GREEN IDEAS

Incentivizing Innovation: Sustainable Solutions

Bertelsmann
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ABOUT BERTELSMANN FOUNDATION

The Bertelsmann Foundation (North America), Inc., established in 2008, was created to promote and strengthen the transatlantic relationship. Through research, analysis, forums, and audiovisual and multimedia content, we seek to educate and engage our audience on the most pressing economic, political, and social challenges facing the United States and Europe. We are the U.S. arm of the Germany-based Bertelsmann Stiftung.

At a time when many are asking what people from all parts of the U.S. and Europe think about global issues, our aim is to bring our work to audiences outside Washington and Brussels. Through discussion forums, documentary film screenings, and other events, we present our materials to diverse audiences of students, educators, community organizers, journalists, and policymakers. Our goal is learning together how the transatlantic relationship affects us all, and how we can shape it in the future.

ABOUT CEPI

The Congressional European Parliamentary Initiative (CEPI) is a transatlantic fellowship now in its thirteenth year. Each year, the fellowship convenes transatlantic policymakers over a period of two weeks, split between the United States and Europe. Given current global circumstances, the 2021 cohort of fellows met virtually from June through October, during which various guest speakers provided insight on topics ranging from the European Green Deal to sustainable construction. Over the course of several months, CEPI participants engaged with diverse, high-level stakeholders across a variety of sectors to discuss transatlantic cooperation and the future of sustainability. The goal of these combined experiences was to provide participants with tools to enhance policy formulation, deepen participants' understanding of transatlantic legislative processes, and to build bridges to safeguard the long-standing friendship between the European Union and United States.

ABOUT THE MAIN AUTHOR

Chloe Laird
Manager Transatlantic Relations

Chloe manages transatlantic relations at the Bertelsmann Foundation, where she runs the annual Congressional European Parliamentary Initiative (CEPI) fellowship. Her portfolio also covers transatlantic politics and policy. A recent graduate of Georgetown University's Master of German and European Studies in the School of Foreign Service, her prior research heavily focused on issues related to Transatlantic security.

She received her undergraduate degree in Spanish and International Relations at the University of Virginia. Prior to joining Bertelsmann, she interned with the Naval History and Heritage Command in Washington DC as well as the Centre des études, des réserves et des partenariats in Paris, France.

For questions about CEPI and this publication, Chloe can be reached at Chloe.Laird@bfna.org

ABOUT THE FELLOWS

Senator Ben Allen

(D-CA) California State Senator Ben Allen was elected in 2014 and reelected in 2018 to represent the 26th District covering the Westside, Hollywood, and coastal South Bay communities of Los Angeles County.

Ben's work in government focuses on prudent decision-making and reforms that address systemic inadequacies in our state. An attorney and former school board member, he has authored crucial legislation in the areas of environmental protection, green transit, educational opportunity, and electoral reform. He chairs the Senate Committee on Environmental Quality and the Joint Committee on the Arts, and he is immediate past-chair of the Legislative Jewish Caucus. Born and raised in Santa Monica, Ben is a son of teachers and holds degrees from Harvard, University of Cambridge, and UC Berkeley. He and his wife, Melanie, have one young son, Ezra.

Johannes Geibel

(Bundestag) Johannes graduated in International Economics (B.Sc.) at the universities of Tuebingen (Germany) and Cape Town (South Africa) (2011) and recently obtained a master's degree (M.Sc.) in Public Economics from the Free University Berlin. He is a co-founder of the student's initiative Greening the University, Tuebingen, became actively involved as its chairman and co-developed and implemented the Studium Oecologicum at the University of Tuebingen.

In 2012, he joined Netzwerk N e.V., a German network of student-led initiatives aiming at promoting and supporting a student-driven transformation of universities towards sustainable development. Between 2013 and 2018, he acted as its chairman representing the network on conferences and political talks. He also worked as a project manager for Netzwerk N and was supporting student initiatives at universities across Germany to increase their transformative capacity by transferring knowledge, exchanging best practices and developing sustainability concepts for their universities. Since April 2018, he acts as head of office and policy advisor on innovation and technology policy for Dr. Anna Christmann, Green member of the German Bundestag.

Scott Goodwin

(Private Sector, D.C.) Scott is an Assistant Vice President at the Global Financial Markets Association (GFMA) where he focuses on multiple priorities including sustainable finance and the opportunities and risks from new technology.

Prior to his role at GFMA, Scott worked directly in the financial services industry at Goldman Sachs and as a consultant at Reference Point. In these roles he learned firsthand how banks and the financial services industry operate. He was also involved in multiple projects relating to the development and implementation of new technology systems and operational processes.

Scott holds an MBA from the University of Maryland's Robert H Smith School of Business, and a bachelor's degree in Political Science and Spanish from Villanova University. As part of his MBA program, Scott participated as an analyst in the University's Global Equity Fund and also had the opportunity to take courses focusing on sustainability and digital transformation.

Vincent Hurkens

(European Parliament) Vincent Hurkens works as a senior policy adviser to Bas Eickhout, Member of the European Parliament, Vice President of the Environment Committee and member of the Economic and Monetary Affairs Committee. Over the past years his key legislative work for Eickhout was the EU's Sustainable Finance Taxonomy Regulation for which Eickhout is the Parliament's rapporteur. Besides sustainable finance, other policy areas that Vincent recently worked on in the European Parliament include the EU's Covid recovery fund, European economic governance, taxation and trade. Before joining the European Parliament, Vincent worked for the Permanent Representation of the Netherlands to the EU and the European Commission. Vincent grew up in the Netherlands. He studied in Nijmegen, the Netherlands and Berlin, Germany and holds a Master's degree in Political Science from Radboud University Nijmegen. He has two children and lives in Brussels.

Miika Korja

(Private Sector, Finland) Miika focuses on nature, biodiversity, and climate solutions at Sitra, the Finnish Innovation Fund. Sitra was selected in 2018 as a leading driver of the circular economy at the World Economic Forum in Davos. Miika's background is in sustainable finance and ESG in asset management and corporate banking.

Miika first encountered environmental issues while studying in India in the United World College programme on a Finnish Cultural Foundation scholarship. He served as a chief fire officer for the college's fire brigade, which was responsible for protecting the valuable Van Vihar Biodiversity Reserve against wildfires. From India, Miika's journey continued to Bolivia, where he worked in ecotourism in the Amazon.

Miika holds a master's degree in Environmental Policy and Regulation from the London School of Economics, and a bachelor's degree in Policy Science (Governance, Economics and Development) from Leiden University College the Hague.

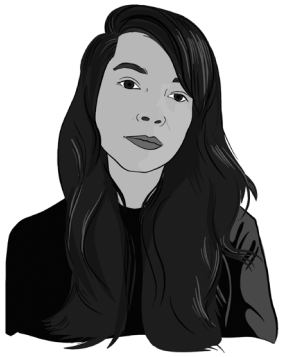
During his time in London, Miika was Partner at Affirmative Investment Management, the world's first dedicated green and social bond fund management company. Most recently he worked for the OP Corporate Bank in Helsinki, focusing on the environmental, social and governance aspects in corporate finance.

Nera Kuljanic

(European Parliament) Nera is working as a policy analyst in the research service of the European Parliament in Brussels (European Parliamentary Research Service, EPRS) where she is supporting the work of the EP's Panel for the Future of Science and Technology (STOA). The EPRS' mission is "empowering through knowledge" and in her capacity, Nera is providing evidence-based information and analyses to support Members of the EP in their policy-making role on a range of topics with a strong scientific and technological dimension. Nera has an academic background in nutrition, food science and development and prior to joining the EP she has been working in the non-profit sector on issues and subjects related to food, health and consumer behaviour, and development.

Representative Four Price

(R-TX) State Representative Four Price, a fourth generation Texan from Amarillo, is proud of both his Texas and Panhandle roots. In 2020, Price was elected to a sixth term in the Texas House of Representatives where he continues to vigorously advocate for the betterment of the Texas Panhandle and the entire Lone Star State. Representative Price serves on the House Public Health Committee and the House Natural Resources Committee. Price also co-chairs the Health and Human Services Transition Legislative Oversight Committee which was established pursuant to legislation he sponsored.



Livia Puglisi

(Bundestag) Livia heads the office of the Former President of Germany Christian Wulff. Her responsibilities include international relations, European policy, democracy and cohesion of society. Prior to this she worked as political advisor and project manager at the Multilateral Dialogue office of the Konrad-Adenauer-Foundation in Vienna covering all multilateral topics. From 2013 to 2018, she worked for a member of the German Bundestag. There, she oversaw the membership of the Committee on European Affairs and the reporting on Turkey. She is a member of the Working Group on Terrorism and Homeland Security of the Konrad Adenauer Foundation, a member of Women in International Studies, and Secretary General of the Austrian-Italian Association. Livia Puglisi graduated in Law and Romance Studies at the University of Vienna.

Introduction
Incentivizing Innovation: Sustainable Solutions

Wildfires. Blistering temperatures. Hurricanes. Earthquakes. Melting Ice Caps. The natural disasters that will be exacerbated by climate change are numerous. The statistics coming out of every report about what has been dubbed the anthropogenic era describe a very dark future—one that might cause feelings of hopelessness and desperation. But harnessing emotion into action is a key component of transforming what seems to be an impossible situation into an opportunity to build a world that will thrive far beyond our own lifetime.

From June to October 2021, the Bertelsmann Foundation brought together a group of transatlantic thinkers composed of policymakers and private sector innovators to discuss topics related to sustainable innovation. In weekly seminars, they discussed topics ranging from climate communication to the future of food with expert speakers. This publication reflects the fellowship itself, inspiring discussion and debate, and demanding change for the future of sustainable living.

