

# Key Results

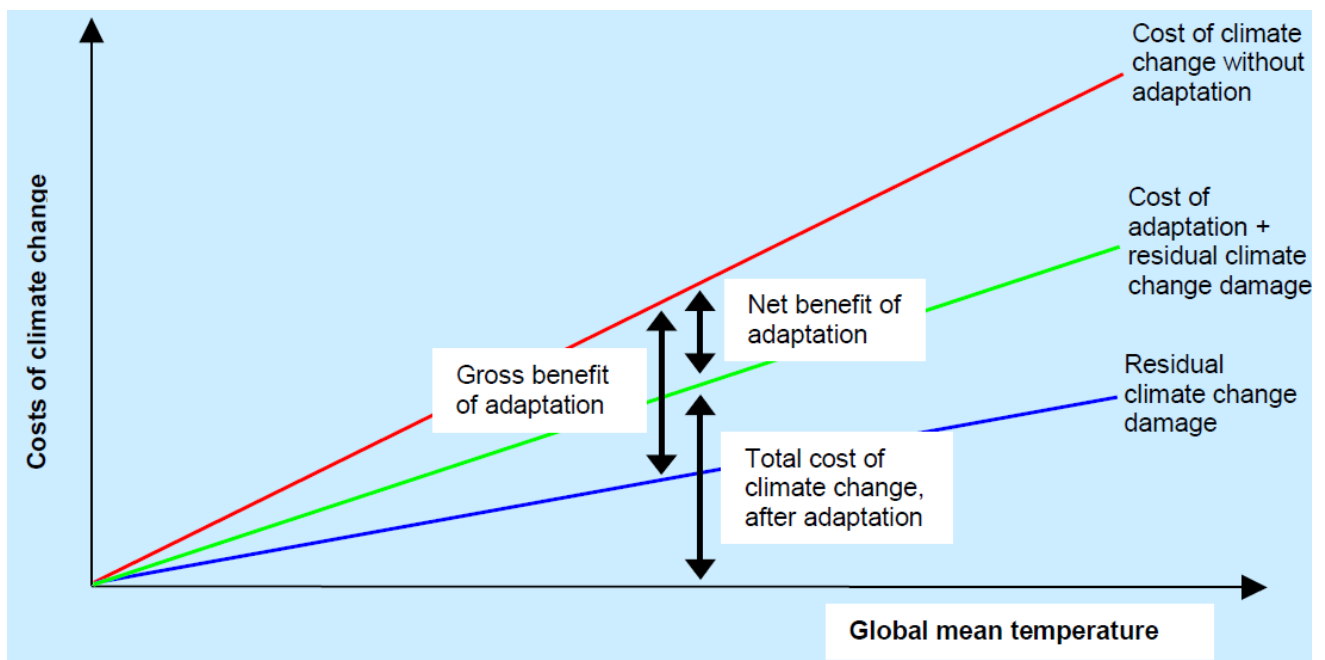
## CIRCLE-2 SHARE Workshop

### “Costs of Inaction and benefits of adaptation”

Version Date: 15 February 2013

Climate costs are an emerging issue in the climate debate.

Policy developers and decision makers want to know with what costs they will be confronted in future. Their questioning is very much triggered by public budget constraints and knowing that adaptation as well as mitigation is associated with costs. Thus, until 2040/2050 (the time horizon up to which mitigation measures will hardly take effect) the costs of climate change without planned/anticipating adaptation is of high interest and is considered here as the costs of inaction, the focus of this Workshop. Assessments of costs of inaction thus have an important impact on the policy debate on if, when and how to employ adaptation policies and measures.



Source: Stern (2006) review on the economics of climate change.

Taking a look at the graphic above, much of the workshop focused on the red curve with some consideration of cost-benefit of certain adaptation measure examples.

