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The Great Intergenerational Robbery: A Call for Concerted Action Against Environmental Crises

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Thirty years ago, in June 1992, the United Nations Conference on Environment and Development—known as the Earth Summit—convened in Rio de Janeiro. There, delegates created both the UN Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). It was in many ways the start of the formal international mission to bring global warming emissions under control and reduce humanity's negative impacts on

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our planet. Since then, international environmental protection has been linked to eradication of poverty and hunger through the Millennium Development Goals in 2000, and later the Sustainable Development Goals.

Now, thirty years later, the world is warming ever faster, millions of species are in decline, ecosystems are under increasing stress, and hundreds of millions of people still lack access to safe water, energy, and food. Incredibly, the worldview of the "pursuit of growth" still predominates, and leaders continue to act as if their decisions are unrelated to these unfolding environmental crises. While there is lip service, there is far too little action.

Our generation has been enriched but often at the expense of future generations. We have not entirely failed to act, but our actions to date are simply not enough. The urgency to tackle climate change and biodiversity loss requires all hands on deck. And yet, the Earth Summit generation has failed to produce the leaders and show the resolve for adequate actions to protect the well-being of generations to come. Delaying serious actions to reduce climate change and biodiversity loss has reduced options and increased risks and the urgency and costs of action. As things stand, future generations will have fewer and harsher choices, diminishing their capabilities[1] to reach their full potential and, thus, leaving them poorer than they would have been. Failure to act, when the evidence is all around us, is not ignorance but robbery.

This intergenerational robbery is happening on a vast, historically unprecedented scale, without sufficient attention or protest.

The coauthors here comprise researchers and practitioners spanning natural and social sciences and engineering. Whether we like it or not, we are on the "robbers'" side of this intergenerational robbery because we have not been able to convince policymakers to act, and we ourselves have relied on fossil fuels, for example, through years of flying to scientific meetings.[2] At this juncture, we feel frustration, sadness and, for some of us, even outrage and anger at the diminished prospects for future generations.

Our scientific understanding and consensus—embodied in assessments by the Intergovernmental Panel on Climate Change (IPCC), the CBD, and others—are far ahead of how society currently operates. The community of scholars in environmental and resource sciences, including us, has produced vast amounts of research to reveal the causes, drivers, and consequences of environmental degradation, resource depletion, and climate change and to evaluate possible responses. Research remains important, yet clearly has been insufficient alone to spur effective action and transformative change.

Although some leading corporations have partnered with researchers and civil society to adopt science-based targets to reduce their environmental impacts, few have lent their influence to advocate changes in public policies (such as a price on carbon emissions) that create incentives for structural change; others are disinterested or unwilling to walk away from polluting technologies.

Why such feeble actions? There are many reasons. These are genuinely complex problems and solutions have unequal impacts, creating both losers and winners. This complexity enables misdirection from vested interest groups on blocking vigorous, far-sighted action. Moreover, the world's richest 10% of people are responsible for more than half of planetary emissions and have vested interests in continuing our high-impact lifestyles. For all of us, particularly the 90% who are not the wealthiest, options are constrained by our existing infrastructure and the systems we

[1] A great advance in the late twentieth century came in framing "human development" as expansion of capabilities. See Sen A. 1999. *Development as Freedom*. Oxford, UK: Oxford Univ. Press.

[2] Annual Reviews became a carbon neutral organization in 2021 (**https://annualreviewsnews.org/2021/04/14/becoming-carbon-neutral/**). This includes offsetting travel for Editorial Committee meetings and the printing and distribution of journals, including the *Annual Review of Environment and Resources*.

maintain. Immense political and economic forces keep our collective Titanic on course, preventing it from steering away from disaster.

As a result of these vested interests, environmental research is at times actively contested by powerful actors—just as powerful companies and some politicians contested the need for action on (and even validity of) public health research into the cancer-causing properties of tobacco, asbestos, dioxin, and more. The IPCC's most recent report[3] explicitly states "*rhetoric and misinformation on climate change and the deliberate undermining of science*" have downplayed the risks to the planet. Critics also have been quick to undermine scientists who are seen as activists.

A 2021 review in this journal entitled "Three Decades of Climate Mitigation: Why Haven't We Bent the Global Emissions Curve?"[4] frames the issue this way: "*. . . a common thread that emerges across the reviewed literature is the central role of power, manifest in many forms, from a dogmatic political-economic hegemony and influential vested interests to narrow techno-economic mindsets and ideologies of control.*" While we in the global research community know a lot about the science, we don't know nearly enough about how to break these power structures and promote transformative change.

While it is one thing to lay out the problem, what can we do as editors of a scientific journal to support solutions to these challenges?

It is not too late. The research community can make a difference—but not if it simply does more of the same. We need more than just outstanding research. We also need strategic reorientation of outstanding research so that it supports action. Just as importantly, we need collaborations and actions that will actively resist and overturn intergenerational robbery.