Released to coincide with the UN Climate Change Conference (COP26), this publication aligns itself with the aspirations set out by international organizations and its member nations. COP26 provides opportunities for international actors to come together and commit to climate action. This publication seeks to add to the ongoing conversation with tangible, actionable recommendations for various sectors affected by climate change.

Incentivizing Innovation: Sustainable Solutions

is a compilation of eight short policy briefs that provide a way forward and can help transform conversation into action.

The diversity of the policy briefs presented here reflect the varied backgrounds of the fellows, whose expertise ranges from the future of plastics to preserving biodiversity in the fight against climate change.

This transatlantic dialogue shows what the future of combating climate change needs to look like. It begins at the local and national levels, but to effect change it must also include effective international cooperation. This issue transcends borders, requiring a global fight—one in which a new age of global thinkers will have to emerge in order to address the issues that threaten the world in which we live.

NO GREEN WASHING

If the EU Wants to Be the World's True Leader in Sustainable Finance It Should Start Concentrating on "Unsustainable Finance"

By Vincent Hurkens

Sustainable finance is booming. Investing in assets that are screened against Environmental, Social and Governance (ESG) factors is more popular than ever. According to Bloomberg, ESG assets under management could climb to more than a third of the projected $140.5 trillion global total by 2025[1]. ESG debt is growing rapidly, too. Green, social and sustainability-linked bond issuance is growing year after year. In the EU27, the number of green bonds issued has been growing by about 47.2 percent[2], while the volume has been growing by about 50.9 percent per year between 2015 and 2020. Pledges by financial institutions to reduce emissions and protect nature are piling up[3].

But while enthusiasm about green finance is of welcome, and much needed to cope with the multiple environmental crises humanity faces, we need to question many of the sustainability claims made in private and public finance. "Greenwashing" is unfortunately very common, due either to limited or flawed information on ESG risks or to investors who mislead intentionally. A recent report showed that Europe's 25 largest banks lack comprehensive plans to address both the climate crisis and biodiversity loss[4]. The former BlackRock sustainable investment employee Tariq Fancy went so far as to call the ESG industry "a dangerous placebo.[5]"

It is therefore understandable that much of the European Union's regulatory agenda has so far focused on making financial ESG claims more trustworthy and to counter greenwashing[6]. The EU has created a legal definition of environmentally sustainable economic activities in the so-called EU taxonomy. It is gradually expanding obligations for different financial market participants and corporations to disclose sustainability-related information. The European Commission has proposed an EU Green Bond Standard. Binding minimum climate spending targets have been set for public investment via the EU budget, including for the recovery fund of €670 billion, which will be financed in large part by green bonds.

The focus of most of these policies is to identify sustainable investment needs and promote the growth of these investments. However, to measure real impact of the green trend in financial markets and sustainable finance policies on reducing emissions and other environmental externalities, we should not merely measure the growth of so-called sustainable investments and debt, but look at the complete picture. Is the growth in

sustainably labelled investments matched by a sufficiently rapid decline of investments in economic activities that are incompatible with a safe climate?

Do the standards set with sustainable finance regulations really lead to different investment decisions and subsequently different environmental outcomes?

If we look at some real-world facts, the global enthusiasm for sustainable finance has not yet translated to a shift from unsustainable to sustainable investment. In 2020, clean energy investments by the oil and gas industry accounted for only around one percent of total capital expenditure. Final investment decisions for coal-fired power reached 20 GW in 2020, the first yearly increase since 2015[7]. Also, compared to 2020, the total value of investments in companies at risk of fuelling deforestation has increased from $37.2 billion in 2020 to $45.3 billion in 2021[8].

Policy Objective

If sustainable finance policies are to have an effective impact in terms of sustainability, policy makers should shift from a narrow focus on the growth of sustainable investment only, towards a broader strategy that includes preventing new investment in polluting activities and require decommissioning or transitioning for existing polluting activities within a limited time frame.

The current focus of many sustainable finance initiatives is based too much on wishful thinking that if regulators promote sustainable investment, harmful investment will somehow stop—quickly and automatically. The EU taxonomy currently defines what is sustainable, but does not offer a category of harmful economic activities. The recently proposed voluntary Green Bond Standard based on this taxonomy creates a label for more credible Green Bonds, but will not affect the sustainability of all other bonds issued. Similarly, an EU ecolabel for financial products based on the EU taxonomy will set standards for particularly sustainable products but leave the rest of mainstream financial products untouched. Rather than concentrating our concern on assets at high risk of becoming stranded in the EU's capital requirements, the recently adopted Commission strategy for financing the transition focuses on loosening capital requirements for green spending[9].

Without more regulatory focus on the entire financial system, the EU risks building a regulated universe of sustainable financial instruments onto a much bigger financial system that is left mostly unregulated in terms of sustainability challenges. One consequence of this approach is that rules and standards are emerging for providers of sustainable financial products, but the same kind of regulation is not imposed on

financial products that have no intention of making any efforts towards sustainability. The burden of complying with standards is thereby placed on the "good guys" rather than on market participants offering financial products associated with the most environmentally problematic economic activities. This seems like the world upside down.

Action Items

1. A taxonomy for significantly harmful activities

Expanding the EU taxonomy is the first step toward including unsustainable investments in the broader sustainable finance policy agenda. A more comprehensive taxonomy would define not only the criteria for economic activities to qualify as sustainable, but also when activities should be defined as environmentally harmful.

Defining harmful economic activities does not mean completely cutting off financing to certain companies or sectors associated with polluting activities. As preparatory work to extend the taxonomy by the EU's Platform on Sustainable Finance shows, many activities that are currently harmful have the potential to transition into more sustainable operations[10].

Financing of companies with that potential can continue under the strictly enforced condition that their activities reach acceptable environmental standards within a given timeframe. But economic activities that cause irreversible harm to nature (such as oil exploration in the Arctic, intensive agricultural practices leading to ecosystem degradation), or activities in technologies (such as coal fired power generation) which cannot credibly transition toward acceptable sustainable levels should be identified, exposed, and made to feel the consequences by public and private investors and lenders.

Establishing a means of identifying harmful economic activities brings an additional advantage of creating a third category between fully sustainable and harmful. This could reduce the pressure by private lobbies and governments who are currently pushing to add controversial economic activities, such as power generation from gas or nuclear, to be recognised as fully sustainable.

2. A policy agenda to end investment in harmful activities

A taxonomy with defined economic activities that should either transition or disappear, would be a powerful tool for both public authorities and the private sector. It could guide public funding decisions and put a clear focus on which harmful subsidies should be abandoned as soon as possible. This includes authorities at the local, regional, national and EU level, as well as public financial institutions such as the European Investment Bank and national promotional banks.

A taxonomy including harmful economic activities could assist financial supervisors in assessing exposures to harmful assets and facilitate climate and financial stability stress testing. The European Central Bank has stressed that quality and consistency of climate-related data is essential to advance their ambition of integrating climate change and environmental considerations into monetary policy and has highlighted the limitations of the current EU green-only taxonomy[11].

For the sustainable finance agenda to have a direct impact on reducing harmful investments, initiatives to report on environmental risks should be accelerated and followed by action in terms of prudential requirements to properly manage those risks. Currently, however, the Commission is looking into loosening prudential requirements for banks and insurance companies for assets associated with sustainable objectives. To manage climate and environmental related financial risks and to effectively discourage harmful investments, the focus should again shift from sustainable toward unsustainable. This implies stricter capital requirements for financial institutions holding assets associated with harmful activities. Another useful measure would be to require credit ratings to take environmental risks, including risks of environmentally harmful assets becoming stranded, strictly into account. In addition, the current progress in enhancing sustainable disclosure requirements should be underpinned by a clear obligation for companies and investors to set greenhouse gas reduction targets and transition pathways.

These proposals differ crucially from current policy initiatives in that they focus on the entire financial system rather than limiting regulation to actors that show voluntary interest in ESG practices.

3. Building global consensus not just on green but also on polluting: 'the Brussels effect'?

The EU rightfully aims to be a global leader in the field of sustainable finance. EU policies and standards can inspire other jurisdictions to accelerate the transition to a sustainable economy.

Its taxonomy for green investment, with detailed technical screening criteria to determine the sustainability of economic activities, is being watched with interest globally. However, despite several international forums where taxonomies are being discussed— such as the International Platform on Sustainable Finance and the G20's sustainable finance working group—there is no clear perspective for global harmonization of taxonomies yet.

The tendency to limit the focus of efforts on growing sustainable investment rather than moving away from harmful investments is also very visible in international coordination efforts on sustainable finance. The first synthesis report on sustainable finance prepared for the G20 is all about creating sustainable assets, sustainable private equity and venture capital, but remains completely silent on a strategy to phase out fossil fuels or other harmful economic activities[12]. The G20 Sustainable Finance Roadmap contains an agenda to identify environmental risks but remains very cautious on discouraging polluting investment[13]. This is an additional reason for the EU to shift focus quickly and shape the international consensus on sustainable finance in a way that effectively reduces emissions and nature loss.

If the EU moves quickly, it could not only push a more ambitious global consensus on sustainable finance in international forums, but also have a more direct global impact. As Anu Bradford has outlined in her book *The Brussels Effect: How the European Union Rules the World*, EU rules often set the de facto global standard because foreign companies will comply in order to gain access to the European market. This is what happened with data protection rules and the regulation of chemical substances. Given the EU's large market share of sustainable investing, this could happen in the field of sustainable finance, if the EU moves quickly and holds firm against lobbies trying to undermine the taxonomy's credibility.

