chains which are essential for producing low-carbon technologies.

Georgios believes Western democracies have been too lenient on China, and that they should seek to close the gap between them and China regarding battery production. He discusses how China uses its Belt and Road initiative to gain access to critical minerals in developing countries through seemingly attractive concessionary loans. To curb China's influence, particularly in developing countries which are minerally-rich, he argues that Western countries should establish their own alternatives to the Belt and Road initiative. Like Tom, he believes Western countries should establish a relationship with China based on strong competition.

Large increases in migration can bring with them challenges such as pressure on public services, reduced social cohesion and a rise in populist politics. More recently, the UK has struggled to manage the growing number of asylum applicants entering the country by crossing the English Channel.

As global temperatures continue to rise and the associated effects of climate change take hold, certain geographies will become uninhabitable where they previously were not. There is an ongoing debate as to how significant human displacement will be, and how migratory patterns will change, as a result of climate change. Chapter Two assesses whether

we face a future of mass migration towards Europe as a result of climate change, and if so, how UK and EU policymakers should respond.

Damien explains that we do not yet know the full extent to which climate change will cause international migration. However, he points to the Sahel Belt in Africa – which has a high fertility rate and ecological vulnerability to climate change – as being likely to experience significant human displacement.

As an immediate step for policymakers, Damien opposes the UK Government's recent decision to cut Official Development Assistance (ODA) from 0.7% of Gross National Income (GNI) to 0.5%. He also argues that uncontrolled migration across the English Channel, irrespective of its size, is politically unacceptable and can only be realistically resolved through good spirited cooperation between the UK and France.

In his essay, Tomas Tobe MEP believes that international migration will increase as a result of climate change, particularly from Africa. Tomas sets out four reasons for why this will occur.

First, African countries have a high dependency on natural resources and agriculture for both food production and livelihoods. These are the first things to be undermined by climate change. Second, Africa has poor climate risk reduction infrastructure, such as flood defences, making it more vulnerable to the effects of extreme weather events. Third, many countries in Africa have weak political institutions, meaning foreign aid is not always spent transparently or effectively. And fourth, Africa has a high poverty rate, undermining the resilience of local populations to climate shocks such as flooding or drought.

Tomas argues that political institutions in aid recipient countries must be strengthened so that foreign aid is not used to support corrupt regimes. Following that, he believes EU development aid should be directed towards sustainable initiatives, such as climate-resilient agriculture and desalination. Additionally, EU investment should be targeted towards low-carbon energy, especially given pathways to decarbonisation are often based on electrification. Taken together, he argues that these measures would bolster climate resilience in countries

which are most vulnerable to the effects of climate change.

Overall, Tomas calls for foreign aid to become results-driven. He concludes that asylum cannot be the permanent solution to global injustices, and that policymakers need to make countries which are currently vulnerable to climate change more resilient, allowing populations to stay.

Tim Loughton MP reflects on his own experiences in Ethiopia, where he witnessed firsthand how foreign aid was funding the training of professionals locally who would then migrate to developed countries, leaving behind a nation which desperately needed their expertise. He argues that we need to rethink the way we deliver foreign aid, and climate-induced migration could be the catalyst we need to stop this practice from continuing to occur.

He highlights the large concentration of populations in countries which will be highly vulnerable to environmental changes brought about by climate change, particularly Sub-Saharan Africa.

Currently, policymakers handle migration pressures by paying other countries to keep them out of their own. Tim draws on the example of the EU funding the Turkish Government to stop tens of thousands of migrants from entering Europe. However, he considers this to be a band aid solution.

Instead, he argues that policymakers should focus on making vulnerable countries more resilient to climate change through targeted foreign aid. This would, he argues, support the rollout of controlled-environment agriculture, which is climate-resilient, and renewable energy, which can support economic enrichment.

Whilst some predictions state that human displacement brought about by climate change is going to lead to an increase in international migration, Dr Ayesha Siddiqi does not believe so. In her essay, she explains that there is little to no robust evidence suggesting that we are about to experience a wave of climate-induced migration in Europe. Furthermore, trying to isolate climate change as a reason for migration is difficult – it may be one of many factors which drives a person's

decision to migrate.

Throughout her essay, Ayesha draws on her own experiences as a scholar in human geography, noting that the communities she has spoken to world over have not desired to leave their homes, and when they are forced to in a crisis, they typically relocate within their own country on a temporary basis. She concludes by calling for the UK Government to reinstate its commitment to spend 0.7% of GNI on ODA.

> "Even after Brexit, Europe can and should come together, since countries on this continent are facing the stark consequences of climate change, but can also be global leaders in the transition to a cleaner and greener world"

Chapter Three looks at climate innovation. It considers the role that technology will play in combatting climate change, and what support UK and European nations may need to provide to less-wealthy nations to facilitate the rollout of often costly technology-based solutions to climate change.

In his essay, Michael Stephens looks more broadly at the role of innovation and technology in mitigating climate change. He argues that the challenge for technology-based solutions to climate change is not their creation – they already exist. Rather, it is establishing political and public goodwill to deliver a wide scale roll-out of these technologies. He calls for much greater levels of funding – whether it is multi- or bi-lateral climate finance, or private investment – to be directed towards the rollout of technology-based solutions to climate change. Additionally, he highlights how technology-based solutions to climate change have become a geopolitical contest dominated by China.

On innovation, Michael believes there should be more financial support available for scientists in less-developed countries whose research is often unable to be brought into reality owing to a lack of resources. To increase the pace of climate innovation, he points to the

need for a Silicon Valley like regulatory environment in Europe.

Radan Kanev MEP argues that there is a lack of unity within the EU – primarily between wealthier countries within the Union, such as those in the north west, and those less wealthy, such as countries in the central east – regarding the transition to a low-carbon economy. To rectify this, he proposes three principles to ensure decarbonisation is delivered fairly.

First, governments must take a technology-first approach by not phasing out carbon-intensive products or services until a feasible alternative exists. Second, governments must take a market-first approach, allowing the market, rather than politicians, to decide which technologies will deliver decarbonisation. Third, governments should adopt a vulnerable communities-first approach, directing funding for initiatives such as low-carbon transport and housing towards communities which are less well-off, as well as small-medium enterprises as opposed to larger corporations.

Radan argues that these three principles will make policy initiatives, such as the European Green Deal, more palatable for less wealthy countries within the EU.

Climate change is the greatest threat to global security and prosperity this century. Even after Brexit, Europe can and should come together, since countries on this continent are facing the stark consequences of climate change, but can also be global leaders in the transition to a cleaner and greener world. COP26 was yet another important milestone in Europe and the world's quest to both adapt to and mitigate climate change. But there is much more to do. This essay collection continues the conversation among European friends and allies about how best to decarbonise in the crucial decades ahead.

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CHAPTER ONE: CLIMATE SECURITY

Constructive competition?

Decarbonising with China in the global green transition

Tom Tugendhat MP

For the first time in over two decades, the earth is being cracked open in Cornwall. The mines have reopened but the prize today is not tin or copper, but lithium. Five hundred miles north, the giant towers of former coal-fired Blyth Power Station on the Northumberland coast have been felled; the site is set to transform into a huge battery gigafactory that will become one of the largest buildings in Britain.[12] And another 200 miles further north are the desolate Scottish moors, now scattered with dozens of wind turbines which generate 97% of Scotland's electricity.[13]

We are on the cusp of a huge industrial transformation. Countries are competing over gigafactories; racing to secure supplies of rare earths; and experimenting with the power of hydrogen. Because if we are going to limit global warming to well below two degrees Celsius, recent estimates by the Energy Transitions Commission suggest the world will need to be installing ten times the number of solar panels and wind turbines by the 2040s.[14]

12. BBC, "Blyth Power Station to be turned into UK's first 'gigafactory'", https://www.bbc.co.uk/news/uk-england-tyne-56711116 (2021).
13. Scottish Energy News, "Wind power generated 97% of Scotland's electricity last year", http://www.scottishenergynews.com/wind-power-generated-97-of-scotlands-electricity-last-year/ (2021).
14. Energy Transitions Commission, "Making clean electrification possible: 30 years to electrify the global economy", https://www.energy-transitions.org/publications/making-clean-electricity-possible/ (2021).

In the wake of COP26 in Glasgow, the focus on climate change is shifting from agreement to implementation. The question is not if, but how. This is the beginning of a transformation of technology that will reshape our economies, and in turn rewrite the rules of global cooperation.

> "Countries are competing over gigafactories; racing to secure supplies of rare earths; and experimenting with the power of hydrogen"

China will sit at the heart of this transformation. It continues to emit more than a quarter of the world's overall greenhouse gas emissions.[15] Yet Chairman Xi has committed China to a peak in carbon emissions by 2030 and net zero by 2060 and overseen the country becoming a global leader in renewable technologies.[16]

China is home to two of the five largest battery manufacturers, production of three quarters of the world's solar panels and a third of the world's wind turbines.[17] Dominance is not confined to one part of the supply chain. The manufacture of electric vehicles and wind turbines relies on neodymium excavated from the world's largest rare earths mine in Inner Mongolia, while across on the other far stretch of China, just four factories in Xinjiang produce around half the world's polysilicon, the building block of solar panels.[18]

Despite its leadership in renewables, China is the only major country

15. Kate Larsen, Hannah Pitt, Mikhail Grant and Trevor Houser, "China's greenhouse gas emissions exceeded the developed world for the first time in 2019", Rhodium Group, https://rhg.com/research/chinas-emissions-surpass-developed-countries/ (2021).
16. *Matt McGrath, "Climate change: China aims for climate neutrality by 2060", BBC*, https://www.bbc.co.uk/news/science-environment-54256826 (2020).
17. Benchmark Mineral Intelligence, "BYD becomes benchmark's 7th tier one ev battery manufacturer; 2nd China cell maker", https://www.benchmarkminerals.com/membership/byd-becomes-benchmarks-7th-tier-one-ev-battery-manufacturer-2nd-china-cell-maker-2/ (2021); Jennifer Dlouhy, "How China beat the U.S. to become the world's undisputed solar champion", *Bloomberg*, https://www.bloomberg.com/news/articles/2021-06-04/solar-jobs-2021-how-china-beat-u-s-to-become-world-s-solar-champion (2021); Bloomberg NEF, "Global wind energy had a record, near 100gw, year as ge, goldwind took lead from vestas", https://about.bnef.com/blog/global-wind-industry-had-a-record-near-100gw-year-as-ge-goldwind-took-lead-from-vestas/ (2021).
18. Dan Murtaugh, "Xinjiang eyed as home for a massive new solar polysilicon plant", *Bloomberg*, https://www.bloomberg.com/news/articles/2021-06-10/xinjiang-eyed-as-home-for-a-massive-new-solar-polysilicon-plant (2021).

whose emissions rose in 2020.[19] Coal plants are still springing up at a rate in China which outpaces the rest of the world's reduction.[20] Recovery from the pandemic was powered by a boom in steel production – an industry which is the largest coal consumer in the country.

For the UK and Europe, the looming challenge of decarbonisation means that we need to reconcile three complex challenges. The first is plotting a viable path to net zero that fosters domestic green growth. The second is setting out a new realistic relationship with China that reduces strategic dependence on a systemic rival. And the third is persuading the likes of China and the US to move faster in cutting emissions.

At the moment, these three challenges are often framed as separate problems. Many refer to climate change as a necessary area of cooperation with China that should be siloed off from the confrontation over human rights and competition between strategic rivals. But, as things stand, the response to climate change is hard to detach from questions about political differences and strategic dependence.

Take the solar industry: Chinese firms achieved market dominance by leveraging the sheer scale of China's domestic market, often wiping out European manufacturing on the way. A large chunk of the competitive advantage is derived from access to cheap coal-fired electricity and generous industrial subsidies that supported the burgeoning Chinese solar panel market while foreign firms' access was blocked.[21] European wind turbine producers are now also complaining about being undercut by powerful Chinese firms.[22]

Or look at semiconductors, which will become increasingly essential for electric vehicles and automated offshore wind farms. The UK's largest semiconductor foundry, Newport Wafer Fab, was snapped up by a

19. Bloomberg, "China's emissions increased by 1.7% in 2020: report", https://www.bloomberg.com/news/articles/2021-03-05/china-s-emissions-increased-by-1-7-in-2020-report (2021).
20. Christian Shepherd, "China puts growth ahead of climate with surge in coal-powered steel mills", *Financial Times*, https://www.ft.com/content/c4c79efb-9a4e-4f22-a75a-6b3ea3161bf1 (2021)
21. Matthew Dalton, "Behind the rise of U.S solar power, a mountain of Chinese coal", *WSJ*, https://www.wsj.com/articles/behind-the-rise-of-u-s-solar-power-a-mountain-of-chinese-coal-11627734770 (2021).
22. Luke Patey, "Wind wars", *The Wire China*, https://www.thewirechina.com/2021/08/29/wind-wars/ (2021).

