

A conversation about climate change at the William and Flora Hewlett Foundation on 04/19/13

Participants

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Note: This set of notes was compiled by GiveWell and gives an overview of the major points made by Hewlett Foundation staff.

Summary

Good Ventures and GiveWell spoke with representatives of the Hewlett Foundations' Environmental Program to learn about potential impacts of climate change, and efforts to mitigate them. We learned about:

- Recent research about the impacts of unmitigated climate change.
- The ClimateWorks Foundation — a Hewlett Foundation grantee that supports public policy to prevent dangerous climate change.
- Policies supported by funders in this area.
- Issues surrounding the use of nuclear power and natural gas to mitigate climate change.

The impacts of a 2°C global temperature increase

Research that has been done since the 4th Intergovernmental Panel on Climate Change (IPCC) in 2007 suggests that a global temperature increase of 2°C or more is likely to lead to a wide range of negative health, economic, political, and environmental impacts. The following impacts are examples of the types of changes we will experience in a world that is 2 degrees C warmer than it was in pre-industrial times:

- The ice in the Arctic will all melt by 2030. The melting of ice on land in Antarctica and Greenland will become irreversible, and will result in a slow rise of sea level of about 12 meters. The timescale of the rise in sea level is very long: it would take many centuries for it to fully unfold. However, once

the sea level rise is set in motion, it will be impossible to halt it or reverse it.

- 400 million people will be at risk of water scarcity.
- 30% of world's cropland will become unsuitable for growing crops. In particular, the wheat yield in China will decrease significantly, which will probably result in migration from China to other places, and consequent political strife.
- 20%-30% of species will be at risk of extinction.
- Closer to our home, the Sierra Nevada snowpack in California will be reduced by 60%, and this will have a dramatic adverse effect on water supply and agriculture.

The 4th IPCC was vague about the impact of climate change on sea level, and since its publication, there's been better research on the subject.

Work on reducing carbon emissions

What is needed to avert a large increase in global temperature

Annual carbon emissions are currently at 35 gigatons. In order to prevent the Earth's temperature from rising more than 2°C, it is necessary for industrialized countries to reduce carbon emissions by 80% relative to the emission levels between 1990 and 2000.

It appears unlikely that the global temperature increase will be less than 2°C, but the closer to that threshold we can keep it, the better.

Work on policy to reduce future carbon emissions

The Hewlett Foundation and other funders have funded grantees advocating for policies to reduce carbon emissions. To date, these grantees (along with other actors) have been successful in advocating for policies that will reduce 2030 carbon emissions by 11 gigatons. The funders are hoping that they'll be able to work with others to successfully support grantees working to promote policies to reduce 2030 carbon emissions by an additional 10-12 gigatons.

It is difficult to determine the impact of the Hewlett Foundation in this area, because so many actors have been involved. For example, cheaper production of natural gas has made it more viable to implement policies that reduce the use of coal and oil.

It seems unlikely that the US Congress will pass a comprehensive policy to address climate change. For this reason, the funders who work in this area have been

supporting grantees who work at the state level, internationally, and with US regulatory agencies.

Policies that have reduced emissions

Some US policies that have helped reduce carbon emissions are the 54.5 mpg fuel economy standard in 2012, and several EPA regulations (i.e. cutting mercury emissions) that were adopted over the last 18 months. European countries have also been increasing regulations on carbon emissions. Both regions have dramatically cut back on the construction of new coal-fired power plants – a major source of greenhouse gas emissions. China has also made progress in a number of areas including, for example, major strides in improved industrial energy efficiency.

Advocacy

Historically, the funders who seek to support work to reduce carbon emissions have funded environmental organizations. Over the past 5-7 years, they have started funding other organizations, such as those of ranchers and farmers who are struggling to adapt to climate change, faith-based organizations, and public health groups.

Money spent on reducing carbon emissions

Governments and multi-lateral institutions like the World Bank and other development banks spend billions of dollars per year on reducing carbon emissions. The philanthropic sector spends about \$500 million/year on reducing carbon emissions. Generally speaking, the Hewlett Foundation focuses its climate change funding in areas that emit or will emit the majority of greenhouse gases such as the United States, China, India, and Europe.

Mechanics of the Hewlett Foundation's Environment Program

While the Hewlett Foundation's Environment Program has a significant investment in climate mitigation, the Hewlett Foundation does not have a large number of program officers. For this reason, the Hewlett Foundation has adopted the strategy of funding re-granting institutions such as the Energy Foundation and ClimateWorks, which can select grantees in place of the Hewlett Foundation.

The Hewlett Foundation sees its goals as sufficiently aligned with these organizations, and some of its other grantees, that it is comfortable providing them with general support.

Alternative Energy Sources

Nuclear power

Many have asked whether increased reliance on nuclear power should be part of a climate solution. Although nuclear power is a relatively low-carbon source of energy, there are a myriad of issues to be addressed regarding nuclear power. The recent nuclear power disaster in Fukushima, Japan has exacerbated long-standing safety concerns connected with nuclear power. Nuclear power is also vastly more expensive than the alternatives. A new reactor complex in the US can cost upwards of 10 billion dollars. Long-lived nuclear waste presents storage problems, and the fissile material produced throughout the process presents security challenges. For these reasons, as well as preexisting safety concerns, building more nuclear power plants is unlikely in the United States and Europe. However, China has been investing in nuclear power, and it is likely that India will as well.

According to projections, it looks as though there is potential to reduce US carbon emissions to sufficiently low levels without using nuclear power.

At present, one promising philanthropic area connected with nuclear power as a low carbon energy source would be to fund organizations that promote policies around energy innovation. The goal of these policies would be public investments, incentives or market changes that result in safer and more cost-effective nuclear power plants.

Natural gas

The impact of the use of natural gas (as an energy source) on climate change is unclear. It could be helpful, because when combusted it produces less carbon emissions than coal. On the other hand, it does produce methane and other powerful greenhouse gases and its expanded use may postpone the development of renewable energy sources.

Some relevant points here:

- Different organizations and constituencies have different views on the subject.
- It seems likely that the US and other countries will need to use more natural gas to meet energy needs.
- Building infrastructure to capture, store and transport natural gas entails an investment that might make natural gas more cost-effective relative to renewable resources for longer than is desirable.
- On the other hand, natural gas plants generally have life expectancies of only

10 years, compared with coal plants, which have life expectancies of 40-60 years.

- The US has unused infrastructure to burn natural gas which could be utilized without building additional such infrastructure.
- The price of natural gas historically has been volatile, though many analysts agree that prices will remain low for a long time. If these projections prove wrong, gas will play a much diminished role in our energy supply.
- It's important that natural gas hydraulic fracturing is as clean and non-invasive as possible, and it's unclear that this is the case now.
- There is a danger of the natural gas industry lobbying to block the creation and use of renewable energy sources.
- It appears that China and India will not be able to quickly shift off of coal and oil via renewable energy alone, and natural gas could be an alternative for them. However, they do not have as much domestic production as the U.S. does.

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