Are we making finance flows consistent with a safe climate? Time for an honest evaluation in Glasgow

There is visible momentum for sustainable finance practices in the private sector, and regulatory sustainable finance initiatives across the world. Climate and environmental risks are increasingly taken serious by financial supervisors. Support is growing for a "double materiality" perspective where these risks are not only viewed through the lens of financially material losses for companies, but also the impact companies have on the physical environment. COP 26 is the time to seize this momentum.

"Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development" is a key article of the Paris agreement to which the international community signed on in 2015. When world leaders gather in Glasgow this year, it is time for an honest evaluation of the progress made in achieving this goal and the implications this has for the sustainable finance policies that have been pursued so far. The EU can and should play a leading role in Glasgow in making this evaluation and move the focus of action to preventing and addressing unsustainable investment. This would do justice to the alarming latest IPCC report, which shows how little of our carbon budget remains. This evaluation should also acknowledge that sustainable finance is limited in its ability to curb emissions and stop environmentally harmful

practices; it is not a substitute for putting a higher price on carbon and for protecting nature and human health with tougher environmental regulations.

Motivating Capital: Incentivizing the Transition to a Green Global Economy

By Scott Goodwin

Achieving the targets set out in the landmark 2015 UN Paris Agreement will require profound changes to nearly all sectors of the global economy. This will be difficult to achieve, but it should also create an unprecedented opportunity for investment in innovations that will define the new sustainable, carbon neutral world. Demand for green investment has grown significantly over the past five years, but we have not reached the level of investment necessary for transitioning the economy. The UN Intergovernmental Panel on Climate Change (IPCC) 2021 report found increasing atmospheric CO2 concentrations, prompting UN Secretary-General António Guterres to issue a "code red for humanity."[1] A lack of green products is one reason the economy has not transitioned, but the leading factor is a failure to address the true negative externality caused by carbon emissions.

To motivate the capital investment required for transition to a net zero economy, the long-term impacts of carbon emissions must be accounted for today.

Government incentives can be a helpful tool in encouraging corporations to adopt greener practices, but increasing costs attributed to carbon-intensive activities is a more powerful motivator. Currently, these costs are not always clearly attributable to specific activities and are often not included in mandatory corporate reporting. This information is essential for accurate and fair carbon pricing mechanisms and for fully informed investment decisions.

Ensuring accurate carbon emissions measurements is a critical first step toward promoting investment. Measurements must be science-based, verifiable and auditable to allow for inclusion in corporate disclosures. The Financial Stability Board's Task Force on Climate-Related Financial Disclosures (TCFD) took an important first step in developing a set of recommended disclosures for all sectors, including the disclosure of greenhouse gases[2] (GHGs) using the GHG Protocol Methodology[3]. But these disclosures are voluntary, and the TCFD's 2020 Annual Report[4] shows that the vast majority of companies across all industries do not include GHG disclosures in their reporting.

Fortunately, the G7 announced[5] in June 2021 its support for mandatory disclosures based on the TCFD framework, and for baseline global sustainability reporting standards. In line with this decision, the International Financial Reporting Standards

(IFRS) Foundation announced a proposal[6] to develop an International Sustainability Standards Board (ISSB) responsible for setting IFRS sustainability standards. The US does not follow IFRS standards, but US Securities and Exchange Commission (SEC) Chair Gary Gensler announced[7] that he has called for SEC staff to develop a mandatory climate risk disclosure rule for consideration by the end of 2021. These are positive announcements and support the efforts laid out by the G7, but both sets of standards must be comparable to avoid fragmentation. If these initiatives are successful, they will serve as powerful tools for investors to incorporate carbon emissions into investment decisions and will contribute to the development of an effective carbon price calculation.

Once carbon emissions are reliably measurable across all sectors of the economy, the cost of the externality caused by these emissions must be addressed. This can be achieved by two methods: a direct tax on carbon emissions; and an emission trading scheme (ETS) that sets a cap on emissions and allows for trading of carbon credit allowances based on need. In both cases, the effective price of carbon is high enough to disincentivize emissions at a rate equivalent or faster than required to achieve Paris Agreement targets. This can be achieved either under a carbon tax through yearly percentage increases, or under an ETS—by reducing total credit supply each year.

Each of these systems could be effective based on jurisdictional needs, but an ETS is easier to calibrate for Paris targets since carbon emission levels are directly controlled. This is especially helpful since the 2021 IPCC report[8] finds that initial carbon pledges under the Paris Agreement are no longer satisfactory for achieving temperature targets and that adjustments to allowances will be required. Since we need to reduce emissions globally, pricing must be applied effectively across all jurisdictions. To avoid "carbon leakage," whereby production is transferred to jurisdictions with less rigorous constraints, carbon border adjustment mechanisms (CBAMs) might be needed. An additional benefit from both pricing systems and CBAMs is that they generate valuable tax revenues, which can further support the transition.

Tax revenues from carbon pricing systems should be applied to furthering the transition to a green economy. There are two primary areas that require increased spending to support the transition. The first is public investment in technologies that have the potential to reduce emissions significantly; the second is investment in technologies that can reduce existing carbon in the atmosphere. Many breakthrough technologies[9] have benefited directly from public investment; green solutions will likely follow this pattern. Spending must also be used to cushion the cost burden of the transition for lower- and middle-class people, who are often disproportionately affected by increased costs and technological changes. Social protections and financial support will be critical

during the transition. Education and training will be needed to provide laborers with the skills required for new green economy jobs. If the social impacts of this transition are not addressed and managed, the public support necessary for its success will never be achieved. Increased revenues from carbon pricing must help offset the spending required to reduce the social impacts of the transition. Using revenues to subsidize the cost of investment for new green technologies can also make these technologies more affordable, further reducing the social and financial burden.

Global coordination will be required to facilitate the necessary investment for transition to a net zero economy.

This investment must be spurred by effectively pricing the negative externalities of carbon across all jurisdictions. Developing the sustainable accounting disclosures that will effectively and accurately measure GHGs is an essential first step, but we need further action to develop compatible carbon markets. One method to accomplish this is through Article 6 of the Paris Agreement, which encourages voluntary international cooperation to allow carbon credits to be internationally transferred. However, the rules for implementation have yet to be agreed upon.The 2021 UN Climate Change Conference (COP26) will provide a significant opportunity to re-open discussions on Article 6 and finalize the rules for interlinking jurisdictional carbon markets. If there is no agreement, larger jurisdictions must push forward by developing compatible and interlinking carbon markets. Through international coordination, it will be possible to price the negative externality of carbon emissions effectively and motivate the capital investment needed to transition to a green global economy.

The views expressed by the author's alone and do not necessarily reflect those of the Bertelsmann Foundation or the Global Financial Markets Association.

ZERO WASTE!

Food Waste: "Check, Before You Chuck"

By Livia Puglisi

1. Policy objective

In this short paper I will touch upon food waste and its impact on climate change, using the US and Germany as case studies. I will also provide a brief overview of the measures and innovations that could help resolve the food waste problem. My primary focus is on the steps society can take to decrease food waste.

1.1 Definition of food waste

The EU has no single definition of food waste, with member states using different criteria to define it. However, the Food and Agriculture Organization of the United Nations (FAO) differentiates between food loss and food waste:

Food loss is the decrease in the quantity or quality of food resulting from decisions and actions by suppliers in the food chain, excluding retailers, food service providers and consumers.

Food waste refers to the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food service providers and consumers. Food is wasted in many ways:

- Fresh produce that deviates from what is considered optimal, for example in terms of shape, size and color, is often removed from the supply chain during sorting operations;
- Foods that are close to, at or beyond the "best-before" date are often discarded by retailers and consumers;
- Large quantities of unused or leftover wholesome edible food are discarded from household kitchens and eating establishments[1].

2. Short overview and background on food waste

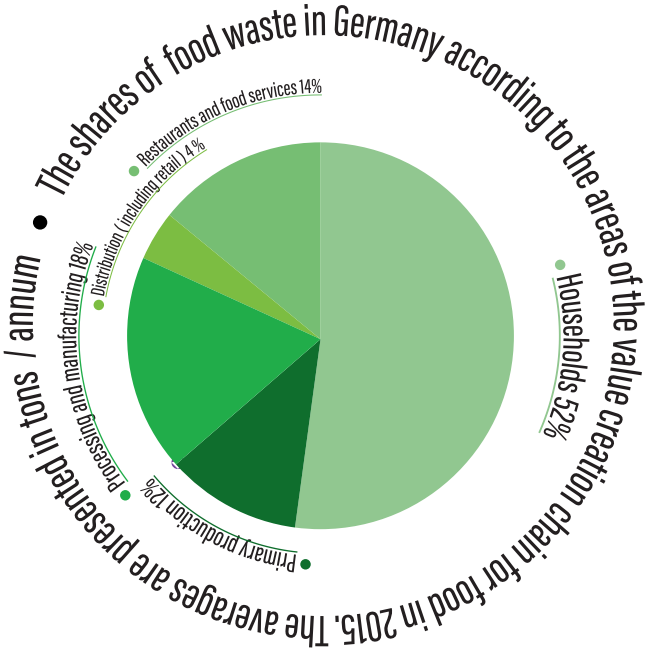
Food waste is a global problem. I believe change is possible if people understand its roots and the role played by their behavior. In a globalized world food production is a major challenge, with demand for agricultural resources rising not least because the global population is growing. The FAO estimates that the demand for food will rise by 60 percent per person by 2050[2]. We must find a more sustainable way of producing and treating food.

