CIRCLE-2 Proceedings

Workshop on Cross-sectoral Vulnerability, Risk and Economic Assessment of Climate Change Impacts – What is needed for adaptation strategies?

Summary[1]

These proceedings are directed towards scientists and policy-makers in the field of cross-sectoral vulnerability, risk and economic assessment of climate change impacts as well as funders and managers of research programmes on climate change impacts and adaptation.

Vulnerability, risk and economic assessments aim at identifying and evaluating climate change impacts of concern. Assessing climate change impacts is often a prerequisite for decision makers to invest in responsive measures (adaptation measures).

The aim of the workshop was to focus on the science-policy collaboration during the accomplishment of cross-sectoral assessments of climate change impacts and the application of their results to induce adaptation activities. Methodological challenges of vulnerability and risk assessments have already been discussed in the Bern workshop in December 2012[2]; economic assessments have been the focus of discussion at the CIRCLE-2 workshop in Vienna in January 2013[3].

The starting point for the workshop was the science-policy gap between methodological challenges and political needs. Key challenges are that all cross-sectoral impact-based assessments have to assess the potential future damage potential of different impacts and to compare these damage potentials across sectors. Already sectoral approaches have to deal with different impact chains, the handling of uncertainties in projections, knowledge and data constraints as well as connected normative decisions.

When discussing the gap in the workshop, it became clear that scientific assessments are often not designed to fit the end-user needs, partly because adaptation targets and future risk tolerance are often poorly defined. The results of these assessments need to be communicated with care to prevent misinterpretations. On the other side, policy makers expect practical and rather simple answers about the main threats of climate change and which adaptation activities are needed to reduce these negative impacts of climate change. They expect evidence and criteria to support their decisions on what has to be done, when and how and to which costs and which residual risks remain. Cross-sectoral communication and policy activities are needed to prevent maladaptation, but are time-consuming and rather uncommon in many countries.

Recommendations were selected during the workshop about the possibilities of minimising and dealing with the gap.

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[1] Reference: Schauser I., König M., Köllner P., Leitner M., 2014. Key results of the CIRCLE-2 Workshop: „Cross-sectoral Vulnerability, Risk and Economic Assessment of Climate Change Impacts – What is needed for adaptation strategies?", Berlin, 11 February 2014.

[2] see http://www.bafu.admin.ch/klimaanpassung/11529/11578/index.html?lang=de

[3] see http://www.circle-era.eu/np4/532.html

Recommendations

1. Cross-sectoral Vulnerability, Risk and Economic assessments need to address climate change together with **other important stresses and socio-economic changes**. In Europe, socio-economic changes can outweigh climate change signals in terms of impact changes until 2050. Socio-economic changes are therefore part of the latest climate impact assessments.
2. Further, practise oriented assessments should start with the investigation of the **impacts, damage potentials and economic costs from current climate variability and extremes**, and the assessment of **current adaptation deficits** by explicitly including current policies. In this sense a thorough policy appraisal and engagement with policy-makers is needed at the outset, for tying project deliverables with policy objectives on adaptation.
3. Sectoral impact assessments are limited often by their 'system boundaries' as climate impact (chains) are often cross-sectoral. It is important to shift from sectoral assessments to **system and service-oriented impact assessments,** for example by considering not only direct impacts on transport infrastructure, but also impacts on the services provided by transport infrastructure leading to indirect impacts in other sectors.

Figure 1: Joint efforts – exchange and learning from each other with regards to Cross-sectoral Vulnerability, Risk and Economic Assessment in the light of a changing climate (source: EAA, Leitner)

4. Impact assessments have to be seen as part of the **adaptation policy cycle** to climate change, which is a continuous process and a joint learning effort. Regular impact assessments have the chance to co-evolve within a political process ensuring that adaptation practises fit to impact assessments. Cross-sectoral assessments are needed to support **integrated policy approaches to prevent maladaptation** and to capitalise on co-benefits by discussing different policy targets including conflicts and interdependencies of climate impacts or adaptation options.

5. Instead of starting with impact assessments as the basis for adaptation plans in a "science driven approach" a more "policy driven approach" is needed for implementing adaptation **starting with assessing policy environments and options** (i.e. considering windows of opportunity for mainstreaming adaptation into certain sectoral policies and existing institutional structures) **and tailoring impact assessments to these needs** including cross-sectoral aspects, socio-economic changes and other drivers.

