



## Soapbox Post

### The Human Subjects of Geoengineering

Clark A. Miller March 11, 2010 Filed under **Geoengineering**

Geoengineering is the latest controversial science to show up at Asilomar – a conference site now famous for hosting the first meeting of biologists calling for self-regulation of recombinant DNA experiments in the 1970s. At a **meeting** in late March, 2010, scientists exploring **geoengineering** will seek common ground on standards for proper conduct of experiments with the Earth's climate system.

Self-restraint in geoengineering is good. The small number of scientists now pursuing geoengineering portray their research as insurance against the possibility of climate emergencies. But such experiments also experiment on the people of Earth. One recent **Policy Forum** in *Science* by Jason Blackstock and Jane Long observes, for example, that a geoengineering experiment might impact the Asian or African monsoon and therefore food availability in those regions.

The agricultural risks of climate engineering are serious. Food is a global commodity – shortages anywhere can give rise to global price hikes that put vulnerable communities worldwide at risk of not being able to afford basic foodstuffs. Consequently, any adverse effect of geoengineering research could couple with market conditions to raise food prices and increase risks of hunger and malnutrition among poor communities.

Many involved scientists acknowledge this risk and have called for serious global discussions before geoengineering research might proceed. Blackstock and Long are at the forefront of this effort: "Emerging national research programs—and even individual scientists—must forswear climatic impacts testing and carefully restrict subscale field-testing until approved by a broad, legitimate international process." They insist: "Vulnerable developing countries so far absent from [solar radiation management] discussions must be engaged, and all stakeholders need to consider whether existing frameworks can facilitate this process, or whether new forums, treaties, and organizations are required."

I certainly applaud these sentiments. As Blackstock and Long highlight, the issues here are not just technical; they are loaded with ethical judgments, value considerations, and political pitfalls.

Yet, for me, phrases like "legitimate international process" and "all stakeholders" sound too much like climate scientists and government diplomats getting together to decide the fate of the planet. That hasn't worked so well so far, and not only because vulnerable developing countries have not been adequately consulted. So what kind of governance process do we need?

To my mind, a potentially potent analogy is that of informed consent in human subjects research. Just like geoengineering research, human subjects research brings potentially significant public and private benefits by alleviating disease, injury, and even death. Yet, because such research is also very dangerous, societies have adopted strict regulations for the conditions under which that research can be done.

One of the most important such conditions is informed consent. Under **U.S. Federal Code of Regulations, Title 45, Part 46**, Protection of Human Subjects, human subjects research that "obtains ... data by ... manipulations of the subject or the subject's environment" (USFCR 45.46.102(f)) must seek "[i]nformed consent ... from each prospective subject" it puts at risk (USFCR 45.46.111(a)(4)). For geoengineering, of course, that would be everyone on the planet.

The parallels between geoengineering and human subjects research have already been observed by philosopher David Morrow and climate scientists Robert Kopp and Michael Oppenheimer in a **recent article** in *Environmental Research Letters* that applies the principles of the *Belmont Report* to geoengineering. They, too, conclude by insisting that

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“the scientific community secure the global public's consent, voiced through their governmental representatives, before beginning any empirical research.”

Getting informed consent from every individual on the planet is, I'll admit, probably too daunting a prospect to merit serious consideration. But the Morrow, Kopp, and Oppenheimer solution doesn't go nearly far enough. More should have to be done to secure the global public's consent than getting 190 mostly wealthy men to sign a geoengineering treaty. After all, for many countries, including at times the United States, it's fair to say that government representatives are poor representatives of their people – a nasty truth that we often ignore in international law but increasingly recognize is a deep problem. Perhaps even more crucially, such an approach offers almost none of the procedural safeguards and opportunities for appeal that are traditional in democratic policymaking.

There are lots of approaches that might work, starting with the simple idea of calling for national public referenda. But my point is actually more basic. What we need first is a robust, global debate about the scope of required consent that scientists will need to obtain before conducting experiments on the Earth's climate. In this, I agree wholeheartedly with Morrow, Kopp, and Oppenheimer, who argue that the "difficulty of respecting persons deserves to be center stage in the debate over the ethics of [geoengineering] research." I hope the delegates of the Asilomar conference will agree, because that's not something they can accomplish by themselves at their upcoming meeting.



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**Hilary Sutcliffe**

Mar 12, 2010 @ 9:46am

Very much agree about the need for a debate on the scope of required consent. But to get informed consent we have to have quality data from which to make our judgements. The realistic probability of experiments reflecting likely outcomes for example may make the different between consent or not, but not sure how this can be realistically modelled to give us reassurance.

Also public debate must be created to really engage. We have an on-line debate starting in the UK at the moment <http://geoengineering.dialoguebydesign.net> which is so uninspiring and unengaging it is worse than none at all as people will not engage, but those in charge will feel they have engaged, but didn't get much feedback so move one! However there are 9 more innovative direct engagement events which may be better!

In addition, some feel that our debate includes technologies and scenarios that are not scientifically possible, and so skew the debate, giving people an unrealistic view of the options and so of the potential for the technology.

It's all very tricky indeed!

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