



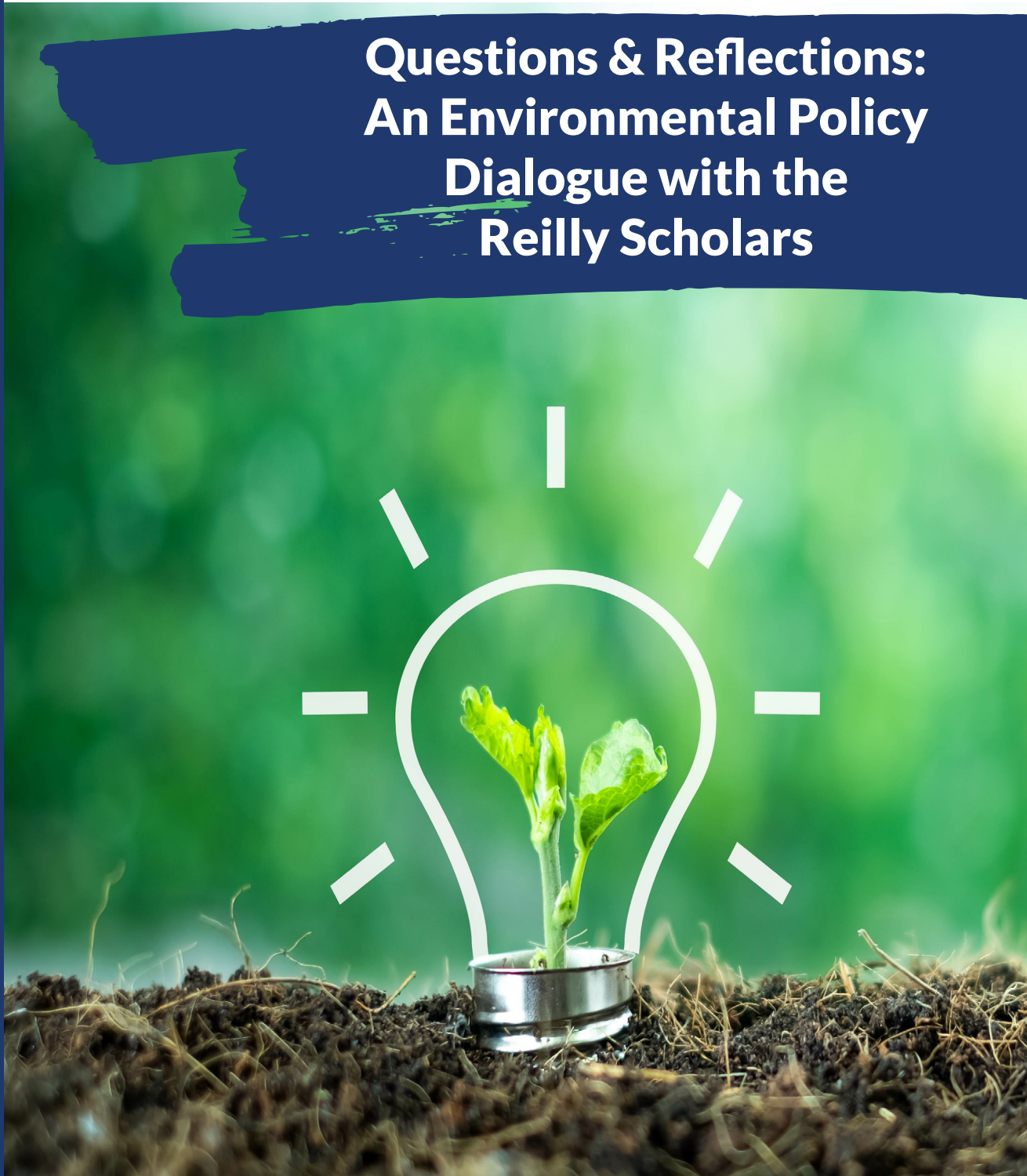
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Questions & Reflections: An Environmental Policy Dialogue with the Reilly Scholars



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Opening Letter ► WILLIAM K. REILLY

I consider myself fortunate in recent years to have forged a deep, productive relationship with American University's Center for Environmental Policy. One of the most rewarding aspects is the chance to meet and spend time with some of the young men and women who have been studying in the Center's academic programs. They are smart, thoughtful, talented, and dedicated to making a difference in the world around us.



The Center honored me by creating the Reilly Scholarships. The essays collected here are by a group of Reilly Scholars, who speak to the question of what's needed over the next many decades to address a top of mind environmental issue. Several of the essays focus on climate change and our energy sources. No surprise, really. Climate change and the disruptions caused by extreme weather events, excessive flooding in some places, prolonged drought in others, along with the need to bolster community resilience, are front and center on these young minds.

After all, absent dramatic and timely actions, they and their children and generations to come will inherit a world that may be less hospitable than the one we know today. I take encouragement from their essays. They and their cohorts will play crucial roles in fostering policies and innovations, in getting things done, that offer our best hope for restoring and maintaining the health and productivity of the natural resources on which we depend, our economy included.

I salute them and I wish them great success as they pursue their careers and their lives more generally.



