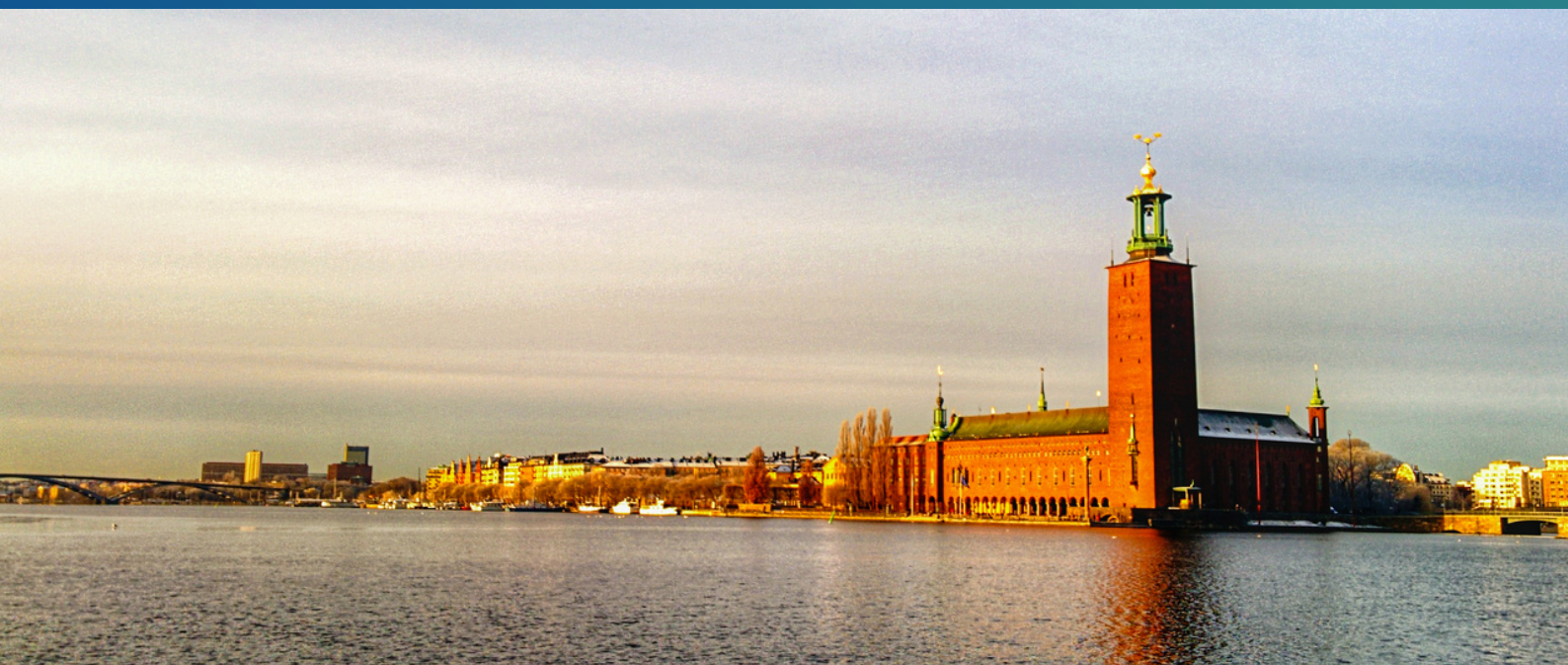


The Stockholm Series of Public Lectures on Climate Change and Democracy



Earth System Governance: A New Vision for Planetary Stewardship

Frank Biermann

Professor of Global Sustainability Governance, Utrecht University, and 2025
Zennström Professor in Climate Change Leadership, Uppsala University

The Stockholm Series of Public Lectures on Climate Change and Democracy (“Stockholm Series”) is a cooperation between renowned Stockholm-based institutions with a particular focus on climate change and democracy from different perspectives, including the Stockholm Environment Institute; the Stockholm Resilience Centre; Future Earth; LSU – The National Council of Swedish Children and Youth Organisations; and We Don’t Have Time. It aims to inform, inspire, and engage experts and the general public alike by providing high-profile public lectures on the interlinkages between climate change and democracy, followed by debate.

