





Dear Friend.

It hasn't been the most encouraging New Year for those of us who work on climate change. 2019 ended with the failure of COP25 to finalise the Paris rulebook, or to evidence greater ambi on in na onal climate plans (UNEP's 2019 GAP report says countries have to increase pledges fivefold to achieve the 1.5°C goal). 2020 started with record wildfires devasta ng large tracts of Australia.

This makes C2G's mission all the more mely . This year hosts two crucial events: the UN Climate Conference in Glasgow, UK, where countries are to submit more ambi ous climate plans, and the Conven on on Biological Diversity mee ng in Kunming, China. In both cases, C2G will be working hard – together with other actors – to highlight the need for governance of large-scale carbon dioxide removal (CDR) that is fit for purpose, with a par cular focus on nature-based approaches.

As that challenge becomes clearer, we also see increasing a en on paid to other approaches, including solar radia on modifica on (SRM). Governments have tasked the IPCC to take a closer look at this in its sixth assessment cycle, which will deliver its first findings next year. To that end, we will be making the case for why learning, discussions, and society-wide agreement are needed, not least to address SRM's poten al geopoli cal and security implica ons.

2020 will test all of us. But society is not giving up, and there are signs everywhere of new players rising to the challenge. Here's to a produc ve year.

—Janos Pasztor, Geneva, January 2020



# C2G in 2020: Expanding the global debate

By Janos Pasztor

Given the early state of debate about climate-altering technologies, achieving our goals requires a lot of work over the coming year, across mul ple fronts. This includes expanding outreach through partners to African, La n American, and Asian policymakers and civil society groups, so they can prepare for the poten al renewal of global discussions on SRM and CDR.

# How COP25 affects C2G's work

By Janos Pasztor

The longer the world takes to cut emissions, the more large-scale carbon dioxide removal would be needed to stay under 1.5°C. The longer the world avoids the governance challenges of massive emissions cuts and large-scale CDR, the more likely that people will consider solar radiation modification to buy time and reduce risks. And the longer the world takes to address the governance of SRM, the higher the possibility of dangerous, ungoverned deployment.



Faith, climate-altering technologies, and the Arctic

Guest post by Maria Hammershøy, Secretary-General of Caritas Denmark

The major world religions have accumulated thousands of years of reflection on our role as caretakers of Earth, as well as ethical and moral reflections on new technologies and large-scale risk. These could have profound relevance as people consider the potential deployment of new technologies to save the Arctic.



Could nature 'solve' climate change?

Bv Paul Rouse

If we are to keep global heating to under 1.5°C, the IPCC tells us we need not only to reduce emissions, but to remove billions of tonnes of carbon dioxide from the atmosphere. For some, the biggest potential lies in 'nature-based solutions', a subset of approaches to the  $\rm CO_2$  removal challenge which have attracted growing attention over recent months. But how true is this?



# Remembering Steve Rayner: the person who framed the geoengineering debate

Steve Rayner framed the most important questions about geoengineering before most people had heard of the term. Crucially, through the Oxford Principles, he also offered a means to answer them. For us, Professor Rayner, who passed away on January 17, will be most missed as a guiding light in the quest to govern the research and potential deployment of climate-altering technologies.

## C2G Outreach

Over the fourth quarter of 2019, C2G continued raising awareness on the need to govern climate-altering technologies by participating in a number of international conferences and meetings. Highlights include:



## Madrid, Spain

From 2-13 December, C2G hosted a press conference, convened and participated in several side events, and interacted with many key actors at the UN Climate Change Conference (COP25).



# Paris, France

In November, C2G spoke about the governance of climatealtering technologies at the 2nd Paris Peace Forum. C2G also engaged with senior staff of the French Ministry of Ecological and Inclusive Transition.



## Washington, DC, USA

On 4 November, C2G spoke at the World Bank Law, Justice and Development Week 2019 - Rights, Technology and Development.



#### Geneva, Switzerland

From 29-31 October, C2G participated in the High Mountain Summit at the World Meteorological Organization in Geneva, Switzerland.



# Beijing and Jinan, China

In October, Janos Pasztor gave a keynote speech at the China and World International Forum on the Paradigm Shift of Ecological Civilization. He also spoke at Tsinghua University, and met with officials of the Ministry of Ecology and Environment, and the Ministry of Natural Resources.



