INEQUALITY AND THE ENVIRONMENT

JAMES K. BOYCE

Global Inequality Research Award Lecture
Paris, April 5, 2024

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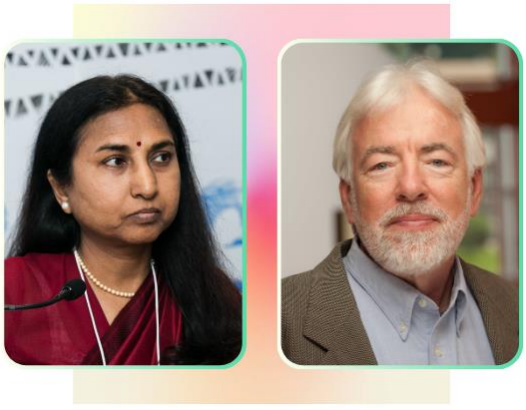
Social–Ecological Transitions

WORLD INEQUALITY LAB

GLOBAL iNEQUALITY RESEARCH AWARD

In recent decades, the study of global inequalities has experienced a remarkable boom: economic, social and environmental inequalities have been the subject of a growing body of theoretical and empirical work, visible and influential throughout the world. The World Inequality Lab (WIL) and Sciences Po's Center for Research on Social Inequalities (CRIS) have joined forces for the first edition of the Global Inequality Research Award (or GiRA), which aims to recognize every two years researchers from all disciplines who have made a significant contribution to the understanding of global inequalities. GiRA seeks to acknowledge major scholarship in the field of global inequality understood in two key perspectives: first, the perspective of inequality research being done in all corners of the world; and second, the perspective of inequality as a complex object that needs light from all angles to be fully grasped, understood and eventually mitigated.

GiRA 2024



The 2024 GiRA Prize was jointly awarded to **Bina Argawal** and **James K. Boyce** for their groundbreaking work in the field of social and environmental inequalities.

The scientific committee for this first GiRA Prize was made up of **Lucas Chancel** (Sciences Po/CNRS, CRIS and WIL, Paris School of Economics), **Éloi Laurent** (Sciences Po/OFCE, Stanford University), Thomas Piketty (EHESS and WIL, Paris School of Economics) and **Mirna Safi** (Sciences Po/CNRS, CRIS).

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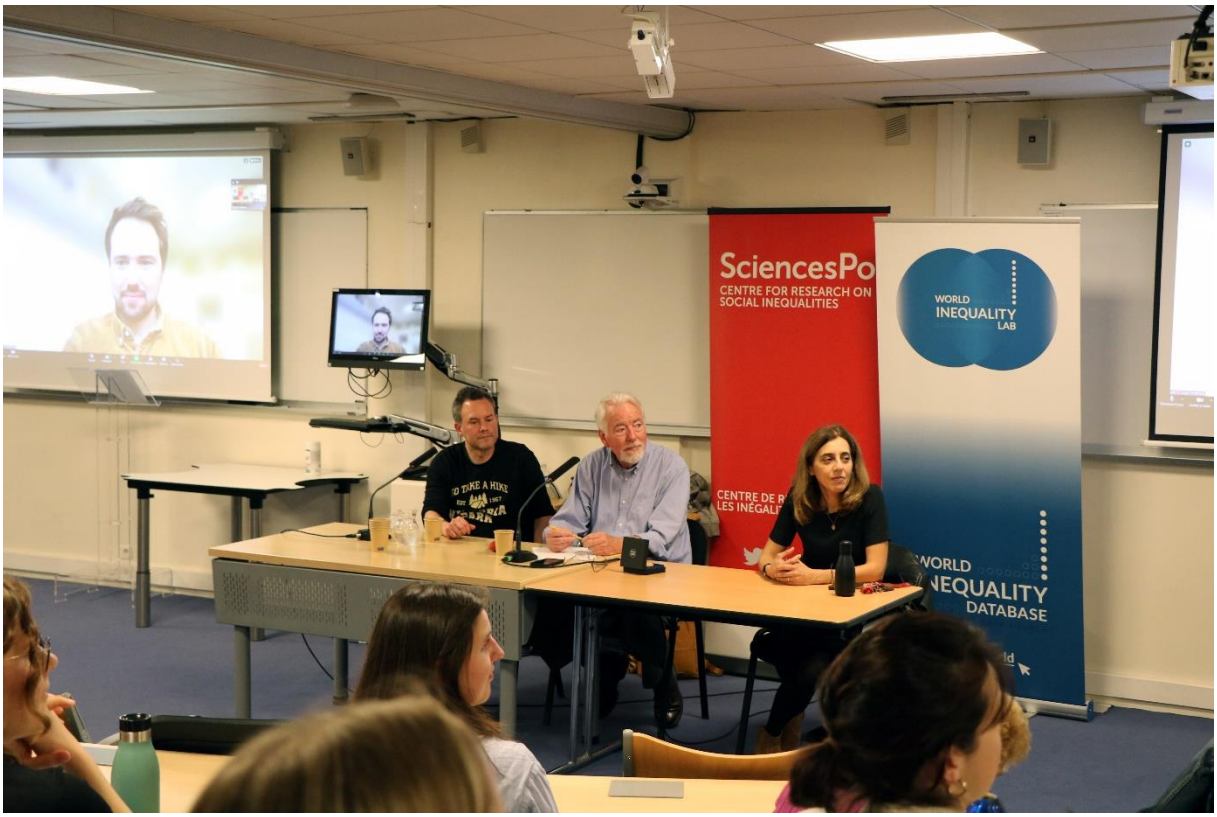