Frank Biermann’s lecture **“Earth System Governance: A New Vision for Planetary Stewardship”** took place on Tuesday, 27 May 2025, at International IDEA’s Headquarters at Strömsborg in Stockholm, Sweden.

A new perspective on world politics and global institutions is essential to tackle the planetary crisis. In the face of rising unilateralism, authoritarianism, anti-environmentalism and hubristic ecomodernism, we need a holistic political vision to address climate change and other threats to earth system stability. In this lecture, Frank Biermann introduces earth system governance as such a vision, with a focus on its democratic dimensions. What is the potential for reform within international organizations? What is the role of civil society? And are the responsibilities of the scientific community changing?

The lecture was opened by **Katarzyna Gardapkhadze**, Director of Global Programmes, International IDEA, and followed by a conversation with **Wendy Broadgate**, Global Hub Director Sweden & Interim Coordinating Director, Future Earth, as well as questions and comments from the audience, and a reception.

Stockholm,
27 May 2025

Thank you so much for the warm welcome and thank you all for being here.

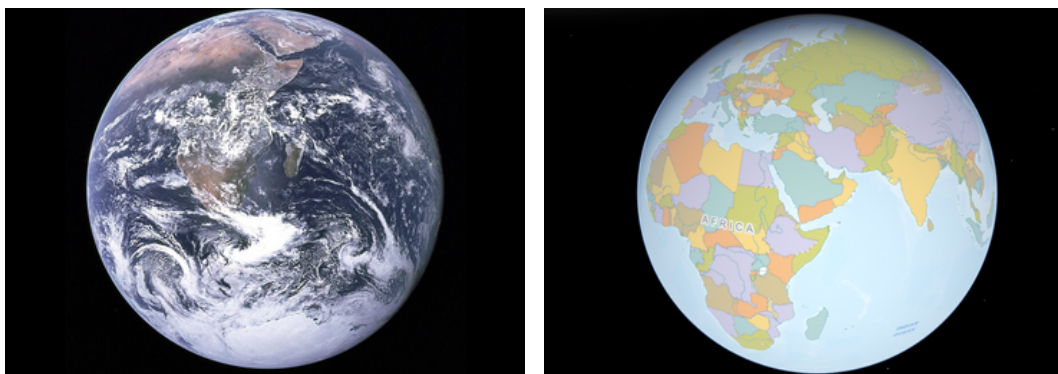
The sun is shining and on my way here I saw many people outside enjoying the short summer in Sweden, and instead you are all here listening to me talk about issues that sometimes can be depressing, such as climate change. Thank you for coming!

Today, I want to take you on a journey that combines two images of our planet. The first picture shows the planet as it is: as an integrated, interdependent socio-ecological system, our home, the Earth. The second picture shows the planet as politicians understand it: divided into some 190 countries with capitals and armies and geopolitical conflicts, not as the integrated political system that it could be, but with strong planetary-scale institutions capable of governing the earth system.

I want to take you on a journey to bring these two images together. I will talk about climate change, about democracy, and also about Donald Trump, since one can hardly have a talk these days without bringing Trump into the picture.

I. A Planetary Crisis

I'll start with the planet. Here I'd like to begin with a quote from [the 2001 Amsterdam Declaration of the International Geosphere-Biosphere Programme](#), which was a large research program where thousands of natural scientists worked together, the predecessor of [Future Earth](#). Here, scientists concluded that our home, our Earth, our planet, is outside of the state in which it has been for the past 500,000 to 800,000 years, and that human activities could trigger severe consequences for the earth's environment, which could potentially switch the earth system into alternative modes of operation that might be irreversible and inhospitable for humans and non-humans. This Amsterdam declaration was adopted 24 years ago, when I was still a postdoc in political science. I then wondered: What does it mean for political science? What does it mean for politics? What does it mean for international relations? That is when I started thinking about earth system governance.