Caption: 2014 William K. Reilly Awards Event. Kavita Mak, Jennifer Fernandez, William K. Reilly, Bob Graham, Dan Fiorino



Caption: 2019 William K. Reilly Awards Event. William K. Reilly, Dr. Vicky Wilkins, Sabina Blanco Vecchi, Caroline Nickerson, Dan Fiorino

Introduction ► DR. DAN FIORINO, Director, Center for Environmental Policy

I have always believed that the up and coming generation of leaders may draw inspiration and energy from the examples set by exceptional leaders who came before them. This certainly was my thinking when, in 2013, we established the William K. Reilly Scholarship for students in the Master of Public Administration and Master of Public Policy programs in the School of Public Affairs.

Bill Reilly fit my model of an outstanding leader. He has contributed to environmental and energy issues as President of the World Wildlife Fund, Administrator of the US Environmental Protection Agency, director of a global water investment fund for developing countries, as Co-Chair of the Deepwater-Horizon Oil Spill Commission, and in countless other ways. He is a sterling example of vision, integrity, inclusion, and commitment to responsible policy making.

Eight years later, as we recognize our 2021 William K. Reilly Scholars, this idea of inter-generational inspiration is bearing considerable fruit. Our Reilly Scholars are contributing to better environmental problem-solving—at many levels of government, in think tanks and research centers, and in other ways. They know that having the name of William K. Reilly on their resume carries an obligation to meet the high standards of leadership, integrity, and commitment that have marked Bill's career.

We are so glad to have the opportunity to share the experiences and reflections of our Reilly Scholars. For more information about the program, please visit bit.ly/ReillyScholars.



"Looking forward to the year 2120, what is the primary environmental issue that humans will be working to address?" ▶ KAVITA MAK, 2014 Reilly Scholar

In the year 2120, the world may be unrecognizable from the one we live in now. The effects of climate change—rising sea levels eroding coastlines, desertification from multi-year droughts, and natural disasters such as hurricanes and wildfires—will significantly alter the landscape. The United Nations Intergovernmental Panel on Climate Change (IPCC) recommends a global temperature increase of no more than 1.5° C above pre-industrial levels[1], but even if we are successful in curbing carbon emissions to meet this goal, the effects of climate change from even a small increase in global temperatures will be irrevocable and will not be evenly distributed across the world. As a result, in 2120 the primary environmental issue humans will have to address will likely be the mass migration of people from areas that have become uninhabitable because of the effects of climate change.

The World Bank estimates that, by 2050, up to 143 million people in sub-Saharan Africa, Latin America, and South Asia will be forced to leave their homes due to climate change effects. The numbers of migrants are expected to rise sharply closer to 2050 and will likely increase from there unless drastic changes are made to reduce carbon emissions[2]. The World Bank report examined only the slow onset climate change factors such as crop failure, water stress, and sea-level rise. When factoring in sudden onset factors such as hurricanes and wildfires, the numbers of migrants will be even higher. People living in island nations are particularly prone to migrate due to climate change effects. Sea-level rise in the Pacific Ocean has already submerged eight islands, and by 2100, an estimated 48 islands will be lost to the ocean, prompting waves of migration[3]. Other islands that are not completely lost will still have to deal with increased flooding, saltwater intrusion, and infrastructure damage that may lead to more migration or significant efforts to adapt.

An increase in mass migration will also increase the potential for violent conflict as people are forced to move and fight with others for limited resources. An example from our modern era is the war in the Darfur region of Sudan; environmental degradation was a key contributing factor to the unrest. For decades, shepherds in Sudan had moved their herds through farmers' land peacefully, with arrangements made with leaders of the farming communities. Problems arose when there was a large decrease in summer rainfall, between 10 and 20 percent, across western and southern Sudan [4]. Water scarcity increased friction between the two groups, because the shepherds were forced to move their herds greater distances than usual. Combined with other ethnic and political factors, the severe droughts contributed to a famine and violent conflict in Darfur, which killed thousands and displaced millions in the region. The problems that occurred in Darfur may serve as a warning of what we can expect in 100 years, as the effects of climate change become increasingly severe.

As environmental degradation forces more and more people from their homes, and in some cases, drives them to cross international borders, the international community will need to develop a legal and political framework to accommodate this new category of refugees. The United Nations High Commissioner on Refugees, an agency formed after World War II to help people fleeing persecution and conflict, estimates that there are currently an unprecedented 70.8 million refugees worldwide, the largest number on record [5]. This number does not account for people displaced for environmental reasons, since the UNHCR does not designate them as refugees. Thus, there is no framework in place to accommodate people migrating because of climate change.

With the numbers of migrants continuing to grow and areas of the world becoming increasingly uninhabitable, we can no longer afford to ignore this problem. By 2120, we will undoubtedly be grappling with even larger numbers of “climate refugees.” Before we get to that point, it is imperative that the international community update the post-World War II definition of refugees to include “climate refugees.” It will also be necessary for countries to develop new policies to protect and supervise these migrants, such as legally binding agreements obliging countries to accept environmental migrants. By taking these steps, we may avoid violent conflicts of the past and more painlessly adapt to the new reality of a planet altered by climate change.

