CLIMATE OVERSHOOT COMMISSION

01

REDUCING THE RISKS OF CLIMATE OVERSHOOT

Executive Summary

SEPTEMBER 2023

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Foreword

Climate change stands as one of the most important and complex challenges confronting our world today. Its urgency is underscored by the frequency of record-breaking temperatures and the intensifying impacts felt not only by the most vulnerable nations in low-latitude regions but, increasingly, by industrialized countries as well.

Action is even more urgent. In 2018, the Intergovernmental Panel on Climate Change asserted that to likely limit global warming to 1.5°C, greenhouse gas emissions would need to be halved by 2030. As we approach the midpoint to that deadline, emissions have not decreased, but rather increased. The need for action is clear and immediate.

The Climate Overshoot Commission was convened as an independent body of twelve eminent global leaders in order to propose strategies to mitigate risks should global warming exceed the 1.5°C target. We are the first high-level group to holistically address all approaches – emissions reduction, carbon removal, adaptation, and solar radiation modification – in a comprehensive strategy, unfettered by typical political constraints. Our members, including former heads of government, national ministers, directors of intergovernmental organizations, environmental group leaders, and academic experts, bring a wealth of knowledge and experience. We were complemented by a Youth Engagement Group, whose six members from around the world bring both diverse expertise and the invaluable perspective of the generation that will bear the impacts of climate overshoot. Each of us speaks in our personal capacity. Our approach is comprehensive and unconstrained, and we are privileged to be guided by three distinguished international scientists specializing in climate change and Earth systems, ensuring our recommendations are rooted in the most recent scientific evidence.

While we offer numerous recommendations, our primary conclusions are as follows:

- The likelihood of global warming exceeding the 1.5°C goal of the Paris Agreement is alarmingly high and continues to rise.
- Policymakers should urgently address the escalating risks of climate change, particularly those impacting vulnerable countries, by considering the full spectrum of approaches.
- Emissions reductions must be prioritized and accelerated. This requires an ambitious and orderly phasing out of fossil fuels, as well as a clear differentiation between the pace of phase-out in industrialized and the least industrialized countries.
- Efforts to increase protection from impacts of a disrupted climate ("adaptation") should be expanded, along with the international financing to support them, as well as new mechanisms to plan, measure and anticipate at national level and across critical sectors such as agriculture.
- Carbon dioxide removal techniques should be developed and deployed to help achieve net-zero – and, ultimately, net-negative – emissions, balancing the benefits of biological and industrial methods, and enabling them through smart policies and financing.
- Countries should adopt a moratorium on the deployment of solar radiation modification and large-scale outdoor experiments that would carry risk of significant transboundary harm, while expanding research, and pursuing international governance dialogues.

Our journey has been enlightening. While the commissioners and youth group members were already well-versed in climate change and its risks, the additional strategies to manage these risks, including adaptation, carbon dioxide removal, and solar radiation modification, introduced further layers of complexity.

I wish to express my profound gratitude to the Paris Peace Forum for hosting the Commission, the Secretariat staff for their unwavering support, the Youth Engagement Group for providing a fresh perspective, our generous funders, the science advisors for their invaluable guidance, and, most importantly, the dedicated members of the Commission, whose voluntary contributions were indispensable to the success of this project.

I am confident that our collective efforts will serve as a catalyst for meaningful action in the face of our current climate crisis. We eagerly anticipate your support and collaboration in debating, deciding and implementing the strategies outlined in this report.

Bien cordialement,

Pascal Lamy

Chair of the Commission

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Executive Summary

The risk of climate overshoot – that is, of exceeding the Paris Agreement goal of limiting average global warming to 1.5°C – is high and rising, and with it the risk of worsening impacts on human health, food security, water availability, social stability, and ecosystems. No country would be spared from such consequences. The least industrialized countries, which have contributed the least to the problem but are generally more vulnerable, would suffer the most.

Yet none of this is inevitable. The means to change course exist. They also offer huge economic and political opportunities. People worldwide would welcome a safer, cleaner, more equitable world. All countries could, and should, act now to help bring about such a world.

The Global Commission on Governing Risks from Climate Overshoot (the "Climate Overshoot Commission") has considered the full range of response options to reduce the chances of overshoot and the risks from overshoot. In this report the Commission offers recommendations based on these deliberations.

