

A Conversation with Elmar Kriegler on April 18, 2013

Participants

- Elmar Kriegler – Senior Scientist at the Potsdam Institute for Climate Impact Research
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Note: This set of notes was compiled by GiveWell and gives an overview of the major points made by Elmar Kriegler.

Summary

Elmar Kriegler is a senior scientist at the Potsdam Institute for Climate Impact Research (PIK). His research focuses on the mitigation of climate change, as well as integrated assessment of climate change and the impact of mitigation policies.

GiveWell spoke with Dr. Kriegler about the potential impacts of climate change, specifically from tail area risks, and areas where money could be used to help mitigate these impacts. He described his views on some risks of climate change and suggested some areas that would benefit from funding.

Evaluating risks

Although there is much uncertainty about tail risks, the possible impacts are significant enough that they cannot be ignored. Due to the difficulty in identifying the probability of these risks,, it is difficult to use an expected value framework.

There has been a move towards probabilistic risk analysis using distributed computing, but this requires a large expenditure of resources and still relies on assumptions that can vary widely. A popular alternative is to use a scenario model, calculating and describing some possible negative result or worst-case scenario.

The models used for strategic analysis of mitigation and climate change have significant uncertainty but can be very useful for the exploration of long term climate objectives and how they relate to short term action. Dr. Kriegler's group has one (ReMIND-MAgPIE).

Possible impacts

Some possible effects of extreme climate change events are changes in water availability (for instance, as glaciers used as a water source disappear), a spike in food prices, and migration. All of this could lead to knock-on effects such as failed states and human conflict – although Dr. Kriegler did mention a recent study that claimed that water conflict, at least, rarely has led to war as diplomatic solutions are normally found. Attempts to mitigate climate change damage through geoengineering have the potential to lead to conflict, as geoengineering could be implemented unilaterally rather than through cooperative action.

Factors to consider that determine the vulnerability of a society include the society's connection to global markets, human capacity, and capital buildup. Impact will vary across people and regions, but will disproportionately harm the poor, who have little capacity to protect themselves

Overall worries about temperature rise

Even without extreme effects, a world with a rise in temperature of approximately 4°C over the next century would be very different than our current one. As we are adapted to the current climate, the impact could be large, despite the wide range of climates humans already live in. A fast change could be difficult to adapt to, and dealing with it might require lifestyle changes in many parts of the globe (e.g. spending more time indoors, needing infrastructure such as air conditioning, loss of water sources could lead to a need for expensive desalination plants). The impacts on regions without the resources to cope could be severe. Taking steps to mitigate the damage of climate change might cost less than just accepting it.

Ideas for funding

Bring together international research groups. Research is currently regionally funded (the National Science Foundation (NSF) in US, the European Union in Europe, etc.) and the groups from different continents often don't have the resources to collaborate. Even when international projects happen, some relevant parties are left out. So, funding to bring together international researchers and organizations could make a big difference.

Data sharing. There is not just a shortage of collaborative international projects; data sharing is also poor between groups. Putting big datasets in the public domain with a good user interface could be a great resource. Currently, such datasets are expensive and time-consuming to develop, and while some are publicly available, many are not. Furthermore, more consistent output of data could be very helpful. One possibility is a central organization to assist in organizing and sharing data internationally.

Creating a collection of "best practices" in existing short-term climate change policies. Such a database could be very useful for policymakers. FEEM (<http://www.feem.it/>) in Italy has a climate policy map, but it is important to be able to consult experts in various regions.

Other ways to improve the effectiveness of research and projects

Research and models could do a better job of bridging global analysis to regional experiences, and long-term analysis to the short-term – people often struggle to understand the complex models or relate the issues to their daily lives. Additionally, global research groups could do a better job of producing policy-relevant assessment. They often don't have the capacity or resources to do this effectively.

Better understanding of a variety of areas could help improve the analysis of climate change impacts, so further research in these fields could be beneficial. Land use is going to change, and

how policy tools affect land use is important to consider. There is also a rather poor understanding of development and growth will be impacted if we move away from traditional energy use and industrialization patterns. Furthermore, knowledge of global governance and regional politics is crucial to analyzing the knock-on effects of climate change and the potential for conflict. Dr. Kriegler referenced a CIA-funded study to identify the indicators of conflict, and found one indicator to be the local political system.