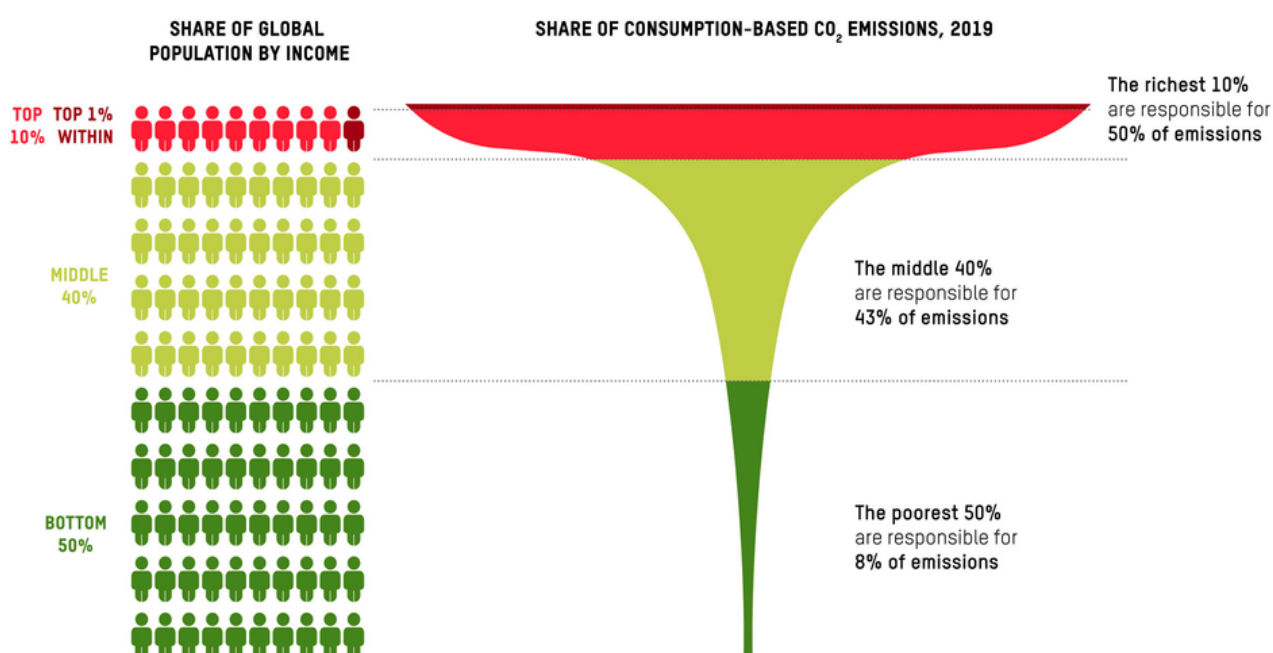
Two different images of our planet. Source: NASA / [Earth 3D Map](#)

In our current planetary crisis, however, it is important to see climate change in connection to the other aspects of sustainability. We are not just living through a climate crisis, it is a much broader sustainability crisis. In 2015, the United Nations agreed on 17 Sustainable Development Goals (SDGs) with 169 targets. Today, only 17 per cent of those targets are on track to be achieved by 2030, when they're supposed to be met. One third of these targets are in fact falling backwards, partially because of COVID-19, but partially also because of ineffective and insufficient policies from our governments at the local, national, and global levels.

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For example, 700 million people woke up this morning without sufficient food. 10 per cent, every 10th person, still live in extreme poverty, and these numbers might increase if current trajectories continue. Poverty is a central part of the planetary crisis, and it is thus important for any program working on climate change to see it as a problem of inequality and injustice. One should never forget that it is only 10 per cent of the human population, the richest ones in the Global North and the richest ones in the Global South, who are causing 50 per cent of carbon dioxide emissions. Consider this graph from Oxfam (below), where the richest 10 per cent are marked in red. Red is danger, red is, in this case, excessive overconsumption. This is what climate change should mean and this situation should, here at International IDEA or elsewhere, be the starting point: Never forgetting that climate change is foremost a problem of inequality and injustice.