About the Author



Kavita Mak is an environmental engineer in the Office of Wastewater Management at the U.S. Environmental Protection Agency. She works on the WIFIA program, a federal credit program administered by the EPA which provides loans for regionally and nationally significant drinking water and wastewater projects. Kavita previously worked in the Office of Infrastructure Protection at the U.S. Department of Homeland Security where she led initiatives to promote security and resiliency of the nation’s dams and levees. Kavita was also a civil engineer at the County of Los Angeles Department of Public Works, where she was a project manager of water conservation projects and maintenance projects at dams. Kavita earned her Bachelor of Science degree at Cornell University in Civil and Environmental Engineering and her Master of Public Policy degree at American University School of Public Affairs.

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“What’s one big environmental or energy policy change you hope to see during your career?” ▶ NICK NAYAK, 2017 Reilly Scholar

Change in how Americans perceive and treat our finite natural resources can only be successfully implemented through national level policies with buy-in from all stakeholders (political leaders, businesses, individual voters, and special interests) – or at least a majority of them. In order to effectively address climate change and its current and future impacts, the United States needs a robust bipartisan plan that sets agreed upon standards and definitions that can be implemented into law. Furthermore, the policy must be able to stand the test of time and changes in political administrations. The policy should be akin to monumental legislation such as the New Deal, providing benefits and setting target goals across a spectrum of issues. This new policy should address economic development and workforce readiness, the future of the energy sector in the US, job creation, and how to improve the day-to-day environmental knowledge of the average consumer. All of the goals and measures of this policy should be ultimately rooted in mitigating climate change.

At the international level, the Paris Climate Accord (2015), the last global treaty with ambitious goals and a clear path to help mitigate the adverse effects of rising temperatures, was unfortunately not resilient enough to withstand the change in American political leadership. Buy-in for addressing climate change was not established at the time the US signed the agreement, which made it easy for the Trump administration to remove the country from it. Though this changed with the advent of the Biden Administration, this uncertainty in domestic politics is still not constructive for international agreements.

Any policy that changes the national environmental paradigm must answer these questions – Will it be beneficial for the economy of the United States? If it significantly impacts domestic industries, will it create jobs? How much will it cost?

Politicians know that what wins the vote is a strong economy at home. A bipartisan take on a climate change bill will ensure that all the voices at the table are heard. States in which mining, large scale farming, and heavy industry are part of the economic mix will have the opportunity to create pathways to resiliency and mitigation, as well as facilitate new job creation. States with major metro areas and large populations can also find ways to design effective transportation systems and affordable housing policies, all with the goal of reducing the carbon footprint at the heart of their design. A bipartisan approach to funding will be needed to address the high costs of a robust national policy. Policymakers on both sides of the aisle will need to weigh in on budget, funding mechanisms, and long-term financial goals.

As an example, in 2020, Florida introduced for ratification HB 913, a bipartisan bill filed by Rep. Ben Diamond (D) and co-sponsored by Rep. Holly Raschein (R). HB 913 creates the Florida Climate and Resiliency Research Program to analyze and address the effects of climate change across the state and create a resiliency plan to mitigate them. This bill, if passed into law, will allow science-based policies to address the change to the more than 1,000 miles of exposed and deteriorating coastline. Backing of this bill by both parties creates a system of accountability and compromise when funding and implementing any subsequent recommendations.

Using legislation like HB 913, scientists argue the merits of effective climate change policies through data, facts, and analysis of trends. Most Americans are not concerned with this. The day-to-day rhythm of most individuals is to go to work, come home, and hopefully enjoy what hobbies and activities they have outside of the responsibilities of paying rent, raising a family, and pursuing an education. Having a job with a steady paycheck is the primary concern for many Americans. The pivot from paying bills to implementing large scale energy conservation systems is a large one. Instead, policymakers should focus on the reverse and address how implementing large scale systems will create thousands of jobs that pay above minimum wage, along with creating training and educational opportunities to enjoy a long-standing career. In order to really create lasting change to address climate change, the country needs to take a bipartisan look at what policies are needed and how they will affect the immediate and future needs of the American people. Only then will significant support be achieved and create an enduring difference in the way we protect our finite natural resources.

About the Author

Nick Nayak is a Project Manager working for the Deputy Mayor for Planning and Economic Development in the Government of District of Columbia. Prior to this he worked both domestically and internationally in investment banking and consulting. Nick holds a Bachelor of Business Administration from the George Washington University and a Master of Public Administration from the American University School of Public Affairs, where he was a Reilly Scholar. Nick is interested in the intersection of public-private partnerships, sustainable business practice, and maximizing profit potential.



“What’s one big environmental or energy policy change you hope to see during your career?” ▶ JAKE ASSAEL, 2018 Reilly Scholar

As the ice melts in Texas and the U.S. once again reckons with the ever weirder and devastating world of climate change, the need for action has never been more urgent. Although no solution provides a silver bullet, there is one that would be more effective than the rest in keeping carbon emissions out of the atmosphere, a carbon fee.

A carbon fee is simply a cost imposed on polluters for each ton of carbon dioxide (CO₂) they emit. In our current economic structure, major industrial firms, oil and gas companies, and other large polluters can pollute with impunity. They bear no additional cost for their pollution, despite the societal externalities that stem from their emissions, including climate change. Implementing a carbon fee would force large polluters to absorb the costs of their pollution. It would also incentivize polluters to look inward and find ways to cut their pollution and increase energy efficiency.