The foundational strategy to avoid or limit overshoot is to accelerate deep reductions of greenhouse gas emissions – to stop making the problem worse. Doing so begins with a clear recognition that the era of fossil fuels must end. Countries need to implement a differentiated phase-out of fossil fuels and redouble their commitment to renewable energy sources, including in the form of a global green power target.

Industrialized countries should lead, aiming not only for net-zero but for net-negative targets – removing more carbon dioxide (CO_2) from the atmosphere than they emit – to create space for the least industrialized countries to pursue their clean and sustainable energy transitions while fighting poverty and fulfilling their development imperatives. To facilitate the global transition, we need to strengthen accountability, technology, and trade mechanisms.

Stopping emissions is essential but not enough on its own. Climate change is already causing harm across the globe. This harm is accelerating rapidly and will continue to grow. Thus, the second approach is to rapidly expand effective adaptation measures driven by an in-depth understanding of local climate risks and adaptation priorities. Countries and their partners should create robust metrics to assess the effectiveness of these measures. Such metrics should inform new country-led adaptation partnerships that align resilience efforts with sustainable development objectives. Particularly in developing countries, governments and their partners should bolster food security by promoting climate-resilient agricultural practices, supporting farmers, and conducting further research. Finally, we need to develop strategies to manage migration shifts induced by climate change.

Third, to help slow the increase of CO_2 in the atmosphere – and ultimately reverse it – carbon dioxide will need to be removed from the air on a significant scale and stored securely. There are many different methods for doing so, which vary in terms of their advantages and disadvantages. One way to categorize these methods is according to whether carbon is stored as organic or inorganic material. Policies for storing carbon in plants and soils should aim at maximizing the co-benefits of these approaches while minimizing the risk that carbon stored is re-released to the atmosphere. Methods that store carbon underground or in ocean waters but these methods pose physical and societal risks that must be mitigated. Countries should provide governance frameworks to scale up high-integrity carbon removal quickly and equitably, while cooperative efforts to finance their implementation should be pursued globally.

Lastly, and most controversially, solar radiation modification technologies – which would reflect sunlight back to space to reduce

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temperatures – are gaining increasing attention. They are highly uncertain, would have unwanted or unforeseen consequences, and face significant opposition on social, political and ethical grounds. Early scientific evidence suggests that solar radiation modification could reduce some climate risks but would also introduce significant new risks. The world does not yet know enough to make informed decisions about solar radiation modification. The Commission approached the topic with great caution, opposing any use or assumption of use at this stage, but also supporting more research to produce a clearer picture of the efficacy, risks, and potential benefits of solar radiation modification, especially with regard to developing countries. And with little agreed international governance, there is an urgent need for more inclusive global dialogues on policy dimensions and political implications. For now, countries should adopt a moratorium on the deployment of solar radiation modification and large-scale outdoor experiments that would carry risk of significant transboundary harm, while expanding research, and pursuing international governance dialogues.

Climate action requires climate finance, yet the current level of such finance falls significantly short of what is needed. For low-income countries, climate and development

finance needs are closely intertwined, and the gap between promised and delivered climate finance, which has created distrust, must be closed. To do so, public actors must mobilize more resources. Development banks must be willing to accept more risk when lending. Debt relief and expanded official development assistance are also needed, alongside resilience instruments that can provide liquidity quickly, amply, and unconditionally when disaster strikes. Private capital flows should also be massively scaled up, especially to support emissions reductions, with the help of de-risking strategies, co-financing of investment projects, and other measures. Finally, new and underdeveloped sources of finance, including more transparent, effective, and efficient carbon markets, should be expanded.

Pursuing any single approach to reducing risks from overshoot – emissions reductions, adaptation, carbon removal, possibly solar radiation modification – may influence the effectiveness of other approaches. Both positive and negative spillovers must be identified and managed within a holistic framework. Overall, the recommendations made by the Commission constitute integrated components of a **CARE Agenda** for reducing risks from climate overshoot.

C

Cut emissions

Accelerate emissions reductions and consolidate decarbonization.

A

Adapt

Expand adaptation and fully mainstream into development.

R

Remove

Develop and deploy higher-quality carbon dioxide removal to help achieve net-zero emissions targets and beyond.

E

Explore

Adopt a moratorium on large-scale solar radiation modification and expand research and governance dialogue.

Recommendations contained in the report

Emissions reductions

First, governments should decide on a phase-out in production and consumption of all fossil fuels and accelerate their trajectories to this end, while broadening and deepening international discussions on this agenda.

