IPCC Perspective

Netherlands Meeting on New Socioeconomic Pathways for Climate Change Research, The Hague, 14-16 May 2012

Prof. Dr. Ottmar Edenhofer

Jan Minx, Christoph von Stechow
Five forms of climate scepticism

„The collapse of the fact/value dichotomy“
The Conference of the Parties... 

[...] recognizes that deep cuts in global greenhouse gas emissions are required [...] to hold the increase in global average temperature below 2°C ... 

[...] also recognizes the need to consider, [...] strengthening the long-term global goal [...] including in relation to a global average temperature rise of 1.5°C.
Exploring and assessing the solution space

Reduction of CO₂ emissions

- Increasing energy efficiency
- Non-fossil Energy
- CO₂ capture at Plant (CCS)

Population
- Per Capita Production
  - GDP / Pop
- Energy Intensity
  - E / GDP
- Carbon Intensity
  - CO₂ / E

CO₂ Released
- CO₂(A)/CO₂

CO₂ Emissions
- Carbon cycle
- CDR

Other GHG Emissions
- Non-CO₂ mitigation.

Radiative Forcing
- Temperature Change

Ecosystem impacts, incl. ocean acidification

Impacts
- Adaptation

Non-CO₂ mitigation.
Exploring and assessing the solution space: ‘seven virtues’ of assessment making

1. Reviewing comprehensively the relevant scientific, technical and socio-economic literature
2. Describing consistent transformation pathways
3. Evaluating costs, risks and opportunities of different pathways in a consistent way within and across Chapters and WGs
4. Specifying underlying value judgements and worldviews
5. Communicating quantitative and qualitative uncertainties
6. Using neutral language along good scientific practice
7. Making text, figures and tables accessible
Need for broadly comparable scenario information

Extreme events, Sea level rise

WGI
Extreme events
Sea level rise

WGII
Differential impacts:
$\Delta(1.5^\circ C/2^\circ C)$
$\Delta(2^\circ C/3^\circ C)$
$\Delta(3^\circ C/4^\circ C)$

WGIII
Marginal mitigation costs:
$\Delta(1.5^\circ C/2^\circ C)$
$\Delta(2^\circ C/3^\circ C)$
$\Delta(3^\circ C/4^\circ C)$

Iteration

Complete picture of impact and mitigation costs for policy relevance

$\Delta(1.5^\circ C/2^\circ C)$, $\Delta(2^\circ C/3^\circ C)$, $\Delta(3^\circ C/4^\circ C)$

Policies
Assess human response options

Explore adaptation and mitigation options

Explore benefits, costs, and risks of adaptation and mitigation

Δ(1.5°C/2°C), Δ(2°C/3°C), Δ(3°C/4°C) policies:
Consistent understanding of costs of impacts and of mitigating impacts

Establish smallest common denominator between both communities
Matrix cells can be filled with results of IAM & IAV studies that
• are based on RCPs / CMIP5 projections / new SSP scenarios OR
• use existing assumptions that can be mapped to those (heuristic tool)

| Socio-economic reference pathway | SSP1 | SSP2 | SSP3 | ...
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Forcing level (W/m²)</td>
<td>8.5</td>
<td>6.0</td>
<td>4.5</td>
<td>3.7</td>
</tr>
<tr>
<td>Mitigation costs</td>
<td>low</td>
<td>medium</td>
<td>medium</td>
<td>high</td>
</tr>
</tbody>
</table>

| Socio-economic reference pathway | SSP1 | SSP2 | SSP3 | ...
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Forcing level (W/m²)</td>
<td>8.5</td>
<td>6.0</td>
<td>4.5</td>
<td>3.7</td>
</tr>
<tr>
<td>Adaptation costs + residual impacts</td>
<td>low</td>
<td>medium</td>
<td>medium</td>
<td>high</td>
</tr>
</tbody>
</table>
Post-AR4 scenarios in WGIII

- Describe consistent transformation pathways
- Explore the costs, risks and opportunities of different long-term stabilization targets...
- ...in perfect and imperfect worlds
Example from the SRREN: mitigation in a technologically constrained world
Transition into the new scenario architecture

- Use matrix architecture as heuristic tool
- Populate matrix new scenarios
- Need for marker scenarios?
Exploring and assessing the solution space in the AR5 requires timely delivery of scenarios from CM, IAV & IAM communities

- AR5 literature cut-off date Working Group I:
  - 15 March 2013
- AR5 literature cut-off date Working Group II:
  - 31 August 2013
- AR5 literature cut-off date Working Group III:
  - 3 October 2013
Final Remark

- Policy relevant but not policy prescriptive!