

VI – Economics, financial instruments and insurance

Parallel session C – Tuesday 11th March 11:00-12:30

ID N°: [88]

Title: NATURAL HAZARD INSURANCE IN EUROPE. WHAT NEED TO HARMONIZE NATIONAL AND REGIONAL SYSTEMS OF RISK TRANSFER IN A CHANGING CLIMATE?

Authors: [Schwarze, Reimund](#)¹

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This paper provides an overview of the existing systems of natural hazard insurance in Europe, their structural characteristics and peculiarities. It also discusses the difficulties of adaptation of these systems to climate change and the growing number of natural disasters. Using Germany, Austria and Switzerland as examples, the paper discusses how different risk transfer mechanisms are able to reduce micro- and macroeconomic disruptions resulting from natural hazards. 'Change in diversity' is seen to offer the best chance to arrive at insurance systems that are prepared for climate change while being adapted to local particularities. EU Green paper on the Insurance of Natural and Man-Made Disasters efforts to harmonize national and regional systems as well as top-down EU initiatives are argued to be inadequate. Issues of affordability, and how to operationalise them in insurance designs, are discussed.

Presenter

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ID N°: [104]

Title: **VULNERABILITY OF THE SMALL: RESPONSE OF NORDIC NON-LIFE INSURERS TO CLIMATE RELATED THREATS AND OPPORTUNITIES**

Authors: [Lara Johannsdottir](#)¹

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The insurance sector is one of the sectors, considered by the Intergovernmental Panel on Climate Change, to be vulnerable to climate change consequences due to extreme weather events. These weather events have impact on the sector through its societal interconnectivity, or more specifically frequency and magnitude of claims. The risk is also transferred to insurers through insurance policies, and investment related risks. At the same time the insurance sector is reckoned, by stakeholders from beyond the industry, to be a leading sector in terms of climate adaptation of private sectors. For this purpose insurers' size and integration in the society can be leveraged to deal with climate change consequences. What is, however, worrisome from a case study of Nordic non-life insurers is that leaders of small insurance companies operating in Åland, Faroe Islands, and Denmark, are not aware of climate-related risks, are inactive in terms of actions, and do not take part in Nordic industry collaboration in this field. Furthermore, a recent study carried out on behalf of Nordic insurance associations demonstrates that, although with high market share, it is only few of the biggest companies in Denmark, Norway, Finland, and Sweden that respond to questioners on best practice examples of how they deal with climate related threats and opportunities. Because of the development taking place within the Nordic insurance industry since 2008, the gap between actions of companies tackling climate change challenges in an ambitious way, and companies lagging behind because of inactions, may therefore be widening thus heightening the climate-related risks of the smaller insurance companies making them even more vulnerable to risk exposure. This vulnerability of small and medium sized insurance companies to climate related risks may have transferability to insurance companies in other regions, although this needs to be explored further because of current gap in the academic literature on the topic.

Presenter

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ID N°: [162]

Title: **ADAPTATION TO CLIMATE CHANGE: GLOBAL COSTS AND PRACTICAL EXAMPLES**

Authors: Olivier Van den Kerckhove¹; Elisa Taelman¹

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The aim of the study is to provide some insight into the effects of climate change within the Flemish region and to explore possible adaptation measures. The final result consists of two, separate reports, each with a distinct approach. The first report, "Literature Review", includes an extensive study of the international literature concerning the effects of climate change and the associated costs. The acquired information is then rescaled to the Flemish context for an initial estimate of the potential cost of climate change in Flanders. The second report, "Local Case-studies", provides an overview of the adaptation measures that can be implemented specific for four different local areas. For each case, an estimate of the adaptation cost is calculated as well as to what extent these costs can be borne by the local population. The dual approach of the study aims to contribute to the necessary awareness for the need for adaptation and at the same time offer concrete and feasible initiatives for action.

Presenter

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ID N°: [279]

Title: HOW TO DEFINE AND FINANCE GREEN INFRASTRUCTURE IN URBAN AREAS TO TACKLE CLIMATE CHANGE ISSUE? TAKING STOCK OF SEVERAL EUROPEAN AND AMERICAN CITIES' EXPERIENCES

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In a context of unprecedented urbanization in developing, developed and emerging countries, and because of the high density of population, the interconnection between numerous infrastructure networks as well as the location of cities near coasts, rivers and lakes, the urban development is very sensitive to climate modifications (temperature, flooding, drought, etc.). As detailed in several reports (OECD, 2007; ONERC 2010, ICLEI 2011, EEA, 2012), it can be closely coupled with an increase of the urban heat island (UHI) phenomenon and other negative effects, notably on health. This paper addresses the implementation of green infrastructures (green corridors, walls and roofs, public parks and private gardens, interstitial spaces...) as a tool for urban developers and policy-makers to tackle the issue of urban vulnerability to climate change. Such projects of urban natural areas may constitute efficient means to counteract the UHI effects and provide some other benefits without being too negative for the local public finance, if they are well designed.

Drawing from in-depth analysis of several projects of urban green areas in European and American developed countries (Bordeaux, Chicago, Lille, Montreal, New-York City), this research, which is in progress, aims at building a framework for urban practitioners to apprehend the advantages and limits of such areas, the main stakes (notably the governance issue and the link with the local context), and identify possible financing tools for their project.

After reviewing the particular advantages and limits of each type of green infrastructure, this paper focus is threefold. Firstly, it offers an evaluation of the costs of each kind of urban natural projects (investments, infrastructure, development and maintenance costs). Secondly, it analyses the financing plan of these projects, emphasizing those with innovative financing structure (ie not entirely funded by public budget and taxes), for instance projects involving the private sector (public-private partnerships) or the local citizens and users of the areas (crowdfunding). Indeed attracting private financiers and leveraging public-private investments are key issues when facing deteriorated public finances. Thirdly, this research tries to single out a list of structural factors identified as key to the success of urban natural areas projects (modalities of involvement of the civil society, land tenure and real estate institution, policy frameworks and economic incentives).

Presenter

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