

May 10, 2017

## A civil society briefing on Geoengineering

# Climate change, smoke and mirrors

For the past decade, a small but growing group of governments and scientists, the majority from the most powerful and most climate-polluting countries in the world, has been pushing for political consideration of geoengineering, the deliberate large-scale technological manipulation of the climate.

Geoengineering is inherently high-risk and its negative effects will likely be unequally distributed. Because of this, geoengineering has often been presented as a "Plan B" to confront the climate crisis. But after the Paris Agreement, which set the ambitious goal of keeping the temperature to well below 2°C and possibly even 1.5°C, the discourse has changed. Now, geoengineering is increasingly being advanced as an "essential" means to reach this goal, through a mix of risky technologies that would take carbon out of the atmosphere to create so-called "negative emissions" or take control of the global thermostat to directly lower the climate's temperature.

It should be no surprise that geoengineering is gaining political currency as temperatures rise. The fossil fuel industry is desperate to protect its estimated \$55 trillion of installed infrastructure and its \$20-28 trillion in booked assets that can only be extracted if the corporations are allowed to overshoot GHG emissions.

The theoretical assumption is that geoengineering technologies might eventually let them recapture CO<sub>2</sub> from the atmosphere and bury it in the earth or ocean, or that injecting sulfates in the stratosphere could lower the temperature, "buying us more time" to finally agree to radically reduce our fossil fuel emissions. Either way provides the fossil fuel industry with means to avoid popping the "carbon bubble" beyond outright climate denial. In other words, geoengineering proposals are becoming the fossil fuel industry's main tool to undermine the political will to lower actual emissions now. Geoengineering proposals are also becoming the weapon of last resort for some desperate climate scientists unable to produce pathways that realign our growth-driven economic model with a climate-safe future.

But what exactly is geoengineering and what technologies are being proposed? And what are the risks and implications associated with the respective technologies when it comes to ecological integrity, environmental and climate justice and democracy?

## What is geoengineering?

The notion of geoengineering the climate has been around for well over a century. Until recently, it was mostly discussed as a proposed military tool to control the weather for hostile purposes. With the onset of the growing climate crisis, the spectrum of geoengineering proposals has increased, and today, public debate about geoengineering explores whether it is a means to combat climate change rather than other nations.

Geoengineering, or climate geoengineering, refers to a set of proposed techniques and technologies to deliberately intervene in and alter Earth systems on a large scale – particularly to climate system manipulations as a "technofix" for climate change. It is increasingly suggested as a way to "buy more time" for real, transformative change in the future, or as an insurance policy for our great grandchildren, thus passing on the difficult burden to the next generation.

Geoengineering may comprise interventions on land, oceans, or in the atmosphere. It may include so-called solar radiation management (SRM), as well as other Earth system interventions under the umbrella of carbon dioxide removal (CDR) or greenhouse gas removal (GGR). These are all theoretical proposals, and although a few CDR techniques may be closer to the market according to their promoters, the claim that these technologies would be effective for addressing climate change is speculation, based at best on limited computer modeling.

Significantly, none of the geoengineering techniques on the table aim to address the root causes of climate change. Instead, they are intended to partially counteract some of its symptoms. Underlying drivers of climate change (e.g. growing consumption, deforestation, unsustainable agriculture and land use changes) will continue unaffected. Because geoengineering by definition aims to intentionally alter Earth systems such as the carbon cycle and hydrological cycle, it is transboundary in nature. And because we know very little about the functioning of the planetary ecosystem as a whole, and all its subsystems, there is a significant likelihood that rather than improving the climate, it could make things worse.

This briefing was produced as a background for civil society active at the UNFCCC intersessional meeting in Bonn, May 2017. Feedback and comments are welcome.

We consider this a work in progress and plan to publish more documents in the coming months.  
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It should be no surprise that geoengineering is gaining political currency as temperatures rise. The fossil fuel industry is desperate to protect its estimated \$50 trillion of installed infrastructure and its \$20-28 trillion in locked assets that can only be extracted if the temperature are allowed to exceed 2°C.

The theoretical assumption is that geoengineering technologies might eventually be able to capture CO<sub>2</sub> from the atmosphere and bury it in the earth or ocean, or that injecting sulfates in the atmosphere could lower the temperature. "Being in more time" is finally agreed to actually reduce our fossil fuel emissions. Either way provides the fossil fuel industry with means to avoid peaking the "carbon bubble" beyond overnight climate denial.

In other words, geoengineering proposals are becoming the fossil fuel industry's main tool to undermine the political will to lower actual emissions soon. Geoengineering proposals are also becoming the weapon of last resort for some desperate climate scientists unable to produce pathways that would give our global climate economic model with a climate safe future.

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Geoengineering, or climate geoengineering, refers to a set of proposed techniques and technologies to deliberately intervene in and alter Earth systems on a large scale – particularly to climate system manipulations as a "bandaid" for climate change. It is increasingly suggested as a way to "buy more time" for real, transformative change in the future, or as an insurance policy for our great grandchildren, thus passing on the difficult burden to the next generation.

Geoengineering may comprise interventions on land, ocean, or in the atmosphere. It may include so-called solar radiation management (SRM), as well as other Earth system interventions such as the removal of carbon dioxide (removal) (CDR) or greenhouse gas removal (GGR). There are all theoretical proposals, and although a few CDR techniques may be close to the market according to their proponents, the claim that these technologies would be effective for addressing climate change is speculation, based at best on limited computer modeling.

Significantly, none of the geoengineering techniques on the table aim to address the root causes of climate change. Instead, they are intended to partially counteract some of its symptoms. Underlying drivers of climate change (e.g. growing consumption, deforestation, unsustainable agriculture and land use changes) will continue unabated. Because geoengineering by definition aims to intentionally alter Earth systems such as the carbon cycle and hydrological cycle, it is transboundary in nature. And because we know very little about the functioning of the planetary systems as a whole, and all its subsystems, there is a significant likelihood that rather than improving the climate, it could make things worse.

This briefing was produced as a background to the civil society talks at the UNFCCC intersessional meeting in Bonn, May 2017. Feedback and comments are welcome.

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A new [briefing paper](#) by [ETC Group](#) and [Heinrich Böll Foundation](#) in advance of the UNFCCC intersessional meetings in Bonn, May 2017, gives an overview of what geoengineering is and why it is dangerous, as well as up-to-date information on proposed geoengineering technologies and governance.

A crucial read for anyone engaged in the fight against climate change.

[Download the briefing here.](#)

(A [German version](#) of this briefing in pdf format is also available.)