#### Reykjavik, Iceland

From 8-13 October, C2G par cipated in the Arc c Circle Assembly, and brought together scien sts, policy experts, indigenous ac vists, youth representa ves, and civil society representa ves for two panel discussions.

# **C2G Publications and Infographics**



The Carnegie Climate Governance Initiative (C2G) has no position on whether SAI or MCB hould be researched, tested or deployed. It seeks to raise awareness and provide impartal information about these proposed climate-altering technologies with politymakers and raising debate about their future governance. C2G has prepared several other briefs polypoing various carbon clinoide eneroval and solar raisitation modification technologies and the control of the control of the control and solar raisitation modification technologies and the control of the control of the control and solar raisitation modification technologies and the control of the control of



**Solar Radiation Modification** 



is Ekely to emerge in international policy discussions when ARG is published in 2021/22.

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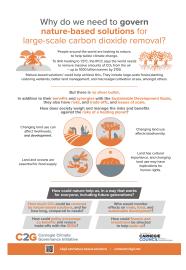
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Technical Brief: Considering climate-altering technologies in the IPCC Sixth Assessment Report (Español) (Français)



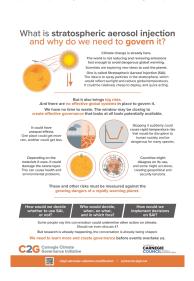




Infographic: Why do we need to govern nature-based solutions for large-scale carbon dioxide removal?



Policy Brief: Governing
Large-Scale Carbon Dioxide
Removal (2nd Edition)
(中文) (Español) (Français)



Infographic: What is stratospheric aerosol injection and why do we need to govern it?

# **C2G Media Advisories and News Briefings**

## C2G News Briefing: Microsoft announces intention to go carbon negative by 2030

Microsoft has pledged to go carbon negative by 2030, and remove all its direct and indirect historical carbon emissions by 2050. It will invest \$1bn over the next four years into carbon removal technologies. Why does this matter?

# COP25 Press Conference: Is the world ready for large-scale CO2 removal?

More than 70 nations have committed to net zero emissions by 2050 or earlier, but is society fully aware of what that entails? The IPCC says achieving this requires not only big emissions cuts, but also removing carbon dioxide from the atmosphere at a scale that has never been tried before.

# Governing climate-altering technologies in the Arctic, risks and challenges

The Arctic continues to warm faster than any other region, with potentially profound consequences for the entire planet. To counter or slow this trend, some scientists are exploring the use of emerging climate-altering technologies. This raises important questions regarding the governance of these technologies and the ethics of their potential testing and use.

# From C2G Partners

#### Climate Interactive launches En-Roads Climate Solutions Simulator

En-ROADS is an online climate simulator which provides everyone with an opportunity to foster meaningful conversations, precipitate change, and address the global climate crisis. Over 10 years in the making, it was co-developed through the hard work of system dynamics modelers and teams at Climate Interactive and the MIT Sustainability Initiative.

### **SRMGI: First African Master's Thesis on SRM**

Jose Ricardo Kouakou successfully defended his thesis on SRM, which explored how it might affect extreme temperatures in West Africa. He is a student at the University of Felix Houphouet-Boigny, and one of the Ivory Coast DECIMALS researchers, the world's first international SRM research fund aimed at researchers from the Global South.

# Red Cross Red Crescent Climate Centre: historic climate-humanitarian hook-up

A joint virtual event from COP25 in Madrid and the 33rd International Conference of the Red Cross and Red Crescent in Geneva brought together the most senior figures from each meeting to spur greater action on the humanitarian impacts of climate change.





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c2G, an initiative of Carnegie Council for Ethics in International Affairs, seeks to catalyse the creation of effective governance for emerging climate technologies and approaches, in particular for solar radiation modification and large-scale carbon dioxide removal. To achieve this, it aims to expand the conversation from the scientific and research community to the global policy-making arena, and to encourage society-wide discussions about the risks, potential benefits, ethical and governance challenges. C2G is impartial: it is not for or against the research, testing or potential use of any proposed method or technology. These are choices for society to make.

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