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I am deeply honored to receive this inaugural Global Inequality Research Award. It is always gratifying when one's work is recognized, and it is a special pleasure to receive the award together with my friend Bina Agarwal, who has done so much to advance our understanding of the interactions between gender inequality and the environment.

But what pleases me most, however, is the simple fact that an award for research on inequality today exists. To explain why, let me begin by recalling “the bad old days” of economics, before some in this audience were born.

In the 1980s and 1990s, most economists did not have much to say about inequality. There were basically two main views on the subject.

One was that inequality was not something that economists could or should have anything to say about. The job of economists was simply to bake a bigger pie: higher GNP at the macro level, higher net benefits from investments at the micro level. How the pie is divided was a political question for someone else to decide; economics was just about the pie’s total size. So that was one view: it's not our problem.

The other view was that inequality does matter, because it affects the size of the pie, but it's a good thing. More inequality makes the pie bigger, because the rich provide savings that magically translate into investment. In this view inequality is, in fact, a positive force for good.

What both schools of thought had in common was the conclusion that inequality is nothing to worry about. Either it doesn't matter, or if it does, it's a good thing. We certainly don't have to worry about how to reduce it.

On the environmental side, there was a parallel complacency. Environmentalists had an important critique of how economists define the size of the pie. The conventional definition is based on things that come with dollar-and-cents price tags neatly attached to them so that they can be measured conveniently, while ignoring anything else, including pollution and natural resource depletion.

But when it came to inequality, many environmentalists echoed the stance of the economists. Some said, “Well, it's not our problem. Our problem is the relationship between people and nature, not relationships among people.”

Some even sounded like the economists who claimed that inequality was a good thing: “Inequality actually may be good for the environment because, after all, concern for environmental quality is something that rich people are more capable of feeling. Environmental quality is a luxury good. So if the rich have more money and power, they will have greater voice and greater ability to dictate what happens. They'll help us protect the environment from all those poor, ignorant, corrupt, and mainly brown and black people around the world.” You will recognize this as a reincarnation of what once was called the “white man's burden” in an environmental guise.

These were the prevalent attitudes 30 or 40 years ago. With that background, I turn to what the organizers of this gathering, Eloi Laurent and Lucas Chancel, asked me to do: I will describe my trajectory and share with you some of the backstories to my research on inequality and the environment.

