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Misdefining “climate change”: consequences for science and action

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Abstract

The restricted definition of “climate change” used by the Framework Convention on Climate Change (FCCC) has profoundly affected the science, politics, and policy processes associated with the international response to the climate issue. Specifically, the FCCC definition has contributed to the gridlock and ineffectiveness of the global response to the challenge of climate change. This paper argues that the consequences of misdefining “climate change” create a bias against adaptation policies and set the stage for the politicization of climate science. The paper discusses options for bringing science, policy and politics in line with a more appropriate definition of climate change such as the more comprehensive perspective used by the Intergovernmental Panel on Climate Change.

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Climate policy; Science policy

1. I

In December 2004, delegates from around the world met in Buenos Aires, Argentina at the Meeting of the 10th Conference of Parties (COP-10) to the Framework Convention on Climate Change (FCCC). Continuing its long tradition of providing summaries from such 1.8(h0 TJT* [(scope)-224.8(of)-219.7(the)-223.1(UNFC)-9.2(CC,)-221.9(but)-209.9(will)-225.8(rather) and the rest would have to be co-financed by some other body. The plea from LDCs [Least Developed Countries], particularly the SIDS [small island developing states], lies precisely on this paradox, in that even if funds are available in the LDC Fund, their difficulty of finding adequate co-financing, and the costly and cumbersome calculation of the additional costs, renders the financial resources in the LDC Fund, in practice, almost inaccessible ([International Institute for Sustainable Development, 2004](#)).

In other words, in order for LDCs to receive funding for adaptation under the GEF, it is necessary for them to identify the marginal impacts of human-caused climate change above those impacts that these countries already experience. For most LDCs, for whom the toll of climate-related events is viscerally tangible, the fact that these resources lie out of their reach because of the difficulties in cleanly identifying the exact part resulting from climate change must seem like an experience out of a Joseph Heller novel.

While the need for action on climate change seems clear the FCCC, the predominate global approach to climate change, is hopelessly mired in political gridlock over its

Kyoto Protocol. If present trends continue, it will fall short of its own goals. This paper argues that gridlock has resulted in large part from the basic design of the FCCC, which at its foundation is based on a highly restricted definition of "climate change" focused only on changes in climate that result from greenhouse gas forcing of the climate system. This restricted definition may make sense from some

of the atmosphere – such as particulates like black soot or land use effects on climate – are similarly excluded under the FCCC (Hansen et al., 1998; Pielke, 2002).

This thought experiment sets the stage for this paper’s argument that the FCCC has misdefined climate change. The paper proceeds with a short critique of the current approach to climate policy as proposed under the FCCC. The paper then discusses the illogic of Article 2 of the FCCC, which calls for prevention of dangerous interference in the climate system. The paper concludes with a discussion of alternative approaches to climate policy that may offer greater likelihood of moving beyond the present gridlock to the benefit of people and the global environment.

3. A a a

One consequence of the FCCC’s narrow definition of climate change is that it excludes many of the most significant drivers of climate change, such as land use changes, deforestation, and changes in albedo. This exclusion is problematic because these factors can have a significant impact on the climate system, and their exclusion from the FCCC’s scope of action undermines the effectiveness of the agreement. Furthermore, the narrow definition of climate change under the FCCC has led to a focus on reducing greenhouse gas emissions, which is a necessary but not sufficient response to the climate crisis. A more comprehensive approach to climate change would take into account all of the factors that contribute to climate change, and would focus on reducing the overall impact of these factors on the climate system.

2000; Pielke et al., 2000; Hammitt, 2000). This body of work is signifi

equal).12

et al., 2000; Vörösmarty et al., 2000; Lettenmaier et al., 1999). The implications of this research are that policies related to climate have an important dimension that is unrelated to energy policy, namely human and environmental vulnerability to weather and climate.¹⁴ An analogous argument would apply to ecosystem functioning in addition to societal impacts.

To summarize the critique of the current approach:

- Policy research and recent experience offer little reason to expect that the Kyoto Protocol, and by extension the Framework Convention on Climate Change, can succeed according to their own goals.
- Even assuming full implementation of the Kyoto Protocol, climate would still change according to the IPCC, and would be indistinguishable for many decades from a world without Kyoto's implementation.
- Climate is only one of many variables related to the impacts of weather and climate on society and the environment. In some (most?) cases other societal changes are more important determinants of future impacts than is climate per se.