In a 2019 letter to the Wall Street Journal, 45 economists agreed that a carbon fee “offers the most cost-effective lever to reduce carbon emissions at the scale and speed that is necessary.” [1] Implementing a carbon fee comes with potential complications: higher electricity bills, an increase in the price of consumer goods, or the phenomena by which carbon-intensive industries flee for more business-friendly environments, offsetting any advancements made in reducing emissions. That said, returning the revenue to taxpayers in the form of a dividend could allay price surges. Alternatively, using the revenue to invest in clean energy would decrease the cost to decarbonize, incentivizing companies to remain domestic. In both revenue allocation scenarios, a border adjustment carbon tax—the taxing of goods imported from countries without carbon pricing mechanisms—can be used to prevent businesses that take their operations abroad from undercutting a national carbon fee.

Not since the failed attempt to pass a national cap-and-trade program in 2009 has there been an opportunity to price carbon. Now, with a president who ran on the promise of a net-zero economy by 2050 and Democratic control of Congress, the federal government has an opening to secure America from the consequences of climate change by passing a fee on carbon pollution. But due to the filibuster, which requires 60 votes in the Senate to make a bill law and has stymied legislation since the 1850s (including the aforementioned cap-and-trade bill), Democrats will be unable to take climate action through normal policymaking means. Instead, Democrats will need to utilize the procedurally complex route of legislating called budget reconciliation. Unlike the traditional process, budget reconciliation requires a simple majority to secure a bill’s passage. This will allow Democrats to limit their dependency on Republican votes and focus on securing the conservative wing of their own party.

Still, there are no easy paths in Washington, and budget reconciliation comes with its own hurdles, including strict limitations on what types of policies can pass. According to the Center of Budget and Policy Priorities, “The Congressional Budget Act permits using reconciliation for legislation that changes spending, revenues, and the federal debt limit.” [2] Debate and consternation have filled the airwaves over what policies fit the limited scope. In February, Democrats were dismayed to discover that a \$15 minimum wage could not pass through budget reconciliation. But the Niskanen Center, a political think tank, believes a fee on carbon would prevail, citing that a carbon fee would be a “significant source of revenue for the federal government.” [3]

A carbon fee alone will not solve our climate woes, but if passed in conjunction with a suite of other climate measures, the U.S. can be well on its way to reaching net-zero by 2050 while showing global leadership in the fight to keep temperatures below 1.5 degrees Celsius. To ensure the passage of a carbon fee, pressure must be applied on our elected officials to prioritize climate change. Vote Climate U.S. PAC recently released a tool that can help leaders, activists, organizers and the media do just that. Its 117th Congress Climate Scorecard—which scores every member of Congress on their climate credentials including their stance on passing a fee on carbon—is the only one of its kind that focuses exclusively on climate change and can help tilt Congress toward climate action now.

About the Author

Jake received his Bachelor of Arts and Master of Public Administration from American University. Jake serves as the Co-Founder of Vote Climate U.S., a political action committee, which creates voter guides that score presidential and congressional candidates on their climate credentials. He previously worked on Capitol Hill with Warwick Group Consultants, helping municipalities garner federal funding for coastal resilience projects, and at the Environmental Protection Network, which was launched in January 2017 to harness the expertise of former EPA career staff and confirmation-level appointees from multiple administrations to provide an informed and rigorous defense against efforts to undermine the protection of public health and the environment.



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“What’s one big environmental or energy policy change you hope to see during your career?” ▶ SAM CRAMER, 2013 Reilly Scholar

The biggest policy change that I would like to see in my career is for nuclear waste to be recycled and used again to power advanced nuclear technologies. Since 1977, the United States (U.S.) has been one of the few developed nations to ban the recycling of nuclear waste products for reuse in nuclear power plant operations. While countries like Japan, France, and the United Kingdom have decided that enriching reactor waste is a cost-effective method for utilizing spent fuel, the U.S. sees this activity as a security risk – one that could potentially spread nuclear material and threaten the nation.

Currently, the U.S. has over 90,000 metric tons of nuclear waste spread over 80 different repositories in 35 states[1]. Much of this waste is stored aboveground with minimal supervision and security, and the clean-up costs are immense: the Government Accountability Office (GAO) estimates that the costs to clean these sites up could exceed \$377 billion, a number which grows with each new estimate[2]. With the current plants operating, the amount of waste will continue to grow to around 140,000 metric tons. With Yucca Mountain – the Nuclear Regulatory Commission-designated final resting place for waste – being shut down, the waste from plants will continue to sit at sites, waiting for a clean-up that seems further away with each passing year.

Nuclear power is a critical component of a deep decarbonization strategy for the U.S. It currently provides over 20% of our carbon-free emissions, with almost all of that being base-load power. This is important, because it is a continuous source power. While solar and wind prices are rapidly falling and battery prices becoming more cost-competitive, solar and wind energy and the necessary storage are nonetheless in their infancy as industries. Nuclear technologies are needed to help bridge the gap and keep carbon emissions low while these technologies continue to mature. Newer reactor designs, such as small modular reactors (SMRs), promise additional benefits beyond carbon-free power generation: these reactors are impossible to melt down, can be used to provide peak power, and assist with balancing intermittent electricity production from wind and solar sources. Best of all, these reactors, like our current nuclear fleet, can use enriched spent fuel to run their operations, providing a beneficial reuse for nuclear waste.

