

A Fond Farewell to the Anthropocene

In February 2024, an international scientific committee voted against creating a new geologic time period called the Anthropocene. The move, coming after two decades of debate, dashed the hopes of many in the environmental community who wanted a scientific endorsement of the notion that human-driven changes had shifted the trajectory of the planet. Although it was disheartening to many, I believe this rejection should not be considered a setback for an ambitious environmental agenda. It is, rather, an opportunity to reflect and learn.

The Anthropocene, or “the age of human beings,” combines two Latin words: *anthropos*, meaning human, and *ocene*, meaning new. Nobel Prize-winning chemist Paul Crutzen popularized the term in a 2000 essay in which he and biologist Eugene Stoermer argued that Earth had left the Holocene and entered a new epoch characterized by human impact on the planet. The term soon became ubiquitous in the environmental policy community and beyond.

I think the environmental policy community has expected both too much and too little of the Anthropocene label. It is meant to be precise enough for scientific imprimatur and yet squishy enough to encompass many aspects of human-driven environmental damage, from the destruction of biodiversity to greenhouse gas emissions.

This application of the term has not only tied the future of environmental policy to highly technical debates and processes, but it has also roiled the scientific community. With the February decision to reject defining this period as a new epoch of geologic time, the policy community has an opportunity to wrestle with a bigger question on how it engages with science when setting policy priorities and strategies.

A geologists' affair

The decision on whether humans now live in the Anthropocene officially fell to the International Union of Geological Sciences (IUGS). The IUGS traces its roots to the late 1800s and is among many similar global scientific institutions that coordinate research across countries and languages. One core responsibility of the IUGS is to codify Earth's geologic timelines. This process looks less like a scientific inquiry and more like a United Nations commission: it involves setting up committees and subcommittees and a process of votes, ratifications, and formal appeals. After years of cold-shouldering proposals like Crutzen's to define a new epoch, the relevant body within the IUGS, the International Commission on Stratigraphy (ICS), established the Anthropocene Working Group (AWG) in 2009 to make recommendations on whether to declare an end to the current Holocene and the start of the Anthropocene. In essence, the AWG was asked to determine whether human actions were changing the planet at a similar scale as, say, the end of the ice age that launched the Holocene epoch.

Geologists are themselves divided. Some argue that the field is being pushed into political provocation. A 2012 commentary stated, “Anthropocene provides eye-catching jargon, but terminology alone does not produce a useful stratigraphic concept.” Others, such as environmental scientist Erle Ellis, a member of the AWG from its beginning, argued the opposite, saying that it is important to recognize the Anthropocene epoch because such a move would communicate the overwhelming scientific consensus that humans have caused a large-scale transformation of Earth's climate, atmospheric composition, and ecosystems. The AWG advocated for the renaming by following technical criteria of stratigraphic concepts and physical signatures.

To arbitrate the creation of this new epoch, the AWG had to determine when it began and find a geological signature marking that beginning. After a series of procedural votes, in 2023, the AWG voted in favor of a start date associated with the radioactive fallout from the first nuclear weapons tests. Traces of radionuclides are globally synchronous and clearly human-derived, which made them a good geological signature for decoupling the Anthropocene from the Holocene. Plutonium isotopes found in Canada's uniquely preserved Lake Crawford were used as the physical site of this nuclear fallout.

Although many accepted this narrow and technical definition of the Anthropocene, others argued that such a definition does more harm than good by neglecting other human-driven changes such as large-scale deforestation and greenhouse gas emissions. The debates were so heated that Ellis and two other scientists eventually quit the working group. In his resignation letter, Ellis protested, "The AWG's choice to systematically ignore overwhelming evidence of Earth's long-term anthropogenic transformation is not just

as climate change and other environmental problems have grown more urgent. Terms such as "the environment" and "climate change" or even grander terms like "Gaia" have been bandied about, but have so far failed to coalesce public support. In contrast, the Anthropocene, with its technical authority and grand symbolism, offered a fresh launchpad to mobilize public support at a time when misinformation and climate denialism threatened action.

While I see the importance of engaging science and experts in policymaking, I also think that environmental policy must look for legitimacy beyond institutions of science and scientific expertise. The goal is to move policy forward, and for that, advocates should move away from an overreliance on science to justify a tougher stance against environmental degradation and greenhouse gas emissions. The starting point for climate action should not be debating whether human-driven changes to the planet are equivalent to an ice age—it should be helping people who are already suffering the consequences of environmental change to reverse the policies that are harming them.

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bad science, it's bad for public understanding and action on global change." In the end, the IUGS approved the ICS committee's vote to reject the AWG's proposal, determining that the criteria were too narrow and that establishing another epoch was not useful for the advancement of international scientific research. Three geologists who supported the official rejection of a new geological epoch argued that the term has more value as an informal concept, unburdened by narrow geological definitions.

There is no doubt that the term "Anthropocene" will live on informally, but its rejection as a distinct epoch should also not be disregarded as irrelevant to environmental discourse. To me, the very fact this debate became so important to environmental policymakers provides some of the most important lessons about the interplay of climate science and climate politics over the last two decades.