- Reductions should be differentiated according to countries' needs and levels of development.
- Phased reductions of production and consumption (including subsidies) would follow.
- As phase-outs approach zero, essential-use exemptions should be provided for the hardest sectors to abate.
- Fossil fuel phase-out should ultimately – and quickly – be global in scope.
- The international community should simultaneously pursue a global green power target.
- Efforts to control short-lived climate pollutants should be boosted substantially.

Second, the world should recognize that developing countries will face particular challenges, and the global energy transition should be paired with imperatives of poverty reduction and development.

- The richest countries, including the oil exporting countries, need to reduce emissions faster and aim for net-negative targets by 2050 to give least industrialized countries more space to undertake their own transitions

Third, achieving an energy transition that meets the different needs of different countries requires ensuring that key facilitative conditions are met.

- Accountability systems should be strengthened to make available reliable and relevant information on the impacts and risks of public and private sector activities.
- International mechanisms should be established to accelerate the deployment of new technologies necessary to the energy transition and ensure worldwide access to them.
- Mutual recognition of national climate policies should be promoted, and attention should be given to the impact of climate-related trade measures in cases where they negatively affect the exports of poorer developing countries.

Recommendations contained in the report

Adaptation

First, because adaptation actions are primarily local in nature, international finance and policy support should be informed by a hyperlocal assessment of climate risks and adaptation priorities.

- A Global Climate Vulnerability Index would enable the design and delivery of effective and customized adaptation measures that meet each region's particular needs and preferences.

Second, to complement and support these assessments, standard metrics for adaptation should be developed.

- The development and application of a robust system of standard adaptation metrics will enable more strategic investments in climate resilience.

Third, to integrate these assessments and priorities into comprehensive action plans, the Just Energy Transition Partnership (JET-P) model – a country-led investment platform geared toward emissions reductions – should be replicated and reconfigured to support adaptation.

- A JET-P for adaptation would be based on a long-term, national-level strategy informed by national priorities, supported by international funding commitments, and complemented by a framework for disbursing and monitoring the investments.

Fourth, to strengthen the response capacity of these plans, global efforts to achieve "Early Warnings for All" should be supported.

Fifth, support should be boosted for efforts to address climate mobility – including migration, displacement, and planned relocation, driven by both slow-onset and extreme weather events.

- International climate migration, including from small island developing states, warrants particular attention among countries and relevant intergovernmental organizations.

Sixth, given the importance of agriculture and agrifood systems for adaptation to climate change in poor countries, supporting interventions that enhance their resilience is particularly critical.

Recommendations contained in the report

Carbon dioxide removal

First, governments should promote rapid expansion of higher quality carbon dioxide removal (CDR) featuring co-benefits and permanent storage, at scale and speed sufficient to materially reduce mid-century climate risks and contribute to keeping any overshoot as small and short as possible.

- A way to categorize carbon dioxide removal methods is according to whether the carbon is stored as organic or inorganic material: these methods differ in terms of their risks, challenges, and opportunities.

Second, large-scale CDR will depend on government action, so governments should undertake, require, or incentivize CDR innovation and expansion.

- Policies and programs should be designed to safeguard permanence, promote co-benefits, and manage risks of CDR methods while considering specific environmental and socioeconomic contexts.
- Biological carbon dioxide removal methods should aim at maximizing the co-benefits of these approaches while minimizing the risk that carbon stored is re-released to the atmosphere. Methods that store carbon underground or in the oceans should aim at maximizing secure storage while minimizing possible negative effects on people and ecosystems.

Third, in the short to medium term, international cooperative efforts to finance CDR implementation globally should be pursued.

Fourth, countries should follow the principle that those who cause harm have a duty to remedy it as the global basis for apportioning the costs of large-scale CDR.

- This includes carbon takeback obligations that would require fossil fuel companies to remove and store a steadily increasing proportion of the carbon generated by the products they sell.

Fifth, given present uncertainties about CDR methods and consequences, policies to promote rapid expansion of higher-quality CDR should be subject to periodic assessment and updating.

Recommendations contained in the report

Solar radiation modification

First, countries should adopt a moratorium on the deployment of solar radiation modification (SRM) and large-scale outdoor experiments. The moratorium should apply to any intervention with risk of significant transboundary harm, regardless of where it occurs, who carries it out or is responsible for it, what form it takes, or for what purpose.