Waste enrichment has proven successful in other countries. For example, nuclear waste from France is shipped from the country’s nuclear plants to a single facility in The Hague where it is enriched into new fuel sources that reactors can use again. This one plant has enriched enough spent fuel to meet France’s nuclear power needs for over 14 years[3]. This reprocessing has reduced the amount of final waste product sent to storage, thus also reducing potential risks.

The U.S. can use nuclear power as a pathway to deep decarbonization, but it must reconsider how to address nuclear waste. If the U.S. develops a comprehensive recycling program, it can continue to utilize this fuel in a smart, safe, and sustainable manner to keep us on the pathway towards a low-carbon future.

About the Author

Sam is a Program Director at NASEO - National Association of State Energy Officials. He graduated from American University with his Master of Public Policy in 2014 and from Cornell University with a degree in Atmospheric Science in 2010.



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"What's one big environmental or energy policy change you hope to see during your career?" ▶ ZACHARY RYBARCZYK, 2013 Reilly Scholar

For a segment of Americans, life in 2021 involves a paradox of waste. We live in the age of Amazon Prime deliveries shipped to our doors overnight, while Marie Kondo's KonMari method teaches us to empty our closets of anything that doesn't spark joy. Do these Americans realize their Grubhub meals are wrapped in extra packaging to keep hot foods hot and cold foods cold on the way to their tables, all while drinking from reusable straws?

Unfortunately, many of our best efforts to reduce our individual waste footprint—participating in curbside recycling, composting in our backyards, bringing reusable bags to the grocery store—are dwarfed by the total amount of un-diverted waste that heads to our landfills (or worse, our waterways) every day.

If I could see one big environmental policy change adopted during my career, I would want to see the United States adopt an extended producer responsibility (EPR) system for packaging and paper waste, implemented across Europe and a number of Canadian provinces since the 1980s and 1990s, to increase waste diversion rates from landfills and incinerators and shift the cost of handling waste from municipal taxpayers to the producers who create, distribute, or sell products in our communities.

EPR functions by closing the loop on the true cost of creating, selling, and disposing of a product, thereby correcting an undesirable market outcome (waste) related to that product. As an example: in a city with residential curbside recycling, when a can of beer is produced at a brewery, distributed to a store, bought and drank by a resident, and tossed into the recycling bin, the cost of collecting that can for recycling, taking it to the transfer station (or directly to the materials recovery facility [MRF]) and paying the recycling tipping fee falls largely on the resident as a taxpayer.

In an EPR program, any of the original producers of that can of beer—either the can maker, the brewer, or the distributor—could be responsible for paying into an industry-formed and operated organization that would then be charged, by law and regulation, to make sure that can of beer (or, most likely, an equivalent) is properly disposed of or diverted from the waste stream, either by paying the city to collect the can or taking over collection themselves. "Eco-modulation" bonuses could also be added to the regulations to encourage producers to create more recyclable packaging, and fees could be added to cover the cost of educating the public and collecting products that miss the waste stream (litter).

While this may sound like a far-fetched idea, there are a number of EPR programs that already exist in the US; most well-known may be the Paint Care program, which is funded and run by paint manufacturers to properly recycle and dispose of leftover paint, under the guidance and regulation of municipalities and states.

There are, of course, many questions about implementing this type of program in a city, let alone across the entire country. Which international model is most applicable to the US market? What level of government could best provide oversight and accountability? How will industry and other political stakeholders react and potentially push back?

Even if we don't have all of the answers yet, it is reassuring to know that there is an existing policy that countries across the world have already implemented that could help the United States solve its waste diversion issue.

About the Author

Zach Rybarczyk serves as the Cleveland Park Main Street Manager with District Bridges, whose mission is to invest in communities and support local businesses in the District. Prior to this new role, Zach served as an Environmental Protection Specialist with the District's Department of Energy and Environment (DOEE). As part of the Watershed Protection Division, Zach worked closely with District businesses, residents, and nonprofits to reduce their reliance on single-use plastics, all in an effort to meet the District's 2030 zero waste goals to protect human and aquatic health. Prior to his position with DOEE, Zach was an ORISE Postgraduate Fellow with the U.S. Environmental Protection Agency (EPA), working to help build the climate resilience of drinking water and wastewater utilities across the country. Zach also served as a Boren Fellow in Morocco as part of the U.S. Department of Defense National Security Education Program.



In addition, Zach serves residents of Columbia Heights as an elected Advisory Neighborhood Commissioner for ANC 1A03. As secretary and transportation committee chair for the Commission, Zach works with neighbors, local businesses and organizations, and government agency representatives to help build a safer and more sustainable community.

Outside of his work and elected position, Zach mentors with the Washington, D.C. office of The Ohio State University, assisting students who are interning for the semester with getting acclimated to life in the District. Zach also volunteers as an 826 DC Reading All Stars reading buddy and enjoys meal prepping with Martha's Table. Zach is a proud graduate of The Ohio State University (Bachelor of Arts, Political Science and French Studies), and American University (Master of Public Policy, Environmental Policy).

