

VII - Uncertainty and decision-making

Parallel session B – Monday 10th March 16:00-17:30

ID N°: [200]

Title: **UNCERTAINTY AND DECISION-MAKING : THE CASE OF CLIMATE INDUCED MIGRATION**

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In 1990, the Intergovernmental Panel on Climate Change (IPCC) report announced “One of the greatest effects of climate change may be those on human migration”. This statement however was not sufficient to turn the world’s attention to the issue of climate migration. Only after the IPCC’s fourth assessment report “Climate Change 2007” (WG I), concluding that “warming of the climate system is unequivocal” and that “impacts can’t any longer be seen as hypothetical outcomes”, did international institutions working on migration issues (especially IOM and UNHCR) turn their attention to climate change; it is seen as a risk to engender forced displacement, particularly in vulnerable less developed regions around the world.

Agenda setting has been formalized, firstly, by the proliferation of official publications during 2008 and 2009 and, secondly, by the inclusion of an agreement during the Cancun COP 16 in 2010 inviting parties to undertake “Measures to enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned relocation, where appropriate, at national, regional and international levels”. Following this dynamic, the EU “Global Approach to Migration and Mobility” (2011) also recognized “CC as a global challenge that is increasingly driving migration and displacement. It invited the Commission to present analysis of this phenomenon” and stated that “Addressing environmentally induced migration, also by means of adaptation to the adverse effects of CC, should be considered part of the Global Approach”.

Do recent evolutions presage the passage from agenda setting to decision making? We suggest that climate migration is discussed in two opposing ways which prevent policy-making in the field. First, as a *consequence* of climate change. Here discourse on uncertainty dominates and thus the focus is on the need for further research on the topic. Furthermore, hope is expressed that successful adaptation will prevent forced displacement and thus the a priori integration of migration considerations into adaptation policy seems irrelevant. Second, as a *solution* to climate change. Here discourse constructs migration as a potential adaptation measure: circular, planned migration could reduce human pressure on vulnerable areas. Uncertainty however persists as to whether, when and where this measure could appear relevant.

This simultaneous dissonant discourse under uncertainty blocks its top-down transfer to national and local levels where the issue of climate migration does not exist. By presenting cases from European and non European countries, studied in the EXCLIM research (GICC) and forthcoming book, we propose to present the gap between international agenda setting and agenda denial at subnational levels.

Presenter

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ID N°: [258]

Title: DEALING WITH UNCERTAINTY - NEW CONCEPTS SEARCHING FOR A MORE RESILIENT FLOOD POLICY. COMPARING DISCOURSES IN THE NETHERLANDS AND FLANDERS

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With climate change increasing the risk of flooding in the future, current flood management has to deal with a high amount of uncertainty, which forces policy-makers to adopt new ways of thought and speech. This paper will explore the way two European regions: Flanders (Belgium) and the Netherlands deal with this increased uncertainty in decision-making when it comes to flood management.

Both in Flanders and the Netherlands, an evolution in management has taken place from a flood-hazard approach, focused only on protection, towards a more integrated flood-risk approach. During the last 20 years, two discourses made their appearance on the Dutch and Flemish flood management scene: *vasthouden-bergen-afvoeren* (capture-storage-drainage, CSD) and *meerlaagse waterveiligheid* (multi-layer safety, MLS).

Instead of draining redundant water as fast as possible downstream, the CSD approach advocates the capturing and storing of water in buffer zones by providing more room for the water, before slowly draining it downstream. MLS includes this idea but embeds it in a wider concept of complementing protection measures with regulations on prevention and preparedness. MLS can be seen as the Flemish/Dutch translation of the European 3-P discourse, which asks Member States to address floods with measures on prevention, protection and preparedness. However, this development implies a change in perception and dealing with uncertainty by acknowledging that the traditional approach of focusing only on the reduction of the probability of a flood is not sufficient. 100% safety is not feasible. Therefore addressing also the potential consequences of a flood became crucial.

This paper will investigate how the discourse of MLS, as a translation of the European 3-P discourse, has developed in the Netherlands and Flanders. The aim of this paper is to explore the question how the discourses are differently embedded in the current flood policy of the two countries? And, how and why does the institutionalisation and implementation of the discourses differ between the two countries?

To address this question the development of the discourses will be studied. Based on document analysis and semi-structured interviews with key actors the differing interpretation of the discourses is explored including the reasons and consequences of this variation.

We expect to see a difference in the content and implementation of the concepts in the two countries. Whereas Flanders is redirecting its policy increasingly towards prevention and preparedness regulations as equal pillars next to protection, the Netherlands remain primarily focused on protection with prevention and preparedness only as complementary measures. The differing perception and dealing with uncertainty implied by this observations will be further elaborated.

