

**Report of the Workshop on
“Climate Change and Disaster Losses - Understanding
and Attributing Trends and Projections”
25-26 May 2006, Hohenkammer, Germany**

Introduction

In summer 2005 both Roger Pielke, Jr. of the Center of Science and Technology Policy Research at the University of Colorado and Peter Hoeppe of the Geo Risks Research Department of Munich Re learned from each other that each planned to organize a workshop on the assessment of factors leading to increasing loss trends due to natural disasters. Both agreed that such a workshop was timely, especially given the apparent lack of consensus on the role of climate change in disaster loss trends. Roger Pielke, Jr. and Peter Hoeppe decided to have a common workshop in 2006 in Germany to bring together a diverse group of international experts in the fields of climatology and disaster research. The general questions to be answered at this workshop were:

What factors account for increasing costs of weather related disasters in recent decades?

What are the implications of these understandings, for both research and policy?

The participants were selected by a workshop organizing team that met in December, 2005. Participants were selected for their high level of competence and to represent a wide range of different attitudes to the subject. All participants came into the workshop agreeing that anthropogenic climate change is a concern.

In total 32 participants from 13 countries attended the two day workshop (list of participants attached). “White papers” from 25 participants were submitted in advance and formed the basis of the discussions. The workshop was organized in 4 sessions:

1. Trends in extreme weather events
2. Trends in Damages
3. Data issues – extreme weather events and damages
4. Syntheses discussion

In the syntheses session the discussion was focused on finding consensus positions among the participants on statements about the attribution of disaster losses and the policy implications. These 20 statements are listed in the executive summary and are described in more detail in the full workshop summary report. Specific views of individual participants can be found in their white papers, which each was given the opportunity to revise following the workshop.

The workshop was sponsored by Munich Re, the U.S. National Science Foundation, the Tyndall Center for Climate Change Research, and the GKSS Research Center.

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Executive Summary

The focus of the workshop was on two questions:

What factors account for increasing costs of weather related disasters in recent decades?

What are the implications of these understandings, for both research and policy?

Consensus (unanimous) statements of the workshop participants:

1. Climate change is real, and has a significant human component related to greenhouse gases.
2. Direct economic losses of global disasters have increased in recent decades with particularly large increases since the 1980s.
3. The increases in disaster losses primarily result from weather related events, in particular storms and floods.
4. Climate change and variability are factors which influence trends in disasters.
5. Although there are peer reviewed papers indicating trends in storms and floods there is still scientific debate over the attribution to anthropogenic climate change or natural climate variability. There is also concern over geophysical data quality.
6. IPCC (2001) did not achieve detection and attribution of trends in extreme events at the global level.
7. High quality long-term disaster loss records exist, some of which are suitable for research purposes, such as to identify the effects of climate and/or climate change on the loss records.
8. Analyses of long-term records of disaster losses indicate that societal change and economic development are the principal factors responsible for the documented increasing losses to date.
9. The vulnerability of communities to natural disasters is determined by their economic development and other social characteristics.
10. There is evidence that changing patterns of extreme events are drivers for recent increases in global losses.
11. Because of issues related to data quality, the stochastic nature of extreme event impacts, length of time series, and various societal factors present in the disaster loss record, it is still not possible to determine the portion of the increase in damages that might be attributed to climate change due to GHG emissions

12. For future decades the IPCC (2001) expects increases in the occurrence and/or intensity of some extreme events as a result of anthropogenic climate change. Such increases will further increase losses in the absence of disaster reduction measures.
13. In the near future the quantitative link (attribution) of trends in storm and flood losses to climate changes related to GHG emissions is unlikely to be answered unequivocally.

Policy implications identified by the workshop participants

14. Adaptation to extreme weather events should play a central role in reducing societal vulnerabilities to climate and climate change.
15. Mitigation of GHG emissions should also play a central role in response to anthropogenic climate change, though it does not have an effect for several decades on the hazard risk.
16. We recommend further research on different combinations of adaptation and mitigation policies.
17. We recommend the creation of an open-source disaster database according to agreed upon standards.
18. In addition to fundamental research on climate, research priorities should consider needs of decision makers in areas related to both adaptation and mitigation.
19. For improved understanding of loss trends, there is a need to continue to collect and improve long-term and homogenous datasets related to both climate parameters and disaster losses.
20. The community needs to agree upon peer reviewed procedures for normalizing economic loss data.