

Promises and perils of the Paris Agreement

A truly democratic global climate politics is needed

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In recent decades, climate change has increasingly been framed as a problem of the global mean temperature. This is reflected in the 2015 Paris Agreement's goal to keep the global mean surface temperature well below 2°C above the pre-industrial mean and, if possible, to limit the increase to 1.5°C. However, as temperatures continue to rise, these goals are quickly becoming less plausible. Climate science, politics, and activism thus stand to lose a familiar framing device. At the same time, the Paris Agreement has moved climate politics away from a decades-long commitment to centrally negotiated, legally binding emission reduction targets by introducing a democratic innovation: Under the Paris Agreement, member states decide individually, in the form of nationally determined contributions (NDCs), what actions they will commit to taking toward the common goal of climate risk reduction. This institutional innovation offers a much-needed source of democratic renewal for global climate politics.

An important component of the global mean temperature framing is the concept of emission budgets, which is based on the finding that the anticipated increase in global mean surface temperature is roughly proportional to the cumulative CO₂ emissions since preindustrial times (1). According to climate model calculations (2), to have even a 50% probability of staying under 1.5°C, global net CO₂ emissions would have to decrease by ~5% per year, starting now; this is in stark contrast to the average global increase of nearly 2% per year over the past several decades. Keeping global warming below 2°C would require a reduction of CO₂ emissions by ~3% per year (1, 3).

Such a rapid decrease of CO₂ emissions would require extensive societal, industrial, technological, and other transformations. Yet such global transformations are not collectively reflected in the current NDCs. To date, 195 countries have signed the agree-

ment, and 183 have submitted NDCs. Even if all these countries were to fulfil their NDCs, global CO₂ emissions would stay about the same or even increase slightly until at least 2030 (4, 5). This means that the cumulative emissions budget consistent with 1.5°C global warming is likely to be exhausted by about 2030. With an uncertainty of about ±10 years, the budget could already be exhausted now, or at best we may have until about 2040 (6). This situation is made even more acute by the possibility that some countries will not meet their NDCs and that others such as the United States may end up pulling out altogether.

As greenhouse gas emissions and global temperatures continue to rise, scenario models, which scientifically underwrite

tion and bioenergy with carbon capture and storage (BECCS) (2, 7).

Although it is possible to reduce or even eliminate the reliance on CDR in scenarios, this requires assuming even more extensive global transformations than are already assumed in combination with CDR, including low-meat diets, less CO₂-intensive transport, and less intensive use of heating, cooling, and domestic appliances (8, 9). The less extensive and less rapid these assumed transformations are, the more modelers must invoke CDR to meet ambitious temperature goals, resulting in net negative CO₂ emissions later in the century (see the figure).

Several proposed CDR techniques may eventually be capable of removing several hundred gigatons of CO₂ by the end of this



Achieving ambitious global temperature goals appears increasingly implausible, but the Paris Agreement, agreed in 2015, nevertheless offers hope by promising a more democratic climate politics.

confidence in the achievability of the Paris temperature goals, must rely on increasingly unrealistic assumptions about the future transformations that would be needed. This includes a problematic reliance on future technologies that are either hypothetical or would need to be implemented at unprecedented scales. Such technologies include renewable energies, new mobility structures, and laboratory-based agriculture. They also include proposed techniques (see the figure) to remove CO₂ from the atmosphere at climate-relevant scales, known as carbon dioxide removal (CDR) or negative emissions technologies. CDR is now a standard aspect of calculations of how to keep global mean temperature rise in check and is nearly ubiquitously included in scenario models, normally through an assumed combination of massive afforestation

and bioenergy with carbon capture and storage (3, 10, 11). However, investigating, testing, and developing any of the techniques up to a climate-relevant scale would take decades, and large-scale use might not ever be feasible because of scientific, technical, and societal constraints (3, 12). Furthermore, although the introduction of CDR into the overall energy system might eventually help drive energy prices down and accelerate the transition to renewables, this is projected to not occur until later in the century (13).

Thus, CDR cannot be relied on to contribute substantially to limiting global warming over the next several decades, which is the timescale relevant for achieving the Paris Agreement temperature goals. Some scenarios compensate for longer timescales until net negative emissions become possible by allowing for an “overshoot” of CO₂ and associated global mean temperature that is

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later compensated by even greater amounts of mitigation and CDR. However, such overshoot scenarios present a substantial additional climate risk, and it is not clear at all why a continued lack of progress in the present should be followed by much greater progress in the future. Taken together, these considerations make the Paris temperature goals increasingly implausible.