Chinese-owned firm that plans to use its power chips for electric vehicles in China – at a time when car manufacturers across the world are struggling with semiconductor shortages. Countries from Japan to Italy are taking steps to protect domestic supply because they recognise that more supply chain sovereignty is the key to a more resilient economy.

This isn't just about competition over tomorrow's growth industries either. It is about the treatment of workers and the environment as well. In Inner Mongolia, where open pit mines scar the burnt yellow desert, rare earths mining created toxic lakes of black sludge. For every tonne of rare earths extracted from the ground, 2,000 tonnes of toxic waste seep out.[23] There is also credible evidence of the use of Uyghur forced labour in China's solar industry.[24] Its polysilicon factories devour the cheapest electricity in China from Xinjiang's network of coal mines.

In this new era of mass adoption of renewable technologies, the road to net zero will become increasingly inseparable from questions about the resilience of supply chains, human rights and strategic rivalry.

We need a new approach. Perhaps a better way to think about geopolitics and climate change might be constructive competition.[25] What might it look like if governments were to frame climate change as a race to capitalise on soaring demand for low-carbon industries, part of a competition for the prize of global climate leadership?

It is an idea gaining traction in the US, where President Biden has already been framing climate change as a competition, with the winner reaping the reward of green innovation and highly skilled jobs.[26] The

23. Tim Maughan, "The dystopian lake filled by the world's tech lust", *BBC*, https://www.bbc.com/future/article/20150402-the-worst-place-on-earth (2015); Jonathan Kaiman, "Rare earth mining in China: the bleak social and environmental costs", *The Guardian*, https://www.theguardian.com/sustainable-business/rare-earth-mining-china-social-environmental-costs (2014).
24. Laura Murphy and Nyrola Elima, "In broad daylight : Uyghur forced labour and global solar supply chains", https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/in-broad-daylight (2021).
25. Alex Wang, "Is U.S.-China climate action possible in an era of mistrust?", https://ssrn.com/abstract=3826681 (2021).
26. The White House, "Fact sheet: Biden-Harris Administration races to deploy clean energy that creates jobs and lowers costs", https://www.whitehouse.gov/briefing-room/statements-releases/2022/01/12/fact-sheet-biden-harris-administration-races-to-deploy-clean-energy-that-creates-jobs-and-lowers-costs/ (2022).

recent European Green Deal has a strong focus on jobs.[27] And of course in China, green technology and electric vehicles joined semiconductors as pillars of its Made in China 2025 strategy – part of the plan for global industrial leadership through a blend of state subsidies, targeted investment and regulation.[28]

> "China is home to two of the five largest battery manufacturers, production of three quarters of the world's solar panels and a third of the world's wind turbines"

Constructive competition is an approach grounded in two hard realities. The first is that the success of climate action is suited to the language of national self-interest. And the second is that the growing divergence of values between the West and China means that gains of cooperation may be more incremental.

Climate action is shifting to a phase that requires the framework of national self-interest. After four decades of international climate negotiations, the onus lies with nation states to come up with a plan for decarbonisation. Leaders who want to transform their economies away from fossil fuels and towards renewable technologies will need to overcome domestic obstacles that block the path to implementing the decarbonisation commitments of the Paris Agreement. Chairman Xi is far from alone in having to worry about the social instability if there is not a smooth transition of jobs from coal to renewables, or the entrenched interests of local officials whose regions are dependent on heavy industry.

If we are to achieve the change the world needs, the focus must be domestic. Beijing's choices are causing pollution protests at home and

27. EUR-Lex, "The European Green Deal", https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN (2019).
28. Ilaria Mazzocco, "Can industrial policy work for climate technologies?", *Marco Polo*, https://macropolo.org/can-industrial-policy-work-for-climate-technologies/?rp=e (2021).

threatening the lives of island and low-lying states like Nauru and Bangladesh. Communicating that existential threat which decisions made in foreign capitals can pose to the lives of those at risk and the consequent need to respond to protect our interests will be key to achieving change.

But the important part is that the framing of self-interest points towards more action for China, not less. China stands to be one of the main winners from the growth in renewables. And for a country that derives 22% of food from 10% of the world's arable land, the effects of climate change could hit China hard.[29] China's largest cities occupy a precarious position on its Eastern seafront and its food is grown on land at increasing risk of salinisation. The likelihood of rising sea levels should provide more than enough motivation for Chinese leaders to act more quickly on climate change.

> "What might it look like if governments were to frame climate change as a race to capitalise on soaring demand for low-carbon industries, part of a competition for the prize of global climate leadership?"

The second reality is that the gains of cooperation are narrowing. A competitive approach to low-carbon technologies is not to say that there are not areas of cooperation on climate change with China. It is compatible with G20 summits that seek to bring together sustainable financing, more coordination for transparency on emissions reporting, or European businesses building carbon-neutral supply chains in China.

But there are lots of tricky questions which are difficult to answer with an approach rooted solely in cooperation. Will we accept Chinese technology in our critical energy industries at home? Can we cooperate on the expansion of Chinese solar industry when we know it is tainted

29. Zhou Yinghua, "Report on China's development and investment in land and water", https://www.fao.org/3/ac623e/ac623e0d.htm (2001).

by forced labour? Will we apply tariffs on Chinese wind turbine manufacturers to level the playing field? And how do we balance the rollout of renewable technology in developing countries with concerns about the expansion of Chinese influence abroad? Given the difference in values between China and the West has grown starker over the past few years, the room for agreement has narrowed.

Managed well, a more competitive attitude to climate change could pave the way towards a better reconciliation of those three crucial challenges: speed, strategic dependence and the path to net zero. It would allow governments to steer a more coherent approach that reduces strategic dependence on China and harnesses the opportunity to build our own new industries. There are promising steps in that direction: the UK has agreed to fund £500 million to support the construction of gigafactories that will underpin the electrification of the UK's car industry.[30] British universities are receiving UKRI funding to be at the forefront of battery innovation.[31] The carbon border taxes under consideration in Brussels and tariffs on Chinese steel would all help to further level the playing field and accelerate domestic investment and innovation.

Over the next three decades, the actions we choose to take on climate change will have a transformative effect on our economy and society. Renewable technologies will become the next frontier of economic competition. Without a more competitive approach in Europe, we risk ceding the gains of the next century of growth industries to China. Decarbonisation will be just as much a story of competition as cooperation.

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30. UK Parliament, "Gigafactories for electric vehicle batteries need more government support, committee urges" https://committees.parliament.uk/work/1223/technological-innovations-and-climate-change-supply-chain-for-battery-electric-vehicles/news/156626/gigafactories-for-electric-vehicle-batteries-need-more-government-support-committee-urges/ (2021).
31. UKRI, "Faraday battery challenge", https://www.ukri.org/our-work/our-main-funds/industrial-strategy-challenge-fund/future-of-mobility/faraday-battery-challenge/ (2021).

A changing landscape?

The interconnection of climate change and security

Lukas Mandl MEP

The beginning of this century has seen our security landscape change, not only in Europe but throughout most of the world, characterised by evolving threats. While traditional threats such as the invasion of a thousand tanks on European territory have become increasingly unlikely despite Russian belligerence in recent months, today's security landscape has new and more complex threats, most of which cannot be overcome by a single country acting alone.

Amongst others, these include hybrid threats and climate change. Hybrid threats include the spread of conspiracy theories, terrorism and other kinds of attacks which intend to divide Europe, its institutions and its societies. State and non-state actors who aim to weaken Europe seek its division. The EU must be emboldened to stand up for human dignity, defend basic freedoms and combat climate change on a global scale.

Although some may not initially recognise climate change as a security threat, when taking a closer look at its consequences, the security implications become clear. As global temperatures rise, extreme weather events such as flooding or droughts become more prevalent.[32] This has implications for food and water security – the most elementary

32. Helen Jackson, "In deep water? Mapping the impacts of flooding in the UK since 2007", *Bright Blue*, http://www.brightblue.org.uk/wp-content/uploads/2022/01/In-deep-water.pdf (2022).

preconditions for human dwelling. Add to this the destruction of livelihoods, particularly for those who work in the agricultural sector, and it is easy to see how human displacement begins to occur.

> "Whilst the EU demonstrates leadership on climate change through internal commitments, climate diplomacy and climate finance, it lacks a broader range of policy commitments and instruments to address the nexus between climate change and security"

Environmental, political and socio-economic security are at risk of being undermined by climate change. As such, the EU has defined climate change as a 'key threat' in its European Security Strategy.[33] Therefore, it is not only crucial to recognise climate change – and inherent migration due to climate change's consequences – as a central security threat of the twenty-first century, but also to align and prepare the EU's Common Security and Defence Policy (CSDP).

While climate change in itself might not be a direct cause of conflict and nation state insecurity, it can be considered as a threat multiplier, exacerbating existing insecurities. Aside from the security implications it causes, climate change may produce secondary effects such as weakened governments, political instability and conflict. This has a particularly strong implication for so-called 'failed states'. Such states are those whose capabilities to adapt to climate change are limited, thus making them extremely vulnerable.

The EU pursues a leadership role in tackling the consequences of climate change and migration through climate diplomacy and climate finance, as well as by leading by example in climate action. Although

33. Council of the European Union, "European security strategy: A secure Europe in a better world", https://www.consilium.europa.eu/media/30823/qc7809568enc.pdf (2009).

only contributing 18% towards global emissions,[34] the EU has come to recognise the necessity to make climate change a central component of its foreign policy. This approach reiterates that worldwide action is crucial to tackling climate change as an existential threat to our well-being. Climate change will not stop at national borders and will not spare any country, which makes EU action alone useless unless the globe delivers on the commitment to limit temperature rises in line with the Paris Agreement. The EU endeavours to do its own share, for example, by taking on the role of the world's largest donor of climate finance to developing countries – worth €23.3 billion in 2020.[35]

> "While climate change in itself might not be a direct cause of conflict and nation state insecurity, it can be considered as a threat multiplier, exacerbating existing insecurities."

Whilst the EU demonstrates leadership on climate change through internal commitments, climate diplomacy and climate finance, it lacks a broader range of policy commitments and instruments to address the nexus between climate change and security. It is no longer a question whether or not climate change prompts migration, but rather the debate now revolves around the question of how to mitigate the effects of climate-induced migration, which has already become a reality in many parts of the world. For instance, migration related to climate change is particularly present in Africa – largely in the Sahel zone or East Africa – often caused by extreme droughts, heavy rainfalls and land degradation.[36]

Scientists predict that small island states, developing countries and

34. Ian Tiseo, "Emissions in the EU – statistics and facts", *Statista*, https://www.statista.com/topics/4958/emissions-in-the-european-union/#:~:text=Cumulatively%2C%20countries%20that%20currently%20make,since%20the%20industrial%20revolution%20began (2021).
35. Council of the European Union, "Council approves 2020 climate finance figure", https://www.consilium.europa.eu/en/press/press-releases/2021/10/29/council-approves-2020-climate-finance-figure/ (2021).
36. Benjamin Schraven, Stephen Adaawen, Christina Rademacher-Schulz and Nadine Segadlo, "Climate change impacts on human (im-) mobility in Sub-Saharan Africa: Recent trends and options for policy responses", *giz*, https://www.adaptationcommunity.net/wp-content/uploads/2020/07/GIZ_Climate-impacts-on-human-mobility-Africa.pdf (2020).

their populations will, in the future, be hit especially hard by the impacts of climate change.[37] This will give rise to more climate-induced migration. Whilst some argue that this type of migration is circular, and migrants are planning to return to their origins eventually,[38] it is essential to note that permanent migration calls for a joint European approach.