2.1 Food waste in Germany

The German Federal Cabinet adopted the National Strategy for Reducing Food Waste in 2019, based on a report published by the Thünen Institute. In Germany approximately

12 million tons of food loss and waste are created each year[3]. About nine million tons of that waste is avoidable. That corresponds to 108 kilograms per inhabitant, per year. Fifty percent of food waste is produced by private households[4]. The amount of unnecessary food waste produced by private households amounts to between €16.6 and €21.6 billion per year. That is €200 to €260 per capita each year.

The national strategy calls upon a joint effort from society, industry, government, and scientists to confront this challenge. There are dialogue forums, working groups and initiatives (such as "soup days" or "too good for the garbage") to attract the public's attention and invest consumers with a greater appreciation of food[5].
The figure shows the representation of the percentage of food waste by value chain. Primary production accounts for 12 percent (1.36 million tons); processing for 18 percent (2.17 million tons); trade for 4 percent (0.49 million tons), and out of house meals for 14 percent (1.69 million tons). The bulk of food waste is generated in private households at 52 percent (6.14 million tons), which is equivalent to about 75 kg per capita in 2015[6].



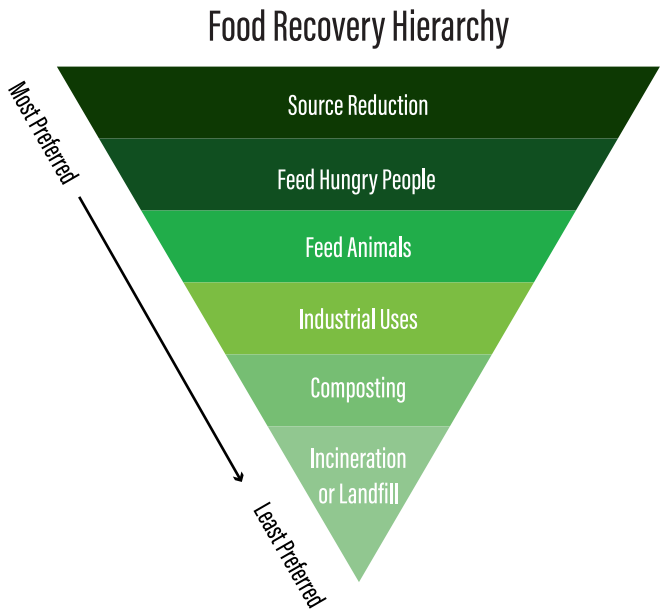
The following comparison helps to visualize these numbers: The average human weight varies by continent and sex from about 60 kg (130 lbs) to about 80 kg (180 lbs). In other words, in 2015 a person ate the size of an average person. This shows that the individual's impact on climate change via our food system is huge—and very expensive.

2.2 Food waste in the US

In 2018 food waste in America amounted to 103 million tons (81.4 billion lbs). This is equivalent to 450,000 Statues of Liberty. The annual food waste adds up to

approximately 161 million dollars. An average American family of four spends about $1,500 in wasted food per year[7].

In 2015, the US Department of Agriculture (USDA) and the US Environmental Protection Agency set a goal of cutting food waste by 50 percent by 2030[8]. The USDA uses a food waste pyramid to illustrate the problems caused by food waste:[9]



The pyramid is called the "food recovery hierarchy" and provides a logical breakdown of the most effective ways to address food waste. Food waste results from incoherent steps at the beginning of a nutrition chain. Adjustments to production methods, packaging, cooking, and garbage separation would reduce losses.

In the US various programs and strategies have been established to counteract food waste. Companies can become "food loss and waste 2030 champions" by committing to reduce food loss and waste in their own operations. Also, there is an Environment Protection Agency (EPA) Recovery Challenge that offers access to data management software and technical assistance to help quantify and improve sustainable food mechanisms[10].

In addition, the USDA offers a variety of food waste activities. They include educational measures about food loss and waste, information platforms, support for rural counties, and donations.

3. How do we get there?

Sustainable Development Goal 12.3 stipulates halving food waste and food loss by

2030. Individuals tend to doubt that changing their behavior will have any impact on the big picture. We think that it is up to governments and industry to take the initiative. But food waste shows that individual behavior is crucial.

A. Be aware of our habits

As consumers we focus on whether we will find what we need in a supermarket. Have you ever observed your own habits while strolling through the supermarket? Have you noticed how much food you throw away? Higher awareness of our own consumer and eating habits will lead to a different understanding of how we treat food.

B. Check and change behaviors

We can check what part of our everyday food routine is harmful and which part of it represents a possible change for ourselves without losing the joy of buying and consuming food.

C. Take action

We can put our findings into practice incrementally. Discussing at the family dinner what is still edible or whether grocery store purchases correspond with the quantity the family eats is one possible approach.

In recent years it has become an increasingly common practice to discuss our practices in food handling and consumption. Food apps help us make smarter choices. Independent small grocers sell imperfect produce and day-old bread. These changes are the first steps to reducing food waste. Another interesting area of innovation will be artificial food. It raises some ethical and moral questions, but could also help in fighting hunger and reducing food waste.

4. Why is food waste crucial to COP 26?

Food is responsible for approximately 26 percent of global GHG emissions. Livestock animals produce methane through their digestive processes. In addition, crop production leads to GHG emissions that nitrous oxides and carbon dioxide can evade. Food waste also causes large emissions[11]. If food loss and waste were a country, it would be the third biggest source of greenhouse gas emissions[12]. The resources needed to produce the food that becomes lost or wasted has a carbon footprint of about 3.3 billion tons of CO2[13].

According to the UN Food Waste Index Report, food waste from households, retail establishments and the food service industry totals 931 million tons per year. Globally, we waste a third of all food produced for human consumption. In the US that is equal

to almost one pound of food wasted per person per day. Staying at such a level would mean wasting the equivalent of 66 tons of food per second across the globe within 10 years[14].

COP26 will shape climate policy for the years to come. Our food system can cause harm to our environment due to inefficient production, packaging, distribution and storage. SDG 12.3. addresses food waste. It plays a key role when discussing how to create a more sustainable world. Raising awareness regarding the impact of our food consumption habits, and regarding the power of individuals to effect change, is critical.

We should see ourselves not only as consumers but also as sources of food waste.

COP26 should put our food system on the agenda and show sustainable methods of reducing waste. It is important to bring all the stakeholders to the table: farmers, food manufacturers, food supply chain, packaging, and consumers. Diets that are good for the planet tend to be good for people too[15].

NATURAL
PRODUCT

100%
BIO

GMO
FREE

100%
NATURAL

FARM
FRESH

ORGANIC
100%
NATURAL

Our Food is Destroying Our Planet: Ecolabels Could Nudge Us Towards Greener Food Choices

By Nera Kuljanic

What is the problem?

Our food comes with a climate cost[1]. Food production systems are responsible for around 25-30 percent of global greenhouse gas emissions. The majority of these, more than two-thirds, are related to deforestation and fertilizers, the methane produced by livestock, and fuel consumption. Food transport, packaging and waste account for much less. In addition to its impact on the environment, food waste is also unethical. Beyond emissions, the environmental impacts of modern-day agriculture include water footprint, eutrophication, soil degradation and biodiversity loss.

The way food is produced is destroying the planet. A profound change is needed involving all agri-food actors. At the end of the agri-food chain is us—i.e., the consumers. Day in, day out, our dietary choices convey our implicit support for certain food systems, production methods and types of food. Is there something that could help us choose better?

Consumers can be part of the solution...

Consumers can make a difference. They would like to know more about the environmental footprint of the food on their plates. For almost 60 percent of Europeans[2] sustainability considerations have at least some influence on their food choices, so they would like to see that information on food labels. The lack of information, the challenge of identifying sustainable food options and their limited availability are the most frequent barriers to sustainable eating—besides price.

Environmental labelling is already part of certain EU policies. For some types of products sold within the EU single market, the information is provided in a standardized way and is often mandatory. This helps to remove the information asymmetry between consumers and producers when it comes to the carbon cost of such products.

Car manufacturers are required to state CO2 emissions[3] for all cars advertised or sold, and household electric appliances carry energy efficiency labels[4].
A voluntary EU Ecolabel[5] is awarded to products and services for environmental excellence throughout their life cycle. When it comes to food, supermarket shelves are full of products carrying various labels and claims about their eco-friendly character. While some labels focus on single "issues," like water use, greenhouse gas emissions, and packaging, others have a more holistic approach that encompasses the environmental,

social and economic dimensions of sustainability. The labels are issued by NGOs (e.g., FAIRTRADE mark) or governments (e.g., EU organic logo, USDA organic seal). Similarly, private brands often make informative environmental self-declaration claims on their products. There is also "country of origin" and "sustainable fish" labelling.

But in the absence of clear or shared standards, these labels can be considered greenwashing. Existing food labels are overwhelmingly "endorsement labels," which simply certify that a product has met certain pre-defined criteria, offering no option to compare between products. Consequently, even the most motivated consumers can be at a loss when it comes to purchasing eco-friendly food.

Consumers need clear guidance and reliable information to do their part in reducing the environmental footprint of modern agriculture. Ecolabels—information or claims provided with products at the point of purchase—can convey the product-related attributes or production methods with reduced environmental impact, thus nudging consumers in a more sustainable direction. Preliminary scientific evidence[6] suggests ecolabels could be an effective policy tool to promote more environmentally friendly food choices.

...but how do we get there?