Inequality as a Cause of Environmental Degradation

I began this work with a paper called "Inequality as a cause of environmental degradation," published 30 years ago.[1] When I wrote it, my wife Betsy Hartmann and I were living in Costa Rica. I had a Fulbright fellowship, and for the first time in my career I had a chance to think more deeply about environmental issues and start writing on them.

Until that point, my career had been in development economics, meaning economic problems in Asia, Africa, and Latin America, with my focus being agrarian issues in Asia.[2] But I had always been interested in the environment. When I enrolled as a graduate student at Oxford, I wanted to study this, too. To give you another sense of how much the world has changed, there was not a single course at Oxford on environmental economics at the time. It was not part of the curriculum. When a teacher at the university offered an undergraduate course on it for the first time, I decided to sit in. I turned out to be the only student; nobody else showed up.

Because he had never studied it either, the teacher's plan had been to keep one week ahead of the students by reading the literature to prepare his lectures. We decided to turn the course into a two-person study group, and that became my formal training in environmental economics.

When I arrived at the University of Massachusetts Amherst, I started a course called The Political Economy of the Environment. Although I was teaching the subject, I never really had the time to sit down and put my thoughts to paper. The Fulbright year in Costa Rica gave me a chance to do so.

At that time, it seemed to me that the conventional wisdom that inequality didn't matter for either the economy or the environment, or if it did it was a good thing, did not ring true. Two things were clear to me.

The first was that many types of environmental degradation are not pure public goods in the sense that everybody is similarly impacted. Instead, people often are impacted quite differently. Some are harmed more than others, and there is a correlation between who is most adversely impacted and other attributes, notably low income and lack of political power.

The second was that the benefits from economic activities that degrade the environment, in the forms of higher profits for producers and lower prices for consumers, are not equally distributed either. The gains flow disproportionately to those with more wealth and power. They receive the lion's share of corporate profits, and their outsized purchasing power means that they capture the lion's share of any benefits that are passed on to consumers in the form of lower prices.

So, on both the cost side and the benefit side, inequality has something to do with what's happening to the environment. Environmental costs are borne predominantly by the poor and relatively powerless, while the benefits accrue predominantly to the rich and relatively powerful.

From that starting point, I put forward two hypotheses in the paper. These informed much of my research agenda for years to come.

The first was that environmental harms are not randomly distributed. Pollution is not like rain, about which Bob Marley sang, "When the rain fall, it don't fall on one man's house." Environmental costs fall disproportionately on certain houses. I was by no means alone in trying to demonstrate this. Already there was an environmental justice movement in the United States fighting pollution in low-income communities of color. Scholarly research on environmental justice was at an early stage, but the evidence of disproportionate impacts was accumulating.

My second hypothesis was that societies with wider inequalities of wealth and power will tend to experience greater environmental harm, as those who benefit from the activities that degrade the environment are more able to impose the costs on others. They are in a better position to pursue their own self-interest at the expense of the public interest, and above all at the expense of the most vulnerable populations.

I then embarked on empirical research that would test these hypotheses. Some of this research involved environmental justice, and I will say more about this work in a moment. Many others were getting into this topic as well, and what that research made clear was that in addition to income and wealth as one important axis of inequality, other axes matter, too.

For example, as I have already mentioned, in the U.S. context race and ethnicity matter a great deal. In fact, in many cases they matter more than income. It is telling that in many parts of the country, the proportion of people of color in a community is a better predictor of pollution exposure than median income.

Gender disparities are another crucial axis of power inequalities, and here too we can find environmental consequences, as Bina Agarwal's work has documented. For example, women's exposure to indoor air pollution from firewood and other fuels is a major cause of premature mortality. The World Health Organization estimates that worldwide almost four million people annually die from indoor air pollution, most of them women and children. If men were dying, we might have seen more rapid progress in safe cooking technologies.