As it has been well established that climate change will increasingly impact global population movements, the need for a strategy to deal with climate-induced migration is becoming more evident. Before establishing such a strategy, one of the challenges is the lack of a clear definition of a 'climate migrant'. It does not, for instance, meet the definition of a refugee as set out by the Geneva Refugees Convention.[39]

Forecasts suggest that globally, roughly 216 million people will become internal climate-induced migrants by 2050.[40] The EU will have to contribute as much as it can to avoid the further displacement of global citizens.

The impact of climate change on global populations is already a stark reality which policymakers cannot neglect. Not only is there a strong need for European and global collective action to mitigate climate change, but also to prevent unmanaged climate-induced migration leading to an additional humanitarian crisis.

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37. Leonard Nurse and Graham Sem, "Small island states", https://www.unisdr.org/files/8387_wg2TARchap171.pdf (2001); Kemal Dervis, "Devastating for the world's poor: climate change threatens the developed gains already achieved", United Nations, https://www.un.org/en/chronicle/article/devastating-worlds-poor-climate-change-threatens-development-gains-already-achieved (2007).
38. The White House, "Report on the impact of climate change on migration", https://www.whitehouse.gov/wp-content/uploads/2021/10/Report-on-the-Impact-of-Climate-Change-on-Migration.pdf (2021).
39. United Nations High Commissioner for Refugees, "The refugee convention, 1951", https://www.unhcr.org/4ca34be29.pdf (1951).
40. Andrea Shalal, "Climate change could trigger migration of 216 million people – World Bank", *Reuters*, https://www.weforum.org/agenda/2021/09/climate-change-could-soon-force-216-million-people-to-leave-their-homes-according-to-a-new-report#:~:text=216%20million%20people%20could%20be,world%20will%20be%20most%20affected (2021).

Net zero sum game?

How the West can beat China on climate

Sam Hall

After a year of bold UK climate leadership in 2021, it has felt at times like China is going in the opposite direction. As we are phasing out coal power altogether, the Chinese Government announced plans to boost domestic coal production, despite having burnt more coal than the rest of the world put together since 2010.[41] Its leader, Xi Jinping, didn't come to COP26 nor the G7, and China's climate plans for the rest of this decade fall well short of the ambition needed. Chinese lobbying was also decisive in weakening the language of the 2021 Glasgow Climate Pact from 'phasing out' to 'phasing down' unabated coal power.

China looms large over our domestic debate on climate change. The UK accounts for just over 1% of global carbon emissions, and China for over 28%.[42] Some look at these figures, and conclude that our actions do not matter. Why should we, they say, take tough decisions to cut our emissions when a huge polluter like China refuses to do the same? But, while superficially attractive, this question is completely misguided. For the UK to fail to act would not only be an act of environmental self-harm, but would also see us miss out on a huge economic opportunity.

41. The Guardian, "China orders coalmines to raise production to address power crunch", https://www.theguardian.com/world/2021/oct/08/china-orders-coalmines-to-raise-production-to-address-power-crunch (2021).
42. House of Commons Library, "UK and global emissions and temperature trends", https://commonslibrary.parliament.uk/uk-and-global-emissions-and-temperature-trends/ (2021).

For a start, 1% of global emissions is still a lot, and does not take into account our historic emissions or those from goods made overseas and consumed here. Only sixteen countries emit more carbon than us.[43] Are we really going to tell the nearly two hundred countries and territories which emit less that they don't have to do anything either? To do so would be to disregard about a quarter of all emissions and therefore effectively to give up on mitigating climate change. If we expect other countries to act, we must do so too, and set the example.

> "One of the reasons that China has such a strong hold on clean technology supply chains is because of the influence their cash buys among countries with significant natural resources"

This shouldn't stop us from criticising China's climate change record, however. While China has recently announced that it will end the financing of new coal projects overseas, it has a significant pipeline of new coal-fired power stations domestically which are planned or under construction. China's ongoing dependence on coal means it has a high-carbon energy system, and so many of the products it makes and exports to the UK have high 'embodied carbon'. Its steel has significantly higher carbon intensity than steel made in the UK, the rest of Europe, and the US.

As we move to sharply cut our emissions over the next couple of decades, there is justifiable concern that UK businesses will be undercut by their Chinese counterparts, purely on the basis that they do not have to follow the same stringent climate policies as we have in the UK, rather than any true comparative advantage. This is why the UK and the EU should consider introducing carbon border adjustment mechanisms (CBAMs).

CBAMs would involve governments levying a charge at the border on

43. Ibid.

imports, to offset the carbon price differential between the importing and exporting countries. To boost legitimacy, they should be designed and introduced on a multilateral basis, involving allies such as Canada and the US, rather than any one nation going alone. To minimise damage to the global trading system, they should be targeted at a few key trade-exposed sectors, such as steel, and the world's poorest countries should be exempt. Such a policy would act as a nudge for China and others that are more reluctant to embrace climate action to step up. Market access would be opened up, as stronger climate policies were implemented.

> "The UK should diversify its supply chains away from China and reduce its dependence on this unreliable international actor"

The strange paradox with China's climate policy is that, despite its poor record on coal, it has moved quickly to capture markets in solar panels and electric vehicles on which it knows the rest of the world will rely. We can be sure that China will not hesitate to do the same with other green technologies as the world pursues clean alternatives, even if China itself continues to pollute on a huge scale. For instance, the state-backed China Hydrogen Alliance has set a target of 100GW of clean hydrogen by 2030,[44] which will be reached in large part by building vast renewables projects in coal-focused regions such as Inner Mongolia.

We were far too late to act to shut Huawei out of the UK's 5G network on security grounds, but the key reason for this was because the UK and our allies had failed to nurture the home-grown alternatives that would have removed the need to rely on Chinese technology in the first place. We must not make the same mistake when it comes to fighting climate change.

Take the example of rare earths, which are critical to the production of

44. Leigh Collins, "China should install 100GW of green hydrogen by 2030', says Beijing-supervised body', *Recharge News*, https://www.rechargenews.com/energy-transition/china-should-install-100gw-of-green-hydrogen-by-2030-says-beijing-supervised-body/2-1-1071599, (2021).

many clean technologies. A recent paper by the Council on Geostrategy found that China dominates the separation and refining of rare earths, where they have a 90% market share, although the mining of the rare earths is much less concentrated and is increasingly happening outside China.[45] There is an encouraging trend here, in fact, with China's share of rare earth production falling from 97% to 58% over the past decade.[46]

Chinese dominance of clean energy supply chains is certainly not an inevitability. As more countries wake up to the economic benefits and environmental imperative of embracing clean technologies, we can expect that advantage to be eroded further. We're already seeing the US Department of Energy, for example, make plans for a US end-to-end lithium battery supply chain.[47]

Just as the answer to Huawei's dominance of 5G technology wasn't to reject 5G technology, which will be necessary infrastructure for any modern economy, so too the West should not resist the adoption of clean technologies. With around 90% of the world's GDP now covered by net zero targets, the low-carbon trajectory of the global economy is now firmly established.[48] There is no prospect for the UK, or any country, to opt for a different path, especially as renewable electricity is already cheaper than fossil fuels and many of the world's major car-makers are committed to end petrol and diesel car production.

The answer instead must be to develop supply chains for critical minerals and clean technologies that are based in the UK, or in countries with whom we have free trade deals or alliances. Whether we develop new lithium mines in Cornwall and refining capacity in Teesside, or take advantage of our free trade agreements with Australia and Canada to import lithium and cobalt without tariffs, the UK should diversify its supply chains away from China and reduce its dependence on this

45. William Young and Jack Richardson, "Critical minerals: Towards a British strategy", https://www.geostrategy.org.uk/app/uploads/2021/11/ESPPP01-25112021.pdf (2021), 5.
46. Ibid., 10.
47. Office of Energy Efficiency and Renewable Energy, "National blueprint for lithium batteries", https://www.energy.gov/eere/vehicles/articles/national-blueprint-lithium-batteries (2021).
48. Net Zero Climate, "Global net zero progress", https://netzeroclimate.org/innovation-for-net-zero/progress-tracking/ (2021).

unreliable international actor.

We should reach out beyond our allies too in this endeavour. It's time the UK, the US, and the EU united their different initiatives – respectively called the Clean Green Initiative, Build Back Better World, and Global Gateway – for financing green infrastructure and technologies in developing countries, and provide a coherent, well-funded alternative to the Chinese Belt and Road Initiative. One of the reasons that China has such a strong hold on clean technology supply chains is because of the influence their cash buys among countries with significant natural resources. As a route to mitigating global climate change and countering Chinese hegemony, this much more targeted and strategically motivated aid spending would be firmly in the UK's national interests.

> "This is why the UK and the EU should consider introducing carbon border adjustment mechanisms (CBAMs)"

There are huge opportunities for UK businesses if we strike out ahead of China in these emerging green industries. To reach net zero, we need to roll out new technologies across the economy, from heat pumps for home heating to green hydrogen for processes like steel production. These nascent approaches do not yet exist at market scale but will be crucial for cutting emissions at home and overseas. Those that move first and fastest to develop and manufacture the technologies of the future stand to reap the rewards of thousands of jobs and a booming export market for the goods and services the world needs to cut emissions.

The UK is well positioned to take a lead, especially as part of a coalition of democracies and allies. Through our expertise in science and engineering the City of London's leading role in developing financial products, and our liberal trade policy, we have the means to drive the new green industrial revolution. In doing so, we would not only put rocket boosters under our own economy, but we would support

countries across the world to cut their emissions too – a contribution to fighting climate change well in excess of our own carbon output.

> "Are we really going to tell the nearly two hundred countries and territories which emit less that they don't have to do anything either?"

We won't solve climate change without action from China. And Chinese scientists, engineers, and entrepreneurs have much to offer on this defining challenge of our time. It would be counterproductive to initiate a trade war or freeze diplomatic relationships with China over this issue. However, we do need to make ourselves less economically reliant on China in the medium term, so they can't use our dependence on their clean technology supply chains to harm our geopolitical interests and to resist our diplomatic pressure on climate action.

For too long we have stood aside as China has seized control of vast swathes of the global economy. As the world stands on the cusp of technological breakthroughs in the fight against climate change, the West must lead the way.

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Western complacency?

The rise of a Chinese climate superpower

Georgios Kyrtsos MEP

The EU, the UK and the USA have all made a serious error of judgement in assessing China and its economic evolution.

The prevailing idea amongst Western democracies was that the economic success of China and the creation of a huge middle-class would lead to its gradual liberalisation. But the rise of China to the level of a new economic superpower did not bring with it the country's liberalisation, but rather the strengthening of the authoritarian characteristics of its communist regime and nationalistic tendencies that complicate international relations.

President Xi Jinping is in the process of transforming himself into a lifelong leader equal in status to Mao Zedong. Beijing has moved in the opposite direction from the one that Western democracies anticipated. The economic success of China and the internal dynamics of its regime has also led to a more assertive foreign policy. The Chinese leadership's aspirations to eventually substitute the USA as the leading global superpower are plain for all to see.

Controlling the decarbonisation process – particularly the production of batteries – is an integral part of China's global strategy. China has achieved this through long-term strategic policy decisions over the past 20 years. Since 2015, control of the world's emerging clean energy market has become China's official policy.

As market statistics show, Beijing has executed its strategy very effectively. In 2020, more than 80% of lithium-ion batteries that entered the global market were manufactured in China.[49] China also controls, to a great extent, the extraction and processing of strategic minerals needed for the production of ion batteries, vital components in low-carbon technologies such as electric vehicles and energy storage.

> "Western democracies should target countries where the Belt and Road Initiative is being developed by offering alternative forms of concessionary loans"

Whilst not being a mineral-rich country with respect to critical minerals, this has not stopped China from leading the world in processing capacity for minerals such as lithium. More than 50% of the global lithium supply comes from Australia, Chile follows with 20% and China with 10%.[50] However, China controls 60% of lithium processing worldwide.[51]

It's not just lithium either. Another characteristic example of China's strategy to control the decarbonisation process, irrespective of its mineral wealth, is how it attained global dominance in the extraction and processing of cobalt.