**Date: 29 of January, 2013**

**Venue: ZAMG – Hohe Warte 38, 1190 Vienna, Austria**

**Organised by the Environment Agency Austria in the Frame of CIRCLE-2 and COIN  
hosted at Central Institute for Meteorology and Geodynamics, Austria**

Reference: Leitner M., Nilsson C., König M. 2013: Key Results of the Workshop: “Costs of Inaction and benefits of adaptation”, Vienna 29 January, 2013

Although more and more research has been carried out in the field of climate change impacts, vulnerability and lately adaptation, there are many gaps in the assessment of the costs of inaction, as well as of climate change adaptation.

CIRCLE-2<sup>1</sup>, a European Network of 34 institutions from 23 countries, is committed to fund research and share knowledge on climate impacts and adaptation and promote long-term cooperation among national and regional climate change (funding) programmes.

The CIRCLE-2 Scoping Workshop<sup>2</sup> “Costs of Inaction and benefits of adaptation” provided a forum for the exchange and sharing of knowledge of information as well as thoughts and approaches in this highly policy-relevant field of research. It supported knowledge and experience exchange about “Costs of Inaction and benefits of adaptation” (e.g. regional disaggregated bottom-up versus top-down approach) to support climate change adaptation policy. We discussed and identified research needs and opportunities as well as limits and constraints of climate cost assessments.



**Figure 1: Active knowledge sharing and exchange between participants (Photos: C. Nilsson)**

### COSTS OF CLIMATE CHANGE AND BENEFITS OF ADAPTATION

Important results and lessons learned from the project ClimateCost<sup>3</sup>, the SREX (Special Report on Extreme Events)<sup>4</sup>, Costs of Climate Change in Switzerland - CGE modeling with/without adaptation<sup>5</sup>, CONHAZ<sup>6</sup>,

<sup>1</sup> [www.circle-era.eu](http://www.circle-era.eu)

<sup>2</sup> <http://www.circle-era.eu/np4/WorkshopCosts.html>; <http://www.circle-era.eu/np4/532.html>

<sup>3</sup> [http://www.circle-era.eu/np4/%7B\\$clientServletPath%7D/?newsId=532&fileName=03\\_Presentation\\_Jan\\_2013\\_watkiss\\_tuesday.pdf](http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=532&fileName=03_Presentation_Jan_2013_watkiss_tuesday.pdf)

<sup>4</sup> [http://www.circle-era.eu/np4/%7B\\$clientServletPath%7D/?newsId=532&fileName=04\\_SREX\\_Digest\\_Mechler\\_revKR.pdf](http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=532&fileName=04_SREX_Digest_Mechler_revKR.pdf)

<sup>5</sup> [http://www.circle-era.eu/np4/%7B\\$clientServletPath%7D/?newsId=532&fileName=06a\\_Vienna\\_CIRCLE2\\_CONHAZ\\_Reimund\\_Schwar.pdf](http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=532&fileName=06a_Vienna_CIRCLE2_CONHAZ_Reimund_Schwar.pdf)

Reference: Leitner M., Nilsson C., König M. 2013: Key Results of the Workshop: “Costs of Inaction and benefits of adaptation”, Vienna 29 January, 2013

Heavy Rain Risks 2050<sup>7</sup>, Cost-benefit evaluation of adaptation measures in Germany<sup>8</sup> and COIN – Costs of Inaction<sup>9</sup> were presented.

The key results from ClimateCost are that **Economic costs of climate change in EU** are large under scenario A1B. High sector impacts from floods (coastal and river), health, energy, agriculture are likely. For example by 2050 in EU, without adaptation for A1B, large impacts will be seen, such as *55,000 people per year may be affected by coastal flooding; 290,000 people per year may be affected by river flooding and there may be an estimated 88,000 deaths per year from heat (results from ClimateCost)*

This will increase even more by the 2080s with potentially *over 250,000 people affected by flooding (coasts) and over 35% of EU wetlands lost from coastal flooding.*

However, different assessments give different outcomes (e.g. the integration of extreme scenarios show way bigger numbers – e.g. factor of 5 for damage costs), so the data needs to be looked at carefully, since **high uncertainty is involved**, triggering also the way of **how these projected impacts and related costs shall be communicated.**

