Public Policy Assessments: Being Policy-Relevant without being Policy-Prescriptive?
Experiences With The IPCC

Ottmar Edenhofer and Martin Kowarsch

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Structure

1) The need for scientific assessments

2) How to be policy-relevant but not prescriptive?

3) New model: The cartography of policy pathways

4) The IPCC’s cartography: Unwanted policy evaluation

5) How to promote the cartography approach?

6) Conclusion
1) The need for scientific assessments

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Why we need scientific assessments

- Large-scale and complex collective decision-making requires decision-makers to understand the available policy options
- Requires scientific knowledge from different disciplines
- Example: “Climate change is the problem from hell” (M. Weitzman)
  - Large-scale risks (non-linear), uncertainty
  - Global and intergenerational dimensions (justice!)
  - Complex “global commons” issue
  - Multiple policy fields affected

- Yet, standard disciplinary research does not deliver the knowledge needed to assess policy options
- Legitimate synthesis due to existing policy disputes required

→ Large-scale scientific assessments required!
Beyond: (review,...) papers; policy briefs; advice by individuals
What are scientific assessments?

• **Assessments as most elaborate format of science in policy**
  
  – Literature from different disciplines and approaches is comprehensively reviewed, evaluated, and synthesized (integrated) to make it policy-relevant
  
  – **Legitimate**, formalized learning process spanning several years; often hundreds of experts and different stakeholders involved (regional balance); typically political mandate (high buy-in)

• **Emerging solution-oriented assessments (social sciences)**
Example: The IPCC’s scientific assessments for climate policy

IPCC (*1988) as unprecedented, sometimes painful learning platform...

WG III authors:

– “the mission of the IPCC is important”
– “most scientifically rewarding and most intellectually stimulating time of my life”
– “most extraordinary experiences of my academic life...I would not have missed it for anything.”
IPCC: Considerable effort to enable credibility and learning

Source: Nature 2014

Many attempts to replicate the successful IPCC model
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Key challenge: Policy-relevant but not prescriptive

- **Conditions under which assessments can inform policy well:**
  - **Relevant** (salient; well-communicated) to public policy processes
  - **Reliable** (sound; credible; transparent)
  - **Unbiased** (i.e., not policy-prescriptive) with regard to disputed values and interests in the respective policy discourse

  ➢ An issue of legitimacy! Decisive thus is the appropriate treatment of facts and values – particularly in solution-oriented policy assessments

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IPCC Official: “Climate Policy Is Redistributing The World’s Wealth”

*Posted on November 19, 2010 by Anthony Watts*

DHS (Nominal) Per capita 2017

The great socialist plot is revealed! Hold on to your walking stick!

*Neue Zürcher Zeitung, 14 November 2010*

Climate policy has almost nothing to do anymore with environmental economist and IPCC official Ottmar Edenhofer. The next world economy summit during which the distribution of the benefits of climate policy was planned by Ottmar Edenhofer

For those who may not know, Ottmar Edenhofer is the co-chair of the...
Technocratic model: Why it doesn’t work

**DOWNSIDE:**

- Misguided model of “speaking truth to power” – no linear transfer possible (e.g., Sarewitz 2004)

- Actual means-consequences after the implementation are not interesting according to this model; unclear who is responsible for them

- Mistakenly presupposes that scientific determination of policy objectives can be value-free, or that there is a value consensus. But: there is (justified) disagreement, and there are different policy narratives

  - Peril of **iron cage of bondage** for society through rule of experts: opaque advocacy for a specific policy option
Value judgments: Competing narratives in climate policy

“CBA“

“Fatalist”

“Green worldview”

“Libertarian”
**DOWNSIDE:**

- No possibility at all of *rationally* discussing policy objectives
- In contrast to the “lip service”, most scientists in fact follow the technocratic model
- Unclear how science can appropriately judge policy means, and who is responsible for side-effects etc. in the end
- Disputed value judgments implied even in studies on policy *means*
Value judgments in science

✓ Value judgments when recommending policy objectives

• Less obvious: In general, no facts without values!
  – Epistemic (cognitive) value judgments always implied
    • Coherence, consistency, simplicity, objectivity, etc: To evaluate competing scientific theories
  – Additionally, often ‘thick ethical concepts’ used in assessments
    • E.g., development, growth, efficiency, sustainability
    • Moreover: risk assessment of, and evaluation criteria for, policy means
  – Putnam et al: No fundamental ontological or epistemological barrier between epistemic and ethical value judgments
    • “Normative judgments are essential to the practice of science itself” (Putnam)
    • Widely accepted in philosophy of science: facts and values cannot be neatly separated
Democratic model(s): rarely implemented in practice

Scientists, policy-makers and the public discuss policy ends & means in an open, non-linear dialogue to ensure legitimacy (and salience) of value-laden science.