The Democratic Republic of Congo (DRC) has the largest cobalt deposits of any nation. It is responsible for 65% of the world's production of cobalt, with Russia and Australia following at 4%.[52] Despite not having large deposits of cobalt, China has managed to control 65% of cobalt processing worldwide.[53] For instance, 15 out of 19 cobalt mines

49. Andy Colthorpe, "Chain continues to dominate lithium battery supply chains but policy support gives US new hope", *Energy Storage News*, https://www.energy-storage.news/china-continues-to-dominate-lithium-battery-supply-chains-but-policy-support-gives-us-new-hope/ (2021).
50. Dionne Searcey, Michael Forsythe and Eric Lipton, "A power struggle over cobalt rattles the clean energy revolution", *NY Times*, https://www.nytimes.com/2021/11/20/world/china-congo-cobalt.html (2021).
51. Ibid.
52. Ibid.
53. Ibid.

in the DRC are owned or financed by Chinese companies and banks.[54]

The above case of the DRC shows that Beijing takes full advantage of its Belt and Road Initiative – China's global strategy to develop new trading routes – to control the mineral wealth of other countries, satisfying its own need for strategic materials to decarbonise its economy. It is estimated that China has committed more than US$12 billion in investments, loans and financing facilities from state institutions in order to gain control over the DRC's cobalt production.[55]

> "It struck me that if we want to be taken seriously by China, we have to be like the Taiwanese: resolute and extremely competitive"

The final agreement at COP26 in Glasgow late last year underlined the fact that the Western democracies continue to underestimate the strategic threat to decarbonisation that China poses. They accepted different rules for China as far as decarbonisation is concerned. The EU, the UK and the USA committed themselves to reaching net zero carbon emissions by 2050, whereas China only agreed to stop increasing its emissions by 2030, and then strive for net zero carbon emissions by 2060.[56]

Western democracies give China leniency on decarbonisation in a similar fashion to less developed countries, despite the fact that it has already attained the status of an economic superpower. The result of this leniency is that Western democracies will likely decarbonise by strengthening China's competitive advantage in major economic sectors. By adopting this strategy, we even increase the pollution on the planet since China is already the number one polluter.[57] For example,

54. Ibid.
55. Ibid.
56. Dominic Carver, "Global net zero commitments", *House of Commons Library*, https://commonslibrary.parliament.uk/global-net-zero-commitments/ (2021); Hu Min, "China's net zero future", https://racetozero.unfccc.int/chinas-net-zero-future/ (2021).
57. Ibid.

we move the EU away from coal as fast as we can but at the same time, China increases its coal production and the production of energy using coal, in order to meet its energy needs and ensure that its economy will keep developing in a dynamic way.

The fact that China dominates the lithium-ion battery market, and that it has gained a competitive advantage in the decarbonisation process, does not mean that China will impose some kind of a trade embargo on Western democracies. China is always willing to trade, but on its own terms. For example, China has a very advanced economic relationship with Germany, to which they will likely find ways to furnish lithium-ion batteries and different components for major German manufacturers like Volkswagen, who have invested heavily in China.[58] At the same time, China will take advantage of its dominant position in order to influence decisions on where supply-chain production will take place and the terms of trade.

Whilst China's dominance in relation to the decarbonisation process is clear, it is not all bad news. According to BloombergNEF, Western democracies are making a major comeback in the global lithium-ion battery supply chain rankings. According to their analysis, China is, and will remain until at least 2026, number one in the global lithium-ion battery supply chain rankings. China is number one in access to strategic raw materials, the manufacturing of different components and battery market demand for batteries. However, its ranking falls to number 11 for regulations and innovation, and number 21 for environmental factors.[59]

In 2021, the USA came, for the first time, second in the specific BloombergNEF's rankings. The USA is currently undergoing a strategic review of its battery supply chain. Even before Biden's presidency had

58. Volkswagen Ag, "Volkswagen Group China builds battery system factory in Anhui to strengthen bev value chain", https://www.volkswagenag.com/en/news/2021/09/volkswagen-group-china-builds-battery-system-factory-in-anhui-to.html (2021).
59. Andy Colthorpe, "Chain continues to dominate lithium battery supply chains but policy support gives US new hope", *Energy Storage News*, https://www.energy-storage.news/china-continues-to-dominate-lithium-battery-supply-chains-but-policy-support-gives-us-new-hope/ (2021).

begun, strategic materials, including lithium and cobalt, were placed on the US Government's critical materials list. Major investment in lithium-ion battery production is occurring in the US, with Tesla creating giga-factories along with SK Innovation and LG Energy Solution – major South Korean conglomerates.

> "Controlling the decarbonisation process – particularly the production of batteries – is an integral part of China's global strategy"

The EU is also trying to scale-up its battery production. It has set the ambitious goal of becoming self-sufficient for all its battery needs by 2025 and has committed billions of Euros in state aid to attract investment in European battery supply chains.[60] Additionally, the European Commission has allowed state subsidies by Member States for the development of battery supply chains. It is estimated that the €2.9 billion of public funding approved by the Commission in December 2019, and the approval of a further €2.9 billion in January 2021, will unlock €9 billion in additional private investment.[61]

Certain EU Member States themselves rank highly in BloombergNEF's battery supply-chain rankings. Germany comes third, Sweden 4th, Finland 6th and France 9th.[62] If the ranking was on the basis of the EU as a whole rather than individual Member States, it would rank number one in both 2020 and in predictions for 2026. The functioning of the Single Market will guarantee the continuous strengthening of the EU's position.

The EU, the UK and the USA have the means to close the gap with China in terms of battery production capacity. They need a converging

60. European Commission, "Europe on the move: sustainable mobility for Europe: safe, connected and clean", https://eur-lex.europa.eu/resource.html?uri=cellar:0e8b694e-59b5-11e8-ab41-01aa75ed71a1.0003.02/DOC_3&format=PDF (2018).
61. Reference needed
62. Andy Colthorpe, "Chain continues to dominate lithium battery supply chains but policy support gives US new hope", *Energy Storage News*, https://www.energy-storage.news/china-continues-to-dominate-lithium-battery-supply-chains-but-policy-support-gives-us-new-hope/ (2021).

and comprehensive strategy concerning, among other things, the control of critical minerals. In recent years, some US companies have diverged from cobalt production in the DRC and even sold cobalt production facilities to the Chinese. Since China is considered a strategic rival, it should be treated like one by all Western democracies. Western democracies should target countries where the Belt and Road Initiative is being developed by offering alternative forms of concessionary loans. The EU has announced its own initiative to rival China's Belt and Road – the Global Gateway.[63] But a lot more has to be done by the EU, the UK and the USA in order to curb China's economic influence in countries like the DRC.

> "In 2020, more than 80% of lithium-ion batteries that entered the global market were manufactured in China"

In November 2021, I visited Taiwan as a member of the first official delegation of the European Parliament to Taipei. It struck me that if we want to be taken seriously by China, we have to be like the Taiwanese: resolute and extremely competitive.

Taiwan antagonises China by developing a Western-style liberal democracy based on individual rights and the rule of law. At the same time, it has the economic advantage over China. Taiwanese corporations have invested more than US$200 billion US dollars in mainland China.[64] Taiwan is, by a significant margin, the leading global producer of advanced semiconductors.[65] During the COVID-19 pandemic, annual bilateral trade between Taiwan and China increased from US$213 billion in 2020 and a Taiwanese trade surplus of US$86,7 billion[66] towards US$300 billion in 2021 with Taiwan having a trade surplus

63. European Commission, "Global gateway", https://ec.europa.eu/info/strategy/priorities-2019-2024/stronger-europe-world/global-gateway_en (2021).
64. "The Republic of China (Taiwan) in Facts and Figures 2020-2021", page 25
65. Ibid.
66. Ibid.

closer to US$100 billion.[67]

China has become too large and influential on the global stage to be contained. To ensure we continue to have the resources we need to deliver decarbonisation, the EU, the UK and the USA must establish a competitive advantage over China, particularly with respect to battery production, and restrain its economic influence in mineral-rich countries.

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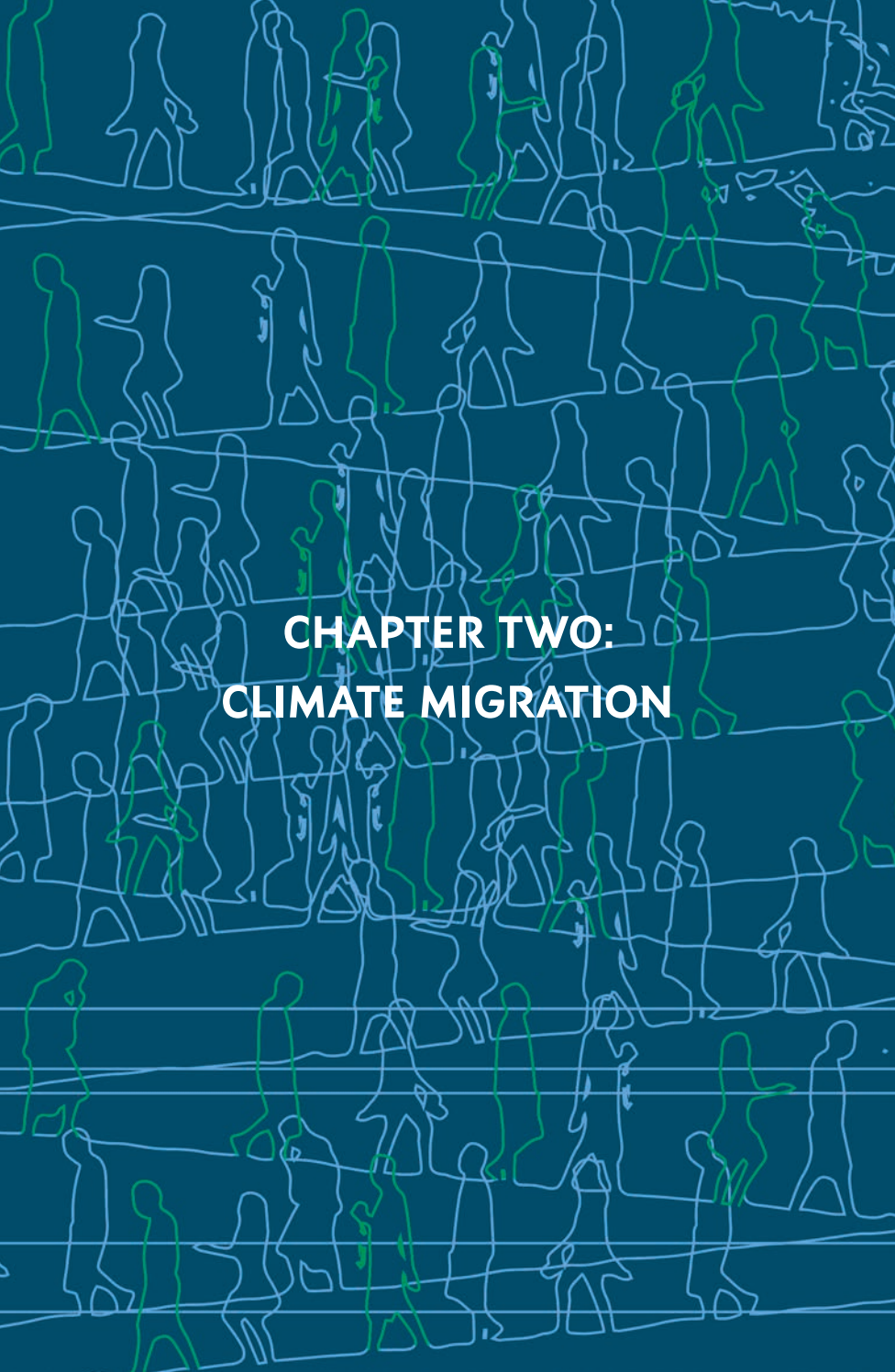
67. Rough estimates mentioned in discussions with officials during my visit to Taiwan.



CHAPTER TWO: CLIMATE MIGRATION

The best aid

Helping people at home

Rt Hon Damian Green MP

It is one of the ironies of modern politics that there is a significant overlap between those who most want to restrict economic migration to this country and those who are most sceptical about the need for net zero. The irony comes because if we continue to see economic dislocation in significant areas of the world exacerbated by climate change, the numbers of migrants coming to Britain in desperate circumstances will only increase. This will not be a short-term phenomenon either. As global temperatures continue to rise, increased environmental pressure in areas such as Sub-Saharan Africa will mean more refugees coming across the English Channel.