Another key axis of inequality is international. Inequalities play out across countries as well as within them. One striking example is the toxic waste trade, as large volumes of hazardous waste from the Global North are dumped in the Global South. Not just anywhere in the Global South, but in the poorest and most vulnerable communities. Back in 1992, Lawrence Summers, who at the time was the chief economist at the World Bank, wrote that "the economic logic of dumping a load of toxic waste in the lowest-wage country is impeccable and we should face up to that."[3]

The statement was meant as a provocation, and it succeeded in provoking many people. But I think we can credit Summers for stating openly, in language that anybody could understand, a basic assumption that is buried in the jargon of conventional economic analysis. Because if you think that "willingness to pay" to avoid pollution ought to guide where it goes, then yes, the economic logic is impeccable. One may counter that a clean and safe environment is a basic human right. But that is not the way that many economists thought back then, and not the way that some still do.

I also tried to test the second hypothesis, regarding the impact of inequality on the total magnitude of environmental degradation. The work of Gene Grossmann and Alan Krueger had just come out, positing an inverted U-shaped relationship between environmental degradation and per capita income.[4] This became known as the environmental Kuznets curve, since it paralleled the earlier hypothesis of Simon Kuznets that there is an inverted-U relation between income distribution and per capita income – suggesting a connection between income distribution and the environment that Grossmann and Krueger did not make. Mariano Torras, my graduate student at the time, and I wrote a paper together that examined that relationship between inequality and various measures of environmental quality, including the same measures that Grossman and Krueger had used.[5] They generously shared their data, which was really the first data set with more or less internationally comparable measures of pollution.

We wanted to get at power inequalities, not just income inequalities, so in addition to the Gini coefficient of income distribution we looked at the effects of literacy and of political rights and civil liberties. We found that when you add these variables to the right-hand side of the equation

and control for them, the relationship between pollution and per capita income practically melted away. What appeared to be more significant was inequality, particularly in low-income countries.

In a subsequent paper, colleagues and I tested the same hypothesis using data from the 50 U.S. states. We looked at various indicators of inequality – tax fairness, the school enrollment rate, and voter participation, as well as income distribution – and how these mapped into environmental and public health outcomes.[6] Again, there was strong evidence that wider inequality is leads to worse environmental performance, and also that the latter adversely impacts public health. In fact, the correlations were so strong that at first I was a bit worried that readers would think we must have somehow cooked the data. But we tested it over and over, and the results were so robust that we said, "Okay, let's just publish this."

In a later paper we asked the question, "Is environmental justice good for white folks?"[7] We found that in urban areas where a bigger share of industrial air pollution is borne by predominantly black and Latino communities, white people, too, breathe dirtier air than in places with less environmental inequality. Today I would say that there is a fairly substantial body of evidence that inequality is an important driver of environmental degradation.[8]

Environmental Justice

A few years after I returned from Costa Rica, a U.S. Environmental Protection Agency economist named Nick Bouwes gave a talk at the UMass resource economics department about the Risk-Screening Environmental Indicators (RSEI) model he was developing for prioritization of environmental enforcement actions. The starting point for it is the Toxics Release Inventory (TRI), the U.S. precursor of the pollution release and transfer registries that exist in many countries now.

The TRI was established in the wake of the 1984 Bhopal chemical plant disaster, when Congress passed right-to-know legislation requiring firms that meet certain criteria to report their annual releases of toxic chemicals into the air, water, and land. The TRI data receive a lot of attention in the press, and the hope was that this would shame companies into cleaning up their acts. And indeed, there is some evidence that it did.

A limitation of the TRI data, however, is that the hundreds of chemicals in the inventory vary in toxicity by as much as seven orders of magnitude. Pound for pound, or gram for gram, some are 10 million times more hazardous than others. The RSEI project assembled a toxicity index as a first step to make the data more useful.

Bouwes and his colleagues then ran the toxicity-weighted releases through a fate-and-transport model to map their dispersion and longevity in the environment. In the case of air pollution, for example, they incorporated information on smokestack heights, wind currents, and the surrounding topography. They then combined the resulting exposure maps with census data to assess how many people were being impacted, and the total human health risks.