One food ecolabel to rule them all

The way out of this chaos is to present information consistently. For the sake of transparency, credibility and consumer trust, standards must be harmonized into a single system with clear criteria for claims on product labels, as is the case for nutrition and health claims[7] in the EU. In this respect, as announced in the EU Farm to Fork strategy[8], the European Commission is expected to propose in 2024 a sustainable labelling framework that will cover, in synergy with other relevant initiatives, the nutritional, climate, environmental and social aspects of food products. In the EU and the UK, a pilot project using front-of-pack environmental scores in the form of traffic light labels will be implemented as of September 2021. Foundation Earth—an NGO made up of international food giants, supermarket chains, EIT Food, and food and environment experts— developed the initiative. Based on the result of the pilot, they plan to launch an optimal environmental labelling system in 2022.

Designing a standard, applying it to products and overseeing its implementation is not straightforward. Label format, positioning, and the types of claims made are important. Sensible criteria are needed so as to provide useful guidance[9] to both vegans and meat eaters. A huge diversity of food products means trade-offs are inevitable. The complexity of the agri-food chain, range of environmental impacts and ambiguous definitions of sustainability make it difficult to calculate precisely the net environmental impact of a product. Lastly, the consumer decision-making process is complex. These are some of the challenges to be addressed before ecolabels on foods can be effectively implemented.

Mobilizing consumers: from intention to action

Consumers need reliable information to make informed, greener choices. But simply printing labels and logos is not a silver bullet that will transform a consumer's intention to make more climate-friendly food choices into action. To "activate" them, we must raise awareness of ecolabels, explain how to read them and how to understand their purpose in the context of living within planetary boundaries. This is the path to transforming knowledge into behavioural change.

Age, gender, education, socioeconomic status, food price, taste, habits and convenience are all factors that affect our purchase and eating behaviour. Different consumer groups may respond to labels in a different way: for example, those who are committed to making environmentally friendly choices in their daily lives will be more responsive to ecolabels.

There are other issues as well. A product that has both an ecolabel and a health claim can create a conundrum that pushes a consumer to, for example, select a healthy product that is harmful for the environment—or vice versa. To identify and address such barriers, real or perceived, wide communication and education campaigns are needed to "activate" consumers. This will require significant efforts and resources.

Assessing what matters

Research shows ecolabels could encourage more environmentally friendly food choices. But do they translate into sustainability benefits for our planet? It will be impossible to link a particular claim and product with a specific effect on the environment, but ecolabels put into place a credible assessment system. Such a system can also back up the awarding of labels, as well as support regulatory authorities in monitoring products and claims to prevent fraud. The assessment will have to select relevant environmental impacts across a huge diversity of production methods and products. It will involve developing analytical methods, choosing appropriate indicators and setting up data collection standards.

This is a mammoth task[10]. There is a big difference between single outcome improvements and a product's environmental impact across its full life cycle. Neither biodegradable packaging, nor reduced freshwater use in production guarantee that a product's net environmental impact is not harmful. A farmer practicing regenerative agriculture to improve soil health can still be a net greenhouse gas emitter. Another challenge is the relatively frequent innovation in ingredients and formulations of products, and variability in sourcing ingredients. This means that environment-related attributes of a single product can vary often. Another problem is data-related. Claims are mostly made on the basis of perceived impacts or proxy variables, rather than specific product life-cycle assessments or on-the-ground measurements. If data collection is required from farm to fork, it can place a huge burden on small producers and suppliers.

Our food comes with a climate cost.

Takeaways

If greenhouse gas emissions from food production continue at current trends, that alone could make it impossible to meet the goals[11] of the Paris Agreement. To prevent the planet from heating up, what we eat and how we grow it must change. Ecolabels on foods can communicate environmental impacts of products to consumers from farm to fork. Food producers, governments and consumers have shown interest in them. But the proliferation of eco-friendly claims on foods is confusing to the consumer. A single system is needed, involving consistently presented information based on clear criteria, for the sake of transparency, credibility and consumer trust.

Ecolabels can work two ways. To consumers, they can signal eco-friendly food choices. To producers, they can be an incentive for sustainable farming, rethinking supply chains, and reformulating products. Nevertheless, ecolabels are not a panacea to transform food systems. A broad set of policy measures[12] is needed to make a sustainable food choice the easiest option for consumers. Actions must be taken throughout the product life cycle from farm to fork (or dump), combining regulatory initiatives, fiscal "carrots and sticks," and education campaigns.

Nera Kuljanic is a policy analyst in the European Parliamentary Research Service (EPRS), the internal research service and think tank of the European Parliament. She is writing in a personal capacity and any views expressed do not represent an official position of the Parliament.

Biodiversity and Investments: Why Climate Change and Biodiversity Loss Must Be Tackled in Tandem

By Miika Korja

The financial community has quickly manifested itself as a prominent sector to tackle the climate crisis. The investments required for decarbonizing our economies, however, will far exceed the capabilities of the public sector. Back in 2007 and 2008, the European Investment Bank and World Bank worked as pioneers to direct mainstream private capital towards low-carbon investments with their respective Climate Awareness Bonds and Green Bonds. Private sector developments have spurred action in the public sector to help steer and define green investments[1].

Aside from working on climate mitigation activities, attention has also focused on carbon sinks, which help trap emissions from the atmosphere. Carbon sinks and the ability to "offset" emissions are crucial to consider, because many sectors in our economy, such as cement production, are difficult to make truly zero-carbon. Nature-based solutions are another avenue to trap emissions, most prominently reforestation[2].

The *Dasgupta Review on the Economics of Biodiversity* emphasized the intricate relationship between nature and our societies. Our economies have traditionally been seen to operate "outside" nature—yet as the Review meticulously lays out, our economies are in fact embedded within nature.

Biodiversity enables nature to flourish, and nature in turn allows our economies and societies to prosper.

Despite this, species are going extinct some 100-1,000 times faster than over the past millions of years.

What exactly is biodiversity? It's the diversity of species, genes, and ecosystems. According to Janne Kotiaho, Chair of the Finnish Nature Panel, life started on Earth some 4 billion years ago, and has since spread to form complex ecosystems on our planet[3]. Biodiversity on our planet enables nature to provide these invaluable ecosystem services on which our life and economies on Earth depends on.

According to the Boston Consulting Group (2021), the value of the global ecosystem services is estimated at $150 trillion annually, about twice the global GDP[4]. The OECD has emphasized that COP26 comes at a critical juncture to tackle multiple interlinked crises: climate change, biodiversity loss, infectious diseases and their severe consequences to human well-being[5].

The urgency of biodiversity loss must be seen in parallel with climate change, and they must be tackled in tandem

The most important policy objective is to put biodiversity loss on par with climate change. They are two interconnected crises and must be solved concurrently. Runaway climate change will render vast areas of our planet uninhabitable. Similarly, unchecked global biodiversity loss will obliterate nature's ecosystem services, which our societies and economies fundamentally depend on[6]. Some nature-based solutions offer invaluable climate change mitigation (e.g., carbon sequestration) and adaptation (e.g. ,flood insurance) services. Similarly, limiting global warming will also ease the pressures for biodiversity loss[7]. As the two global challenges are closely married, they must be solved together.

Global financial institutions must better understand their investments' impact on biodiversity and dependencies on nature and its ecosystem services

Financial decision-making processes influence which types of projects receive funding. Investors and banks can curb financial flows to activities that are harmful to nature, assuming they can identify these projects. In addition to curbing activities to nature-negative investments, investors can also weigh nature-positive investments in their portfolios. A better understanding of the impacts and dependencies on nature will help with the screening. Some climate-positive investments may in turn be negative for nature, such as building energy-efficient buildings in biodiversity hotspots or clearing out forests to produce biofuels.

We need companies to develop roadmaps towards net-zero emissions (climate change), as well as No Net Loss (NNL) for biodiversity

Companies know their own operations better than external stakeholders. Therefore, the commitment must come internally in terms of how to pursue ambitious climate and biodiversity strategies. Science Based Targets frameworks for climate and nature are among best-in-class examples for this[8].

The policymakers should also clearly outline what types of activities are acceptable with the combined climate and nature strategies. For example, rules around the use of offsetting and compensation must be clarified, as it applies to both climate and nature. When and how much offsetting is acceptable? How should companies follow a mitigation hierarchy with their climate and nature strategies (i.e., avoidance, minimization, restoration, and offsets)?

This is important to consider, as not all climate activities are necessarily positive for nature, and vice versa—as in the case, for example, of mining rare minerals for battery

manufacturing. This relationship is important to consider as we approach carbon sequestration projects, typically revolving around avoiding deforestation and pursuing reforestation. Local biodiversity enables critical ecosystem services to flourish (which ultimately enable our economies and societies to function), however, if one plants invasive species at biodiversity hotspots (which trap carbon), they can cause harm to local biodiversity. Eucalyptus plantations in the Amazon basin are a classic example of this problem. Eucalyptus developed in the harsh climate of Australia, can drain water and minerals from the soil at the expense of other species[9]. The European Commission Green Taxonomy seeks to remedy this with the Do No Significant Harm principle (with respect to other sectors in the green taxonomy)[10].

Financial institutions must better evaluate the biodiversity impacts and nature dependencies in their portfolios

Current Environmental, Social and Governance (ESG) analyses are useful for norms screening and excluding controversial companies from the investment universe and loan portfolios. However, more rigorous and sophisticated analyses are required in order to evaluate biodiversity impacts and nature dependencies in portfolios. This includes, for example, exploring which economic sectors are most dependent on nature's ecosystem services, for which the ENCORE database might prove useful[11]. The World Economic Forum study, which prominently argued that over 50 percent of global GDP is highly or moderately dependent on nature, was based on the same ENCORE database[12]. Understanding these nature dependencies is virtually the same as evaluating physical climate risks.