At the outset of any discussion on this matter, it is important to emphasise two caveats. First, the migration effects as a result of climate change, at least as they affect the UK, are distinctly long-term. Second, most of the displacement caused by people finding their current place of residence intolerable tends to take place within existing territorial boundaries.

Last year, the Foreign, Commonwealth & Development Office (FCDO) published a *Rapid Evidence Assessment of the Impact of Climate Change*

on Migration Patterns.[68] There were three main conclusions:

First, evidence of an association between climate change and internal and international migration was most apparent in relation to climatic shock events, such as floods, storms, droughts and fluctuations in temperature and precipitation. However, evidence also shows that climatic shock events may decrease migration by reducing household resources and therefore making it more difficult for them to migrate.

> "The EU's aid budget will be more potent than its own Frontex boats in stemming the flow of migration from Africa"

Second, the most significant, wide-ranging implications for migration may potentially come from long-term climatic and related changes. However, studies showing migration occurring as a result of climate-induced sea level rise – through coastal hazards such as flooding, erosion, storms or salinisation – were not identified. Overall, there is a limited evidence base on the existing impacts of long-term temperature and precipitation changes on migration.

Third, there is strong evidence that perceptions and narratives surrounding climate change, climatic shocks and the environment have an impact on migration. For instance, language such as 'climate crisis' and 'climate refugee' prompts people living in vulnerable environments to believe that migration will be an inevitability.

In many ways, therefore, the position is not straightforward. There is a surprising lack of academic research on the link between international migration and climate change, and the effects are different in different parts of the world. For the UK, the main source of migrants desperate to get here is Sub-Saharan Africa. In this context, the UK is merely one

68. Jan Selby and Gabrielle Daoust, "Rapid evidence assessment on the impact of climate change on migration patterns", *Foreign Commonwealth and Development Office*, https://assets.publishing.service.gov.uk/media/60e6d74e8fa8f50c7ba9b3f4/Rapid_evidence_assessment_of_climate_change_impacts_on_migration.odt (2021).

destination in Europe, as almost anywhere in the continent itself is seen as desirable by those fleeing environmental degradation and economic hardship. The latest United Nations (UN) estimates suggest that around 58 million non-EU migrants were living in EU countries in 2019, of which five million (about 9%) were from Sub-Saharan African countries.[69] That 9% figure had increased steadily from 5% in 1990.[70]

> "There is a surprising lack of academic research on the link between international migration and climate change, and the effects are different in different parts of the world"

It is, for the moment, impossible to say how many of these millions of people are driven from Africa to Europe by environmental factors alone. There will often be more than one driver which causes people to undertake such a life-changing and in many cases dangerous course of action. Indeed, underlying environmental pressures on the fertility of the land can become an economic driver of migration.

The big questions for UK and European policymakers are how big an influx we face if conditions in other parts of the world do not improve, what are the political implications of a consistent flow of such migrants, and what policy response is appropriate?

The first of these questions was addressed starkly in a paper for the European Council on Foreign Relations in 2017.[71] It began by stating that Europe is underestimating the effect of climate change on migration from Sub-Saharan Africa, and outlined four key reasons for this: a high dependence on natural resources and agriculture; poor climate-resilience infrastructure; weak political institutions; and, high poverty rates.

69. United Nations, "International migrant stock 2019", https://www.un.org/en/development/desa/population/migration/data/estimates2/estimates19.asp (2019).
70. Ibid.
71. Stefano Torelli, "Climate-driven migration in Africa", *European Council on Foreign Relations*, https://ecfr.eu/article/commentary_climate_driven_migration_in_africa/ (2017).

It looked at the Sahel belt in Africa as a case study – where environmental and demographic changes have contributed significantly to human displacement – focusing in particular on Northern Nigeria, Chad, Niger and Mali.

As a result of flooding in 2012, over six million people in North Eastern Nigeria were forcibly displaced along with 500,000 people in Chad.[72] A reduction in the water levels of Lake Chad – which shares a border with Chad, Cameroon, Niger and Nigeria – has also led to the displacement of millions. The lake has shrunk by 90% since the 1960s, affecting the 25 million people who rely on the lake for food and livelihood (including fishing and farming).[73] This has led to unemployment, which has ballooned in recent years, and almost seven million people who are now considered food insecure.[74] At least 2.5 million people have migrated from the region owing to displacement.[75]

Demographic changes are exacerbating these stresses. The population of Africa is set to grow from 1.2 billion currently to 2.5 billion in the next 30 years.[76] In particular, Niger – which has the highest fertility rate in the world with 7.3 children per woman – will see its population increase from 20 million to 70 million over the same time period.[77] By contrast, the populations of European countries such as Germany and Italy will decline by 81 to 79 million and from 60 to 55 million people respectively.[78]

> "If countries outside Europe will co-operate on minimising the flows, this will be much more effective (and safe for the potential migrants), even if it requires some additional expenditure from European countries"

72. Ibid.
73. Ibid.
74. Ibid.
75. Ibid.
76. Ibid.
77. Ibid.
78. Ibid.

Although the UK is literally at the end of the road for migrants fleeing this situation, it still receives enough of them, often driven by existing family connections, for this to be a continuing problem.

The second question, about the political implications, has a clear answer in the current controversies about small boats crossing the English Channel. 'Taking back control' – as per the slogan of the Vote Leave campaign during the 2016 Brexit referendum – under any circumstances entails having control over our own borders. However many people argue that although the overall numbers are relatively small, and probably lower than they were when these journeys tended to be made hidden in a lorry, the repeated arrival of asylum seekers onto the beaches of Kent tells of a system out of control. This is a genuine concern for a proportion of the population, and therefore provides potential for a resurgence of populist politics.

The third pressing question, regarding the most appropriate policy response from the UK and EU member states, can be answered with a version of that part of the Hippocratic Oath which says, 'First do no harm'. In this version it would read 'First don't cut your aid budget'.

Oddly, there is no precise data for UK Official Development Assistance (ODA) spending on climate change. This is because it is treated as a cross-cutting theme for data reporting. Below are two methods used, both provide only a partial view.

> "As a result of flooding in 2012, over six million people in North Eastern Nigeria were forcibly displaced along with 500,000 people in Chad"

From 2013 to 2019, the UK reported to the EU its level of climate-related aid. This was £1,184 million in 2019. The highest was £1,254 million in 2015.[79]

79. Philip Brien and Philip Loft, "UK aid and climate change", *House of Commons Library*, https://commonslibrary.parliament.uk/research-briefings/cbp-9352/ (2021).

Alternatively, using statistics published by the FCDO relating to 'general environmental protection' and 'energy sources, renewable sources' for 2015 to 2020, spending on these two issues was highest in 2015, at £540 million. Spending was lowest in 2020, at £306 million.[80]

However we measure it, a cut in this part of the aid budget will not help us address climate change and associated migration. Also, it seems inconsistent to be paying extra for energy domestically because of green levies if at the same time we are not encouraging the rest of the world to fight climate change as well.

"The population of Africa is set to grow from 1.2 billion currently to 2.5 billion in the next 30 years"

Of course other parts of the aid budget contribute more generally to long-term economic growth in poorer countries, which is another way of alleviating the pressure to emigrate to the richer Global North.

Another policy area which requires constant attention is the diplomatic element in controlling migration flows. For the UK this means better relations with France, and I have sympathy with our Government given the current French stance on a number of issues. But those cross-channel issues will in the end be solved better in France, or further south, rather than in mid-Channel or when the asylum seekers reach the UK. So gritted teeth and a determination to work with the French are needed.

Diplomacy is an equally important issue for the EU as it faces south and east. The EU's aid budget will be more potent than its own Frontex boats in stemming the flow of migration from Africa. It is a pretty exact analogy with Britain's position on the Channel crossings. If countries outside Europe will co-operate on minimising the flows, this will be much more effective (and safe for the potential migrants), even if it requires some additional expenditure from European countries.

80. Ibid.

I am conscious that a combination of targeted aid spending and better diplomacy is a slightly fuzzy-edged response to a migration crisis partly caused by climate change. But each half of this crisis is big and complex enough to make simple and vivid solutions unavailable. We need long-term and consistent policies, combined with the patience that is sometimes the most difficult political quality to find, to achieve a sustainable solution.

The pressure is always to take tough physical measures to stop uncontrolled migration. But a sustainable policy has always involved reducing our relative attraction. Since we don't want our own country to become less attractive, and indeed we want to attract more than our fair share of the brightest and the best from around the world, we need other countries to be attractive enough to keep their own determined and qualified people. We should remember that most refugees are relatively successful people in their own societies. The ultimate success for eliminating climate change as a driver of unwanted migration will be to help those societies offer fulfilled lives to the most ambitious of their own people.

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Effectively benign?

How Europe can reduce climate-related migration

Tomas Tobé MEP

Of the many societal challenges countries will face as a result of climate change, there is mounting evidence which shows that migration will be one of them. In September 2020, an analysis conducted by the Institute for Economics and Peace suggested that climate change would lead to the displacement of more than one billion people by 2050, of which a large proportion would end up in Europe.[81] Similarly, the World Economic Forum has indicated that climate change may increase migratory flows to Europe to 660,000 new arrivals per year by the end of this century.[82] Furthermore, research on the correlation between climate change and migration indicates that climate change is already an underlying factor driving migration both within Africa and to Europe.[83]

Evidently, climate change is a threat-multiplier to existing tensions and precarious challenges in the developing world. Last year, the European Parliament's Committee on Development discussed the

81. Institute for Economics and Peace, "Ecological Threat Register 2020 – Understanding Ecological Threats Resilience and Peace", https://www.economicsandpeace.org/wp-content/uploads/2020/09/ETR_2020_web-1.pdf (2020).
82. Lou Del Bello, "Climate change is Going to Make the Refugee Crisis Much Worse", *World Economic Forum*, https://www.weforum.org/agenda/2018/01/climate-change-is-going-to-drive-thousands-of-refugees-to-cooler-countries (2018).
83. Nicole Alzapiedi, "The Correlation between Climate Change and Migration: from the Margins to the Mainstream?", *Heinrich Böll Stiftung*, https://us.boell.org/en/2019/05/31/correlation-between-climate-change-and-migration-margins-mainstream (2019).

impact of climate change on vulnerable peoples. However, as there was an attempt to introduce climate change as independent grounds for asylum, irrespective of the current EU asylum *acquis* or the international refugee regime, the plenary rejected the report as a whole.[84]

Sadly, this exemplifies the faulty political narrative on climate-related migration in Europe. Climate-related migration currently taking place occurs largely within the country of origin, often referred to as 'internal displacement'. It is most often disaster displacement, which is short-term, and people return to their homes once the imminent threat to life – which storms or floods can cause – is removed. In contrast, the asylum regime intends for the non-return of people to their homes.[85]

Furthermore – and it is important to state – climate change is not the sole cause of migration. Rather, it acts alongside other existing drivers of migration. This can pose difficulties putting climate-related migration into law. As Professor Jane McAdam from the University of New South Wales argues, the causal complexity would be difficult to reflect in a treaty definition.[86] The United Nations High Commissioner for Refugees (UNHCR) itself has argued against extending the refugee regime to climate-related migration.[87]

Climate-related migration from Africa is largely due to four reasons: dependency on natural resources and agriculture; poor risk-reduction infrastructure, such as flood defences; weak institutions that are less able to adapt to climate change; and, the high poverty rate which undermines the resilience of local populations.[88]

84. European Parliament, "Report on the Impacts of Climate Change on Vulnerable Populations in Developing Countries, 2020/2042(INI)", https://www.europarl.europa.eu/doceo/document/A-9-2021-0115_EN.html#title7 (2021).
85. See Article 11 of Directive 2011/95/EU of the European Parliament and of the Council on Standards for the Qualification of Third-Country Nationals or Stateless Persons as Beneficiaries of International Protection, for a Uniform Status for Refugees or for Persons Eligible for Subsidiary Protection, and for the content of the Protection Granted (recast) [2011] OJ L 337/9, on the reason of cessation from refugee-hood.
86. Jane McAdam, "Seven reasons the UN Refugee Convention should not include "climate refugees", *Sydney Morning Herald*, https://www.smh.com.au/opinion/seven-reasons-the-un-refugee-convention-should-not-include-climate-refugees-20170606-gwl8b4.html (2017).
87. UNHCR, "Summary of Deliberations on Climate Change and Displacement", https://www.unhcr.org/4da2b5e19.pdf (2011).
88. Stefano Torelli, "Climate-driven migration in Africa", *European Council on Foreign Affairs*, https://ecfr.eu/article/commentary_climate_driven_migration_in_africa/ (2017).

