

Key issues, priorities and research gaps in the economics of the cost and benefits of climate change impacts and adaptation

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JPI Workshop

Venice, 13 November 2014



Background

This work develops a short note prepared by CMCC for discussion at the JPI Climate WG4 meeting on the 5th October 2012 in Vienna,

It incorporates some feedback from the CIRCLE 2 meeting being held the same days and substantiated in the appendix 2 to the document: "Proposal for a new JPI Climate WG4 research theme and associated FTA: socio-economic analysis of climate response options".

This document has been submitted to the June 2013 JPI Climate Governing Board meeting.

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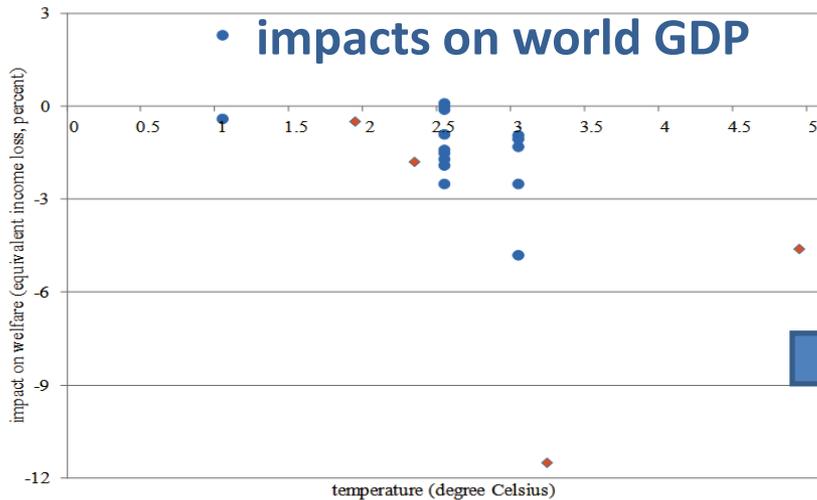


Need to cover quantitative knowledge gaps on CC impacts

Globally

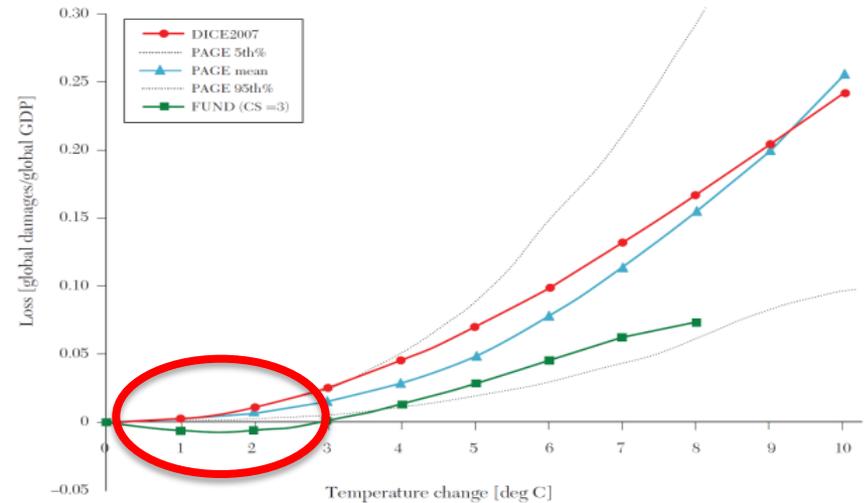
«Point estimates» of climate change

• impacts on world GDP



Source: IPCC AR5 (2014)