Having action informed by science requires collaboration between scientists and governments, news media, businesses, civil society, and others. Doing so without losing credibility in a polarized and political environment is exceedingly difficult. That must not deter us. We can wade into the thick of things and communicate what we know as best we can by being good story-tellers, where the stories are evidence-driven and fact-based.

Here, we declare our intentions to steer the *Annual Review of Environment and Resources* (ARER) journal in three ways that recognize and help to tackle the issues impairing necessary action.

First, senior researchers, including ourselves, must make a more concerted effort to work in collaboration with young people, including young scientists *and* activists.

Younger generations have a longer future, are less vested in the status quo, and have different priorities. We must listen to them actively and intentionally, ensuring the communication goes both ways. This requires including younger people on boards and organizing committees and in designing consultative processes, including organizing meetings where senior scientists are in the audience rather than on stage. The Global Environment Facility (GEF), for example, successfully canvases input from specific groups such as Indigenous peoples, local communities, civil society organizations, and youth prior to its council meetings. The UNFCCC engages directly through its Children and Youth constituency, known as YOUNGO. Engagement also means researchers get comfortable with alternative media, from twitter and TikTok to cartoons[5] that encourage dialogue across generations.

[3]IPCC (Intergov. Panel Clim. Change). 2022. *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, ed. H-O Pörtner, DC Roberts, M Tignor, ES Poloczanska, K Mintenbeck, et al. Geneva: IPCC. **https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/**; see, specifically, Chapter 14.

[4]Stoddard I, Anderson K, Capstick S, Carton W, Depledge J, et al. 2021. Three decades of climate mitigation: Why haven't we bent the global emissions curve? *Annu. Rev. Environ. Resour.* 46:653–89. **https://doi.org/10.1146/annurev-environ-012220-011104**.

[5]For example, see the six-episode "Kigalinha" cartoon web series created in Portuguese (and available in several languages on YouTube) to explain the Kigali Amendment to the Montreal Protocol (**https://iei-brasil.org/kigalinha/**).

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Second, we recommit ourselves to creating compelling, credible scientific reviews of *tactical* importance in the struggle against climate change and environmental degradation.

This may include, for example, reviews of the causes of policy capture by vested interests and how to counter it; promising approaches for low-income nations to improve their people's welfare, protect their environment, and prosper without relying on fossil fuels; how to effectively spur societal change toward this transformation; and case studies highlighting the voices, challenges, and successes of those who suffer most from climate change, resource depletion, environmental degradation, habitat destruction, and biodiversity loss. The authors of these reviews must include a broader range of scholars from across the world, including the emerging generation of scholars from the global South. The ARER Editorial Committee will create a standing invitation on our webpage for suggestions of review topics tailored to these new directions, to be developed by the ARER Editorial Committee. The suggestions that lead to review articles will be acknowledged.

Third, we recognize that even millions of separate individual actions can only have marginal impacts and that *collective action for systemic change is far more powerful*.

We can support collective action by ensuring that ARER reviews are as widely and freely accessible as possible and are presented or re-packaged in ways of most use to individuals and their organizations, including youth, activists, teachers, journalists, and policymakers. This includes making sure that abstracts and conclusions are written in plain language, emphasize implications, and present pathways to practical solutions. We also will encourage our authors to create companion pieces to publish in newspapers, on social media, and in other public venues (including Annual Reviews' *Knowable Magazine*); to participate in public events; or to create explanatory videos that have a wider reach. Successful examples show that, when communicated well, excellent research can shift dialogue and perceptions. These include the IPCC's widely discussed special report on the impacts of global warming of 1.5°C,[6] commissioned in response to activist and island nations' demands, and the 2009 paper on planetary boundaries.[7] It is encouraging that we see science informing transformative change in some key systems, such as shifting commodity supply chains toward deforestation-free sourcing, advancing integrated solutions to urban challenges, and targeting restoration to improve ecosystem services. This also helps to demonstrate that collective action can work.

Our readers comprise a large and growing community that now is hundreds of thousands strong, young and old, from all around the world, including students, scholars, journalists, policymakers, activists, business leaders, and more. We appeal to each of you to assess your own skills and opportunities and determine what you can do personally, professionally, and collectively.

The youth of today soon will find themselves in our shoes, responsible to the next generation after themselves. Our goal should be to ensure each generation gives to the next, rather than stealing from their future. And for that, we all urgently need to work together in new ways.

[6]IPCC (Intergov. Panel Clim. Change). 2018. *Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty*, ed. V Masson-Delmotte, P Zhai, HO Pörtner, D Roberts, J Skea, et al. Geneva: IPCC. **https://www.ipcc.ch/sr15/**.

[7]Rockström J, Steffen W, Noone K, Persson Å, Chapin FS III, et al. 2009. A safe operating space for humanity. *Nature* 461:472–75. **https://www.nature.com/articles/461472a**.

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