The current approach of the European Union and its Member States must focus on the prevention of climate-related migration. As Chair of the European Parliament's Committee on Development, I have regularly emphasised the importance of result-driven development aid.[89] It is essential that we increase the efficiency and efficacy of aid. It is my firm belief that the European Union, as the world's largest provider of development aid, has the financial and political tools to address the root causes of migration, including climate change, in the countries of origin. Asylum cannot be the permanent solution to injustices in the world.

The EU has a blueprint of measures that could be undertaken to reduce climate-related migration and increase the resilience of local populations to the effects of climate change. Understandably, action should be taken in cooperation with the countries concerned and relevant stakeholders, including communities which are affected.

First, we need to strengthen the political institutions of aid recipients, particularly with respect to their policy capabilities. Making development aid conditional on real progress on jointly agreed objectives is one way of achieving this. Respect for the rule of law and democratic principles builds up institutions and their capability to adapt to climate change and increase their resilience towards its effects. In turn, this addresses the drivers of migration and reduces the need for people to seek refuge elsewhere. Additionally, we need to make clear that the enrichment of self-interested political leadership will not occur with EU-funded development aid. Eradicating corruption and putting an end to its impunity is a priority.

Second, the European Union needs to direct development aid towards sustainable development and a green transition. Innovative approaches to sustainable agriculture which can adapt to the changing climate is essential for ensuring food security. In this vein, policies must take into account the expected rapid growth of the African population, which in

89. European Parliament "Report on improving development effectiveness and the efficiency of aid (2019/2184(INI)", https://www.europarl.europa.eu/doceo/document/A-9-2020-0212_EN.html (2020).

size equates to a new France every two years.[90]

Water scarcity remains a concern. However, as demonstrated by Israel, investment in technology can deliver water security. As early as 2005, Israel introduced desalinated water into their national water grid. Within ten years, the use of desalinated water increased to almost 600 million cubic metres.[91] The European Union should intensify its commitment to green technology and sponsor research to improve the resilience of countries and local populations.

Third, investing in renewable and fossil-free energy sources, including small modular reactors. This would provide economic growth, employment opportunities, higher living standards and a more efficient and sustainable energy supply. Decarbonising industries will require huge amounts of electricity; it is imperative that this electricity originates from low-carbon energy sources.

It remains a priority for the European Union to take its global responsibilities in all areas affecting both migration and climate change. We must take the necessary steps to reduce the need for climate-related migration at source – mitigating climate change and bolstering resilience to its effects in countries who are vulnerable to them. A development aid policy which is results-based, centred around effective measures to tackle climate change, will go a long way in getting us there.

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90. The Economist, "Africa's Population Will Double by 2050", https://www.economist.com/special-report/2020/03/26/africas-population-will-double-by-2050 (2020).
91. Ministry of Foreign Affairs of the State of Israel, "Israel: A Global Leader in Water Management and Technology", https://mfa.gov.il/MFA/AboutIsrael/Documents/water.pdf

Building climate-resilient communities

A longer-term approach to preventing displacement

Tim Loughton MP

Over twenty years ago, I travelled to Ethiopia on my first overseas delegation as an MP. When visiting what passed for a hospital in a drought-stricken region, one statistic struck me that I will never forget. We were told by an aid worker that there were more Ethiopian doctors in New York than in the whole of Ethiopia.

> "Foreign aid from the UK could be directed to establish and scale up the production of solar and wind energy in these countries"

In the fourth poorest country in the world, desperately short of even the most basic elements of health and education systems that we take for granted in the developed world, trained medics were a major export industry. Foreign aid from the UK and other developed countries was dedicated to training up doctors, teachers and other essential workers. Once qualified, these professionals would then depart for some of those very same donor countries.

The reasons for the migration of essential workers, such as doctors and teachers, are complex. For the minority with marketable skills, the desire to escape poverty and seek better economic and educational prospects for their families abroad is plain for all to see. Surely then,

using foreign aid to pay premium wages to essential workers in developing countries and incentivising them to become part of an emerging middle class in their home country is a preferable solution.

> "Whilst the programmes on climate finance agreed at COP26 to pool funds for countries like South Africa are welcome, they are only a drop in an increasingly warmer ocean"

Closer to home, amongst the people risking all to cross dangerous waterways in search of new lives in the EU or UK, many are labelled as 'economic migrants'. Of these migrants, many bring skills that are desperately needed back where they started their journeys. We see countless others escaping war zones, political and religious persecution, famine or homophobia. What is rarely given as a cause for such mass migration is climate change. Yet arguably, this is already linked with most of the aforementioned reasons and it is only a matter of time before it weighs much more heavily.

The Institute for Economics and Peace (IEP), which produces the Ecological Threat Register, has assessed the causes of nation-state fragility, which in turn leads to greater mobility in populations. Their assessment takes into account population growth, water stress, food insecurity, droughts, floods, cyclones and rising temperatures and sea levels. They calculate that the 19 countries facing the highest number of ecological threats over the next 30 years have a collective population of 2.1 billion people, and that approximately one billion people live in countries lacking the resilience to deal with the major ecological changes expected to occur in the next 30 years.[92]

Most vulnerable to ecological changes is the Sahel-Horn belt of Africa, from Mauritania to Somalia, containing some of the most

92. Institute for Economics & Peace, "Ecological Threat Register", https://reliefweb.int/sites/reliefweb.int/files/resources/ETR_2020_web-1_0.pdf (2020).

unstable countries riven by poverty, civil wars and often terrorism or other destabilising activities. Many people from these countries increasingly feature amongst those trying to reach the EU via perilous journeys across the Mediterranean, and in some cases across the Atlantic to the Canaries.

The IEP has also calculated that globally, more than two billion people face uncertainty regarding access to sufficient food for a healthy life.[93] That number is predicted to increase to 3.5 billion by 2050, mirroring an increase in global demand for food by 50% over the same period.[94] Of the most food insecure countries, 18 are located in Sub-Saharan Africa and are also facing extreme levels of water stress.

Where there are water shortages, basic crops and livestock become increasingly unviable. The resulting famine leads to poverty, people leave rural areas seeking livelihoods in growing slums on the outskirts of burgeoning cities, political upheaval ensues often accompanied by civil conflict and those who can escape move beyond national borders. Work cited by the Parliamentary Science and Technology Office estimates that globally, each 1.0°C rise in mean temperature will reduce yields of wheat by 6%, rice by 3.2% and maize by 7.4%, with the obvious destructive impact on livestock and availability of animal feeds too.[95]

Switching to alternative non-indigenous crops – often involving land clearance and the release of stored carbon into the atmosphere – exacerbates climate change, leading to further declines in agricultural output. And so the positive feedback loop continues.

At the United Nations COP26 conference in Glasgow last year, we heard extensively of the impact that changing global temperatures was having; bush fires from Australia to California and flooding from China to Bangladesh. But long-term, climate change poses a particular threat to low-lying communities. An increase in global temperature of just 1.5°C

93. Ibid.
94. Ibid.
95. Houses of Parliament, "Climate change and agriculture", https://researchbriefings.files.parliament.uk/documents/POST-PN-0600/POST-PN-0600.pdf (2019).

is projected to lead to a rise in sea levels of 27-77 centimetres by 2100.[96] For some economically disadvantaged islands in particular, lacking the resources to adapt to rising sea levels could mean the evacuation of entire populations.

Many vulnerable countries, particularly those in Africa, already face the challenge of a rapidly rising population. By 2050, the global population is forecast to reach 10 billion.[97] Yet, in the most developed countries, population size is predicted to fall by 2% on average[98] – Japan will experience the largest impact, with an expected population decrease of 10%.[99] In contrast, there are 17 countries whose populations are expected to at least double in the next 30 years[100] – Niger is forecast to experience the greatest increase of 171%.[101] Alarmingly, an additional 1.4 billion people will reside in the 40 least stable countries.[102]

Evidently, we are going to see greater numbers of people migrating and inevitably vying to leave poorer countries towards more developed ones. The question is: how accommodating will developed countries be in the light of their own falling working age populations supporting the retired generations?

Across Africa, two thirds of the population are under the age of 25. One city in particular – Lagos, Nigeria – is forecast to grow by more than 3% a year from its current 20 million wider population.[103] By the end of the century this one city will be as populous as the whole of Britain. Further afield, it has been calculated that one in 12 people on the planet is an Indian under the age of 28.[104] A lot is hinging on India becoming a sustainable economic superpower with the impact felt by all of its people.

96. IPCC, "Summary for policymakers", https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf (2018).
97. Institute for Economics & Peace, "Ecological Threat Register", https://reliefweb.int/sites/reliefweb.int/files/resources/ETR_2020_web-1_0.pdf (2020).
98. Ibid.
99. Ibid.
100. Ibid.
101. Ibid.
102. Ibid.
103. Ibid.
104. Ibid.

The largest population growth is forecast to come from the Sahel, the most impoverished part of the poorest continent. By 2050, the population of the Sahel is forecast to double to 2.4 billion,[105] with high fertility rates meaning women there give birth to an average 5.2 children against 1.6 in the UK.[106]

> "Approximately one billion people live in countries lacking the resilience to deal with the major ecological changes expected to occur in the next 30 years"

Writing in *The Times* recently, Diplomatic Correspondent Roger Boyes warned of this 'Youthquake' driving 'millions of Africans on a 'trek towards Europe.'[107]

With the World Bank predicting that 30-70 million people in sub-Saharan Africa will be displaced in part due to climate change, the question arises as to whether this migration will remain within national boundaries. And if it does not, how will developed countries respond? The scale of migration would be far greater than that which Europe and the UK has experienced previously. For instance, by comparison the current record levels of migrants making the hazardous journey across the English Channel would pale into insignificance.

So, what measures are required from policymakers to deal with such changes in migration flows? In the US last year, for the first time, the President signed an Executive Order directing the National Security Advisor to prepare a report on climate change and its impact on migration. In Europe, the EU is paying Turkey to keep tens of thousands of migrants just outside of the Union's borders. And in the UK, we are struggling to work out how to manage migrants entering the country illegally via the English Channel. In each of these cases, policymakers

105. Roger Boyes, "Youthquake will drive millions of Africans on trek towards Europe", *The Times*, https://www.thetimes.co.uk/article/youthquake-will-drive-millions-of-africans-on-trek-towards-europe-kp2vv33s6 (2021).
106. Ibid.
107. Ibid.

are simply dealing with the symptoms of migrating populations, rather than the causes. And this is before the true effect of climate change on migration has even begun.

> "The IEP has also calculated globally more than two billion people face uncertainty regarding access to sufficient food for a healthy life"

Instead, policymakers should be focused on making vulnerable countries more resilient against climate change and more hospitable for essential workers to stay and thrive. Whilst I remain vociferous in my opposition to the UK Government's decision to suspend our commitment of providing 0.7% of the UK's Gross National Income on Official Development Assistance, crucially, funding for measures to combat climate change has not been reduced. However, many more developed nations must be persuaded to increase their foreign aid budgets. Whilst the programmes on climate finance agreed at COP26 to pool funds for countries like South Africa are welcome, they are only a drop in an increasingly warmer ocean.

Whilst the West talks billions, the Chinese Government talks in terms of trillions for their Belt and Road initiative. But, as is widely known, it is intended as a soft power tool to buy influence amongst less developed countries rather than a means to promote economic and environmental sustainability. As east African countries are increasingly realising, not long after the Chinese Communist Party has plundered their rare earth resources, the shiny infrastructure left behind has a short shelf life and the Chinese bailiffs soon come calling on even more debt-strapped developing countries. And why should we be surprised? The COP26 no-show, President Xi, presides over a country responsible for 29% of global carbon emissions[108] whose expanding power stations have burnt more

108. Kate Larden, Hannah Pit, Mikhail Grant and Trevor Houser, "China's greenhouse gas emissions exceeded the developed world for the first time in 2019", *Rhodium Group*, https://rhg.com/research/chinas-emissions-surpass-developed-countries/ (2021).

coal than the rest of the world put together in the last 11 years, and it's getting worse. Evidently, China is not a reliable partner for helping to bolster climate resilience in the developing world.