As I listened to Bouwes describe the project, I thought, "Wow, so if we took these data, and mapped in not only the total population but also its composition in terms of income, race, and ethnicity – data also gathered in the census – we could use this to analyze environmental justice." When I asked him if this was possible, Bouwes replied that he was already working with a graduate student who was doing this for his dissertation.

To condense a long story, Nick and I ended up collaborating over a number of years. We created a research consortium to use these data, which had the singular advantage of mapping exposure

and not just proximity to pollution sources, which was how most environmental justice research had been done up until then. Together with Michael Ash and other colleagues, including our former graduate student Klara Zwickl, who now teaches in Vienna, I wrote a number of papers that used the RSEI data to analyze disparities in exposure to industrial air pollution.[9] In addition, we launched the Corporate Toxics Information Project, which combines facility-by-facility data from the RSEI with information about who owns what facilities. By adding them up, we can see which corporations are responsible for how much pollution.[10]

Look at the distribution of the resulting exposures, we also can see which corporations have a pattern of imposing higher burdens on vulnerable communities.[11] One line of defense by corporations faced with claims of environmental injustice has been to say, "OK, pollution from this one facility is mainly impacting African Americans, but we're a big company. We have facilities all over, and that's just one isolated case." And we could say, "Actually, looking at all your facilities, we find that 68% of the impacts from your pollution is being borne by people of color. We think you've got a systematic problem." This information is useful for environmental justice advocates, because they can literally take it to court and say, "Hey, we've got a pattern here."

Michael Ash and I also carried out a study for the U.S. Equal Employment Opportunity Commission looking at the relationship between jobs and pollution. A second line of defense offered by corporate polluters is that they create jobs for local residents. We found that the people being hit most severely by the pollution are seldom the same people getting jobs in these factories. The share of pollution risk accruing to minority groups exceeds their share of employment, and greatly exceeds their share of high-paying jobs. We also found no evidence that facilities that impose higher pollution risk on the surrounding communities provide more jobs in total.[12]

On the "Toxic 100" website you can find detailed information on air pollution and water pollution at the corporate and facility level. Recently we added "Greenhouse 100" rankings based on the production and combustion of fossil fuels.[13] We update these indexes as the EPA releases fresh data.

Building Natural Assets

Around the turn of the millennium, another opportunity arose to explore more deeply the relationship between inequality in the environment. This happened when my friend Mike Conroy, with whom I'd worked in the past on economic policy and the peace process in El Salvador, became an environmental program officer at the Ford Foundation in New York. The foundation recently had undergone a reorganization, and the staff who made environmental grants now found themselves in a new division called Asset Building and Community Development.

As a result, they began to mull over how to link their work to the division's proclaimed mission of building assets in the hands of low-income communities and individuals. During a visit to New York, I stopped in for lunch with Mike at the Ford Foundation, in the course of which he told me, "We'd like to see a project that explores asset building in the context of the environment."

Out of this came the Natural Assets Project, a collaborative effort among researchers and practitioners that unfolded over a number of years. We held conferences, put out popular publications, and published two edited volumes of case studies, one focused on the U.S. and the other international.[14]

In marked contrast to the conventional wisdom which held that improving the lot of the world's poor necessarily means more environmental degradation, we maintained that the tasks of

protecting the environment and reducing poverty can be pursued together. Drawing on the experiences of grassroots organizations around the world, we identified four routes by which natural asset building takes place.

The first is by channeling investments in environmental protection and natural resource conservation preferentially to low-income communities. An example is what one member of our team, John Kurien, called "people's artificial reefs."[15] These were created by dumping concrete pipes and other material on the ocean floor off the coast of south India, with the initial aim of preventing bottom-dragging trawlers from destroying the fisheries on which coastal communities depended for their livelihoods. The artificial reefs turned out to have a big fringe benefit: like natural reefs, they created prime fish habitat – an example of the investment route.