**One remark in the audience was that the economic costs will be large**, but people are used to bigger numbers these days (due to the financial crisis and e.g. setting up the ESM with 750 billion EURO) and there are *strong distributional patterns*:

As for the sectors agriculture, forestry, energy and possibly tourism, Europe falls apart into a highly vulnerable southern part with potentially higher costs and a much more resilient northern part in which the impacts are by far not that adverse and might even turn into revenues/chances/opportunity costs. (Note: the Arctic, which is a highly vulnerable area, was not discussed)

**Mitigation reduces sector impacts significantly, but only after 2040, so there is a need for adaptation in early years.** High costs from climate change only emerge later in the century (post 2050) meaning that the costs in the short-term are low and for long-term discounting modes play a vital role in the resulting cost ranges. Socio-economic pathways outweighs the climate signal for the forthcoming decades, which means that dynamically changing vulnerabilities remain a key in understanding potential climate cost structures for the forthcoming decades e.g. people get older and are more vulnerable to heat waves. **Uncertainty needs to be taken into account as we move to adaptation.**

**Reducing GHG emissions has other benefits** leading to air quality and health improvements, which arise locally (within Europe) and occur immediately (short-term). The ClimateCost project estimated these economic co-benefits to be in the range of €48 to €99 billion/year by 2050 (EU), around €20/t CO<sub>2</sub>.

Adaptation can significantly reduce the costs of climate change and adaptation costs are low, and benefits high, if the measures are done early. But it is not easy to estimate the costs with the models. Rather **there is no single cost estimate, since costs are determined by policy. So it really depends** (e.g. the assumptions on the policy and goals will make a difference in adaptation costs)

**Further, uncertainty is important for all decisions that policy has to make!** (Not only the climate-related issues)

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<sup>6</sup> [http://www.circle-era.eu/np4/%7B\\$clientServletPath%7D/?newsId=532&fileName=05\\_130129\\_Costs\\_of\\_Inaction\\_and\\_Benefits.pdf](http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=532&fileName=05_130129_Costs_of_Inaction_and_Benefits.pdf)

<sup>7</sup> [http://www.circle-era.eu/np4/%7B\\$clientServletPath%7D/?newsId=532&fileName=06b\\_CIRCLE\\_2\\_Vienna\\_Jan\\_29\\_2013b.pdf](http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=532&fileName=06b_CIRCLE_2_Vienna_Jan_29_2013b.pdf)

<sup>8</sup> [http://www.circle-era.eu/np4/%7B\\$clientServletPath%7D/?newsId=532&fileName=07\\_Tr\\_Itzsch\\_Cost\\_benefit\\_evaluation\\_ada.pdf](http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=532&fileName=07_Tr_Itzsch_Cost_benefit_evaluation_ada.pdf)

<sup>9</sup> [http://www.circle-era.eu/np4/%7B\\$clientServletPath%7D/?newsId=532&fileName=08\\_COIN\\_CIRCLE\\_2\\_final.pdf](http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=532&fileName=08_COIN_CIRCLE_2_final.pdf)

Given the uncertainty, preferably adaptation should not be optimised to a central projection. But uncertainty does not mean we do not need to act. **Iterative adaptive management (resilience, robustness, flexibility) is needed.**

In most sectors, costs of adaptation are modest, and benefits are high, e.g. Costs of European flood adaptation protection (coastal and rivers) reveal high benefit: cost ratios.

**Coasts:** Costs of hard adaptive measures (dike) and soft adaptive measures (beach nourishment) were estimated at under €5 billion/year in the 2050 and achieve a benefit-to-cost ratio of 6:1.

**Rivers:** Costs to maintain minimum river flood protection were estimated to €3 billion/year by the 2050s, and estimated to produce benefits of €19 billion/year for the EU (A1B).