**“Looking forward to the year 2120, what is the primary environmental issue that humans will be working to address?” ▶ CAMILLE WEJNERT-DEPUE, 2020
Reilly Scholar**

The environment and its major issues of concern are constantly changing. One of the greatest problems we face today is how to economically develop our world while being mindful of the repercussions that development has on our natural environment. According to Jeffrey Sachs, author of *The Age of Sustainability*, we can harmonize our economic development with environmental sustainability “by taking precautions, respecting resource constraints, recognizing the dangerous environmental destruction we are wantonly committing, and changing course, humanity has the option to achieve its objectives of ending poverty; raising living standards; ensuring social inclusion; and protecting the environment for ourselves, other species, and future generations.”[1] Sachs sees the human race as ‘trespassers’ on our own planet, crossing and disregarding boundaries of Earth’s carrying capacity, threatening nature and our own species’ future survival. These boundaries of Earth’s carrying capacity are what Sachs calls ‘Planetary Boundaries,’ of which include climate change, stratospheric ozone depletion, atmospheric aerosol loading, chemical pollution, ocean acidification, freshwater consumption and the global hydrological cycle, land system change, and nitrogen and phosphorus cycles that naturally flow to the biosphere and oceans[2].

Planetary boundaries include resources and natural elements of the environment that one might think are infinite. However, as we have come to recognize through science and research, these natural planetary resources (such as clean air and clean water) are actually finite resources that are quickly becoming depleted. In fact, in 2019, the United Nations estimated that upwards of 6 million deaths could be attributed to unhealthy air quality and high air pollution levels, resulting from increased rates of lung cancer, lung diseases, and other respiratory health illness[3]. In addition, the United Nations also claimed that by 2050, at least 1 in 4 people will likely live in a country affected by chronic or recurring fresh-water shortages[4].

Not only are these finite resources being depleted and therefore negatively affecting our public health, but the destruction of these planetary boundaries has also exacerbated and highlighted the social inequalities around the world. According to the Environmental Protection Agency (EPA), African Americans face substantially worse air quality and therefore higher rates of respiratory illnesses and lung diseases as compared to white Americans, with over 14 million people of color in the United States living in counties with high levels of air pollution[5]. In addition, according to the U.S. Water Alliance, white American households are twice as likely to have adequate and up to date plumbing infrastructure that helps to ensure clean drinking water[6].

Planetary boundaries continue to be a pressing issue within the environmental field. Humans can and must find a way to economically develop while remaining environmentally sustainable. However, the issue runs deeper. In a country where systematic inequalities seem to prevail, the environment is no exception. Minority groups in the United States constantly face worse environmental conditions, particularly when relating to clean air and clean water. Environmental quality is an inequality issue, and this issue will continue if we cannot find a reconciliation between economic development, environmental sustainability and inequality.

About the Author

Cam Wejnert-Depue is a student in the Master of Public Policy program in the School of Public Affairs. Growing up in rural Ithaca, NY, his interest within the environment began at an early age with time spent in the beautiful gorges, Cayuga Lake, and state parks. The combination of environmental activities in the region as well as the environmental education he received in high school inspired his interest in the environment.



Cam spent the summer of 2016 in Bishkek, Kyrgyzstan, working with NGOs to enhance development, sustainability and species protection in the mountainous regions that had historically been hampered by Russian influence. This experience opened Cam's eyes to the concept of planetary boundaries, and the idea that resources that were originally seen as infinite, such as clean air and water, are under threat. Cam began research in the field of planetary boundaries through a Spring 2020 internship with the American Lung Association's Healthy Air Campaign. In the future, Cam plans to pursue a PhD in environmental policy.

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“Looking forward to the year 2120, what is the primary environmental issue that humans will be working to address?” ▶ CHRISTOPHER DOUGLASS, 2020 Reilly Scholar

A global pandemic should spark a sense of urgency and commitment to preventing future outbreaks, yet in 2120 humanity will likely be facing a similar plight. Like COVID-19 or the 1918 Spanish Flu of avian origin, these zoonotic illnesses are a symptom of a much larger problem: biodiversity loss.

Human activity has degraded ecosystems so irreparably that we are already living in the sixth mass extinction. Despite calls from the UN Secretary General, infectious disease experts, and conservation groups, little attention is paid to this dire problem. Even efforts to preserve ecosystems are failing to make an impact. The Dutch have invested \$11 billion since 1990 to protect and restore nature reserves and yet according to the WWF, wildlife populations in the Netherlands have halved in the last 30 years[1]. Conditions are even more concerning in rainforests like the Amazon due to government policy in Brazil, which often encourages deforestation for cattle ranching, oil drilling or soybean production[2].

In some respects, illnesses that have spread between animals and people are nothing new; Rabies, Lyme Disease, SARS, Malaria, Ebola, and Yersinia Pestis (better known as plague), just to name a few, have been threats for all of human existence. But worryingly, the borders that separate humans and wildlife are increasingly blurred as urban sprawl and agricultural demand result in mass habitat loss. Pollution from the use of fossil fuels, excess nitrogen, and ocean acidification are all on the rise, further degrading ecosystems. Mining and logging in previously undisturbed areas and the construction of roads to facilitate these industries also escalate the chances of contact between people and wild animals. Kate Jones, Chair of ecology and biodiversity at University College London, explains that “species in degraded habitats are likely to carry more viruses which can infect humans.” This amplification effect is caused by less diverse ecosystems: “destroy landscapes, and the species you are left with are the ones humans get the diseases from.”[3]

The evidence is overwhelming that this problem is getting worse. “The U.S. Centers for Disease Control and Prevention (CDC) estimates that three-quarters of ‘new or emerging’ diseases that infect humans originate in nonhuman animals.”[4] A study from the University of Maryland found that a primary forest the size of a football pitch was lost every six seconds in 2019[5]. The consequences of these trends are especially dire for developing countries and the poor. The health and economic impact will only exacerbate existing socioeconomic inequalities. People of color have been disproportionately affected by COVID-19, even in developed countries like the US and UK. Without systemic change it’s easy to see future pandemics intensifying this imbalance.