Ex. of reduced-form CCDFs



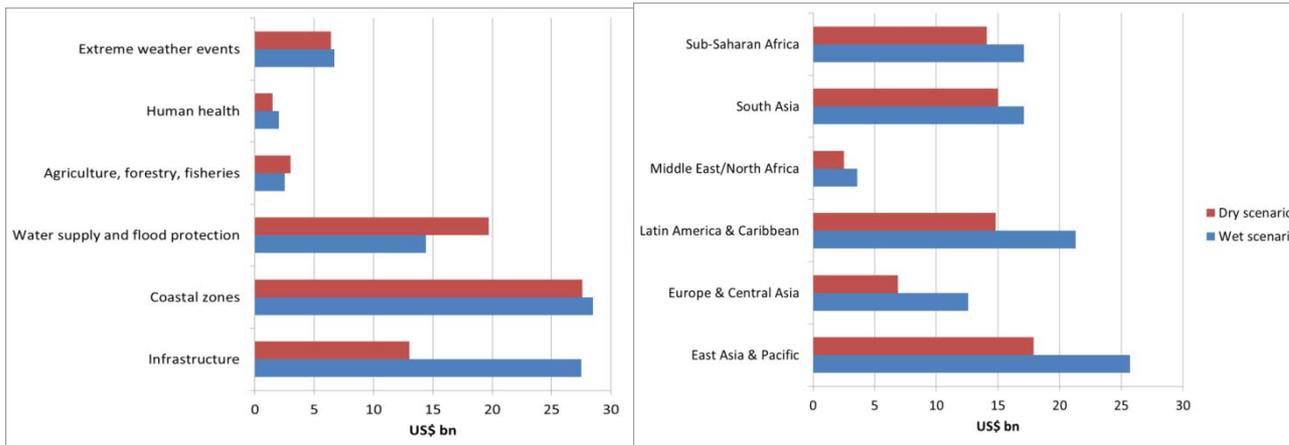
Source: Stern (2013)

Per specific impact areas

- ✓ Health
- ✓ Ecosystem losses
- ✓ Sea-level rise
- ✓ Weather extremes precipitation and droughts
- ✓ Distributional impacts across income classes



Need to cover quantitative knowledge gaps on adaptation C/E



Source: WB (2010)

The IPCC considers confidence in these numbers to be low estimates are derived from just 3 independent lines of evidence

Fortunately: systematic work to gather information on adaptation costs and effectiveness is ongoing:

There are many different on-line initiatives eg. CLIMATE ADAPT, Adaptation Atlas, (125 portals related to impacts and adaptation reported in to CLIMATEADAPT).

and EU research projects e.g.;

BASE, TOPDAD, CLIMSAVE, MEDIATION, ECONADAPT ...



Develop and test guidance on application of a set of relevant socio-economic evaluation methods

Although still scattered and incomplete, research on adaptation costs and effectiveness has been produced and is rapidly increasing. There is thus the need to develop criteria and methodologies for a systematic:

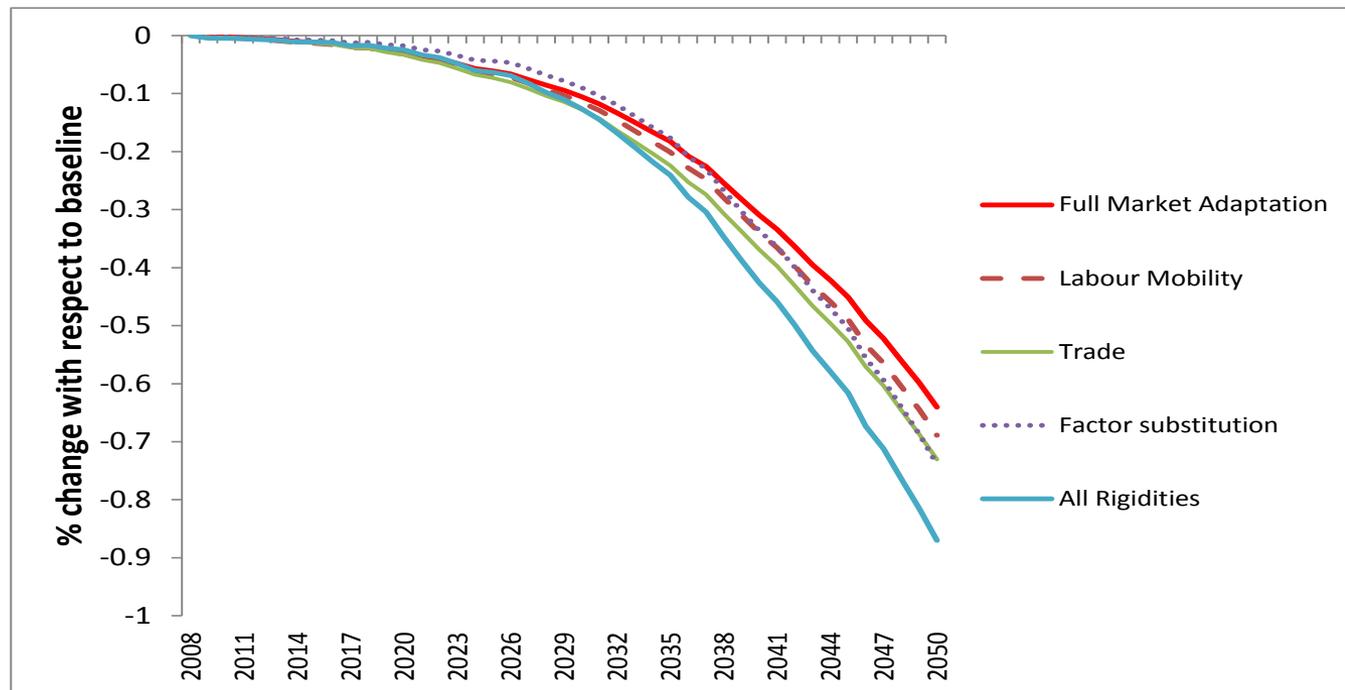
- ✓ **Stocktaking** of existing and incoming information.
- ✓ **Aggregating** from local-measure specific to global-strategic when possible (meta analyses) and **extending** to areas not covered (develop/apply advanced benefit transfer techniques like adjusted benefit transfer, benefit function transfer and meta benefit function transfer). ***Bottom-up, top-down integration***
- ✓ **Comparing.** Develop «user friendly» cost benefit, cost effectiveness analysis
- ✓ **Communicating.** Advanced communication techniques in relation with the general public, stakeholders and policy making.