Integrated Assessment methods are limited in terms of the information they provide for adaptation. They only give headline estimates, and have less connection with real adaptation policy, with for example challenges in focussing on the wrong time period (should be current not future), and they do not consider uncertainty. Further they are only based on technical adaptation and generally exclude adaptation deficit, and they work with a “predict then optimise (if-then) approach”.

There is a danger of misleading even, since they could imply that no mitigation is needed!

**And if we want to do real adaptation, we need to take account of existing policy, and to take account of adaptation policy, e.g. heat alerts, and consider autonomous adaptation.** In the (good) old days we could ignore these, but not as adaptation becomes real.

**A conclusion from Paul Watkiss/ClimateCost was that if we want to have an economic appraisal of adaptation policy we need to move to an iterative adaptive management framework!**

Attribution of extreme weather events such as floods, fires, extreme heat and heavy rain events to climate change is only possible on global and continental scales, but not so on national or regional scales. The **SREX outcomes** highlight that **impacts from weather and climate events depend on the nature and severity of an event, vulnerability and exposure.**

**Increasing vulnerability, exposure or severity and frequency of climate events all increase the disaster risk.** Therefore disaster risk management and climate change adaptation can influence the degree to which **extreme events translate into impacts and disasters. Information on vulnerability, exposure, and changing climate extremes should together inform adaptation and disaster risk management.**

According to the SREX climate change is real and climate extremes are worsening (from a global perspective), and based on a report from Munich Re this has also been demonstrated for Northern America. Risk management and adaptation options to extremes go a long way, but there are limits to adaptation. Early warning systems (e.g. heat waves) are important to set in place now. The reduction of greenhouse gases will have a positive effect only later on (after the mid 2040's).

Uncertainties are large therefore low regret options, win-win and co-benefit solutions provide robust entry points. Those issues are complex and need continued attention.

Global climate related disaster losses have increased and the trend detection relates on the statistical model used. There was an increase in losses from climate/weather related events from the 1980 to 2010 from about 25 US\$ 2009 billion to about 75 US\$ 2009 billion. Adjusting for exposure (GDP, wealth) increase removes these increasing trends of losses for the most studies. Costs are differentiated between damage costs, adaptation costs and residual damage costs. Additionally, there are intangible losses (e.g. lives, health impacts) that are usually not accounted for in most studies. Vulnerability changes are generally not included in analyses and probably mask changes in other drivers including hazards. However, the best data

worldwide are available for North America and according to one study, prepared by the Munich Re, there are indications that also climate change is a driver for the increase in losses from weather related disasters. More work and more data will be necessary to confirm such assessment for other regions.

Monitoring, evaluation and innovation/learning is necessary in order to do what ...as well as transformation (e.g. glaciers will disappear, lake "Neusiedlersee" in XX might disappear) and develop/monitor the adaptive capacity.

Looking at the Swiss project Costs of Climate Change in Switzerland w and w/o adaptation based on CGE modelling some of the lessons learnt are that for the energy sector there is a higher demand for cooling (air conditioning demands) projected as well as decrease in heating-demand (saves money – maybe decreases the mitigation efforts). Limitations might be that alternative energies, import/export, effects of extreme events are not covered in the study. The study mentions that high uncertainties are involved in the different climate scenarios.

**In Switzerland, costs of climate change in 2050 w/o adaptation were assessed for four sectors with a CGE.** At the workshop, the results for the water management and energy demand sectors were presented. In order to estimate the economic impacts a climate change "shock" based on the new regional climate scenarios was imposed on the model. In the water sector, this shock resulted in short-term direct costs of 23.8 Mio CHF and a long-term loss of welfare of approximately 60 Mio. CHF. Endogenous adaptation, which was assessed with a sensitivity analysis with respect to the modification of elasticities applied, may reduce the welfare loss by about 10 %. In the energy sector, the most dominant effect observed was the decrease in heating energy demand due to warmer winter temperatures by about 1'400 Mio. CHF. The long-term loss of welfare is around 180 Mio. CHF due to the increase in cooling energy demand in summer is comparably small.