If humanity continues to destroy these natural ecosystems, the loss of biodiversity will lead to more spillover events and a dangerous cycle of pandemics. COVID-19 and future outbreaks are not merely bad luck or a unique occurrence, it’s a series of bad practices and policies that take for granted the essential link between healthy ecosystems and healthy people. Creating and preserving buffer zones between wildlife and civilization is vital, as is preventing forest fragmentation, and transitioning to a green economy. We must begin to change our behavior now, or be doomed to repeat a vicious and self-detrimental cycle.

About the Author

Christopher Douglass is a Master of Public Policy student in the School of Public Affairs. He grew up in Cleveland, Ohio, and earned his Bachelor of Arts degree from Loyola University Chicago in Public Relations and Advertising.



He is currently the New Jersey state coordinator for Elected Officials to Protect America, working to advance environmental policy on the state and local level. Christopher plans to continue advocating in favor of policies which transition to a green economy to provide a sustainable and prosperous future.

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Being a recent Reilly Scholar with Caroline Nickerson, graduating the Master in Public Policy program at AU, and having the opportunity to meet Bill Reilly and Daniel Fiorino have been the major milestones in my career path towards sustainable development with transformation to low-carbon climate-resilient economies. During my two-year Masters program with an Environment and Energy focus, I was able to take different courses and work with Professor Fiorino on energy efficiency and energy transition projects, and on events aimed at addressing the challenges and needs in the US and globally to achieve environmental protection into the long term future. In particular, two courses, Environmental Sustainability and Managing for Climate Change, gave me new skills for being an energy game changer.

Being in the United States and at American University has exposed me to many new concepts such as green growth and the environmental dimension of sustainability along with their accompanying economic and political dimensions. What are the main risks that climate change poses to us? Understanding not only the physical but also the transition risks posed by climate change are among the most important lessons I learned in my classes.

Being originally from Argentina, an emerging country, and living in the US helped advance my aim of deepening my knowledge in order to build a stronger, more resilient and sustainable global economy. I am on a mission to accelerate the global energy transition. Now, I am convinced that the battle against climate change has to be fought across all sectors. It is time to leave behind a decade leading sustainability efforts just in the public sector. Particularly, I support a major role for private and financial sectors, aligned with governments, and using frameworks such as the TCFD (Task Force on Climate-related Financial Disclosures), to drive companies to manage their CO₂ emissions. This and other tools create opportunities for development through climate change mitigation strategies and innovation tailored to reduce greenhouse gases produced through activities and minimize stranded assets.

Together, the public and private sector can help raise global awareness of climate change. A top priority is creating market-based policies that focus on CO₂ taxation and technology innovation to drive decarbonization across several sectors, thus reducing their impact on as well as to adapting to increasing climate risks. Many adaptation and mitigation options can help address climate change, but no single option is sufficient by itself. Batteries and energy storage, large-scale carbon capture and storage, carbon removal technologies, and climate finance are essential tools to accelerate climate action and effectively manage the risks and opportunities associated with climate change. In addition, carbon pricing represents a critical forward-looking metric, and possibly the next global step at the next COP 26 in Glasgow, that will help organizations manage climate-related transition risks and opportunities.

We can make a breakthrough and fight against climate change, but we need to look forward to what needs to be done and achieve it with urgency. The decision is upon us.

About the Author



Sabina is an Energy Consultant at the United Nations Development Programme (UNDP) in New York. She supports UNDP's efforts to scale up assistance to countries to increase access to energy, achieve the energy transition, improve energy sector resilience and security and promote SDG 7 and SDGs Integration. Prior to taking up this post, Sabina was based in Washington, DC as an international Fulbright Scholar at American University and Energy Fellow at the Clean Energy Leadership Institute.

Most recently, she co-founded Upsurge Energy, an Energy Research and Consulting Firm, and worked at the Inter-American Development Bank (IDB) as an Energy Consultant on private sector engagement in Latin America and the Caribbean for the lithium market development as well as on other work areas focused on the clean energy transition. Prior to that role, as a passionate environmentalist, she worked on energy efficiency and energy technology innovation in Latin America and the Caribbean for the IDB.

Over the past two years, Sabina has been involved as a Research Associate at the Center for Environmental Policy from American University. Her professional career also includes experience at YPF, the main Argentinian Energy Company, on their energy transitions strategy for low carbon projects and carbon emissions reduction. Sabina commenced her professional career at the Ministry of Foreign Affairs of Argentina as an International Affairs Advisor in development-related areas for over six years.

Sabina holds a Master of Public Policy with focus on Energy & Environment from American University (USA) and an Master of Arts in International Economics and Politics from the University of San Andrés (Argentina). Prior to that she earned a Bachelor of Arts in Communication Studies from the University of Buenos Aires (Argentina).