6. **Risk, vulnerability and economic assessments are needed** as a basis for implementing measures. Vulnerability assessments can be used to get an overview of the distributional effects of climate change impacts; risk assessments of extreme events are needed in particular for practical planning on risk zoning and according spatially explicit measures and economic assessments can be used to get a handle on potential shares of climate costs among sectors.

7. At the **policy level** some To Dos could include:
    - Policy makers have the task to **define the adaptation policy targets** (potentially taking the service level of resources or infrastructures as a basis and considering cross-sectoral effects), as well as the remaining risk levels society would accept.
    - To be able to assess impacts and related costs, policy actions are needed to provide money and storage capacities for making **data available** including meteorologically triggered historical/recent data on damages and costs of actions for recovery and adaptation.
    - It would be helpful to define **a harmonised set of indicators** on the EU level to create a common understanding.
    - Policy makers should commit themselves to and engage in adaptation. They should start **cross-sectoral dialogues and actions** leading in future to transformed institutions to reduce transaction costs and to increase effectiveness of adaptation responses.
    - They need to be **aware of the limitations of integrated assessments** based on models, especially at the local level.

8. Some **scientific challenges** were defined, including:
    - Science should create **target oriented outputs** taking **existing policies, measures and climate variability** into account. The challenge is often not to find new adaptation options; it is how to integrate climate-change adaptation into ongoing activities and policies.
    - Scientific results should help policy to understand the **implications of different policy decisions** on vulnerability by providing sensitivity or risk management studies. Guidance about which methods are appropriate for different decisions would be helpful for decision makers.

- **Communication** on climate change should be based on informing stakeholders. As such, there is a need for that communications to be relevant, specific and built on sharing experiences and knowledge (e.g., providing case studies).
- **Impact assessments** should consider the capacities of existing institutions and governance structures and their transformative potential. Assessments are needed which also investigate remote and indirect climate impacts, and risks associated with abrupt and irreversible climate change impacts.
- A better exploration of **cross-sectoral interactions** is needed in assessments. **Narrative knowledge** (e.g., based on socio-economic developments), needs to be integrated into assessments, i.e. by providing story lines.
- For investigating and evaluating the acceptable levels of risk across society, as well as the **variation between actual and perceived risks** in different communities needs to be investigated.
- For evaluating adaptation and adaptation planning, more **short time projections** and information on **extreme events in the short term** are needed, as well as a range of scenarios and evidence for co-benefits of different options.
- Further research is needed to investigate and demonstrate the **comparability of impact models** on different spatial scales and the improvement of integrated assessments especially at regional and lower levels.

9. **Communication is a key element**, starting with the dissemination and discussion of research results, but also to manage stakeholder expectations. Users need advice on how to read and use assessment results. Case study catalogues can help to exchange knowledge, learning from each other, getting inspired to take action and improve impact assessments. The communication of uncertainties has to be tailor-made for each adaptation plan/case.
10. But communication between science and society/policy needs also to be a bi-directional (two-way) process. Critical is the knowledge exchange and engagement of scientists and users leading to the **co-design, co-production, co-dissemination and co-evaluation** of the assessment and its outputs.

The science-policy gap is often a mismatch in the perception of what research results mean and what they don't mean. Yet, also the gap between what integrated assessments could provide and what is needed by policy is still striking. In that respect, it takes time to build confidence and to create a common understanding between scientists, stakeholders and the general public. Thus, it is a big added value for scientists and policymakers from different levels to work together, exchanging knowledge and views on current and future research activities and policy needs with regards to vulnerability, risk and economic assessment in the light of climate change impacts.

The presentations are available on the CIRCLE-2 webpage:
http://www.circle-era.eu/np4/CrosSectoral_WS_Presentations.html

Agenda:

CIRCLE-2 Workshop

"Cross-sectoral Vulnerability, Risk and Economic Assessments of Climate Change Impacts – What is needed for adaptation strategies?"