- Governments adopting the moratorium should also call for its adoption by others.

Second, governance of SRM research should be expanded.

- Any outdoor SRM experiments should take place only in jurisdictions with an effective environmental regulatory regime.
- The data, methods, and findings of SRM research should be transparent, including to international audiences.
- SRM research should not be led by for-profit firms and should not be funded by sources with an interest in maintaining greenhouse gas emissions, such as fossil fuel interests.

Third, in parallel with strengthening SRM governance, SRM research should also be strengthened; and the two should co-evolve.

- Expanded research, for instance through joint North-South research projects and research led by scientists in the South, should boost the participation and build the capacity of researchers from developing countries.
- Given the broad impacts and need for SRM research to be perceived as unbiased and trustworthy, research funding should be transparent.
- International coordination of SRM research based on shared priorities shaped by policymakers with equitable North-South representation should be significantly strengthened.

Fourth, an international, independent scientific review and assessment of the best available evidence from SRM research should take place every few years.

Fifth, because the potential use of SRM raises multiple concerns, including novel and severe governance challenges, broad consultations and dialogues on these issues are needed.

Recommendations contained in the report

Climate finance

First, public bodies should mobilize and deliver more and better resources for developing countries.

- International financial institutions need to grow their balance sheets and take more risks.
- Special drawing rights can be used to finance development and climate activities.
- Resilience requires specific tools and instruments that can provide liquidity quickly, amply, and unconditionally when disaster strikes.
- More specific mechanisms could also be used more widely, such as Climate-Resilient Debt Clauses.
- The global trend of lowering official development assistance must be stopped and reversed, and this assistance should be more focused, prioritizing the poorest and most vulnerable.
- Domestic resources mobilization and reduction of inefficient and harmful expenditure can complement external financing.

Second, the private sector should massively increase its capital flows in support of climate action, in both developed and developing countries.

- Efforts to issue financial standards for sustainability-related disclosures should be supported.
- To lower the cost of capital, investment projects in developing countries need proper de-risking.

Third, new and underdeveloped sources of finance should be explored and strengthened.

- New taxes or levies could raise more revenues for climate finance by taxing activities or sectors that contribute to climate change.
- Transparent, effective, and efficient market mechanisms that can generate carbon credits for emissions reductions or removals should be expanded. An international public certification mechanism should verify the additionality, permanence and environmental integrity of such projects. The World Bank could be entrusted with the responsibility to immediately reinforce the standards currently used in the market.
- The Commission also suggests exploring mechanisms for making carbon credits eligible for small direct payments, especially for landowners who successfully preserve forested land or who restore degraded landscapes in developing countries.

Spillovers

First, in constructing a complete portfolio of climate finance projects, special attention should be paid to projects featuring positive spillovers.

These include, for example, emissions reduction projects that also benefit adaptation, and responses with positive spillovers for broader sustainable development and biodiversity goals.

Second, forestry, and in particular efforts to slow and ultimately stop deforestation, should be given higher priority in climate policymaking.

Third, to ensure that CDR does not displace emissions cuts, CDR policies should not treat carbon removals as substitutable for feasible emissions reductions.

Fourth, in pursuing these different approaches, care must be taken not to exacerbate existing inequities, particularly when it comes to historically marginalized groups.

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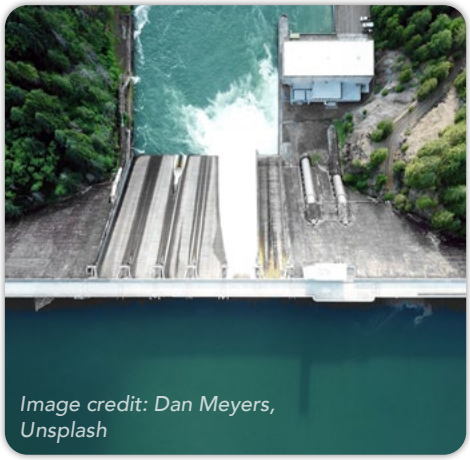

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About the Commission

The Global Commission on Governing Risks from Climate Overshoot, referred to as the "Climate Overshoot Commission," was conceived out of a critical necessity to address the potential governance gaps in the global response to climate change, specifically in relation to overshoot scenarios.