Explore limits, costs, frictions in autonomous adaptation

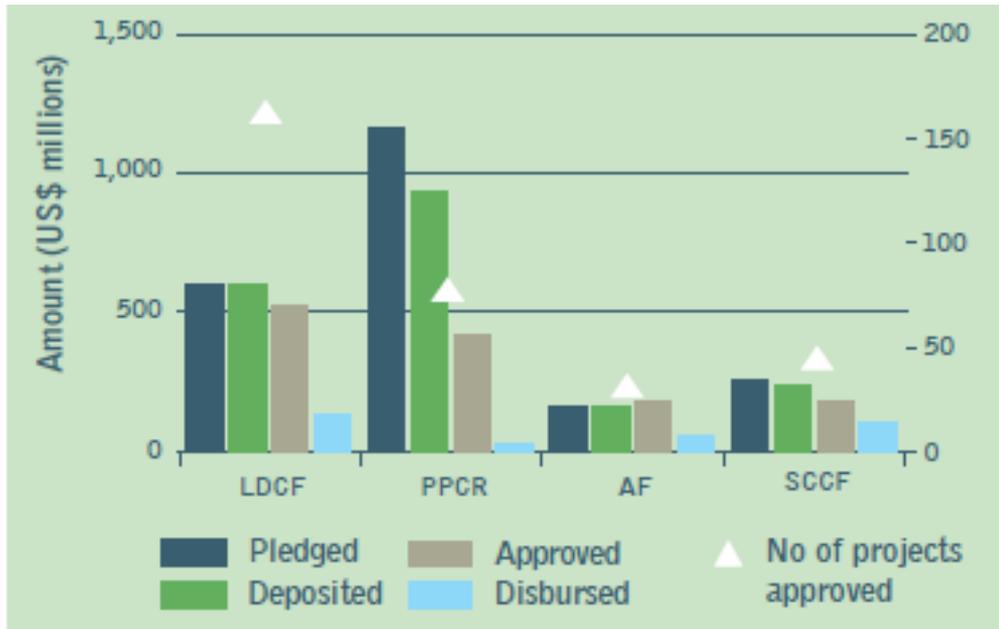
This is an issue quite poorly investigated. E.g. farm-level adaptation typically assumed to be costless in agricultural studies. What if «rigidities» are introduced?

World GDP



Investigate institutional-financial opportunities and barriers to successful implementation of adaptation

Funding adaptation (2003-2013)



Between 2003-2013 only 15% of pledged funds translated into disbursed funds (Nakooda et al. 2013)

- **Exploit synergies public-private initiative** → Relevant part of adaptation is a “private good” that could be efficiently provided by the individual. Today about 60% of funding for climate-related investments originates from the private sector (Buchner 2011). Microfinance? Insurance?
- **Potential coordination challenges** when adaptation is a “public good”, (think e.g. to efficient water uses)