For the last 30 years, I have studied international relations in the sustainability field, and there's so much that has been done. We have more than 1300 international agreements on the environment, public-private partnerships, numerous UN reforms, a United Nations Environment Programme, a High-level Political Forum on Sustainable Development, and so on. Many institutions and programs have been conceived and put into place. Yet overall, nothing has really worked so far.



Consumption inequality. Source: [Oxfam 2023](#)

The latest addition in the UN system were the Sustainable Development Goals, which I already mentioned: 17 goals with 169 targets to be reached by 2030. There was much enthusiasm when these goals were launched in 2015. Governments claimed that they were “resolved to free the human race from the tyranny of poverty and want to heal and secure our planet.” As a political scientist, I became interested in whether these goals and claims would have an impact. Has anything changed because of these goals?

As part of our research program, 60 colleagues analysed 3 000 scientific studies about the SDGs and their political impact. In the end, we couldn't find much.

To answer these questions, with support by an Advanced Grant from the European Research Council, we set up a research program to study the political impacts of the SDGs. As part of our research program, 60 colleagues [analysed](#) 3 000 scientific studies about the SDGs and their political impact. In the end, we couldn't find much. We couldn't find substantial political steering effects of the SDGs at the local, national or global levels. The overall finding is more nuanced of course. For example, we found some impact on city levels, in particular in progressive cities where often students and progressive people live. In such places, one finds sizeable change. But overall, we identified hardly any change, in terms of realignment of institutions, changes in laws, changes in regulations, or changes in funding streams. We concluded after six years of research that the SDGs were not the most effective approach.

II. The Need for Earth System Governance

In short, global governance is not effective enough. The climate and sustainability crisis is a problem of failing governance, but also of governance research. When it comes to the natural sciences, we know so much: about the climate, biodiversity, oceans, etc. Yet what we don't understand is how we can improve governance, institutions and politics. Here we need to have a better understanding, and better political action. That is what we try to do in the [Earth System Governance Project](#): to better understand governance, institutions and politics in a policy-oriented and policy-driven manner.

To better understand governance, we must also revisit our theoretical concepts. The old paradigm of ‘environmental policy’, a term from the 1970s, is failing us. We must work towards new concepts that can help us better understand the two different planets that I mentioned in the beginning of the talk. This is why we didn't label our network as an ‘environmental policy program’, but instead as the Earth System Governance Project. We must change our understanding of politics at planetary scale and break down the old dichotomies, where you have ‘the people’ on the one hand and ‘the environment’ on the other. Our planet is an integrated system. We all are part of a social-ecological system, from the local to the planetary scale.

This also entails that we need to go beyond the nation-state system. We should focus on planetary boundaries more than on national boundaries. And we have to think about the long-term. Earth system science shows us that

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many climate change processes are long-term issues, the melting ice in Greenland and the Arctic, for instance, which might continue for centuries. Some impacts will occur when most of us are not here anymore. We thus need politics and institutions that can deal with long-term problems. This is a concept which is not sufficiently understood and where we need to involve more scientists, social scientists in particular, to answer questions like: How can we bring the long-term into national, local or global decision-making? How can we understand justice and democracy on a planetary scale?

Again, this is what we study in the Earth System Governance Project. This project is a global community of over six hundred researchers. It is pluralistic and interdisciplinary, not guided by any specific theory or model. Instead, we work with different theories and approaches. It's an academic community marked by engaged scholarship and the commitment to help change the world to the better. If one attends our conferences, one immediately notices the energy, the desire of the participants to become agents of change, to move forward and develop new and innovative ideas through academic research. That is what the Earth System Governance Project is about.

We need politics and institutions that can deal with long-term problems. This is a concept which is not sufficiently understood and where we need to involve more scientists.