As Reilly Scholars from 2019, Sabina and I came up with the idea for this publication because we wanted to learn from the amazing people who have held this title. As we lived through history in 2020, we read the work of and learned more about the inspiring individuals in the Reilly Scholars group. To that end, I thought it fitting to write about what I learned at American University: chiefly the huge debt of gratitude I owe to my professors, to Professor Fiorino at the Center for Environmental Policy, and to Mr. William K. Reilly. I am so deeply grateful for what you taught me.

Starting in Professor Fiorino's courses, what I learned completely shifted how I understand the world. Foremost is the idea of "the environment" as a concept: "the metaconcept that provides the ideational foundation for the entire sphere of environmental policy." [1] It still baffles me to think that my parents lived in a world where "the environment" wasn't taken to mean what it currently means, with all its connotations about the natural world and systems in conjunction with human impact. This concept is undoubtedly valuable. If we don't have the vocabulary to discuss a topic, it is impossible to formulate plans and policies at any level to make the world a better place. Professor Fiorino also gave me the historical framing to grasp environmental policy; the environment's emergence as a concept enabled the "decade of the environment" in the early 1970's, marked by the establishment of the Environmental Protection Agency (EPA), the passage of landmark regulations at the national level, and a general national consensus in favor of environmental preservation.

Conceptual innovation is how my generation will create the environmental future. Who can propose environmental concepts? The answer is anyone with a stake in the environment and an agenda (wants, needs, desires) relating to it, which is all of us: "elected officials, civil servants, the media, scientists, businesses, and civil society organizations." [2] We all bring something to the table in environmental policy.

In all of my classes, my professors have kindly allowed me to explore environmental concepts across all the different facets of policy. I've been able to explore resilience and policy in my policy process course, policy analysis, my economics and finance courses — even in my course where I went to Brussels with the Key Executive program! In papers, I explored new policy strategies, like the formulation of regional collaboration networks for resiliency at the state level, and made recommendations about environmental governance, such as encouraging the adoption of public forums on resiliency issues in cities. The theory that has stuck with me the most is the John Kingdon's "multiple streams" model: the political stream, the problem stream, and the policy stream, with policy change emerging when the three converge. In the middle of those three streams: that's the place I want to be!

Professor Fiorino deftly laid out how environmental governance has shifted from a national priority to a field primarily innovated by state and city leaders. That's how I think I'll fit in — as a state-level leader, in my beloved home of Florida. And with the education I received at American University, the opportunities granted to me by the Center for Environmental Policy, and the inspiration I received as a Reilly Scholar, I think I'll have the foundation to effectively pursue this career path. William K. Reilly's legacy of environmental leadership is impressive, and it is one I will strive to emulate.

No one is exempt from the ramifications of climate change; I experienced that firsthand when my grandfather passed in the aftermath of Hurricane Michael in 2018. Though I've long pursued a career path focused on climate and improving Florida's environment and quality of life, the loss of my grandfather further solidified my desire to dedicate my life to public service and to ground my work in environmental policy. I will pursue policy solutions for my home state, my country, and the world to weather the coming storm, and the excellent education I received at American University gives me the confidence to pursue this path and make sure that all people are part of the solution.

About the Author

Caroline is a Program Manager at SciStarter where she manages the Citizen Science Month Program, SciStarter's Corporate Volunteer Programs, and other programmatic and outreach efforts, including working with SciStarter's Syndicated Blog Network, which encompasses the Science Connected, Discover Magazine, and SciStarter platforms. She is a Master of Public Policy graduate from American University with a focus on environmental and climate change policy.



While at American University, she was a William K. Reilly Environmental Policy Scholar and the 2019 Cherry Blossom Princess representing the state of Florida. Caroline is also affiliated with the UF-VA UNESCO Bioethics Unit, the Christensen Project, the DC Gator Club, and the Commission on Local Debates, and she was the grand prize scholarship winner at Miss Earth USA as Miss Louisiana Earth. She will begin a PhD program at the University of Florida in Agricultural Communication in Fall 2021.

Headshot credit: Eva Flis Photography

Citations

1. James Meadowcroft and Daniel Fiorino, eds., *Conceptual Innovation in Environmental Policy* (Cambridge, MA: The MIT Press, 2017), p. 336.
2. *Ibid.*, p. 344.



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- ▶ Identifying and promoting strategies for policy and technology innovation; and
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William K. Reilly Scholars, 2013-2020

2020

Cam Wejnert-Depue (MPP, 2021)
Christopher Douglass (MPP, 2021)

2019

Caroline Nickerson (MPP, 2020)
Sabina Blanco Vecchi (MPP, 2020)

2018

Jake Assael (MPA, 2019)
Samantha Pedreiro (MPA, 2019)

2017

Lisa Flores (MPP, 2018)
Nick Nayak (MPA, 2018)

2016

Maria Manuella Athayde
(MPP, 2017)
Maggie McCarey (MPA, 2017)

2015

Jennifer Hatch (MPA, 2016)
Amy Purpura (MPP, 2016)

2014

Kavita Mak (MPP, 2015)
Jennifer Fernandez (MPP, 2015)

2013

Kristina Bell (MPA, 2014)
Samuel Cramer (MPP, 2014)
Zachary Rybarczyk (MPP, 2014)