Cross-WG Consultation on UNFCCC Art. 2
Scoping Meeting for the Synthesis Report (SYR)
25-27 August 2010, Liege, Belgium

Prof. Dr. Ottmar Edenhofer
Christoph von Stechow
“Policy relevant but not policy prescriptive”

Science: Scope of options

1.5°C Target
2°C Target

Science
Goal-setting by politics
Data

Such as impacts from excessive use of biomass or geoengineering

Consideration of unintended side-effects of BECS / Geo-engineering
The Pragmatic-Enlightened Model

Data → Targets

Mean 1
Mean...
Mean n

Qualifier 1
Qualifier m

Decision 1
Decision j

Outcome 1
Outcome k

Justification
Back ing

Rebuttal
that reduces the plausibility of footings, justifications or means.

counter-productive?

Legend:
Policy Makers
Science
Outcome

Intended
unintended
Implications for the Scenario Process

WG I
Extreme events
Sea level rise

WG II
Differential impacts:
\[ \Delta(2^\circ C/3^\circ C) \]
\[ \Delta(3^\circ C/4^\circ C) \]

WG III
Differential mitigation costs:
\[ \Delta(2^\circ C/3^\circ C) \]
\[ \Delta(3^\circ C/4^\circ C) \]

Complete picture of impact and mitigation costs for policy relevance

\[ \Delta(2^\circ C/3^\circ C), \Delta(3^\circ C/4^\circ C) \]

Policies

Extreme events, sea level rise
The Research Challenge

- Low Stabilisation Scenarios which identify the technical and institutional requirements
- Exploring the costs, benefits and risks of different mitigation options
- Identifying differential impacts and develop a classification of risks comprising tipping points in the natural environment and also in society.
- Second best: More realistic policy cases through consideration of effects of fragmented carbon markets & technology failures
Assess Scenarios in AR5

Idea for the conceptualization of scenarios, which should be integrated in the scenario process.

The diagram illustrates the relationship between mitigation effort (in W/m²) and uncertainty in socio-economic assumptions. Key scenarios include:

- **RCP 2.6 W/m²**: High fossil fuel price / little optimism in low carbon energies
- **RCP 4.5 W/m²**: Low fossil fuel price / non-sustainable population growth
- **RCP 6 W/m²**: Cheap coal
- **RCP 8.5 W/m²**: Low growth / fragmented world

The diagram highlights a range of mitigation efforts and their associated uncertainties.
Socio-economic assumptions should be self-consistent

Idea for the conceptualization of scenarios, which should be integrated in the scenario process.

Assess Scenarios in AR5
Assess Scenarios in AR5
Assess Scenarios in AR5

all policies available
The Parts of the WG III AR5 Outline

- **Part I**
  - Introduction

- **Part II**
  - Framing Issues

- **Part III**
  - Pathways for Mitigating Climate Change

- **Part IV**
  - Assessment of Policies, Institutions and Finance
AR5 WG III Outline

I: Introduction
   1. Introductory Chapter

II: Framing Issues
   2. Integrated Risk and Uncertainty Assessment of Climate Change Response Policies
   3. Social, Economic and Ethical Concepts and Methods
   4. Sustainable Development and Equity
   5. Drivers, Trends and Mitigation
   6. Assessing Transformation Pathways
   7. Energy Systems
   8. Transport
   9. Buildings
  10. Industry
  11. Agriculture, Forestry and Other Land Use (AFOLU)
  12. Human Settlements, Infrastructure and Spatial Planning

III: Pathways for Mitigating Climate Change

IV: Assessment of Policies, Institutions and Finance
   13. International Cooperation: Agreements and Instruments
   14. Regional Development and Cooperation
   15. National and Sub-national Policies and Institutions
   16. Cross-cutting Investment and Finance Issues
The Philosophy of the WG III AR5 Outline

Part I
Introduction

To set the stage for the subsequent chapters

- Lessons learned from AR4
- New challenges for AR5
- Mitigation Challenges
The Philosophy of the WG III AR5 Outline

Part I
Introduction

Part II
Framing Issues
To lay the methodological foundations and underlying concepts for the subsequent chapters.
Short and concise chapters that will explore general themes and provide insights to Parts III and IV.

Part III
Pathways for Mitigating Climate Change

Part IV
Assessment of Policies, Institutions and Finance
The Philosophy of the WG III AR5 Outline

Part I
Introduction

Part II
Framing Issues

Part III
Pathways for Mitigating Climate Change

Part IV
Assessment of Policies, Institutions and Finance

To provide an integrated assessment of sectors (from a bottom-up perspective) and transformation pathways (from a top-down perspective).
The Philosophy of the AR5 WG III Outline

| I: Introduction | 1. Introductory Chapter |
| II: Framing Issues | 2. Integrated Risk and Uncertainty Assessment of Climate Change Response Policies |
| | 3. Social, Economic and Ethical Concepts and Methods |
| | 4. Sustainable Development and Equity |

Chp 6: Assessing Transformation Pathways

Scenarios are the backbone of consistency between WG II and WG III.

| | 14. Regional Development and Cooperation |
| | 15. National and Sub-national Policies and Institutions |
| | 16. Cross-cutting Investment and Finance Issues |
AR5 Run-up: Bottom-up – Top-down Interaction

Outcome of SRREN Scenario Expert Meeting:
Ideal, long-term approach

Goal: More realistic representation of policy space.
The Philosophy of the WG III AR5 Outline

Part I
Introduction

Part II
Framing Issues

Part III
Pathways for Mitigating Climate Change

Part IV
Assessment of Policies, Institutions and Finance

To assess policies on all scales, from international to sub-national, and the role of investment and finance for mitigation.
Assessment Communities

Integrated Assessment Models (IAM)

Impact, Adaptation & Vulnerability (IAV)
- Human Settlements & Infrastructure
- Agriculture & Forestry
- Ecosystems

Sea Level Rise

Climate Models (CM)
- Cyrosphere
- Water
- Terrestrial Carbon Cycle
- Oceans
- Atmospheric Processes

The Economy

Energy

Health

Modified from Graphic by John Weyant (2009)
IPCC Scenario Process

Coherence Through IPCC Scenario Process

IAV
Impact, Adaptation, Vulnerability

IAM
Integrated Assessment Models

CM
Climate Models
Representative Concentration Pathways (RCPs)

All Data available at http://www.pik-potsdam.de/~mmalte/rcps/

Meinshausen (2009)
Integrated Assessment Models

Climate Models

Impact, Adaptation, Vulnerability

IPCC Scenario Process

Coherence Through IPCC Scenario Process

Pattern Scaling to Generate Impact Patterns

Climate Change Pattern Ensembles

Integrated Assessment Models

Climate Models
IPCC Scenario Process

IAV

Impact, Adaptation, Vulnerability

Downscaling of Socio-economic Data:
- GDP, Population, ...

Biomass Use

Evaluation of Extreme Scenarios

CM

Climate Models

Coherence Through IPCC Scenario Process

IAM

Integrated Assessment Models
IPCC Scenario Process

IAV
Impact, Adaptation, Vulnerability

• Impacts/Damages
• Land/Water Availability
• Biomass Patterns
• ...

Coherence Through IPCC Scenario Process

IAM
Integrated Assessment Models

CM
Climate Models
Final Remark

The IPCC is the honest broker between experts and decision makers in business, politics and civil society.

The IPCC should be policy relevant without being policy prescriptive.