De Nederlandsche Bank has made another important study, "Indebted to Nature."[13] This study sought to evaluate Dutch financial institutions risks arising from biodiversity loss, which powerfully leveraged the existing climate risk frameworks with the topic of biodiversity. The study looked at the physical, transition, litigation and reputational risks arising from biodiversity loss to Dutch financial institutions. It found that Dutch financial institutions have contributed nearly €100 billion in finance to companies involved with environmental controversies, which illustrates the severity of the situation. For corporations and financial institutions wishing to employ such studies in the future, the Task Force on Nature-related Financial Disclosures (TNFD) might also be a useful tool[14]. The TNFD, which helps stakeholders analyze financial risks relating to nature, is currently under development, and was prominently endorsed by the finance ministers of the G7 economies in 2021[15].

We must redesign corporate governance incentives to better include sustainability impacts in the management team and board considerations

Corporations have for a long time been able to state: we only maximize returns for shareholders. To change this status quo at the C-suite and Board level, the remuneration targets and goals should be readjusted to better reflect companies' sustainability priorities and objectives. NGOs, such as WWF, recently published a legal guide for involving company boards, such that companies can take the strategic decisions to manage their sustainability risks and impacts[16].

For example, with Nordic corporations, there exist nascent incentive schemes for the management team members to consider ESG-metrics. The Chief Financial Officer of a large construction company in Finland, for example, claims their annual bonus structure is dependent on the work-place accident frequency per million hours worked. High number of accidents at work sites illustrates poor governance of social risks for the employees, which manifests as costs for the company (through increased sick leaves and absences, for example).

The same contingency payment structure should be applied in the context of biodiversity, nature, and climate impacts through transparent and measurable targets. Without financial rewards for management team individuals, it is difficult to optimise these metrics otherwise. Tracking the impacts on nature and biodiversity loss ought to benefit companies in the eyes of banks and investors, as well. The investors' ESG-rating of the company would likely improve, which could lead to lower cost of capital for the company, and thus better operative financial performance, as well.

From a global risk perspective, biodiversity has quickly manifested as a prominent theme for our global economic system. In the Planetary Boundaries Model devised by the Stockholm Resilience Centre, global biodiversity loss is one of the nine planetary boundaries that keep our planet inhabitable—climate change is another boundary[17].

Why are biodiversity and investments relevant for COP26? The reasons are twofold. First, some nature-based solutions offer invaluable climate change mitigation (e.g., carbon sequestration) and adaptation (e.g., flood insurance) services.
Similarly, limiting global warming will also ease the pressures for biodiversity loss. The organizers of COP26 have understood the interconnectedness of the two challenges —the IPCC and IPBES, for example, recently published a joint report, underscoring the interconnectedness of the two crises[18].

Second, the investment community has been identified as a key stakeholder for global efforts to limit warming to 1.5 degrees, as well as combatting biodiversity loss. Investment decision-making processes can influence corporate behaviour, as well as what types of projects are funded. If investors start requiring better disclosure around climate- and nature-related financial risks, this will trickle down to corporate behaviour as well. If investors and banks were to start evaluating biodiversity and nature risks in their portfolios more thoroughly, this would exert a tremendous push on the rest of the economy. This decade will prove very decisive for both the climate and biodiversity crisis.

ON THE ROAD TO PARIS

On the Road to Paris: How Innovation Policy Can Contribute to a Climate Neutral Future

By Johannes Geibel

Climate crisis is today

Climate change is the central and global challenge of our time. Never before have humans, or any other species, had such a massive impact on Earth's ecosystem in such a short period. The recently published sixth assessment report of the Intergovernmental Panel on Climate Change (IPCC) is a compilation of the worldwide state of research on the causes and consequences of climate change. It shows that one thing is certain: climate change is partly responsible for the increase and intensification of extreme weather events worldwide—heat waves, droughts, heavy rainfall, and hurricanes. The 2021 floods in Germany and in New York are unmistakable evidence that support these findings.

Even if we succeed at the global level in achieving climate neutrality by 2050, by the end of this century sea levels are likely to rise 62 centimeters more than they did from 1995-2014. Millions of people currently live in places that will become uninhabitable. Their livelihoods will be irrevocably destroyed, and the only way to save themselves will be to flee.

Climate change is already causing both great human suffering and enormous economic damage. One example: the heavy rainfall events of July 2021 in the German states of Rhineland-Palatinate and North Rhine-Westphalia cost 181 people their lives and rendered entire towns and villages uninhabitable. The German government estimates that rebuilding public infrastructure such as schools, roads, railroads, and sewage systems will cost 30 billion euros. This does not include the cost of damage to private property—homes, factories, and cars.

We are in the middle of the climate crisis and must tackle this challenge now in Europe, the US, and the rest of the world.

The transatlantic axis is of central importance here. The Biden administration presents a historic opportunity to revitalize transatlantic cooperation and put our economies on a path toward climate neutrality. Together, the EU and the US account for about 25 percent of global CO2 emissions and generate about 32 percent of global economic output in purchasing power parity (PPP). These two highly developed economic regions have both an obligation and the technological resources to generate their prosperity in a climate-neutral way.

No climate neutrality without innovations

Cosmetic changes will not be enough to achieve climate neutrality. Ultimately, we will have to change our energy and resource requirements completely: instead of oil, fossil gas and coal, the future energy system will be based on renewable sources such as solar and wind energy. Instead of cars with fossil combustion engines, in the future we will travel by train, bicycle, on foot, or in emission-free cars. Instead of using oil and natural gas, we will heat our homes with renewable energies. Instead of manufacturing products with built in obsolescence that are destined for the nearest landfill, we will use them for longer and allow resources to circulate in the cycle.

Major changes will only be possible on the back of new innovations and technologies.

As a result, entirely new business areas and even industries will emerge with well-paid jobs, creating climate-friendly prosperity. The development and market introduction of solar cells can serve as an instructive example here. As an innovation from space research (researchers were looking for a form of energy generation for satellites), solar cells remained in a technological niche for a long time. Triggered by a fixed feed-in tariff for renewable electricity in Germany, among other countries, and high subsidies for the mass production of solar modules in China, among other countries, the solar cell began its worldwide triumphal march. As a result, electricity generation costs for solar power continued to fall and have been below those of coal-fired power for some time.

This example shows that innovations and new technologies don't just appear out of thin air. Rather, the right conditions are needed for their development, to move from the laboratory to the marketplace, and to replace the old technologies of the fossil fuel era. So, what does it take?

Getting the prices right

Climate-friendly or even climate-neutral technologies have long been ready for the market, but have not been widely deployed. We could have generated 100 percent of our electricity from renewable sources long ago—in the US, Germany, or Uganda. With wind turbines, solar cells, biogas plants and hydroelectric power plants, the necessary technologies are available and are already being used. But fossil technologies still have a decisive advantage in the market: many of the social costs of this old form of power generation—especially the social and environmental costs caused by CO2 emissions—are still not borne by the producers themselves. Thus, they externalize the damage they cause.

This must stop. For CO2 and all other climate-damaging gases such as methane, the climate costs must be internalized. And this must be done as comprehensively as possible for all sectors. A trading system with CO2 certificates, as currently implemented in the EU, and a CO2 tax each have their advantages and disadvantages. Above all, it is important that as many countries as possible, worldwide, agree on a system or make the different systems compatible. The EU and the US should lead the way with a joint CO2 pricing system, thus creating the world's largest economic area on the path to achieving the Paris climate goals. To increase pressure on countries without relevant CO2 pricing, the EU and the US should simultaneously adopt a workable carbon border adjustment mechanism.

One thing is clear: the right price signal alone will not be enough. But without effective and comprehensive CO2 pricing, even the best climate protection innovations will do us little to no good. The reason for this is simple and known as the so-called rebound effect: while the deployment of a climate-neutral technology would reduce demand for fossil resources in one sector, the drop in demand would also lead to falling prices, which would cause demand in another sector to rise. Thus, total emissions would remain the same and nothing would be gained for the climate.

It's science and research, stupid

Building on effective CO2 pricing, we need to significantly expand our efforts for climate-neutral innovations. Only with solidly funded science to back them are researchers free to explore and try out new things with uncertain outcomes. Government and business should therefore increase their financial investment in research and development. OECD countries, in particular, should commit to allocating four percent of their gross domestic product to research and development by 2025 and five percent by 2030, thus sparking an innovation dynamic.

We will not succeed without disruptive innovations

Climate-neutral technologies are already available for individual sectors, but we are still far from having the right answers ready for all sectors. Incremental improvements will not be enough. On the road to climate neutrality, we need huge technological leaps to cover 100 percent of our energy and resource needs from renewable sources. This will require not only more money for research, but also a different kind of funding. US agencies DARPA (Defense Advanced Research Projects Agency) and ARPA-E (Advanced Research Projects Agency-Energy) have much to teach us. As lean and agile funding institutions with flat hierarchies, they work with competitive funding that sets a visionary mission goal. Several projects with different technological approaches are then selected. Agile project management makes it possible to terminate projects

heading for a technological dead end in good time and to redistribute the remaining money to promising technology paths. To create more and faster technological leaps towards climate neutrality, we must increasingly rely on this funding mode.

Mobilize venture capital for climate tech

The availability of venture capital is a critical variable in getting innovations out of the lab and into the marketplace to grow. But with the climate issue comes a new problem. Because while today many venture capital funds operate with an investment window of five years, we will need longer staying power for new innovations toward climate neutrality.

Climate tech is predominantly "deep tech," with long development times. Individual players, such as the initiators of Breakthrough Energy, have recognized this and launched a VC fund with a longer investment horizon, but they are the exception. This is where states should step in to provide venture capital funding. By signaling their willingness to take on risk, they would mobilize private venture capital for climate tech.