In the model, different exogenous adaptation measures were included. Limitations result from the fact that extreme events were not covered. Large uncertainties derive from the inherent uncertainties of the climate scenarios.

The project CONHAZ – Costs of Natural Hazards looks at "big events". Natural hazards are very large and the losses are increasing. The usages of methods for climate change adaptation of disaster risk reduction community can be an advantage.

#### **Cost assessments and methods – what do we want to know?**

We need to distinguish between direct and indirect costs (it is of importance to define what is really meant!)

There are losses due to business interruption via indirect costs which are high at the local and maybe regional level, but not really visible on the national scale. There is lots of information available on direct costs, but way less on indirect costs/higher-order effects (insufficient understanding of the economic response to external shocks) and intangible costs (e.g. ecological and health effects). We need to be here way more explicit on uncertainty.

Improvements in data and models are needed and uncertainties need to be considered, documented and communicated.

We need to take into account that even in mitigation there is no clear definition on how to calculate the cost of mitigation.

*Reference: Leitner M., Nilsson C., König M. 2013: Key Results of the Workshop: "Costs of Inaction and benefits of adaptation", Vienna 29 January, 2013*

We need to better understand risk drivers based on socio-economic developments. There is insufficient understanding of the economic response to external shocks.

Decision support tools shall be included in decision making under risk – e.g. Multi-Criteria Analysis (including non-monetary) and Cost-Benefit Analysis (monetarisation).

Dynamics of risk drivers and socio-economic developments not often considered in cost assessment, but are needed.

The project on heavy rain risk 2050 in Germany - Assessing the Costs and Uncertainties of Changes in Local Extreme Events in Germany. Highlighted a close match of time and space of damage data and precipitation data is essential to assess the economic damage of heavy rain. Radar data and postcode-based damage observations are sufficient to determine thresholds, where heavy rain causes (insured) damages. Damages beyond this threshold can only be estimated by making use of additional local data such as topography, soil sealing, etc. The functional relationship between damages and precipitation is location specific, single case studies cannot be transferred to other regions. Projected future changes in heavy rain are uncertain (use as many models as possible), but robust and significant changes can be predicted for some regions (e.g. western coast of Schleswig-Holstein). So called “Signalkarten” (signal maps) are a decision support tool which can reflect subjective risk preferences and thresholds of clients.

The project concluded that cost is a subjective, decision-oriented category and decisions on climate change are inherently uncertain. Costs of inaction – as a risk-based approach (Robustness depends on risk discussions and willingness to take risk into account (risk-tolerance)) – are subject to thresholds, sensitivities and risk tolerance, and it is inseparable from cost of adaptation. Cost of Inaction - Science is to serve and support society in risk-based decision making.

Economics is a support tool for decision making, but not the ultimate solution. GDP is often used as the main indicator in literature, but there are several limitations.

The study - Cost-benefit evaluation of adaptation measures in Germany – focussed on the questions of “How can cost-benefit analysis support the prioritisation and selection of adaptation measures?” and “How is the database in Germany and which recommendations can be formulated based on the existing data?”

The focus was on sectoral climate damages and adaptation costs; assessment of adaptation measures (literature review and low number of expert interviews) and detailed analysis of three case studies (e.g. restoration of pastureland).

Cost-benefit-ratio should be accompanied by further criteria like relevance, no-regret/regret, urgency, etc.

One of the main problems is the estimation of the effect of measures - which part of climate impact (and damage costs) can be avoided by the measure?

Monetarisation of benefits vary over different sectors (better for sectors, where market price is available, e.g. energy, agriculture, worse for biodiversity). Monetarisation of health impacts – in principle possible, but has strong influence on the results of the benefit assessment. Monetarisation of decrease of productivity (e.g. transport, energy, cooling of offices) is quite unproblematic.