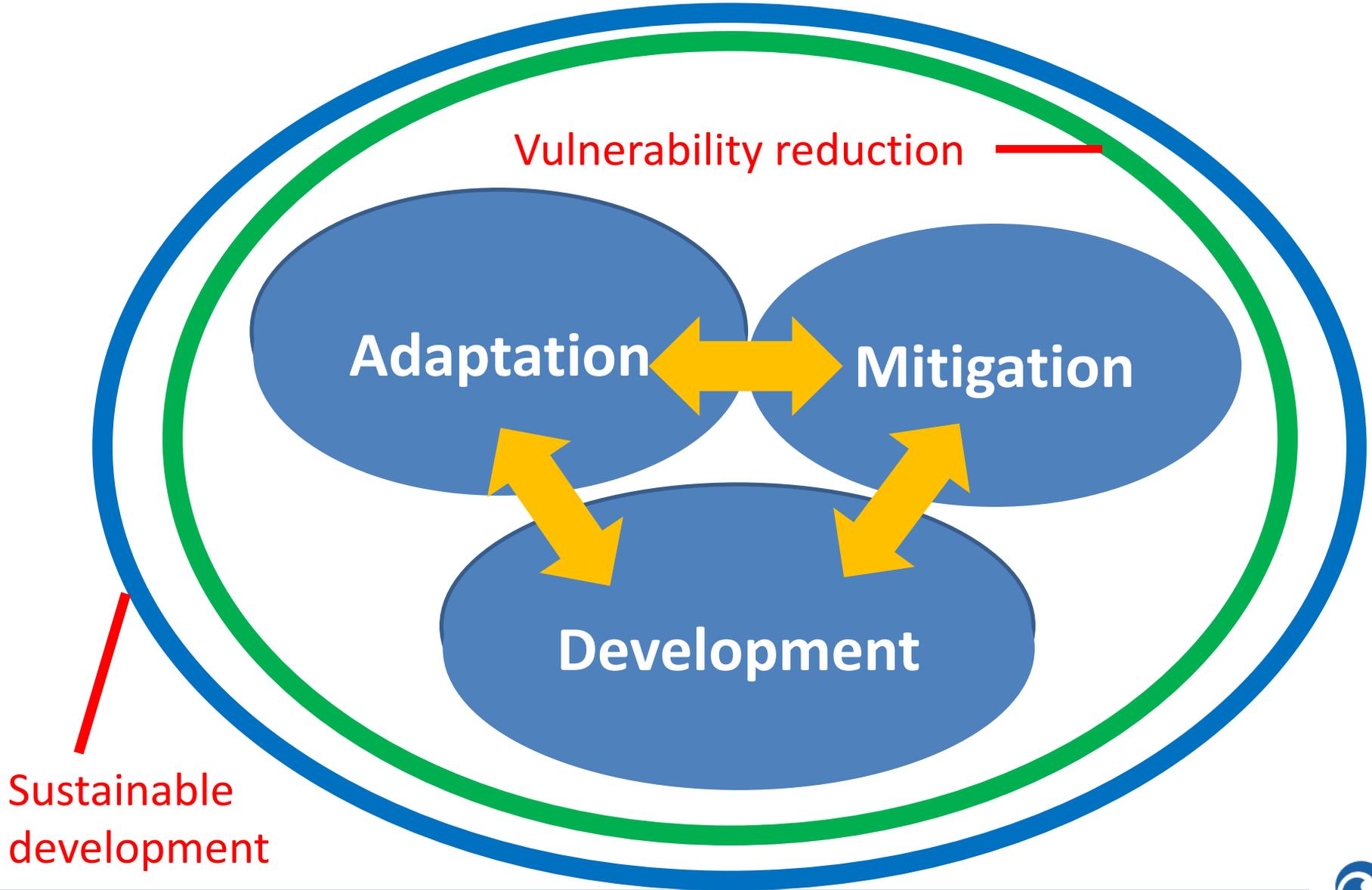


Explore attitude toward risk,

- ✓ Properly embed the issues of risk, uncertainty, deep uncertainty , already part of mitigation analysis into adaptation investigation
- ✓ Could be interesting to move beyond «mainstream» welfare economics and concepts like e.g. the «consolidated» inequality aversion, risk aversion to introduce issues of fairness, life satisfaction, individual capabilities...
- ✓ Apply behavioural economics tools and methods



Need to integrate multiple dimensions in adaptation research



Thanks



Dear Participants,

You have been exposed to:

- ✓ the point of view of the science, stakeholders, and funders
- ✓ the strategic view of JPI

Tomorrow ample room for discussion in parallels focussing on CC damages; adaptation costs; interaction adaptation mitigation

BUT Now, in parallel working groups you are kindly asked to react to provide guidance to tomorrow discussion. Key questions:

What is really important? What is possibly missing? Could you formulate «say 3» key challenges for each thematic group tomorrow? Perhaps retargetting thematic topics of tomorrow sessions

Creative thinking: suppose you have 10 zillion Euros to invest in climate change research, relevant to society, where (topic) and how (approach)???