The second is redistribution. This path is more contentious, since it involves taking natural assets from the rich and providing them to the poor. The classic example is land reform, notably the land reforms enacted in East Asia after the second World War. Despite their very different political regimes, China, Japan, South Korea, and Taiwan all implemented far-reaching land reforms that transferred ownership to people who had been landless tenants. Land redistribution set the stage for the so-called 'East Asian miracle,' the rapid growth of the region's economies in the postwar era, by raising living standards and breaking the stranglehold on political power previously exercised by landed oligarchies.

The third route is the internalization of what economists call 'positive externalities' by compensating communities and individuals for providing environmental services. For example, small farmers in so-called marginal agricultural environments around the world today grow diverse varieties of rice, wheat, maize, potatoes, and other crops. In so doing, they provide an immensely valuable global public good by conserving the crop genetic diversity bequeathed to us by millennia of human interactions with nature – arguably the single most important type of biodiversity from the standpoint of long-term human well-being. Crop genetic diversity provides the building blocks for adaptation to changing insect and pathogen populations, and now to climate change. But rather than being respected and rewarded for this service, these farmers are often disparaged as backward peasants who ought to move to the city and get a real job. Rewarding them for their vital contribution to food security would simultaneously reduce poverty and safeguard agricultural biodiversity.[16]

The final route to natural asset building is what we called appropriation or reclaiming the commons. This refers to situations where open-access resources have been abused, and the public acts to counter this abuse by asserting control over the resource. One example is when environmental justice communities claim their right to clean air and clean water. Another example is carbon dividends, a topic to which I will turn shortly.

I learned a great deal from the people I met in the Natural Assets Project. My one regret is that I did not manage to persuade the Ford Foundation to mount an effort to support the small farmers who sustain crop genetic diversity in the field. In the 1960s, Ford helped to launch the so-called Green Revolution in agriculture in Asia, Latin America, and to a lesser extent Africa. Back then, "green" did not mean environmentally friendly. It meant growing a handful of highly fertilizer-responsive varieties with intensive applications of agrochemicals, including pesticides to combat the insects and diseases that would otherwise flourish in the monocultural fields. One consequence of the Green Revolution was that it displaced the thousands of diverse varieties grown before, unleashing a process of genetic erosion.

The asset building framework highlighted an opportunity for Ford and other funding agencies to repair some of that damage by supporting agricultural diversity and small farmers. As a first step, we commissioned an excellent primer on the need for such an initiative by the gifted science

writer Charles Mann.[17] But before we could move further, the foundation underwent another restructuring and the staff involved in this nascent initiative lost their positions. The new people had other priorities. This important work remains to be done.

Universal Property and Carbon Dividends

Finally, let me to turn to climate change. One of the innovative thinkers whom I met in the Natural Assets Project was Peter Barnes, who had proposed something he called the "sky trust." The idea was to put a hard ceiling on carbon emissions that would tighten year after year; auction permits, up to that amount, to the firms that bring fossil fuels into the economy; and return the revenue from the permits directly to the public as equal annual dividends.

The idea of paying dividends directly to the public had a successful precedent in the Alaska Permanent Fund. In the early 1980s, when oil extraction commenced in Alaska, the state charged a royalty on each barrel of oil. Instead of going into the pockets of a royal family – fortunately, Alaska doesn't have one – the revenue went into the Permanent Fund to provide annual dividends to every woman, man, and child in the state. The underlying principle was that the state's natural resources belong equally to all its people, and all should share equally in the wealth. The annual payouts have amounted to roughly $4000 to $8000 for a family of four. For Alaska's more affluent households this may simply fund a shopping trip to Seattle or San Francisco, but for the state's low-income residents, many of them Native Americans, this is a significant source of income. As you might expect, Alaska's Permanent Fund is very popular. It enjoys overwhelming support among Republicans, Democrats, independents, and everybody in between.