These conclusions suggest that the ongoing debate over the Kyoto Protocol with respect to future climate and climate impacts misses much of what is important in the climate issue. Whether nations implement or do not implement the Kyoto Protocol, it is hard to see anything more than symbolic value in the outcome. It is nonetheless critical not to undervalue the symbolic value, e.g., in international relations.¹⁵ One could make a convincing argument that full implementation of the Kyoto Protocol makes sense on the basis of non-climate factors. But from the standpoint of climate change, perhaps the worst outcome is prolonged debate over the Kyoto Protocol and its derivatives taking scarce attention and resources away from actions that might actually result in a tangible difference on society and the environment.

4. The FCCC Agreement

As the example from COP-10 presented in the introduction to this paper indicates, the focus in the FCCC on only those climate changes that result from anthropogenic greenhouse gas emissions means that a prerequisite for

action, politically if not practically, is the ability to identify climate changes related to the greenhouse gas forcing and to ascribe a cause to those changes. In the jargon of the climate community, identification of climate changes and their causes is called "detection and attribution." The need for science to detect and attribute climate change is codified in the FCCC Article 2, which states that the ultimate objective of the FCCC is "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous atmo-

are not the result of a process in which climate disrupts a static society or the environment. Reality is much more complex for two reasons. First, society and the environment undergo constant and dramatic change as a result of human

• = 3.6

r⁰

r³ 3

constitute “dangerous interference.” So as a point of departure, it is worth considering how policies might be different if the framework for action was based on the IPCC definition of climate change.²³ This alternative perspective argues that as a fi

(Vaitheeswaran, 2001).²⁸ This apparent window of opportunity led to suggest a perspective on energy policy arguably more in line with common interests, “A more suitable target for green ire would be the gross inefficiency of the world’s energy systems (2001).”

well as local values about climate as a resource and a threat. The IPCC might empower decision makers to follow the old environmental adage, “think globally, act locally” rather than the misplaced current focus on “think globally, act globally.”

An approach that decouples climate policy and energy policy implies a more productive role for the scientific community in contributing to the information needs of decision makers. There would remain need for periodic snapshots of the state of the science, as currently done via the IPCC. But the sorts of questions to be addressed would change dramatically. There would be a decreased emphasis on research that seeks to attribute or predict changes in climate over century-long time scales, because policy action would no longer be dependent upon a presumption of accurate predictions. There would be instead an increased emphasis on research that seeks to understand the interactions of climate, society, and environment in ways that lead to vulnerabilities (as well as opportunities) in local and regional contexts, rather than at global scales. Research would focus more on providing information useful for addressing problems of today – such as malaria and extreme events – that we know will also be problems of tomorrow. An emphasis on policy-centered research under conditions of irreducible uncertainty would help decision makers to evaluate what sorts of actions work to reduce vulnerabilities and which ones do not. Science would thus place itself in role of being a tool for policy action rather than a tool for political advocacy. The science has been moving in this direction, but too slowly and it is held back by the focus of the FCCC.³⁰

It seems clear that inherent limitations in accurately predicting the future climate and attributing specific climate events to human emissions of greenhouse gases will for the foreseeable future remain uncertain enough to fuel continued public debate (Sarewitz et al., 2000). And even if uncertainties about the future were to be reduced, as Glantz has noted there is no reason to believe that would make the politics any easier. On the one hand, this suggests that scientists will continue to benefit from the intractable status quo as each side of the debate demands greater certainty (Pielke and Sarewitz, 2003). But on the other hand, more research could very easily lead to greater uncertainties and thus there exists a real possibility that the scientific community could suffer a backlash of public criticism that not only affects their role in the climate issue, but also public support for science more generally (Crichton, 2004). Climate science offers the promise of great benefits to humanity; it is incumbent upon the scientific community to reshape the current debate in ways that enhance the contributions of research to worthwhile objectives.

A critical first step in reshaping the current debate is to highlight the pervasive consequences of the narrow definition of “climate change” used under the FCCC and considering how policy might be more effective if designed

under the more appropriate definition used by the IPCC. With a reframed policy that decouples climate policy and energy policy, the community of scientists, advocates, and diplomats might find the surprising result that they will not only see multiple paths to reduce human and environmental vulnerability to climate but also create a more effective possibilities to achieving in practice a goal of greenhouse gas reductions.

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³⁰ In the case of the U.S., see the recent NRC evaluation of the proposed Climate Change Science Program (NRC, 2004a).

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