Working with Future Earth, we have had annual conferences for the last 20 years. We have a books series with MIT Press, we have a book series with Cambridge University Press, and we have our own journal. Our work is guided by 'science plans' that we revise every ten years. The current plan was announced in 2018 and includes 'Democracy and Power' as one of research lens. In other words, quite a few people in this community are studying issues of democracy. Importantly: We are always open for new collaborations. If you find the Earth System Governance Project interesting: Just join us as a research fellow or institutional collaborator—you can [email me](#) or the [International Project Office](#), or connect through our [website](#). You're most welcome to join us!

III. The New Challenge Since 2025: Earth System Governance in the Age of Trump

If you had invited me for this presentation a year ago, I now would have continued with a plethora of reform ideas for the UN and other pathways to improve planetary governance. But I can't do that anymore because the world has changed. Before we have a discussion around proposals for reforms, we must have another, frank discussion: Is anything of this actually feasible with Donald J. Trump in the White House? Trump is signing one executive order after another, withdrawing the United States from the Paris Agreement, renouncing the SDGs, cutting development assistance and so on. This week, Trump asked the UK Government to stop building wind turbines and expand oil exploration instead. Importantly, it is not Donald Trump alone but a larger movement of populist, anti-environmentalist and anti-internationalist groups that are winning 10 to 30 per cent of the votes in many countries. This development challenges those who care about the climate, democracy and our planet. And so, for the last five months, I've tried to better understand: What does this mean for political science, international relations, and earth system governance?

In my understanding, these developments mark the end of what can be called the “long 1990s”, a period that started with the fall of the Berlin Wall in 1989 (a particularly important event for me, because I was there at that time). 1992 was another key year, with the Rio Conference on Environment and Development, a huge and enthusiastic moment, with many important agreements: the UN Framework Convention on Climate Change, the Convention on Biological Diversity, the Agenda 21 and so on. It was a moment that you would no longer expect today, at least not at this moment in time. Now we are entering a new phase, with three main changes.

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First, the old idea of a universal order is, at least temporarily, outdated. The idea of a universal order where in principle, all countries try to work together, with major global agreements within the United Nations based on broad consensus. Universalism is now broadly becoming replaced by multipolar governance systems, marked by conflict, contestation and fragmentation.

Second, we must question old ideas of linear progress, that everything gets better over time. That with each international conference, declaration and new decision, everything will in a linear manner get better. These old ideas of linear progress need to be revisited.

Third and finally: old notions of stable country alliances lose their value. The time of stable alliances based on common values, notably the transatlantic alliance, might now be over as well. We must adjust to a new geopolitical environment.

For countries that try to advance both climate governance and democracy, a way forward might now be through a stronger focus on plurilateral governance. Plurilateralism means that not every country participates. It means that many countries and actors work together, but not necessarily all. It refers to coalitions of the willing. This is not a new idea but originates in the world trade regime. Plurilateralism might become the new normal also outside the trade regime.

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In the climate policy space, there is already much literature on ‘climate clubs’ and smaller agreements on climate issues. Such smaller agreements, however, are often still, implicitly, based on the idea that the US would lead, or at least participate. The new question is how to build plurilateral institutions without the US, or even with the US opposing or working against it (as it does in the International Criminal Court)?

This is one area where more research is clearly needed. There are empirical examples from the past, but also a broad need for more research.

For one, we must explore effective plurilateralism within the United Nations. I like to use in my presentations these black and white photos to show that the UN, in fact, is outdated.



The UN at its founding in the 1940s.

The UN was created in 1948: it hasn't changed much since then. It is based on principles of the 1940s, one could say even of the 19th century. Many agree that it must be changed, but that is not happening in the current context. Instead of pondering about fundamental constitutional changes, we must think about how to work within the UN system in a plurilateral way. We might need to work towards a layered UN, where we defend the UN as the overall framework, but within it find novel ways to advance progressive agendas with smaller groups of countries.

One way is reliance on Article 22 of the UN Charter. This includes the possibility for the United Nations General Assembly to create new bodies or subsidiary organs by majority vote rather than consensus. In this way, the General Assembly could set up a UN Parliamentary Assembly, to give one example. Here one would not need any consent from President Trump but could just proceed by majority vote. Such pathways are not ideal, but in practical terms, they are feasible.

