



Experiment Earth?

Geoengineering, which aims to slow down or reverse climate change, is a hot topic. But what do people really think of it? Peter Hurrell describes NERC's recent efforts to find out.

Does geoengineering have a part to play in tackling climate change? With that question, NERC's public dialogue on geoengineering got under way in Birmingham. For two Saturdays in early March, 30 members of the public gave up their time to discuss geoengineering technologies and their hopes and fears should these technologies be adopted.

Geoengineering is the name given to a group of ideas that aim to counter or reverse the effects of climate change. Although reducing greenhouse gas emissions is the best way to tackle climate change, it is important to understand what other options are available. Many of the suggested geoengineering ideas are quite contentious – deliberately trying to change the environment on which we all depend could have serious unexpected consequences. So before we think about investing in research into these technologies,



NERC has been asking the public what they think of the ideas some scientists have proposed.

There are two broad kinds of geoengineering. The first kind seeks to remove CO₂ from the atmosphere, either by using artificial devices to 'scrub' CO₂ from the air, or by enhancing natural processes that do so – for instance, by fertilising the oceans so that plankton grow faster and absorb more carbon. The second type aims to reflect more sunlight back into space to reduce the temperature of the Earth – a technology called solar-radiation management. Both categories have their drawbacks, and we still need to do a lot of research to understand what effects they might have if they were deployed globally.

Public perceptions

As you can imagine, the idea of deliberately changing our environment to tackle climate change is something lots of people have an opinion about. These viewpoints are valid hopes and fears that the scientific community should be listening to. But how did we capture such diverse opinions?

We went out and spoke to people. Working with Sciencewise-ERC (Expert Resource

Centre), which supports public dialogue across government, we commissioned a team of contractors led by Ipsos Mori to run three sets of dialogue workshops. We also involved scientists, ethicists and environmental and humanitarian charities such as Greenpeace and CAFOD in designing the events, to help our participants think about geoengineering from as many different angles as possible.

The first events were held in Birmingham, and repeated in Cardiff and Cornwall. In each location, thirty members of the public were invited to attend two workshops, which were

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separated by a week in which participants had a chance to do their own research into the subject and think about what they had heard.

At the first events in each city, participants were given some background about climate change to set the context. They then learned about nine geoengineering ideas, from painting roofs white to adding iron to nutrient-starved areas of the ocean, and some of the advantages and disadvantages of each. The second events gave them four possible scenarios to illustrate how geoengineering could be used in future. They talked about some of the issues raised by the scenarios, such as their social and environmental impact, and any political or economic implications.

So what did we learn from the people at the Birmingham workshops? They felt it was important to tackle the causes of climate change rather than the symptoms, so preferred ideas to remove some CO₂ from the atmosphere over those aimed at reducing global temperature by reflecting sunlight back into space. They also preferred more 'natural' solutions: afforestation (planting trees) and biochar (using organic matter to produce carbon-rich charcoal, then burying it) were their favourite geoengineering ideas.

People were also worried about the safety of some of the ideas: would captured CO₂ leak out of underground storage? Could sulphate particles pumped into the upper atmosphere damage our health? What effect would liming the oceans have on marine life? It is important for NERC to take such concerns into account when considering future research priorities.

Active listening

It's not good asking the public their views if we

aren't listening or, more importantly, can't act on what they say. To make sure NERC can respond to participants' views, the dialogue process has involved one of our theme leaders, a NERC director, and representatives from government departments and agencies, all of whom can influence the direction of future research in this area.

As this article was being written, we were preparing for a final dialogue event at the National Oceanography Centre in Southampton. Participants from the earlier workshops have been invited to come along

and talk about what emerged from the dialogue with NERC. Our chief executive and other NERC staff and scientists will be there to discuss

geoengineering research with the public and explore their concerns about both the research and deployment of geoengineering. This will give the public a chance to interact with senior decision makers, so they will know their views are being heard.

The results of all of the workshops and the final event will be analysed and combined with other comments received through a web-based survey and open access events at science centres. These will be used to produce a final report and recommendations for NERC, which will be used when we are thinking about how we will support geoengineering research in future, and how this research should be directed, conducted and communicated.

Public dialogue is an excellent way to find out not just what people think, but why they think it. Running several day-long workshops gave us plenty of time to dig deep into people's motivations and beliefs, and to discuss a great deal of information about geoengineering. The whole exercise has also been an excellent learning experience for NERC as it was the first time we have done anything like this.

It was great to see so many people talking openly about environmental science and what it means to them, their families and their way of life. Not every conversation was positive – climate change and geoengineering are not always positive subjects – but the important thing is that conversations were happening. The challenge now is for NERC to listen to what people had to say, and to make sure we build on the results.

MORE INFORMATION

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