Leverage the purchasing power of the state

The public sector buys enormous quantities of goods and services on the market every year. The German government alone spends an estimated 500 billion euros annually. Governments around the world should use this purchasing power to a greater extent than in the past to help climate-neutral products and technologies achieve a breakthrough more quickly. For example, states could procure only zero-emission vehicles or require the use of recycled concrete in their own buildings.

Conclusion

Time is running out. The climate crisis is worsening and so is the damage it causes. We will only master the transformation of our economies toward climate neutrality with innovations and technologies, but these will not emerge from nowhere: states must create the best conditions. In addition to effective CO2 pricing, we need increased spending on research and development, bold support for disruptive innovations, mobilization of venture capital for climate tech, and countries that procure their goods and services in a climate-neutral way.

PRODUCE · USE · RECYCLE

Plastics Production, the Circular Economy and How Subnational Governments Can Lead the Effort Fighting the Plastic Crisis

By Senator Ben Allen

Introduction

For too long, we have seen the impact of unchecked plastic production, consumption, and waste: beaches overrun by litter, waterways choked by waste, toxic emissions from the production process, local governments straining and stretching their already stressed infrastructure and budgets to accommodate the ever-increasing burden on their waste management systems. And yet, plastic use and waste continue to grow nearly unfettered.

The low price of oil makes plastic, which begins as a fossil fuel, less expensive to produce than to recycle. The economic slowdown caused by the COVID-19 pandemic decreased demand for oil, driving the price down further; this, in turn, made virgin plastic even cheaper. Recycled plastic is now 90 percent more expensive than new, bottle-grade plastic. We need significant collective action to meet this challenge. American and European lawmakers are slowly recognizing this problem, taking steps to address it through their respective Green New Deals and other proposed legislation and initiatives at regional, national, and subnational levels.

But while the European Green Deal mentions implementing a circular economy for plastics, this crucial provision is missing from the US proposal. American efforts instead center around a congressional proposal and various state-level initiatives. If we are to curb our overreliance on unsustainable plastics, state and local governments around the US must pick up the slack and play a leading role in implementing tough environmental standards on plastic waste while encouraging greater sustainability in the products and packaging space. California, the world's fifth-largest economy, is uniquely positioned to catalyze this movement and, in partnership with like-minded jurisdictions, encourage the rest of the country and the world to adopt a circular economy and diminish the damage plastics are wreaking on our environment.

Policy Objective

Source reduction and a circular economy are essential steps in reducing the health and environmental costs associated with plastics. They force manufacturers to reduce single-use plastic production and require them to be compostable or recyclable. But this type of important policy shift often requires an extraordinary amount of political will and, unfortunately, there are too many special interests invested in the status quo. While the

EU instituted rules to reduce single-use plastics and implement a circular economy in 2015, the US, the world's second largest plastics consumer, has yet to follow suit. Political reticence at the upper echelons of government and industry lobbying efforts present significant hurdles. That is why subnational governments must step in and do what the federal government has failed to do. Many states have already initiated the process: there are extended producer responsibility bills in statehouses across the country. These steps are essential, but so are multilateral efforts with the international community.

By coordinating efforts and policies, governments will ease the industry's transition toward more sustainable packaging and products.

California can and should collaborate with like-minded states and Canadian provinces and together work with European colleagues, using the diplomatic arena to advance a shared environmental agenda.

Proposals

1. Subnationals should expand their focus in foreign interactions from international trade toward environmentalism

While most foreign policy is the responsibility of the US federal government, state and local governments have a surprising degree of latitude to operate in foreign affairs. Several states have overseas offices. Governors and Mayors often participate in international delegations to attract foreign direct investment and to generate business interest in their jurisdictions. Like most states, the California governor's office has a business and economic development department that helps with loans, grants, and the advancement of California's industries overseas. The office also highlights trade and investment opportunities for foreign investors and offers export assistance for international businesses. International commerce and trade are certainly critical for states' economies, but the urgency of the climate crisis warrants a shift in their focus. States should exploit the diplomatic channels already available through their business development offices in order to coordinate robust environmental protections. If state governments coordinate on regulation, they will ease the transition to more sustainable product packaging.

2. Subnationals must focus on building relationships with transatlantic allies

The close relationship between the US and EU has facilitated collaboration on a myriad of policy initiatives. Most recently, the US has renewed efforts to work with EU partners on public health, technological cooperation, and democracy promotion. Crucially,

our transatlantic allies renewed their commitment to environmental protection at the US-EU Summit in June 2021—specifically to reducing plastic pollution. States should assume leadership roles in implementing this agenda and work with federal colleagues to turn the summit statement into actionable policies.

States with offices in EU countries should use them to monitor, assist, and learn from Europe's progress on circular economy advancements, share ideas with EU representatives on the ground, and brainstorm political strategy for the United States. For the same reason, states should engage with their local diplomatic corps. Los Angeles, for example, has the second largest delegation of foreign consuls general in the US, after New York City. These consulates present fantastic opportunities to discuss plastic waste reduction and relevant steps being taken with colleagues— particularly those from the EU.

3. Subnationals must engage with international organizations

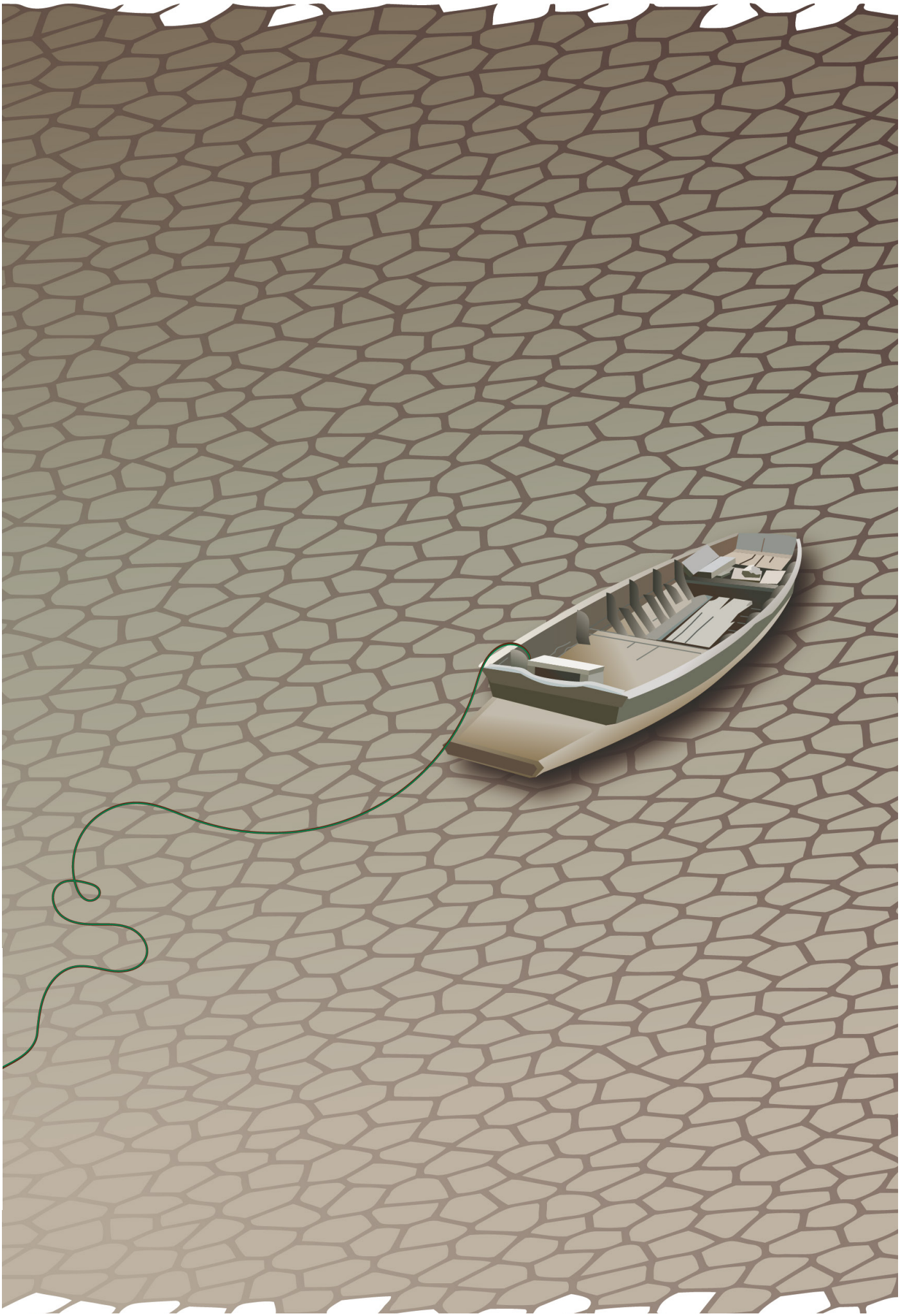
The plastics crisis is widely recognized as a global environmental priority, which is why multilateral bodies are increasingly including it in their agendas. Environmental stewardship is no longer a priority of the UN alone. Today, the World Bank, IMF, and WHO, are among the international organizations that recognize environmental quality is intertwined with most other priorities. While membership in international organizations is limited to sovereign states, subnational governments can work in a multilateral fashion through other channels. For example, in 2019 a delegation from California participated in the UN's COP25 conference in Madrid, alongside sovereign national governments. At that conference, the world recognized California's potential to be a global leader in environmental protection and the fight against climate change. Participation in COP25 was an important step for subnationals toward increased international involvement; it also opened the door for California to grow its influence in this space. California has since implemented environmental standards, such as an emissions trading system, that previously existed only outside of the country. By working in a multilateral setting, subnational governments can be privy to important discussions on environmental issues, implement progressive policies that are the norm abroad, and spur change at home.