Science-politics impasse

Many in the environmental policy community hoped that formal recognition of the Anthropocene would spur bold actions. After the legislative successes of the 1960s and '70s (for example, passage of the Clean Air and Clear Water Acts), the policy community has struggled to make a successful public case for ratcheting up environmental regulations even

Sociologist Peter Weingart has argued that the expanded use of science to defend policy actions can paradoxically backfire by destabilizing confidence in both scientific and political institutions. He contends that rather than strengthen the case for action, this intensified pressure on experts pushes them to go beyond the realm of consensus-based conclusions—and into frontiers where claims are contested and uncertain. This science-politics impasse closely echoes what is happening with the Anthropocene.

Such a reliance on science alone to drive the policy agenda is also problematic because it fails to acknowledge the ways science is socially constructed. It overlooks heterogeneity within the scientific community, assumes science is value-free, and encourages excessive deference to conventional research agendas. Policymakers end up privileging top-down knowledge generation and thus underappreciate experiential and place-based ways people understand how earth systems are changing.

You can see this effect in the popular attention to annual Intergovernmental Panel on Climate Change (IPCC) reports and related Conference of the Parties (COP) meetings at the expense of, say, localized social movements working to reduce dependence on fossil fuels by providing transportation options or groups working

to reduce pollution in neighborhoods near oil refineries. The IPCC does important work, and it was particularly valuable in the decades when signals of climate change were less obvious. But waiting on scientific consensus as an irrefutable authority perpetuates the idea that science is outside society, even though scientific consensus depends on modern international scientific bodies and their highly sophisticated bureaucracies. Undeniably social, these bodies of experts are as much a part of the scientific process as randomized experiments, statistical modeling, and peer review.

Pinning policy actions on official scientific declarations may limit ambitions and crimp views of consensus and could steer policymakers toward grand gestures, pulling focus from more impactful incremental and local change.

What the Anthropocene can't say

The Anthropocene has also come to represent a particularly Western view of environmental degradation. Ascribing blame to humanity at large, via the anthropos, is a framing that fails to hold industrialized countries, large fossil-fuel companies, and those who profit from environmental damage as particularly responsible for human-caused changes. This argument is summed up in a book by sociologist John Bellamy Foster, which asserts it is not overall humanity that has erred, but capitalism—"a system that inherently and irredeemably fouls its own nest." A recent Oxfam report found that the poorest half of the global population accounted for 7% of global greenhouse gas emissions from 1990 to 2015—less than half the approximately 15% of emissions attributed to the richest 1%.

Perhaps the Anthropocene was rapidly accepted among Western academics and public actors precisely because it allowed the discourse to shift away from the problems caused by Western ideas of progress, science, and modernity toward a more global concept of humanity at large. Environmental historian Jason Moore gets at the source of the problem in renaming the era the "Capitalocene," noting that policies remain faithful to top-down capitalist thinking.

In framing humanity as the problem, the term "Anthropocene" mirrors the Biblical concept that all time periods before humans were "Eden before the fall" while also downplaying historical injustices. Scholars of Indigenous knowledge Heather Davis and Zoe Todd, for instance, argue that colonialism, genocide, and dispossession, along with the Industrial Revolution, caused the kinds of environmental degradation that are summed up in the label. Others, including science, technology, and society scholar Eileen Crist, suggest that more effective climate politics lie in decentering ideas of human progress and inevitable expansion.

All these lines of thought suggest a need to be more precise than just saying "anthropos" when assigning a cause to the planet's current predicament. When policies fail to recognize the social and economic causes of the Anthropocene, they may also end up perpetuating the injustices of the past. For example, the Convention on Biological Diversity's 30x30 initiative aspires to turn 30% of Earth's surface into protected areas by 2030. Although a well-intentioned aim, this top-down goal-setting has failed to accommodate or recognize the sustainable use of these lands by Indigenous communities. The convention has drawn criticism from rights-based groups like Survival International and intensified calls to explicitly engage local and Indigenous communities in environmental policies.

Setting policy free

In the aftermath of the IUGS decision, the policy community now has an opportunity to break from this overreliance on official scientific consensus. Supporters of environmental actions find themselves hamstrung by, to borrow from Weingart, the politicization of science on one end, and the scientization of politics on the other. With the two-decade effort to tie climate policy to a stratigraphic decision concluded, there is an opportunity to think more imaginatively about engaging publics in environmental policies.

In this complicated and changing world, the hard job of forging political consensus is different from the hard work of forging scientific consensus, and one cannot be privileged over the other. Rather than waiting for some god-trick of scientific authority, advocates and policymakers must find ways to proceed despite uncertainties and contingencies. It is past time to learn how to govern the diversity of human interactions with nature amid many unknown environmental risks.

Environmental challenges are multifold; solutions must be as well, and so are the strategies and arguments needed to gain support for solutions. For some people, the future economic costs and risks to inaction may be compelling. Others may be swayed by the need to help the many already suffering because of environmental changes—say, extreme weather that floods city streets, or species loss that disrupts Indigenous food sources. Still others may be persuaded by ethical or moral arguments. Fully engaging with all of these messy human concerns may help policymakers find the paths to effective policies that have so far been elusive.

Appeal to scientific expertise is but one of the tools of persuasion. There is already a strong public case for bold policy action; recognizing this can set environmental policy free.

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