What Barnes did was to repurpose this idea, with the key difference that the money to pay dividends would come not from pumping more oil but instead from restricting the entry of fossil fuels into the economy. At every tanker terminal, gas pipeline, and coal mine head, the firm would be required to surrender a permit for each ton of carbon that will be emitted when the fuel is burned. Auctions would eliminate the need for permit trading, in contrast to the cap-and-trade programs being discussed at the time. And the money would be returned directly to the people, offsetting the impact of higher fuel prices on their purchasing power.

I thought this was an intriguing idea, and I connected Barnes with the economist Marc Breslow to write a chapter for the first natural assets volume on the distributional impacts of such a policy.[18] They found that its net impact is strongly progressive. A carbon cap, like a carbon tax, raises the price of fossil fuels. Household carbon footprints are correlated with income and wealth: those with more money consume more of just about everything, and just about everything today uses fossil fuels. Combining the price effect with equal per-person dividends, low-income households come out ahead, the rich generally pay more in higher prices than they get back in dividends, and middle-class households roughly break even.

Subsequently, I started working on carbon dividends, too, with several colleagues including Matt Riddle, who was working at the time on his doctorate in economics. In a series of papers, we examined the impacts of the policy in China and the United States.[19]

Two cap-and-dividend bills were proposed in Washington, DC, in 2009 as an alternative to the cap-and-trade legislation then being debated. The first, introduced by Congressman (now Senator) Chris Van Hollen, called for 100% of the carbon revenue to be rebated directly to the public. The second, introduced by senators Maria Cantwell and Susan Collins, would have put 75% of the money into dividends and reserved 25% for a clean energy investment fund. Neither bill made it out of committee. The leaders of the Democratic Party instead put all their eggs in

the cap-and-trade basket, their political logic being that windfall permits to the fossil fuel industry from free permit giveaways would neutralize their opposition.

In the end, the cap-and-trade legislation died on Capitol Hill in the face of opposition from Republicans, who argued among other things that higher fuel prices would impose great hardship on working families – the very people who would have benefited most under the Van Hollen and Cantwell-Collins bills.[20] This defeat effectively took climate policy off the table in Washington for a decade until the Biden presidency, and even then the Democrats were unwilling to propose a price on carbon.

Public investment in a green new deal is certainly a positive step. But I am enough of an economist to recognize that as long as you have price signals that constantly encourage people to consume and invest in fossil fuels because they're cheap, you are still going to have too much use of fossil fuels and too much climate destabilization. We do not have time to play around. We need a meaningful carbon price, and carbon dividends can make this policy both politically durable and distributionally progressive.[21]

Carbon dividends are an example of what Peter Barnes and I have called universal property.[22] The key features of universal property are that it is individual, inalienable, and belongs equally to all. The same principles can be applied to other assets, such as trees in the forest, minerals in the ground, and the institutional architecture that undergirds the financial system. Charging for extraction of natural resources would provide incentives to limit their use. A financial transaction tax would help to stabilize money flows around the world. And treating the underlying assets as universal property would provide a source of universal basic income.

Today we face two great challenges. The first is to halt and, when possible, reverse the degradation of the environment, including destabilization of the planet's climate. The second is to reduce the inequalities of wealth and power that threaten to tear societies apart. I believe that it is both possible and necessary to tackle these challenges together. These two historic tasks can and must go hand-in-hand.

Thank you.

Notes

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[2] Betsy Hartmann and James K. Boyce, *A Quiet Violence: View from a Bangladesh Village*. London: Zed, 1983; James K. Boyce, *Agrarian Impasse in Bengal: Institutional Constraints to Technological Change*. Oxford; Oxford University Press, 1987; James K. Boyce, *The Philippines: The Political Economy of Growth and Impoverishment in the Marcos Era*. London: Macmillan, 1993.

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[14] James K. Boyce and Barry G. Shelley, eds., *Natural Assets: Democratizing Environmental Ownership*, Washington, DC: Island Press, 2003; James K. Boyce, Sunita Narain, and Elizabeth A. Stanton, eds., *Reclaiming Nature: Environmental Justice and Ecological Restoration*, London: Anthem Press, 2007.

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