Local effects of climate change and implementation of measures are problematic for national evaluations (e.g. regional planning). Urgency varies over different measures – important for prioritisation and selection. Not only cost/benefit estimates are relevant, also distribution of costs/benefits over different stakeholder groups, risk of windfall profits, separation of autonomous adaptation. The effects are always assessed against business-as-usual scenario (difficulties of integration of other developments, like demographic

change) and a lot of trends can only be assessed very rough (e.g. technological development, change of consumer behaviour).

It really depends on what we want to measure and the scenario/future world we are looking at! Side effects on many other areas (i.e. cooling effects have an effect on mitigation efforts, heat alert systems have an impact on many other areas of e.g. the health care system) are not looked at. Example for necessary focus of cost-benefit analysis (i.e. including indirect effects): For heat warning systems: beside concrete publishing of warnings, additional activities especially for vulnerable people are really needed and included in the cost-benefit analysis.

The **COIN – Cost of Inaction project**, which is just starting in Austria, focusses on how Austria will look like from a non-climate and climate development point of view until 2030, 2050, 2070, and 2100 and thus follows a scenario-based assessment approach. A consistent framework for costing climate impact across all fields of action of the National Adaptation Strategy (NAS) will be developed, looking at direct and indirect costs (sectors and assets at risk – use existing data and outcomes). Identify sectoral exposure – 'best' (positive), 'worst' (avoid nightmare) and middle-of-the-road scenario.

The overall goals are to quantify (monetary values) where possible, be comparable, complete and accurate (no double counting). The impacts on public and private budgets shall be assessed.

### POLICY MAKER'S COST/BENEFIT INFORMATION REQUIREMENTS

Which climate cost information is needed at EU level and what does it mean for implementing adaptation measures?<sup>10</sup> There is an increasing need to act at all levels and across sectors. The evidence base is crucial, taking into account that knowledge gaps as well as uncertainties remain.

We need more information about different types of costs (direct, indirect, transition costs as well as market, non-market, socially contingent impacts); Information under different scenarios (models), consistent, accumulative information; good coverage of different sectors (good e.g. coastal, floods, agriculture; still weak: forestry, biodiversity, private sector). Case studies show costs and benefits.

Estimates of costs and benefits at EU, MS, local level are emerging. There still remains a rather low evidence base and low confidence in the magnitude of estimates (sometimes contradictions). The coverage of adaptation costs and costs of inaction is partial; there are methodological limitations and some sectors are covered better than others. Further research on costs/benefits is critical (Horizon 2020 might be the right tool to look at it in more detail). Uncertainties will remain for the implementation of measures. There is a need to incorporate climate change in financing and appraisal cycles.

Adaptation is reflected in the multiannual financial framework, where 20 % of the funds are earmarked for climate mitigation/adaptation activities. The question remains, on how the overall framework will look like.

We need to reflect that decisions are made under uncertainty and those are context related. Better understanding of barriers and how decisions are made is necessary, taking into account the background of decision makers.

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<sup>10</sup> [http://www.circle-era.eu/np4/%7B\\$clientServletPath%7D/?newsId=532&fileName=09\\_2013\\_01\\_29\\_Costs\\_AF\\_Vienna\\_new.pdf](http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=532&fileName=09_2013_01_29_Costs_AF_Vienna_new.pdf)

Reference: Leitner M., Nilsson C., König M. 2013: Key Results of the Workshop: "Costs of Inaction and benefits of adaptation", Vienna 29 January, 2013

Often climate is not the biggest issue that is the challenge. Decisions are often based on different options with regard to the perception of risk or risk acceptance. We need to be clear about what people want and what we do provide.

Several autonomous adaptation efforts are related to mal-adaptation (by individuals, only looking at their own advantage/position in competitive environments), which might cause future costs. We should not provide what we are used to, but what is really needed (e.g. tools with which people can help themselves, look at details which are really relevant in the real world/problems – local and regional case studies).