DOWNSIDE:

- Many things remain unclear: How can policy objectives and means be determined more precisely in a democratic and rational (reliable) manner?

- Again: who is responsible for practical consequences of policy means?

- A radical variant assumes radical constructivism (science always value-laden and subjective) → post-modern epistemological pessimism
Understanding the challenge of assessment-making

• Due to fact/value entanglement: **Trade-offs** in assessment design between
  – Policy-relevance
  – Scientific credibility
  – Legitimacy

• Digging deep into philosophical ground to potentially overcome these challenging trade-offs...
  – Remedies from the USA? Dewey’s philosophical pragmatism
1) The need for scientific assessments

2) How to be policy-relevant but not prescriptive?

3) **New model: The cartography of policy pathways**

4) The IPCC’s cartography: Unwanted policy evaluation

5) How to promote the cartography approach?

6) Conclusion
Dewey’s pragmatist philosophy in a nutshell

• Core idea: evaluating practical implications of hypotheses (as means to achieve a goal)
  – Science is inherently “applied” and value-laden (collapse of fact/value dichotomy); hypotheses as tools to overcome a practical problem

• Both policy means and their objectives can only be evaluated through means-implications
  – Interdependency of ends and means via their consequences
  – Critical comparison with other possible policy means and objectives

• Objectivity possible (despite value implications)
  – One can rationally discuss value-laden issues – through a critical analysis and comparison of the implications of the means
    • E.g., some epistemic values accepted due to robust positive consequences
  – Yet, knowledge is always fallible
  – Also non-objective hypotheses may be useful for policy advice
  – Co-production of knowledge: ideal of deliberative democracy
Objectives, means, and implications in climate policy

Risks from climate change

Cumulative CO₂ emissions

IPCC, SYR, SPM10
Objectives, means, and implications in climate policy

• Within stabilization scenario groupings, the extent to which CDR is applied before and after 2050 changes with all other conditions being the same, e.g., the timing of mitigation measures and the underlying policy assumptions.

• Lower CDR application rates before 2050 generally imply enhanced application from 2050 to 2100.

• Across stabilization scenario groupings, the extent to which CDR is applied is closely correlated with policy assumptions, and for some scenarios, more closely than with the stabilization level.
Objectives, means, and implications in climate policy

Increase in Mitigation Costs Relative to Default Technology Assumptions [%]

- No Carbon Dioxide Capture and Storage
- Nuclear Phase Out
- Limited Solar/Wind
- Limited Bioenergy

Legend:
- 530-580 ppm CO₂eq
- 430-480 ppm CO₂eq
- Max
- 75th Percentile
- Median
- 25th Percentile
- Min
Objectives, means, and implications in climate policy

Emissions Pathways are Grouped
According 2030 Emissions:
- > 55 GtCO₂
- 50-55 GtCO₂
- < 50 GtCO₂
- Full AR5 Database Range
- > 20 GtCO₂ Net Negative Emissions in 2100 Pathways
Objectives, means, and implications in climate policy

Risks from climate change

Cumulative CO$_2$ emissions

Limited Application of CDR Technologies

Annual GHG emissions over the next decades

IPCC, SYR, SPM10
Pragmatic-enlightened model (PEM) of science in policy

(Edenhofer & Kowarsch 2015)
Mapping policy paths to allow for iterative learning process

Experts as “cartographers” of viable policy alternatives & their implications – jointly with stakeholders

The pragmatic-enlightened model (PEM)
Explaining the PEM cartography idea

• A laborious and intellectually challenging synthesis effort
  – Dependent on policy-relevant research that explores uncharted territory of policy analysis, and dependent on integrated “pre-assessments”

• The PEM may facilitate a learning process
  – …between scientific experts, decision-makers, and the public
  – …about costs, risks and benefits of different options, as well as technological and institutional requirements for alternative policy paths
  – Presupposes that several alternative value beliefs and policy narratives are taken into account (including extreme scenarios)
    • Translate into policy pathways and explore their practical implications

• Promises of the PEM cartography approach
  – Scientifically sound and highly policy-relevant without being prescriptive
  – Overcoming hardened ideological conflicts
    • Enabling more constructive discussion and learning about rather concrete policy issues (clarify real trade-offs; etc)
    • Potentially identifying overlap of policy pathways
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IPCC succeeded regarding future scenarios

- IPCC analyzed costs, risks and (co-)benefits of policy alternatives
  - Governments accepted and appreciated that
- High media coverage of IPCC WG III results; impact on UNFCCC

However, there were also big challenges of the “cartography”:
Ex-post analyses come with undesirable political implications
(1) international cooperation & (2) countries’ emission patterns
Whose “historical responsibility”?
Are high-income countries “guilty”?

The following IPCC country delegations expressed their reservations to the WGIII report regarding income-based country groupings: Bahamas, Bolivia, Egypt, India, Iraq, Jordan, Malaysia, Maldives, Qatar, Saudi Arabia, Sudan, Syria, and Venezuela.