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Another concrete example: Brazil, in their role as host of the next climate summit in November 2025, has recently suggested to set up a new 'Climate Change Council'. This is becoming a major discussion, and it's not fully clear what Brazil precisely suggests. Should the new council be outside or inside the UN? What would be the relationship with the UN climate convention? What would be the membership of this Climate Change Council? Would it be a typical UN setup with geographically diverse countries? Or would it have a different type of membership, and a different type of decision making?

One concern could be that climate is only one among many interconnected issues. What is needed is rather a council at UN level that would bring all the different planetary concerns together, including climate, biodiversity, oceans, land, water, etc.: something like a 'planetary protection council'.

All these are important areas for research. Maybe there is some momentum for something new. Theoretically, again, a new council could be advanced through article 22 of the UN Charter, by majority vote and without consent by the United States and other more anti-internationalist countries.

A further concern is that the UN is facing massive funding cuts. Many UN agencies might lose 20 to 30 per cent of their income. Humanitarian aid seems to take the biggest hit, while the United Nations Environment Programme might be still better off because it's not that much dependent on US funding. While we don't know the exact fall-out of US policies yet, we might face the largest downsizing of international organizations in the last 80 years.

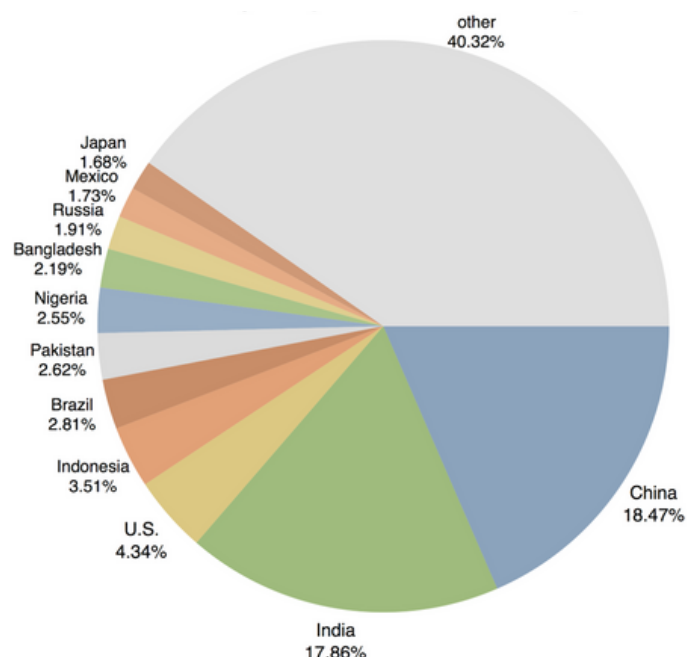
What does this mean for the many functions of international organizations? More money from other countries is unlikely to materialize to make up the gaps left by US withdrawal. Instead, we might need to think more about alternative funding mechanisms, such as levies on air transportation or shipping. There are many such ideas out there, and it's time to investigate this in more detail.

IV. Democracy in Earth System Governance

In this fourth part of my presentation, I discuss democracy. I focus on global democracy, in line of the rest of my talk, which doesn't mean that local and national democracy is not equally important.

First, one problem is that the UN builds on the one-country, one-vote principle, also called principle of 'sovereign equality'. Some countries perceive this as being unfair, since it means that every country has the same vote regardless of size, or what one could call 'planetary governance by micronations'. That is, Monaco, Andorra, Luxembourg, and Liechtenstein have the same vote as China, India, Indonesia and others. That is not very effective, especially in institutions that take decisions by consensus. In a consensus-based system, only one of 190+ countries can object to a decision, and that is what often happens for example in climate governance. That is not the most effective way to run an international decision-making procedure.

Some people argue that we should instead vote by world population. However, that is not only rather unrealistic at present but also would mean that only seven countries have the majority. You can see it in this graph (right): only China, India, US, Indonesia, Brazil, Pakistan, and Nigeria would have the majority. This might sound democratic, but it is not very realistic in current global governance.