UK and European policymakers must focus initially on counties most vulnerable to the effects of climate change; those with little financial resources, close to the equator, relying heavily on low-productivity, small-scale farming. These countries' agricultural sectors must be made more productive and resilient if they are to satisfy the growing demand for food brought about by rising populations. This will require the use of gene editing, breeding new livestock varieties and technology deployed to cope best with climate change, such as controlled-environment agriculture.

> "Of the most food insecure countries, 18 are located in Sub-Saharan Africa and are also facing extreme levels of water stress"

As well as a resilient and productive agricultural sector, there is a role for renewable energy to play too. Production of renewable energy – of which many countries vulnerable to climate change are geographically well-placed to deliver – offers a pathway to economic enrichment.

Ironically, the world's largest solar farm is situated in the oil-rich United Arab Emirates (UAE). A Klondike-style rush to produce green hydrogen is currently taking place on the western coast of coal-rich Australia, home to some of the highest sunshine hours and windiest coastlines in the world.

With abundant sunshine hours and coastlines, the same opportunities exist for countries close to the Equator. Foreign aid from the UK could be directed to establish and scale up the production of solar and wind energy in these countries. Coastal access, and the vast quantities of water that go with it, presents an opportunity for the production of green hydrogen which can then be shipped globally. Rather than funding the export of essential workers from vulnerable countries, our

foreign aid should be supporting them to develop resilient, sustainable economies for the future. Building climate-resilient communities backed by sustainable economic growth is key to preventing large-scale climate migration. And who knows, perhaps the Ethiopian doctor may actually stay and make a go of it in Ethiopia alongside teachers and other essential workers.

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Misplaced anxiety?

Supporting displaced peoples

Dr Ayesha Siddiqi

In the same week I sat down to write this essay, the *Daily Telegraph* ran a story written by a Crime Correspondent that suggests "police forces" need to be prepared for an "influx of refugees fleeing global warming" in "developing countries", such as "India, Nigeria and Pakistan", fuelling "racial tensions in Britain".[109] In some ways then, I see the challenge for UK policymakers on the issue of 'climate migrants' to be very similar in nature to that of broader migration or security policy – to avoid the pitfall of seeming to react to rhetoric driven by hysteria, rather than evidence.

It is important to state at the outset that within the academic community there is rarely ever consensus between different scholars, from different disciplines, employing different methods of research and yet there is considerable widespread agreement on this: the UK is not going to be overrun by Africans, Asians, or any racialised 'other' escaping climate-related calamity any time in the foreseeable future.[110] The most reasonable response for policymakers in Europe would therefore be to downplay the alarmist dog whistle.

109. Izzy Lyons, "Mass migration from climate change could trigger 'racial tensions' in Britain", *The Telegraph*, https://www.telegraph.co.uk/news/2021/09/18/mass-migration-climate-change-could-trigger-racial-tensions/ (2021).
110. Silja Klepp, "Climate change and Migration". https://oxfordre.com/climatescience/view/10.1093/acrefore/9780190228620.001.0001/acrefore-9780190228620-e-42 (2017).

As a geographer who studies how people live with hazard related disasters in the Global South, I am not denying the very real and life altering impacts of floods, typhoons, droughts, and other extreme weather events, increasing in intensity and frequency due to anthropogenic climate change, on people's lives. Rather, what my work within these communities – backed by a few decades of scholarship on this subject – has shown is that UK policymakers need to worry less about the arrival of climate-related migrants and more about cuts to Official Development Assistance (ODA) that have left some of the poorest and most vulnerable people on the planet facing serious precarity and insecurity in their lives. These two issues are inextricably linked, and it would be dishonest to speak of climate-related migration without discussing the UK's failing commitments on ODA. To this end, I want to make three key points on climate-related migration in and from the Global South that support this provocative assertion before concluding.

> "These populations will need the UK to reinstate its commitment to 0.7% ODA"

First, it is important to understand that social and behavioural science has repeatedly demonstrated that the decision to relocate is driven by a range of complex social, political and economic factors, and that isolating 'climate' as the single or most important reason for migration is rarely possible.[111] As such, terms that are regularly used in public discourse, such as 'climate refugees', are inane or redundant. At the same time, evidence available on migration, that may be related to climate or environmental impacts in some way, suggests that this movement of people takes place primarily within borders or at most to neighbouring

111. Foresight, "Migration and global environmental change", https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/287722/11-1115-migration-and-global-environmental-change-summary.pdf (2011).

countries.[112] It is important to better understand displacement within and between countries in the Global South – especially internal migration and South-South migration.

> "The UK is not going to be overrun by Africans, Asians, or any racialised 'other' escaping climate-related calamity any time in the foreseeable future"

The proposition that displaced people will make expensive and difficult journeys to Europe after suffering financial loss from drought or floods is simply not supported by evidence or common sense. UK policymakers should therefore focus on better development interventions that enable resilient livelihoods in communities in the Global South, rather than on an unmanageable number of 'climate-migrants' swarming the country.

In my own research with people affected by floods and typhoons in places such as Pakistan, the Philippines and Colombia, I was repeatedly informed by interviewees who had been displaced due to a climate-related disaster that they saw it as a temporary move. Short-term migration was something that had to be done in the immediate aftermath of a sudden on-set disaster to keep them and their families safe.

Rather unfortunately, in a number of these instances, neighbourhoods emptying out due to rising flood waters is seen as an opportunity for local state officials and property developers to collude in profiteering. The area is declared 'at risk' of future hazards, so people are prevented from returning home and city officials parcel out these plots of land to builders in obvious cases of land grabs, helped along by municipal or city-level disaster policy planning. These interventions carried out in the name of climate adaptation thus further increase inequality and social injustice. Ensuring that climate change adaptation or disaster risk reduction policy, particularly that being supported by UK ODA, is

112. Forced Migration Review, "Disasters and displacement in a changing climate", https://www.fmreview.org/sites/fmr/files/FMRdownloads/en/climatechange-disasters.pdf (2015).

not disenfranchising local residents in Global South communities is especially important.

> "Rather unfortunately, in a number of these instances, neighbourhoods emptying out due to rising flood waters is seen as an opportunity for local state officials and property developers to collude in profiteering."

Across the different contexts and cultures where I have worked, I have encountered a multitude of official explanations for why people displaced by disasters are not being allowed to return home. Yet in almost all cases that is what people wish for – to return home, or to restore some degree of normalcy in their lives. In my years of research in this area, I have yet to encounter a single resident affected by devastating flooding or typhoons that suggested that they would like to use this unfortunate turn of events to consider migrating to Europe.

Finally, while it is easier to identify quick or sudden on-set disasters as a cause of societal concern rather than the slow and creeping changes in the climate, the latter is nonetheless an important change taking place due to anthropogenic climate change. Thus, the worrying scenario of what might happen when large land masses become uninhabitable due to sea level rise is a media favourite issue that comes up in articles discussing 'climate-migration' to the West.[113] How human society is going to adapt to disappearing islands and low-lying areas when such change occurs is anyone's guess. We simply do not have data on that. What we do know, and have reliable data on, is the very worrying scenario of millions of people being trapped in areas extremely vulnerable to climate change, from where they are unable to move simply because they do not have

113. Denise Chow and Carlos P. Beltran, "Hungry and desperate: Climate change fuels a migration crisis in Guatemala" https://www.nbcnews.com/science/environment/hungry-desperate-climate-change-fuels-migration-crisis-guatemala-rcna2135 (2021).

the means to do so.[114] Ensuring a safer and more secure future for all global citizens is a goal UK and European policymakers should be striving to achieve.

The evidence from research thus seems to suggest that rather than the anxiety around "mass migration" of "large swathes" of people to the UK, a far more likely outcome of the changing climate is one that, to a degree, is already taking place today. People continue to live more precarious lives due to the additional economic, social and political challenges brought on by physical climatic hazards. At the same time, migration that has long been a natural human response to threat or danger is becoming less and less attainable due to the cost and high capital requirement associated with moving, along with hostile policies world over. This leaves people in the largest and most densely populated places in the world in very vulnerable and difficult positions. These populations will need the UK to reinstate its commitment to 0.7% ODA, rather than say a prayer of gratitude that their suffering is on the other side of the world, well away from our sight of vision.

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114. Foresight, "Migration and global environmental change", https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/287722/11-1115-migration-and-global-environmental-change-summary.pdf (2011).

CHAPTER THREE:
CLIMATE INNOVATION

A green Silicon Valley?

Unleashing climate innovation

Michael Stephens

Innovation has become the buzzword in climate change policy. If there is one thing that has emerged from Glasgow's COP26 conference, it is the belief that technology will be humanity's answer to mitigating, and ultimately reversing, climate change.

There is nothing wrong with directing resources towards innovation, and Bill Gates was right when he wrote back in 2014 that "When it comes to clean energy, we need breakthroughs that are...miraculous… clean-energy miracles don't just happen by chance. We have to make them happen, through long-term investments in research and development".[115] But while technological innovation has helped the world reduce its carbon output,[116] it is not the panacea that some have made it out to be.

In truth, the technologies for drastically reducing carbon emissions or absorbing CO2 in significant quantities already exist, and if in some hypothetical scenario all innovation on green technology stopped today, many developed economies could still dramatically reduce their carbon emissions with the current gamut of technological solutions. Indeed,

115. Bill Gates, "We need more energy miracles", *GatesNotes*, https://www.gatesnotes.com/Energy/Energy-Miracles (2014).
116. See for example, United States Environmental Protection Agency: Inventory of US Greenhouse Gas Emissions and Sinks 1990-2019 ES-4, "Overall, net emissions decreased 1.7 percent from 2018 to 2019 and decreased 13.0 percent from 2005 levels"

the issue is less whether the technologies exist, but firstly if they can be applied widely and at affordable cost, and secondly whether there is political and social goodwill to see the technologies widely rolled out and adopted.

The answer to the first question is relatively simple; technologies will always reduce in cost when they can be scaled up effectively, and when market forces ensure that demand for them is high. For example, simple innovations in LEDs have reduced costs by 80-90% over the past decade, leading to the LED bulb replacing older more expensive filament and halogen lighting systems.[117] In terms of critical national infrastructure, the same can be said for offshore wind energy, which has reduced in cost by nearly 50% since the turn of the century.[118] A combination of public funding into research and market forces have done the heavy lifting, allowing for the necessary R&D to forge commercially viable products that have in turn proven their worth at the requisite scale to be cost effective and low-carbon at the same time.

The second question is far more complex, and there is no real answer for what might come in the future. There is certainly no unanimity among world leaders. Whilst Boris Johnson talks of the UK becoming "the Saudi Arabia of wind",[119] Jair Bolsonaro in Brazil has offered a reprieve for coal fired energy for the next fifteen years,[120] and China and India's last minute intervention at COP26 in Glasgow to water down language around coal usage is particularly galling.

As COP26 has shown, when it comes to geopolitics, the best results emerge from ad hoc coalitions of states taking collective action, whether

117. Laura Diaz Anadon, Professor of Climate Change Policy, University of Cambridge, How to Incentivize Climate Innovation, New York Times Events, 9 November 2021 https://www.youtube.com/watch?v=QetP586ItrQ
118. Ibid.
119. BBC News, "Wind turbines: How the UK wants to become 'Saudi Arabia of wind', https://www.bbc.co.uk/news/av/science-environment-57519392 (2021).
120. Mariana Durao, "Bolsonaro throws a 15-year lifeline to thermal coal in Brazil", *Yahoo Finance*, https://uk.finance.yahoo.com/news/bolsonaro-throws-15-lifeline-thermal-180831784.html?guce_referrer=aHR0cHM6Ly93d3cuYmluZy5jb20v&guce_referrer_sig=AQAAALQ4xR59i7ijHXl62pihMz_vOTXny1lI8JahUcYSEak0nk3ocv2aYYNyPQAaS-VBmaIEL_tfqVvxtjOmoTssOuNyhRXCPy61Wq2pzVR69RjTabMm9OPpZMlwEVxMxXNwiZPY77whAPvC3ZjffrbPvdVvAGiL3Ywp5GYVKF5q0ojy&guccounter=2 (2022).

it be to phase out the sale of internal combustion engine vehicles or halt deforestation.[121] Explicit commitments to fund technological innovation, while often talked about, do not generally get much traction outside of a smaller club of wealthy countries. It is laudable of course that the US, UK, Canada, Spain, Japan and Norway have all agreed to increase their climate finance targets over the period to 2025, however, this is unlikely to be sufficient to deal with the enormity of the challenge in the decade ahead.