Another ex-post analysis that was deleted from the SPM...

IPCC WG III AR5, Figure TS.5
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How the cartography approach can be strengthened

• IPCC WG III (AR5) employed the PEM cartography idea successfully to some extent

• Yet, challenges remain:
  – Mandate and processes for serious cartography of policy alternatives not in place within IPCC; reluctance by governments and scientists
  – Research gaps & methodological challenges in scientific policy analysis, including a lack of established scientific paradigms (beyond economics)
  – Low academic prestige of applied socio-economic policy research

• How can the cartography approach be strengthened?
a) IPCC: Reforming the assessment design

• **Focus on sound evaluation of policy pathways and their implications (ex-post and ex-ante) to inform climate regime**
  – Multiple governance levels, and multiple evaluation criteria

• **Requires better integrating IPCC WG II (impacts & adaptation) and WG III (mitigation)**
  – Understanding pros & cons of policy options (differential impacts, etc)

• **But: Lack of willingness for major reform (Nairobi plenary)**
  – Perhaps best practices of policy assessment may convince governments at a later stage (AR7,...)?
  – Or develop additional policy assessment platform besides IPCC?
b) Academia: Fill policy research gaps & develop tools

• Still significant research gaps w.r.t climate policy assessment*
• Integrated scientific policy analysis and assessments (ISI?) as respected – and socially useful – scientific task in and of itself!
• Enhance *ex post* and *ex ante* climate policy assessment capacities & methodologies of social science communities
  – Policy assessment not to be done “quick & dirty“ (IPCC’s scientific integrity!)
  – Develop new social science policy assessment paradigms (beyond economics), accepting inevitable normative assumptions
  – Multi-level governance, multiple objectives, multi-functional policy instruments: transdisciplinary pre-assessments required
  – Enhance self-organization of social science communities
    • IPCC has proven to be a unique focal point for inspiring policy-relevant science and methodology development: e.g. IAM community

Example of successful socio-economic policy analysis

Result of a dedicated self-organization process of different scientific communities

Pachauri et al. (2014)
c) Policy-makers: support an open learning process

• Policy-makers have to learn how to use and appreciate maps of knowledge on policy pathways
  – Including the acceptance of painful ex-post policy evaluation and iterative learning processes
  – Should be in their best self-interest...

• Moreover, increased funding for policy-relevant research and methodology development needed
  – Provide incentives for systematic, applied transdisciplinary (ex-post and ex-ante) research and “pre-assessments” on policy paths
Before IPCC AR5: Claudius Ptolemy World Map (1482)
The IPCC AR5 map for policy-makers (Mercator Map 1569)

“Nova et aucta orbis terrae descriptio ad usum navigantium emendate accommodata“
Towards 21st Century Mapmaking
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Openly exploring policy pathways? Our choice

Source: The Economist 2014

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IT JUST REQUIRES ALL THE WORLD'S NATIONS TO ASSEMBLE AND AGREE TO RADICALLY CHANGE THE FOUNDATIONS OF THEIR ECONOMIES IN AN ORDERLY FASHION OVER AN EXTENDED PERIOD OF TIME...

I THINK THIS FELLOW IS ON DRUGS...

HE CAN QUIT WITHOUT MAJOR ISSUES...

FORTUNATELY THERE'S A NEW REPORT THAT SAYS...

I THINK THIS FELLOW IS ON DRUGS...

I, FOR ONE, THINK THIS CAN BE DONE...

Source: The Economist 2014
Conclusion

- Decision-making requires scientific assessment of policy options
- Fact/value entanglement: Provide map of policy alternatives and their practical implications (jointly with stakeholders)
- IPCC WG III tried this. Yet, not everyone wants to engage in painful learning process about policy pathways. – REFORM needed:
  - IPCC: Integrated mapping of policy alternatives (ex-post and ex-ante)
  - Academia: Fill research gaps; mapping of policy paths as respected scientific task
  - Policy-makers: Should support research & learning process about policy options

• **Difference to R. Pielke’s “honest broker”?**
  – The PEM is similar to Pielke’s “honest broker of policy alternatives”
  – Yet, Pielke does not emphasize (i) the interdependency of ends and means via their consequences; (ii) the need for exploring all kinds of relevant practical implications of policy pathways; (iii) the need for scientific assessments; (iv) the feedback loop to science
  – The PEM doesn’t really subscribe to the idea of being a broker (too much emphasis on negotiation), but rather envisages an open, rational public debate about policy alternatives, i.e. Deweyan deliberative democracy

• **Traditional cost-benefit analysis (CBA) vs. PEM?**
  – The PEM is similar to CBA approaches
  – However, neither are there fixed values (e.g., certain specific understandings of “utility”),
  – nor is the scope of relevant practical implications limited to quantifiable, monetarized implications