### **MATCHMAKING RESEARCH AND POLICY REQUIREMENTS: DISCUSSION ON RESEARCH NEEDS, OPPORTUNITIES, LIMITS AND CONSTRAINTS OF CLIMATE COST ASSESSMENTS**

The discussion opened with the questions “*What do we not know enough about yet?*” and “*How do we move on?*”<sup>11</sup>

Some of the points of interest from the day include:

- There are different risks in different parts of Europe, and generalized the costs of inaction are higher in the south.
- Definitions of words become important when there is different expertise around a table to discuss costs in relation to climate change. Maybe there is a need for a common European approach to the definition of certain words?
- Case studies are a good way to learn – we need more case studies (e.g. interesting case studies and examples of costs related to Europe (ClimateCost) and specific countries, the cost of Climate change in Switzerland, cost-benefit evaluation of adaptation measures in Germany and the COIN approach for Austria)
- We should start to talk about effectiveness and efficiency as well, when we talk about evaluation
- It depends – the cost of adaptation depends on what you are looking at

Some challenges seemed to be common for many of the talks we heard during the day, or identified like:

- Uncertainty and its communication is an important part of the challenges
- Communication to politicians and policy makers
- Need to frame our discussion – to put ourselves in the shoes of the decision maker, with the perspective of a decision maker.

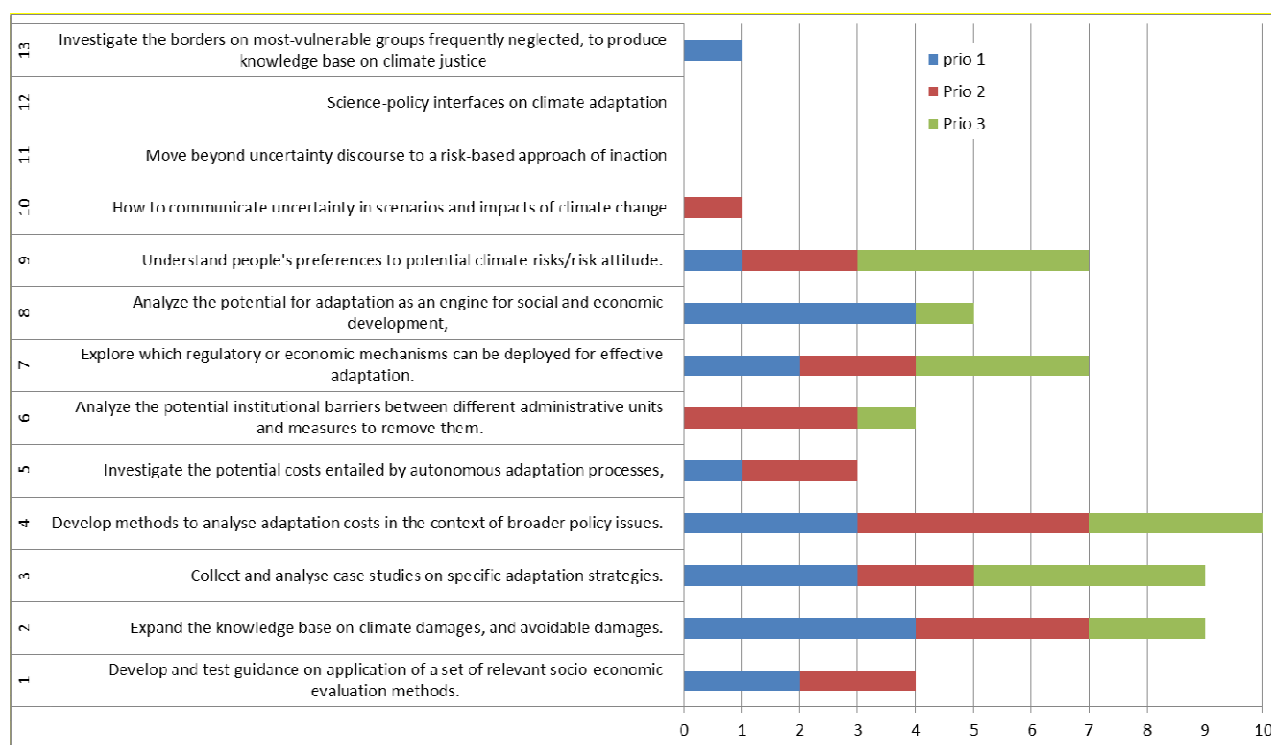
A questionnaire with potential research questions were handed out to the participants in the morning, and collected by lunch. Each participant could suggest their own potential research subjects, and then grade the importance of them all. With 1= High priority and 2= second highest priority and 3= 3rd highest priority. The research questions (numbered 1 to 9) are the result of a narrowing process undertaken in WG4 of JPI Climate<sup>12</sup>.

