Plotting a course from Paris

A new climate agreement won't solve climate change, but it should nudge the world onto a lower-emissions path. Research must drive deeper transformations by translating proposed solutions into workable action.

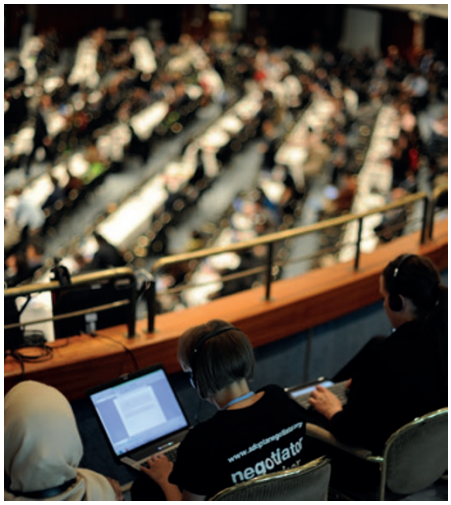
Thousands of negotiators are set to descend on Paris for the latest round of international climate change talks at the United Nations Framework Convention on Climate Change (UNFCCC) 21st Conference of the Parties. A new deal will not solve climate change, but it will help the world to plot a course to a lower-carbon future. Time is running out for policymakers to ensure that countries accelerate their efforts in the right direction.

In Paris, media scrutiny will be at its most intense since Copenhagen in 2009, which is often framed as a missed opportunity. Six years later, delegates are determined not to leave empty-handed. The host nation's diplomatic machinery has gone into overdrive to ensure the groundwork for the conference is more robust than on previous occasions. This time, countries will be arriving with pledges already made, and expectations sufficiently checked.

Analysis by the UNFCCC shows that countries' current promises are insufficient to meet the agreed goal of preventing global temperatures rising more than 2 °C above pre-industrial levels[1]. The combined impact of countries' intended nationally determined contributions (INDCs) suggests that temperatures will rise in the range of 2.2 to 3.4 °C (ref. 2) —a considerable advance on current policies, which put the world on track for around 3.6 °C of warming. But the UNFCCC acknowledges that the INDCs represent a "floor" for countries' ambition, rather than a major departure from business as usual[3].

Politicians are at least moving in the right direction, as are emissions trajectories, albeit gradually. A report by the United Nations Environment Programme shows that the gap is slowly closing between current policies and what countries need to do to avoid the worst impacts of climate change[4]. It also highlights the social and economic benefits of implementing climate policies, beyond just reducing emissions.

Nonetheless, no major emitter can confidently claim to be showing the leadership necessary to push the world onto a path that will lead to no more than a global 2 °C temperature rise. Malte Meinshausen and colleagues argue that significant players such as the USA, China and EU simply have insufficient ambition ingrained in their post-2020 emissions targets to encourage others to make the necessary reductions[5]. Negotiators in Paris will attempt to decide the mechanisms that ensure countries meet their stated, modest goals, as well as mechanisms to ensure that they improve and ratchet their ambition over time. These must prove effective, as research continues to illustrate the urgency of the problem.



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Scientists are confident that 2015 is shaping up to be the hottest year on record[6], and heat waves could become extreme enough to surpass the limits of human survival around areas such as the Persian Gulf within a century[7]. Coastal regions of the Arctic may be covered by ice for only half of the year by 2070[8], and crop yields could reduce by as much as 25% in the second half of this century, even with only modest warming[9]. Those projections put negotiators' current efforts into perspective.

For all the optimism surrounding a deal in Paris, climate change remains a problem driven by a troubling fact: if countries don't significantly reduce their emissions, the planet and people will suffer, with the most vulnerable hit first and hardest. Deeper and quicker political action on climate change remains imperative.

Climate research can drive this debate in a constructive manner, translating known needs into feasible policy proposals. That means conducting more inter- and multi-disciplinary research that goes beyond the data, and develops findings into implementable solutions. It involves investigating and understanding the trade-offs between particular courses of action, and presenting these in an easy-to-digest manner. It requires exploring how climate change interacts with human behaviour, markets and social norms, as well as other information that is crucial to politicians seeking to design policy that can work in practice.

Putting solutions at the heart of climate research also means expanding mainstream scholarship beyond established fields. More foundational work needs to be done to understand cultural differences — between countries as well as academic disciplines — that act as obstacles to action, and develop ways to remove them. It's clear that folding the social sciences into mainstream institutions, such as the Intergovernmental Panel on Climate Change, remains a vital task.

Any deal that politicians may reach in Paris will not represent a tipping point, or even a transformational change, in the world's efforts to tackle climate change. But it will alter how countries approach the problem.

Exactly what each step along the path to a low-carbon world looks like is far from defined, but politicians have indicated that they are ready to quicken the pace. Researchers must now turn their attention to making sure the map is accurate, with obstacles clearly marked and a choice of courses plotted, to give policymakers the best chance of success. ❐

References

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