Countries by world population. Source: [Wikideas1](#) (Wikimedia Commons) / [Worldometer](#)

In 2012, 30 experts of the Earth System Governance Project published a set of policy recommendations on this matter. One proposal was to create a high-level UN Council on Sustainable Development that would grant special voting rights for the G20, as a proxy for big countries. This solution is not ideal because the current G20 are broadly defined by their economic power, while one may want to give preference rather for countries with large populations. But nevertheless, the idea would be to have a council with a more balanced decision-making system that could make the traditional intergovernmental system more effective.

Another proposal is to add democratic bodies to the UN's intergovernmental decision-making. Here, there are essentially three different approaches. First, there is a civil society movement calling for a UN parliamentary assembly, a world parliament. This could be done in different ways, for instance through an assembly of national parliamentarians. A second idea is to install a civil society forum as a separate chamber in the UN system. Thirdly, one could have global citizen assemblies, which is a significant part of the [work](#) here at International IDEA.

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Firstly, the idea of a parliamentary assembly. One concern here is the trend of autocratization and democratic backsliding. Many of these ideas draw on a multi-level model of democracy, with democratically elected parliaments and legitimate civil society at the national level, which is scaled up to the global level. Yet what happens if there are very few democratic nations left?

Secondly, the idea of strengthening the role of civil society. In the present system, civil society work through a set of 'major groups' of civil society organisations that represent Indigenous peoples, science, women, children and youth, and so forth. On the one hand, the major-groups system is welcome as it adds important voices. But from a political science perspective, it is not that easy. In our research we explored how representation worked in these contexts. In one [study](#) with my colleague Dr. Carole-Anne Sénit, we looked at the negotiation processes of the SDGs and the origin of the civil society speakers. We identified 238 representatives speaking on behalf of the world's civil society and found that 73 per cent were from the OECD. In fact, 30 per cent were from the United States. So, there is a huge dominance of OECD people speaking on behalf of our 'global' interests. All do important work, but from a democratic theory perspective, one might have doubts in terms of global representation.

Added to this come concerns of procedural misrepresentation: Beyond representation in terms of who reads out the statements, who decides on what they will say? Where do the statements, reports, and papers come from? There are many barriers that all result in the persistent marginalization of Global South representatives. Our team analysed misrepresentation in science, focusing on the extent to which the Global South is marginalized. For instance, we analysed citation patterns in the Global Sustainable Development Report, a major UN publication. We [found](#) that only 1 per cent of all cited work was by authors who come from a least developed country. 87 per cent of the references cited were from author teams based in OECD countries. This means that even such top UN report reflects a Global North-biased science.

We found similar results when analysing international research conferences, where only some 10 to 20 per cent of participants came from the Global South. We also studied some of the most prominent academic journals, where authorship from the Global South is around 9-17 per cent (unpublished study). In other words, science is still largely based in the Global North. This matters also concerning the role of science in decision-making. One always must ask: Where is science coming from? What interests are represented? Are there any biased perceptions or framings? Any particular visions that come with the science—especially social science—when it enters the international debates?

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Concerning proposals of citizen assemblies, this is an important idea to pursue also at the global level. Again, article 22 of the UN Charter could be used to create something like a deliberative citizens' chamber by a majority vote of the UN General Assembly. Despite complex questions to be resolved, this could be an interesting idea to explore further. It could take away some of the biases mentioned, and though it might bring other biases, it could overall make the global political processes more legitimate and balanced, not least concerning the Global North-Global South divide.

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A final point is to identify democratic mechanisms for long-term governance. One option here is to change national constitutions or to create councils for future generations and similar bodies. Some issues might require particular approaches for democratic long-term governance. One example is carbon dioxide removal. That is, proposals to remove carbon dioxide from the atmosphere and to place it underground, where it would need to stay essentially forever. Something that would require effective, democratic, and just long-term institutions.