<sup>11</sup> [http://www.circle-era.eu/np4/%7B\\$clientServletPath%7D/?newsId=532&fileName=11\\_Vienna\\_2013.pdf](http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=532&fileName=11_Vienna_2013.pdf)

<sup>12</sup> [www.jpi-climate.eu](http://www.jpi-climate.eu)



Answers 10-13 are suggestions by participants. Figure below is based on 15 answers. Some had answered with just three prioritizations (one with 2) and some had given a prioritization to each of the 9 topics. All are present below. The figure should be seen as an overview about these topics in the room, and not representing more than that. It gives a broad palette of what research funding should focus on in the future from the audience at the workshop.



### IN THE DISCUSSION, THE FOLLOWING POINTS WERE RAISED AND REFLECTED UPON:

Have we resolved issues? – No clear answers

- What is the granularity that we need to know details about? Do we need to know details on different regions of e.g. UK/Germany? Or do we need it on subnational or national level?
- About the granularity: Need both top-down and bottom-up approach, to know if we spend the money effectively.
- A lesson from PROVIA – There is no longer one community who is doing assessments and adaptation. How do we find the right actors? Who should we provide the information to? Who do we want to work with? There are sometimes large differences in country organisations, e.g. structural and/or institutional.
- It is about purpose – who will use the result, and for what? On a higher level it is more about comparing different approaches. There will never be one methodology. Difficulties in communication relates to different roles/purposes.
- The role of autonomous adaptation (protection and competition) – e.g. ski resorts and artificial snow and tourism. On which bases do they make a decision?

Reference: Leitner M., Nilsson C., König M. 2013: Key Results of the Workshop: "Costs of Inaction and benefits of adaptation", Vienna 29 January, 2013

- Gaps – we need to understand the limits of adaptation. And there is a need of understanding the system. Can we find a good scoping approach that works? ( Networking can work)
- There is a need for transdisciplinary research – to understand the limits of legitimacy – what is culturally, socially and economically acceptable – the ecological limits as well.
- International dimension related to cost – it is very important. We need more on the baseline from neighbouring countries in national studies.
- The social dimension – it is a social question on where to substitute – the socially weaker are often the loser
- Does this mean that we need to move away from a sector based analyses which often loses the social dimension? Yes.
- We need to discuss: What are the employment and growth benefits of adaptation?
- How to increase resilience – would be good as a positive input
- The discussion is often dominated by the economical thought/dimension. Could only quantify the economic dimension in monetary terms and the others are dealt with qualitatively, hence less important?
- Can we translate it all into goats? How do we pull together qualitative and quantitative information – in a way that makes sense to the decision maker
- There is a need for more social scientists integrated within the "community of adaptation"
- Even within disciplines it is hard to make the right links. So – It is not easy!
- Collect more information on the vulnerability of the poor/the social aspects of those, who will suffer most of climate change – in relation to information on how those who make the decisions will be effected.
- There is a link between the social aspects and the budget. The costs are there, but only in income or money spent – they are also in employment, etc. but it is not so clearly seen.

### PLANNING OF FOLLOW-UP WORKSHOP

The idea of a more detail and broader second workshop in later 2013 was discussed. If it is still feasible in 2013 depends on new outcomes of currently starting or still running project and the availability of new results.