Take for example Nigeria, which aims to be carbon neutral by 2060 all the while seeing its population nearly triple to over half a billion people.[122] To meet this target, Abuja, the country's capital, will need vastly upgraded critical infrastructure and an energy supply which is reliable and affordable. But, whether this will be paid for through a multilateral initiative or a combination of bilateral climate financing and private investment is wholly unclear.

Rather than focusing on innovation for its own sake, and hoping that the world will be saved by the next miracle invention, there is a growing need to incentivise indigenous innovation – encouraging nations to develop their own home grown talent to devise highly localised solutions – which can be upscaled from the micro, to make big changes at the macro level. Scientists from some of the world's poorest countries will be key to driving localised solutions, but too often their voices go unheard, or simply aren't provided the institutional support required to bring their research into reality.[123]

There are funds which focus specifically on supporting such work, and they are increasing in size and prevalence. The role that local innovators play is also increasingly being recognised. The EU's €1.5 billion

121. Georgina Rannard and Francesca Gillett, "COP26: World leaders promise to end deforestation by 2030", *BBC News*, https://www.bbc.co.uk/news/science-environment-59088498 (2021).
122. Ruth Olurounbi, "Nigeria Pledges to Reach Net-Zero Emissions by 2060, Buhari Says", *Bloomberg*, https://www.bloomberg.com/news/articles/2021-11-02/nigeria-targets-to-reach-net-zero-emissions-by-2060-buhari-says (2021).
123. Richard Friend, "Innovation is the key to a sustainable future – we must incentivise innovation", *The Independent*, https://www.independent.co.uk/climate-change/opinion/sustainable-innovation-climate-change-technology-b1982914.html?src=rss (2021).

Innovation fund and the UK's GSMA Innovation Fund for Climate Resilience and Adaptation[124] – which offers 15-18 month grants of up to €200,000 to help start-ups, small and medium enterprises (SMEs) and social enterprises in Africa, Asia-Pacific, the Caribbean, Latin America and Eastern Europe – are two examples of such funds. They help to deliver the much needed financial lift that can provide tested small scale climate solutions the boost they need for greater widespread appeal and market adoption across less developed countries. This kind of small scale support can make a big difference for nations who need to provide rapid climate mitigation and adaptation measures to maintain agricultural output or adjust to changing weather patterns but do not have the means to do so.

There are, of course, geopolitical implications when it comes to climate innovation. China is winning the global race to invent and manufacture low-carbon technologies,[125] and while Europe is not far behind, it is unlikely that European companies producing low-carbon technology will be able to compete against their Chinese counterparts without much larger scale investment from European governments.

China's state funding into technological innovation is, simply put, in another league. With three quarters of the world's manufacturing capability for lithium-ion batteries, and 70% of the world's photovoltaic production, there is little hope that others can catch up.[126] The conundrum for British and European policymakers to solve is this: if the Chinese are developing technologies at cost and scale, what benefit is to be gained from trying to keep up? The main consideration is not climate related but political. The global security environment eschews cooperation with China, and since the onset of the COVID-19 pandemic

124. European Commission, "Innovation fund section large-scale call for projects", https://cinea.ec.europa.eu/news/innovation-fund-second-large-scale-call-projects-2021-10-26_en (2021); GSMA, "The GSMA innovation fund", https://www.gsma.com/mobilefordevelopment/the-gsma-innovation-fund-for-climate-resilience-and-adaptation/ (2022).
125. Sarah Ladislaw and Nikos Tsafos, "Beijing is winning the clean energy race", *Foreign Policy*, https://foreignpolicy.com/2020/10/02/china-clean-energy-technology-winning-sell/ (2020).
126. Benchmark Mineral Intelligence, "Written testimony of Simon Moores, Managing Director, Benchmark Mineral Intelligence", https://www.energy.senate.gov/services/files/6A3B3A00-8A72-4DC3-8342-F6A7B9B33FEF (2020).

the urge to decouple from reliance on Chinese supply chains has only gathered pace across the globe. But in today's political climate reducing emissions by relying on Chinese technologies is not good enough, and would be viewed as totally unacceptable in a whole host of Western Capitals.[127] The imperative is therefore clear: climate technology and innovation is no longer just about carbon molecules; it is part of a strategy of geo-political containment.

Europe lacks a Silicon Valley-like regulatory environment to foster climate innovation through a robust and competitive private sector in the way that the United States currently does. But it is clear that the EU is taking the challenge head on, mobilising considerable resources towards protecting its own businesses and supply chains. The Institute for Innovation and Public Purpose recently argued that "to achieve the mission of transitioning to a zero carbon economy, the public sector must take a more entrepreneurial role in the innovation process: as a risk taker that welcomes uncertainty to accelerate climate action".[128]

The argument is noble of course. Governments should take bigger risks to achieve an aggressive reduction in emissions. But climate policy does not operate in a political vacuum, and large-scale initiatives to encourage innovation and a switch to low-carbon lifestyles require an economic imperative to drive them. Jobs need to be created, with economic growth as a bi-product. After two years since the beginning of the COVID-19 pandemic, it is difficult for governments to make the case to their citizens that additional costs can and should be borne in order to put into place green new deals. One need only see the current pressure that governments are under to reduce energy bills and the cost of fuel, to know that sooner or later it will be difficult to justify further expenditure on climate innovation unless it directly correlates

127. Nikos Tsafos, DFC Deal to Boost U.S. Solar Industry and Strengthen Clean Energy Supply Chains, CSIS Commentary, 10 December, 2021 https://www.csis.org/analysis/dfc-deal-boost-us-solar-industry-and-strengthen-clean-energy-supply-chains
128. Institute for Innovation and Public Purpose, "Financing for climate action", https://www.ucl.ac.uk/bartlett/public-purpose/sites/bartlett_public_purpose/files/pb-17_financing-climate-action_22-nov.pdf (2021).

to greater quality of life and domestic economic improvement.

The political and financial structures for fostering innovation are in place and the low-carbon technologies required to tackle climate change already exist. All that is required now to catalyse low-carbon innovation the world over is strong market demand. Further innovation is essential from both a technological and geo-political standpoint. But this does not negate the need for true global political leadership to bring collective action to end reliance on cheap and abundant fossil fuels. Cost effectiveness, market demand and the delivery of deep decarbonisation by governments over the next decade will be the crucial drivers to keep global warming beneath two degrees.

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A Green Deal for Europe

Putting innovation at the heart of the transition

Radan Kanev MEP

The EU, like countries across the world, has enshrined in law a target of net zero emissions by 2050. Now, in the wake of COP26, attention is rightly turning towards how this commitment can be delivered.

> "We do not need to be providing subsidies for low-carbon commodities to wealthy and upper middle class consumers"

The European Green Deal, an EU-wide deal which seeks to cut carbon emissions whilst fostering economic growth, has been drawn up to help the Union bounce back from the COVID-19 pandemic. But its final terms are far from agreed. So too is the case with the EU's #FitFor55 policy package, which aims to reduce greenhouse gas emissions across the EU by 55% by 2030.[129]

So far, for those of us who are proponents of these initiatives, we are losing the argument. Detractors of the European Green Deal, and renewable energy more broadly, are casting blame on these initiatives for causing the energy price crisis we are currently experiencing.

129. European Commission, "A European green deal", https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en (2021); European Council, "Fit for 55", https://www.consilium.europa.eu/en/policies/green-deal/eu-plan-for-a-green-transition/ (2021).

In actual fact, we know that the cause of this crisis is rooted in our dependence on fossil fuels, which exposes us to volatile gas prices.

> "The green economic transition, and with it initiatives such as the European Green Deal and #FitFor55 policy package, is an opportunity for less developed countries, not a threat"

As a union, the EU is not as united in its vision for a low-carbon future as one might think. Member states in central eastern Europe, as well as those in the south and far reaches in the colder north, typically view #FitFor55 with suspicion – sometimes even hostility. So there is a risk of exacerbating internal divisions within the Union. Policy packages which appear feasible and beneficial for the majority of people in the densely populated and well-developed northwest of Europe are not always welcome elsewhere.

Nevertheless, there is still an opportunity to deliver EU-wide decarbonisation without further widening divisions within our Union. Three key principles are required to achieve this.

The first is a technology-first approach. Any phase-out dates for certain commodities – or any imposition of quotas, excise duties, tariffs or taxes on existing technologies – should be conditional on the basis that there are alternative technologies available which are accessible and affordable for consumers, with the necessary infrastructure in place.

A good example of this is electric vehicles. Many countries have established a phase-out date for petrol and diesel vehicles in a bid to shift drivers towards electric models. Yet, electric vehicles carry a higher upfront price, making them unaffordable to many consumers.[130] In many countries, particularly those less developed and with poor electricity grid infrastructure, electric vehicles are not an accessible

130. Patrick Hall and Ryan Shorthouse, "Driving uptake: maturing the market for battery electric vehicles", *Bright Blue*, http://www.brightblue.org.uk/wp-content/uploads/2021/02/maturing-the-market-for-battery-electric-vehicles.pdf (2021).

form of transport given there are limited places where they can be charged. A system of gradual phase-outs, with milestones which must be met regarding stable infrastructure, should be established.

The second principle is a market-first approach. Politicians often speak of being 'technology neutral' regarding the different pathways to decarbonisation. But our legislation points to a particular pathway – electrification – as being the pathway of choice. Instead, we should be legislating to support market competition between different low-carbon technologies, rather than picking winners.

The 'chicken and egg' dilemma often applies to different technologies – should the infrastructure to support a particular technology's rollout come before the technology itself, or vice versa? Frequently, politicians believe they have the answer to this question and often they are wrong. Once again, the market should be left to resolve this dilemma, not politicians.

> "It is not in the North Rhine region, where most of Europe's wealth is concentrated, but in the Maritsa valley on the Bulgarian-Turkish border, on the very edge of our continent and Union, where the fate of the European Green Deal shall finally be decided"

The third principle is a vulnerable groups-first approach. We do not need to be providing subsidies for low-carbon commodities to wealthy and upper middle class consumers. For some time now, investment in low-carbon technologies has been profitable, and it is wealthier households who pay less overall to use their vehicle by driving electric and have lower energy bills as a result of better insulated homes. To reduce inequalities, and put a stop to the narrative that going green is a luxury available only to those well-off, funding for low-carbon transport and housing should be directed to those less well-off.

The same principle should apply to businesses as well. Small to medium sized businesses should be the recipients of any government

funding to support low-carbon choices as opposed to larger businesses with more robust balance sheets.

> "As a union, the EU is not as united in its vision for a low-carbon future as one might think"

As an MEP, I advocate for low-carbon energy, green innovation and investment directed towards the most vulnerable to deliver decarbonisation. Because of this, I am often told to 'get down to earth' and reminded that I live in a less developed country. However, Bulgaria is a country which lacks energy efficiency and competitiveness. We do not have profitable fossil fuel reserves of our own – apart from low quality lignite, which requires large state subsidies to make it affordable and less polluting. And as for our coal reserves, we pay a social and environmental price for its extraction. Therefore, it is *because* of these factors that it is all the more important that I advocate for a green economic transition.

The green economic transition, and with it initiatives such as the European Green Deal and #FitFor55 policy package, is an opportunity for less developed countries, not a threat. But to win the debate against detractors for a green economic future, legislators must apply the three aforementioned principles.

Central and Eastern Europe is the key to the success of the EU's net zero ambitions. It is not in the North Rhine region, where most of Europe's wealth is concentrated, but in the Maritsa valley on the Bulgarian-Turkish border, on the very edge of our continent and Union, where the fate of the European Green Deal shall finally be decided.

Radan Kanev MEP *is a Bulgarian Member of the European Parliament, sitting as a member within the Group of the European People's Party.*

Climate change has no respect for national borders and as such can only be mitigated through international cooperation, demonstrating the importance of COP26 and climate diplomacy more broadly.

Despite the UK's departure from the EU, there is still a case to be made for close cooperation between the two on climate change. This collection of essays, authored by UK politicians, members of the European Parliament, academics and thought leaders highlights policies and priorities for both the UK and the EU across the dimensions of climate security, migration and innovation.

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