Global temperature goals can be useful as a means for orientation and for evaluating plans for mitigating climate change. Furthermore, including the 1.5°C goal in the Paris Agreement helped to recruit the support of nations that are particularly vulnerable to climate change. And many hope that emphasizing the risks of surpassing even 1.5°C of warming, as described in the recent Intergovernmental Panel on Climate Change (IPCC)

emerges from culturally embedded negotiations and practices, organized around specific moral attachments and procedural commitments. These play out more within the institutional and moral fabric of nation states, cities, religious communities, cultural groups, and other forms of social organization and affiliation, than in the institutions of global governance. It is of course possible for the NDCs to be seen as just another goal that politicians set to appease certain interest groups and voter demographics, without a serious concept of how to make the intentions actionable. However, the NDCs generally contain specific provisions for action and are more closely connected to systems of representation and accountability. This combination of solution orientation and democratic decision-making is likely to give them

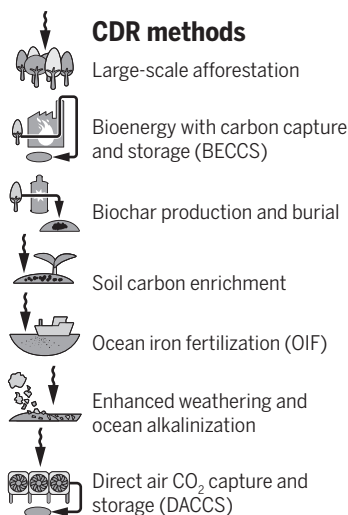
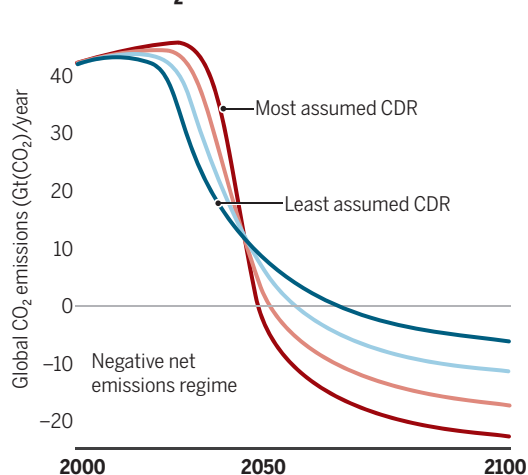
with the difficult and locally specific social and political questions it poses.

Introducing the NDCs has not yet led to a collective set of national ambitions that are commensurate with the Paris Agreement temperature goals and may never do so. Nevertheless, the NDC approach can contribute strongly to developing the landscape of democratic global politics, with support from new transdisciplinary approaches that capitalize on connecting the range of forms of knowledge—such as scientific, humanist, political, religious, and indigenous. It is the democratic character of the Paris Agreement, with its recognition of multiplicity and local context, that can reanimate global climate politics, perhaps even still before ambitious temperature targets fade completely out of reach. And if societies do end up living in a world in which global warming far exceeds 2°C by 2100—which is no longer unlikely, independent of what approach is taken—then it would be far better to do so with a functioning set of democratic global institutions, rather than clinging to fantasies about centralized, detached steering leading to sweeping global transformations, despite decades of experience providing evidence of the implausibility of such an approach. In the end, fostering the virtues of democratic governance will also improve the ability of societies to cope with the difficult situations they will face in a world experiencing the increasingly challenging impacts of climate change. ■

How hypothetical technologies shape climate scenarios

Most climate model scenarios rely on carbon dioxide removal (CDR) technologies to limit future temperature rises. Reliance on these technologies in models is problematic because they remain untested at the required scales.

Illustrative CO₂ emissions scenarios



special report (2), will help motivate real action on climate change mitigation.

At the same time, global temperature goals are attractive for politicians because they can allow political purposes to be fulfilled without necessarily having any specific actions follow from their adoption (14). Global temperature goals draw much of their authority from computer generated scenarios of sweeping global transformation in the future. Such planned, global transformative change may work in models, but the real world knows no single global planner to steer such processes and no global mean justice on which to base such transformative change. Global temperature goals thus lack grounding in democratic politics.

The NDC approach, on the other hand, understands that actionable knowledge

much more traction in local contexts.

The promise of the Paris Agreement consists of two key recognitions, represented in the NDCs. First, abstract universal concepts such as global temperature goals and emission budgets, combined with centralized negotiations on binding emission reduction commitments, have failed to provide an adequate basis for substantial progress toward limiting climate change. Second, greater consideration needs to be given to culturally specific modes of reasoning that give meaning to knowledge and play out more at local than global levels (15). This opens up possibilities for more democratic engagement around what forms specific transformative efforts should take. Furthermore, it allows the multiple meanings that climate change has in different local contexts to be articulated, along

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