11th of February, 2014

08:15 – 09:00 **REGISTRATION / TEA OR COFFEE ON ARRIVAL**

MORNING: ***09:00 – 12:45***

Duration: 3,75h / Moderation: Markus Leitner, EAA

09:00 – 09:10 **WELCOME ADDRESSES**

Susanne Hempen *– Ministry of the Environment, Germany*

09:10 – 09:30 **SCOPE OF THE DAY AND OBJECTIVES**

Inke Schauser *(UBA Germany),* ***Martin König*** *(EAA Austria)* ***and Pamela Köllner*** *(FOEN Switzerland)*

09:30 – 10:30 **POTENTIALS AND LIMITATIONS OF CROSS-SECTORAL VULNERABILITY, RISK AND ECONOMIC ASSESSMENTS FOR COMPARING AND PRIORISING ADAPTION NEEDS**

The science perspective: What can policy makers expect from cross-sectoral impact-based assessments? Which methods are promising for which purposes? What methods are useful to compare and priories vulnerabilities and risks across sectors? What are the main knowledge gaps, data lacks and methodological pitfalls?

Paul Watkiss – ClimateCost and IMPACT2C: What are the limitations of costing climate change and how does policy take up the monetary results?
Pam Berry – ClimSave and the Integrated Assessment approach on assessing vulnerability – Will it help policy makers to prioritize adaptation needs?

10:30-10:45 **COFFEE BREAK**

10:45-12:45 **EXPERIENCES WITH USING VULNERABILITY, RISK AND ECONOMIC ASSESSMENTS IN THE ADAPTATION PROCESS**

The policy/user perspective: What information is needed at the different policy scales for decisions on cross-sectoral adaptation priorities? How and for which purpose are the scientific results of these assessments used in the adaptation process? How are these scientific results used to set adaptation priorities?

***Hans-Martin Füssel (EEA)** – Cross-sectoral climate change assessments at European level: Relevance for EU Adaptation Policy*
***Roger Street (UKCIP)** – UK experiences with using the CCRA*
***Pamela Köllner (FOEN Switzerland)** – Climate-related risks in Switzerland: Experiences and challenges*
***Stefan Gray (EPA Ireland)** - Problems of scale in vulnerability assessment and adaptation planning*
***Martin König (EAA Austria), Clemens Hasse (UBA Germany), Birgit Bednar-Friedl (Uni Graz)** – Shaping national adaptation with economic tools and assessments: For which fields of adaptation action could it work and at which scale?*
Short statements from other countries

12:45-13:45 **LUNCH BREAK**

AFTERNOON: ***13:45 – 16:15***

Duration: 2,5h / Moderation: Markus Leitner, EAA

13:45-14:45 **DEALING WITH THE SCIENCE-POLICY GAP**

Why is there the gap between political expectations and scientific possibilities? What is needed to close the gap or how can we deal with it? How can existing results be used to induce adaptation actions?

What would be useful from the science perspective?
What would be useful from the policy perspective?

14:45-15:00 **COFFEE BREAK**

15:00-15:45 **DEALING WITH THE SCIENCE-POLICY GAP**

15:45-16:15 **WRAP-UP**

Participant List

Last Name	First Name	Organisation/Institution	Nation
Bednar-Friedl	Birgit	Wegener Center/Universität Graz	Austria
Berry	Pam	Environmental Change Institute/University of Oxford	United Kingdom
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Costa	Luis	Potsdam Institute for Climate Impact Research	Germany
Dopp	Sonja	National Research Programme Knowledge for Climate	The Netherlands
Duvernoy	Jérôme	French Ministry of Ecology, Sustainable Development (ONERC)	France
Füssel	Hans-Martin	European Environment Agency (EEA)	Europe
Gebhardt	Oliver	Helmholtz Centre for Environmental Research - UFZ	Germany
Gössinger-Wieser	Andrea	Climate protection coordinator Land Steiermark	Austria
Gray	Stefan	Coastal and Marine Research Centre	Ireland
Hasse	Clemens	Federal Environment Agency (UBA)	Germany
Hempen	Susanne	Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)	Germany
Hirschfeld	Jesko	Institute for Ecological Economy Research (IÖW)	Germany
Höpker	Kai-Achim	Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg (LUBW)	Germany
Köllner	Pamela	Federal Office for the Environment (FOEN)	Switzerland
König	Martin	Environment Agency Austria (EAA)	Austria
Leitner	Markus	Environment Agency Austria (EAA)	Austria
Lückenkötter	Johannes	plan and risk consult (prc)	Germany
Schauser	Inke	Federal Environment Agency (UBA)	Germany
Steinemann	Myriam	INFRAS	Switzerland
Street	Roger	UKCIP	United Kingdom

Last Name	First Name	Organisation/Institution	Nation
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Watkiss	Paul	SEI Oxford, University of Oxford	United Kingdom
Zebisch	Marc	European Academy of Bozen (EURAC)	Italy