The case study is part of the EU-FP7 STAR-FLOOD project.

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Title: LOW AND NO-REGRET ADAPTATION. WHAT DO WE KNOW ABOUT OPTIONS, TRANSFERABILITY, UNCERTAINTY AND ECONOMIC APPRAISAL FROM RECENT RESEARCH, POLICY AND PRACTICE?

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The recent literature on adaptation - including the IPCC SREX (2012) - highlights the need for iterative risk (adaptive) management. A key part of such methods is the selection of no- and low-regret adaptation options, as these generate benefits today as well as building future resilience. However, there is very little concrete information on what these options are, how transferable they are between decision contexts/locations, and how to assess and prioritise them in assessing adaptation strategies, policies and projects. This paper summarises a detailed review of research, policy and practice, drawing lessons on no- and low-regret adaptation experience over the last decade.

The analysis starts with an analysis of definitions. While there is generally good agreement on no-regret adaptation – i.e. which generate net economic benefits irrespective of whether or not climate change occurs - there are alternative definitions of low-regret options. These differ in the ratio of costs to benefits, the transaction and policy costs included, the weight given to the present versus future time periods, the performance over different future scenarios, and the adaptive management concept (flexibility, robustness, value of information).

To address this, we develop a typological-based categorisation of no/low regret options. This is based on climate attribution, timing and types of benefits and costs, issues of transferability and uncertainty. This approach allows us to systematically screen potential options against key criteria and provide an indication of likely low-regret potential. A related finding from this classification is that the analysis (and economic appraisal) of different types of low-regret options will require different methods and techniques, to capture the relevant characteristics.

The assessment then applies the typology and classification in a detailed systematic review and analysis in key areas of early adaptation across multiple sectors, considering several hundred options. This draws on research papers and ex ante / ex post implementation experience.

The assessment reveals a number of interesting findings. First, many no or low-regret characteristics are highly site and risk specific: options that are considered low regret in one context or location may be unsuitable in another. This raises concerns over the general transferability of these options. Second, there is some disagreement on whether some technical options are low regret or not – and these judgements are influenced by uncertainty and/or cost/benefit categories included. Third, some early options identified as low-regret may act as a barrier to later adaptation, including transformative adaptation, since these temporal aspects and linkages are often not accounted for.

In summarising the lessons, the paper proposes guidance on improving the practice in the analysis and transfer of low regret options, and makes recommendations on their role in adaptive management.

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ID N°: [120]

Title: **ALTERNATIVE TECHNIQUES TO APPRAISE ADAPTATION OPTIONS: ARE ROBUST METHODS THE WAY FORWARD?**

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Some climate change adaptation will be reactive but the greatest benefits will come from reducing risks and seizing opportunities before the impacts occur and impose high costs. Juxtaposed against a global economic crisis, it is vital to ensure that under- or over-investment in adaptation is avoided. Hence, a thorough understanding of the likely costs and benefits of adaptation is crucial. This work explores alternative methods to appraise adaptation options to climate change.

Appraising (adaptation) investment in any sector aims to provide the best possible guidance for the allocation of resources by finding the strategy that is better than any other, i.e. the optimum choice. Yet, policy makers face considerable challenges when applying standard predict-then-act methods such as cost-benefit analysis designed to deliver optimal allocation in an area of high uncertainty such as climate change adaptation. The costs of adaptation might be observable and immediate, the benefits are uncertain in terms of when (or if) the benefits (avoided damages) will occur, and how large they will be. While still widely used in policy appraisal, the limitations of traditional optimisation methods have been recognised by decision makers. Alternative decision making methods to appraise adaptation options, including robust approaches, are therefore being explored. Robust approaches deliver adaptation goals by selecting projects that meet their purpose across a variety of plausible futures and are thus particularly suited for deep uncertainty. Generally, robust approaches do not assume a single climate change forecast but integrate a wide range of climate scenarios. However while the potential of robust methods is widely discussed in academia and policy circles, their take up in policy analysis is low. This work explores the reasons why the application of these methods has so far been relatively limited. In this context, the trade-offs between robust and optimality methods are discussed. It appears that possible higher upfront costs and relatively lower benefits can prevent the implementation of robust methods if decisions are made with a short-term view. In addition, weaknesses and strengths of different robust methods are explored with regard to the varying mechanisms used to integrate a range of climate scenarios, the measurement of costs and benefits and data requirements. It seems that so far the complexity of many robust methods may play an important role in limiting their application. While it is thus necessary to develop, where possible, more generic toolkits in the long term, a first step guidance for policy makers is required to understand which method is best suited to evaluate different adaptation options. This work addresses this difficulty by presenting a simple framework based on characterising the adaptation problem with regard to the type of uncertainty, the structure of the adaptation options and the data availability.

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