It emerged from a process initiated at the Paris Peace Forum, assisted by renowned academic institutions, the University of California at Los Angeles and Harvard University. In 2020, these dialogues led to the formation of a Steering Committee, marking a crucial step in the development of the Commission. This committee brought together an array of experts, policymakers, and civil society leaders, representing an equitable distribution of voices from both the global North and South. Their objective was to build a shared understanding of the novel governance challenges posed by climate overshoot and to devise strategies to address them. After a year of meticulous deliberation, the Steering Committee recommended the formation of a specialized commission dedicated to crafting a comprehensive, science-based global strategy for reducing risks should global warming goals be exceeded, independent of typical political constraints.

This recommendation was the start of the Climate Overshoot Commission, which was officially established in early 2022, with the following mandate:

1. Consider the risks entailed in overshooting 1.5°C and the range of response options for addressing such risks.
2. Identify possible benefits, likely costs, potential risks, and current global governance gaps for each policy option supplementing the critical focus on emissions cuts: adaptation, carbon dioxide removal, and solar radiation modification.
3. Identify combinations of options with the greatest potential to reduce climate risks, taking special account of vulnerable people and ecosystems, particularly in the Global South.
4. Engage in transparent consultations, including relevant stakeholder consultations on risks, policy options, and policy integration.
5. Develop a set of recommendations for an integrated strategy to reduce risks from climate overshoot, linked to the UN Sustainable Development Goals.
6. Share and disseminate these recommendations through a robust outreach campaign following publication of the Commission's work.

The Commission's second meeting, New York, September 2022

The Commission's functioning is supported by a group of premier international scientists, providing the Commissioners with the most recent and relevant research in the field. This ensures the Commission's strategies and recommendations are firmly grounded in robust science.

The Youth Engagement Group, composed of six members, followed and provided feedback on the deliberations of the Commission and the draft report, to help ensure the inclusion of diverse youth perspectives in the Commission's analysis. The Group is composed of Chandelle O'Neil, Shirmai Chung, Yuv Sungkur, Louise Mabulo, Jeremiah Thoronka and Alex Clark.

The Commission's operations are facilitated by a Secretariat. Hosted by the Paris Peace Forum, it consists of professional diplomats and academic experts who oversee the logistical aspects, briefing procedures, and drafting of key issue papers.

Upon conducting six in-person meetings in various global locations, the Commission compiled and released this final report, aiming at guiding future global dialogues about far-reaching actions required to govern climate risks. The Commission is now focused on disseminating this report and promoting widespread conversation about its recommendations, hoping to spark global debate and effective action.

Commissioners

Commissioners contributed to the report in their personal capacities. Their views may not reflect those of their affiliated organizations.

Mr. Pascal Lamy, Chair
Vice-President of the Paris Peace Forum; former Director-General of the World Trade Organization, France

Dr. Muhamad Chatib Basri
Former Minister of Finance of Indonesia

Ms. Frances Beinecke
President Emerita, Natural Resources Defense Council; board member, World Resources Institute, United States

The Right Honourable Kim Campbell
Canada's 19th Prime Minister, Founding Member of Club de Madrid

Mr. Jamshyd Godrej
Chairman of the board of Godrej & Boyce Mfg. Co. Ltd. and of the Council on Energy, Environment and Water, India

Ms. Arancha Gonzalez Laya
Dean, Paris School of International Affairs at Sciences Po, former Foreign Minister of Spain

His Excellency Mahamadou Issoufou
Former President of Niger Republic, President of Issoufou Mahamadou Foundation

Dr. Agnes Kalibata
UN Secretary-General's Special Envoy to the Food Systems Summit; President, Alliance for a Green Revolution in Africa, Rwanda

Ms. Hina Rabbani Khar
Former Minister of Foreign Affairs of Pakistan

His Excellency Anote Tong
Former President of the Republic of Kiribati

Prof. Laurence Tubiana
CEO of the European Climate Foundation; former Climate Change Ambassador and Special Representative for COP21 of France

Prof. Xue Lan
Cheung Kong Distinguished Chair Professor and Dean of Schwarzman College, Tsinghua University, China

The Commission's third meeting, Cairo, November 2022

Science advisors

Science advisors contributed in their personal capacities. The report may not reflect their own views.

Prof. Chris Field
Director of the Stanford Woods Institute for the Environment and Professor for Interdisciplinary Environmental Studies

Dr. Thelma Krug
Vice-chair, Intergovernmental Panel on Climate Change (through July 2023)

Prof. Michael Obersteiner
Professor and Director of the Environmental Change Institute, University of Oxford

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