Conclusion

According to a 2018 National Conference of State Legislatures study, state legislatures have an appetite to get things done that is largely absent in the US Congress[1]. National politics are polarized, but subnational politics are more bipartisan; there is more agreement on politics and policy, alongside the willpower and political wherewithal to take on tough challenges. Several US states have become economic powerhouses, which

means their governments have significant power over their economies. This combination of political and economic power allows states to assume a greater diplomatic role and tackle the pressing issues that are less likely to make it onto the agenda in a bitterly divided Congress.

In 2021 the California legislature introduced a comprehensive package of plastic reduction bills in coordination with legislators in several states. These efforts have produced several meaningful environmental bills— for the promotion of truth in labeling for recyclable materials and minimum content standards in recycled products—that are currently on governors' desks. The hallmark of this package is the Plastic Pollution Producer Responsibility Act. This bill will ensure California is at the forefront of reducing pollution and costs from single-use packaging and food service waste by keeping the most problematic disposable items out of the waste system, saving local governments millions of dollars in disposal costs, and protecting the environment. These efforts can and should catalyze greater coordination with other state legislatures and subnationals across the Atlantic to take similar action, to avert one of the most pressing environmental crises facing humanity, one closely tied to our climate crisis. By doing so, we can make tangible progress in digging ourselves out of the waste we have created and provide a better path forward for the planet.



The Politics of Climate Change Could Pose a Threat to National Security

By Representative Four Price

Introduction

Are you a "believer" or a "denier"? Even during this time of warming surface and ocean temperatures, extreme heat, droughts, prolific wildfires, hurricanes, and dangerous storms, taking a position on the role climate change plays is a politically supercharged act. While advocates and interested stakeholders debate whether to respond with environmental regulation, trade, market incentives, public relations, or education, the link between climate change and national security interests can often take a back seat to more familiar or relatable concerns. Perhaps it shouldn't.

The polarizing politics of this issue too often precludes effective communication between people who hold opposing views, which means they neither share scientific data nor keep open minds. Exacerbating matters is the sheer volume of misinformation communicated through numerous sources, including social media.

Polarizing issues rarely transcend politics, but policymakers must evaluate reliable and relevant data when security concerns are raised. Security and stability are important to all of us, no matter where we live; hence the importance of maintaining open minds and heightening individual and collective awareness.

1. Does climate change really carry national security implications; and if so, how seriously are those implications taken?

The U.S. military and national security agencies have all concluded in multiple reports that climate change is a national security issue[1]. Bruce Lieberman, a science and environment writer, reports that the U.S. Naval War College began to study the threat of a warming planet nearly four decades ago[2]. In the 1980s, U.S. national defense strategies and priorities were already guided by White House policy papers that acknowledged security threats posed by climate change[3]. The Office of the Under Secretary of Defense for Acquisition and Sustainment published a January 2019 report that asserts the "effects of a changing climate are a national security issue....."[4] In a 2021 article in *Defense News*, Aaron Mehta reports that "[t]he Pentagon will begin incorporating climate analysis into its war-gaming and analysis efforts as well as featuring the issue as part of its future National Defense Strategy[5]."

Lieberman notes in his article that "[c]limate change is rarely viewed as a direct cause of instability and conflict, but experts generally regard it as a "threat multiplier"—a

phenomenon that can worsen or exacerbate other sources of instability and conflict, such as competition for natural resources and ethnic tensions[6]." When climate change is not shown definitely to be the direct or proximate cause of a security threat, its role can be more easily obfuscated or buried beneath political posturing. But the threats are real. For instance, if extreme drought caused by climate change in South America drove an increased number of migrants in search of food and work to our country's southern border, an already complex set of problems would be amplified, putting further pressure on our ability to maintain adequate border security. If flooding, wildfires, heat waves or hurricanes caused any of our military bases and training/operational facilities to lose functionality (and this has happened)[7], then our threat response capabilities would be undermined[8]. These are examples of internal threats. If climate change is a threat multiplier, and many believe that to be the case, those in positions of authority who choose to ignore that threat do so to our collective detriment.

The leaders of tomorrow are products of today's discourse.

2. Will politics doom a fair discussion?

The leaders of tomorrow are products of today's discourse. Keeping national security concerns in the discussions and debates about climate change is important now and might be increasingly so in the future.

None of us wants to be the frog that cooks to death in a gradually heating pot of water, rather than saving itself by jumping out, because it does not perceive the rising temperature until it is too late. If we're open to varying perspectives and information and are willing to ignore the political noise in order to develop future strategies, we can avoid the fate of the allegorical frog.

Millions of people are now refusing to be vaccinated against COVID-19, or to wear a mask that prevents it from spreading, because they read some misinformation, or disinformation, on the internet. Others refuse to engage in completely safe interactions because they are paralyzed by an unreasonable and scientifically unfounded fear of catching the virus. People deny the validity of science even as political leaders on both sides of the equation are capitulating. If you were one of the people who didn't think, 18 months ago, that a global pandemic could create chaos and threaten our military[9], then perhaps now is the time to consider the possibility that climate change could cause even more significant problems in the not-too-distant future[10]. Politics has distorted the discourse on climate, while people are forming opinions based on the identity of the messenger, the political party, and even their preferred source of news and information.

Words alone can polarize people on the climate change issue.

Because Democratic politicians disagree strongly with their Republican colleagues on the significance and impact of climate change, their supporters on both sides become intransigent about opinions that reflect their political affiliation. The ideological gap on climate change developed in the 1990s and has increased ever since[11]. According to Elaine Kamarck, a senior fellow at the Brookings Institution, in 1997 Democrats and Republicans agreed in almost equal numbers that climate change had begun. A decade later, there was a gap of 34 percent, with 76 percent of Democrats agreeing that climate change was underway while only 42 percent of Republicans shared that view[12]."

I am a conservative Republican member of the Texas House of Representatives. I support all forms of energy production in my state, where it is a significant sector of our robust economy and drives important revenue collections. I'm well aware that politics can frame narratives and debates, especially regarding matters that involve money. In Texas, our oil and gas industry supports more than 2.5 million jobs, contributing more to the state's GDP and total income than any other industry[13]. The industry has helped lower energy costs for American households, providing $203 billion in annual savings, or about $2,500 a year for a family of four[14].

Those statistics drive policy discussions in legislative and regulatory circles; unsurprisingly, climate change isn't a high political priority in Texas. Nonetheless, related issues are being raised for evaluation. Katharine Hayhoe, an acclaimed climate scientist and professor at Texas Tech University, recently said "[i]f we don't fix climate change, it will fix us."[15]Hayhoe, who is also Chief Scientist at The Nature Conservancy, recently commented, in response to the latest Intergovernmental Panel on Climate Change (IPCC) report, that the impact of climate change is serious and that our current and future choices will determine outcomes for each of us[16]. She added that there is no equivocation about the existence of climate change and that we should be alarmed but also hopeful. Last year even Todd Staples, President of the Texas Oil & Gas Association, acknowledged that fossil fuels and the association's members contribute to global warming; he said that the industry will be working to reduce future emissions. Given the political and economic climate in Texas, some were startled by Staples's admission, even as others saw it as a harbinger of future actions by other leaders in the energy production sector. During a conference call with media outlets, Staples reportedly said, "I think Texas is at risk if we don't have a real, factual-based conversation about our climate, about our environment, and about the progress that needs to be made."[17] These examples illustrate that even in Texas, where oil and gas is king, science and industry leaders are publicly recognizing views that were once considered by many to be "politically toxic."

Politics kills many serious policy initiatives.

Conclusion

Politics kills many serious policy initiatives. Partisan arguments infect politics too easily because people are entrenched in their ideology or indifferent to issues because they seem too complex. Some people are driven by a sense of urgency over climate change, while others are convinced that the gravity is exaggerated. As a result of this polarization, discussion of the issue is stuck in a quagmire.

But it should be easy to find common ground in concerns regarding national security and stability. Whatever one's position on the spectrum of "true believer and complete denier," we should all want comprehensive attention and evaluation given to security considerations that impact us all—and not just those that fit a particular political agenda. No one can honestly deny that extreme weather events and patterns are a real threat or threat-multiplier to our country's stability and security. Each of us has a role to play in facing and dealing with this issue. We need to be disciplined, resilient and thoughtful. Depoliticizing climate change will make that effort easier. If we ignore it, our response to the threat multipliers on the horizon will be insufficient.

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Irene Braam
Executive Director

FINAL WORDS

The 2021 Congressional European Parliamentary Initiative (CEPI) engaged with a variety of themes throughout the fellowship. Below is the full list of the topics that were explored over the course of four months. If readers are interested in learning more, scanning the QR code will lead them to educational videos related to each of the themes explored. For additional information, readers can also visit www.greenideasbfna.org.

Climate Philosophy
A Transatlantic Initiative: The Green Deals
Sustainable Finance
Sustainable Trade
Innovation Policy For Sustainability
Sustainable Agriculture & The Future Of Food
Security & Climate Change
Sustainable Construction
Plastics Replacements

DISCLAIMER

The views expressed in these pieces do not necessarily represent or reflect the views of the Bertelsmann Foundation nor the employees of the organization.

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Bertelsmann
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1108 16th Street, NW Floor 1
Washington, DC, USA 20036