

Using this relationship between direct and indirect losses calculated for Louisiana, one can assess the total losses due to the synthetic tracks created by the Emanuel's model. Taking into account indirect losses, our analysis suggests that the 10-percent increase in potential intensity would translate into a 59 percent increase in total economic losses, and would double the likelihood of a hurricane landfall causing more than \$50 billion of damages in the U.S. Specific adaptation options can be implemented to limit indirect losses, and therefore total losses: early warning systems, evacuation plans, insurance regulations, support to small businesses and rapid recovery of basic lifelines in disaster aftermaths, mandatory emergency plans in businesses and administration, etc. Such measures can be very efficient in reducing total hurricane losses.

#### CONCLUSIONS

If the Emanuel's hurricane model is correct, climate change could translate into a 60 percent increase in annual mean hurricane losses and a doubling of the frequency of disasters causing more than \$50 billion of losses. One major drawback of the present analysis is that uncertainty is not quantified, because only one model is used in each component of the analysis. To inform public policy and guide adaptation strategies, however, a best guess is insufficient: an uncertainty estimate would also be necessary. In spite of these difficulties, the large orders of magnitude found in this analysis suggest that decision-makers should not ignore natural disasters in designing responses to climate change.

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## Natural Hazard Communication and the Role of the Insurance Industry

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#### INTRODUCTION

For 20 years the Risk Dialogue Foundation is focused on societal risks and the analysis and moderation of risk debates. Thereby the foundation mediates among public authorities, the private industry, NGOs and the science community, who are the major stakeholders involved in public debates on societal risks. In the present project the Risk Dialogue Foundation deals with a traditional but current risk topic, natural hazards, focusing on the role of the insurance industry in the public discourse.

#### Motivation

Extreme events in nature such as great avalanches, floods or earthquakes happened ever since. With the anthropogenic use of the environment such events became natural hazards and pose a

risk to society. In a social context an extreme event means a natural disaster causing death and destruction to affected people. A historical retrospect in Switzerland indicates that after a decline of natural disasters in the mid 20<sup>th</sup> century, they increased in frequency and severity in recent decades. In a period of few events, the 1920s, the insurance industry began to cover losses due to natural hazards. Since then, insured objects in hazard-prone areas have risen. The flood in 2005 was the most expensive damaging event in Swiss insurance history. As insurers are part of an integral risk management allowing the recovery after an event, the question of insurability of natural hazards became an important issue for insurers, but also in the public debate.

In order to reach generally accepted solutions in dealing with natural hazards the current situation requires a constructive and solution-oriented communication among all stakeholders, such as the government and authorities, the insurers, affected people and companies, environmental scientists and the media. Understanding the existing differences in social tenors, views and attitudes concerning risks as well as in risk perception among stakeholders provide the basis for facilitating a successful communication process among insurers and all other stakeholders.

#### OBJECTIVES

The present study aims at understanding the current public debate on natural hazards with regard to the public-private partnership and a focus on the role of the insurers. Research questions are:

- Which positions, views and perceptions about natural hazards do exist among the different stakeholders, especially in the insurance industry?
- What are the topics, conflicts and risks?
- How do different stakeholders perceive each other, especially the insurers?
- What should be done about natural hazards in the point of view of different stakeholders?
- Which expectations especially towards insurers regarding task sharing among the private and public sector do exist?

#### METHODOLOGY

Stakeholder's tenor will be analysed by means of semi-standardized interviews with experts and evaluated on the basis of qualitative and quantitative content analysis. In addition, media analysis will be conducted.

#### THESIS

First findings led to the following preliminary thesis based on the research questions above. In the course of further research modifications and additions are expected.

Thesis 1: During a natural disaster insurers have a small but effective window of opportunity to show the quality of their services in public.

Media covers the topic of natural hazards mainly in direct relation to a current event. During or just after a natural disaster, media attention is particularly focused on affected people, the extent of losses. Insurers nowadays are integrating their value-added chain from prevention to after loss services. During a natural disaster they can use the small but effective window of attention to demonstrate their full potential. Not only the core business, which is the un-bureaucratic compensation of damages, but also their efforts in prevention.

Thesis 2: Solidarity is the base of today's Swiss natural hazard insurance system. Future

adaptations are discussed.

Today's insurance of natural hazards with its standardized and low-priced premiums offers a unique Swiss-wide insurance coverage based on solidarity. That means every customer pays the same premium independent of the region where he or she lives. On the one hand there is the request to maintain this efficient Swiss-wide insurance system. On the other hand there is the idea that insurers could encourage the personal responsibility of their customers by implementing priced up risk premiums in hazard-prone areas and so reduce effects of moral hazards. Basis for such risk premiums are hazards maps that distinguish different hazard zones.

Thesis 3: To meet the challenge of natural hazards all stakeholder have to cooperate. The insurers play more and more an important role. Detailed task sharing needs to be discussed.

Prevention, intervention and recovery of natural hazards can only be achieved by co-ordination and co-operation among public and private sectors. Insurers make a great contribution in recovery by paying compensation for damages. In terms of prevention further ideas for insurers' contribution are discussed: Financial support of prevention programs, providing incentives to encourage their customers to invest in protection measures etc.

These preliminary theses will be discussed and examined in the interviews with experts.

#### *Outlook*

In a next step the findings of this project will be transferred in practical guidelines regarding future communication strategies in order to provide support (e.g. facilitation, mediation) for stakeholders, e.g. insurers and authorities, involved in the public debate on natural hazards.

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