How do you build an institution to function for centuries? I published a [paper](#) with a colleague where we studied institutions that had been around for hundreds of years. We found for instance a Japanese company that had existed for 1500 years (though they recently went bankrupt due to neoliberal globalization). Other examples include the Catholic Church, which has been around for 2000 years with more or less stable leadership transitions, or the Japanese Imperial House. And yet, here is an important point for democracy: None of these organizations are democratic. All leadership transitions in these institutions are based on family, patriarchy, or other undemocratic criteria. We still need to identify ways to build long-term institutions that go on for generations in a stable and democratic way.

V. Democracy and Planetary Scale Geoengineering

Now I come to the final part of my talk, which is an example where everything that I have spoken about comes together, and it is also a very important and timely debate: Whether we should geoengineer our way out of the climate crisis. This is a major emerging debate in the climate community. Some argue that we must explore technologies for solar geoengineering to artificially block a part of the sunlight to cool the earth. One could think

of mirrors reflecting sunlight in outer space, or special aircrafts to inject particles into the stratosphere to block parts of the sunlight.

Technically, there are numerous concerns about the risks of such approaches. Here I focus on the democracy part: how would one govern this? How would one govern a geoengineering scheme that would need to run for hundreds of years? Many advocates of such approaches seem to believe in what I call 'the Captain Kirk fallacy': that there will be some kind of benevolent, rational, impartial and fully informed governor for our planet. An Earth Governor. Of course, Captain Kirk does not exist. Instead, we have the United Nations, which is not fully functioning, but rather driven by fragmented and anarchic competition. Not exactly democratic governance. If we cannot make international cooperation work, however, the result might be unilateral geoengineering, driven by combinations of private actors and major powers.

In light of the ungovernability of geoengineering, I argue against further exploring such proposals. With many colleagues I have published an open letter that calls for an International Non-use Agreement on Solar Geoengineering. More than 560 scholars from 67 countries have signed this open letter, and more than 2000 civil society organizations have endorsed the call.

How would one govern a geoengineering scheme that would need to run for hundreds of years?

Importantly, also the group of African countries has spoken out against solar geoengineering, supported by other countries from the Global South. Some might argue that these are the most vulnerable countries to climate change and therefore might benefit from geoengineering, but Africa's position is clear: they don't want rich countries to start to geoengineer their way out of their responsibility to resolve the problem. If you want to learn more about geoengineering, there is a [website](#) with more information where you could also sign the open letter if you want to.

More generally, I also invite you to visit the [Earth System Governance website](#) and join our research networks. Or you can just reach out to me.

Thank you so much for your attention.



Frank Biermann is a professor of Global Sustainability Governance at Utrecht University and the 2025 Zennström Visiting Professor in Climate Change Leadership at Uppsala University. He founded and chaired the Earth System Governance Project, a global research network, and recently completed a €2.5-million research programme on the steering effects of the SDGs. He has (co)edited or authored 20 books and over 200 articles. In 2021, he received the Distinguished Scholar Award in Environmental Studies of the International Studies Association, and in 2024 the Volvo Environment Prize “for defining new pathways for international environmental governance”.



Earth
System
Governance

The Earth System Governance Project is a global research network that aims to advance knowledge at the interface between global environmental change and governance. The network connects and mobilizes scholars from the social sciences and humanities researching at local and global scales.

<https://www.earthsystemgovernance.org/>
ipo@earthsystemgovernance.org



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Utrecht University
Heidelberglaan 8
3584 CS Utrecht
The Netherlands
Tel. +31 (0)30 253 35 50



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Konrad-Adenauer-Stiftung e. V.
Regional Programme Nordic Countries
Blasieholmsgatan 2A
111 48 Stockholm SWEDEN
Telephone: +46 (0) 8 611 7000
Email: Info.Nordics@kas.de
Website: <https://www.kas.de/en/web/nordische/home>



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Strömsborgsbron 1
103 34 Stockholm SWEDEN
Telephone: +46 8 698 37 00
Email: info@idea.int
Website: <http://www.idea.int>

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