Assessment and Policymaking: Lessons Across Cases

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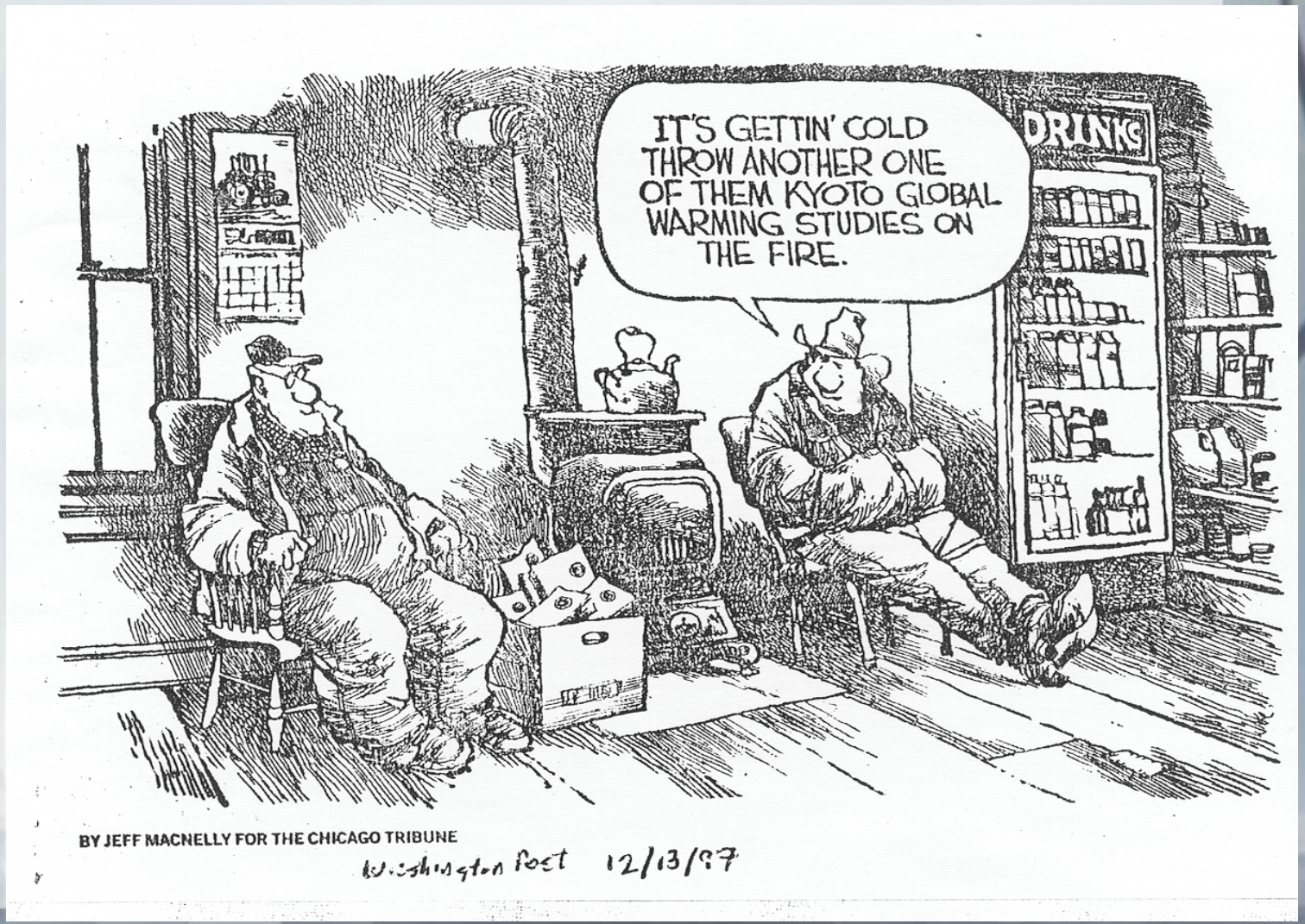
How Environmental Science is Often Used



Motivating Questions

- **Why does some environmental science transform environmental policy while much other science "sinks without a trace"?**
  - **What are the main obstacles to linking knowledge & action?**
  - **Are there particular institutional features that overcome obstacles?**

Environmental Assessments

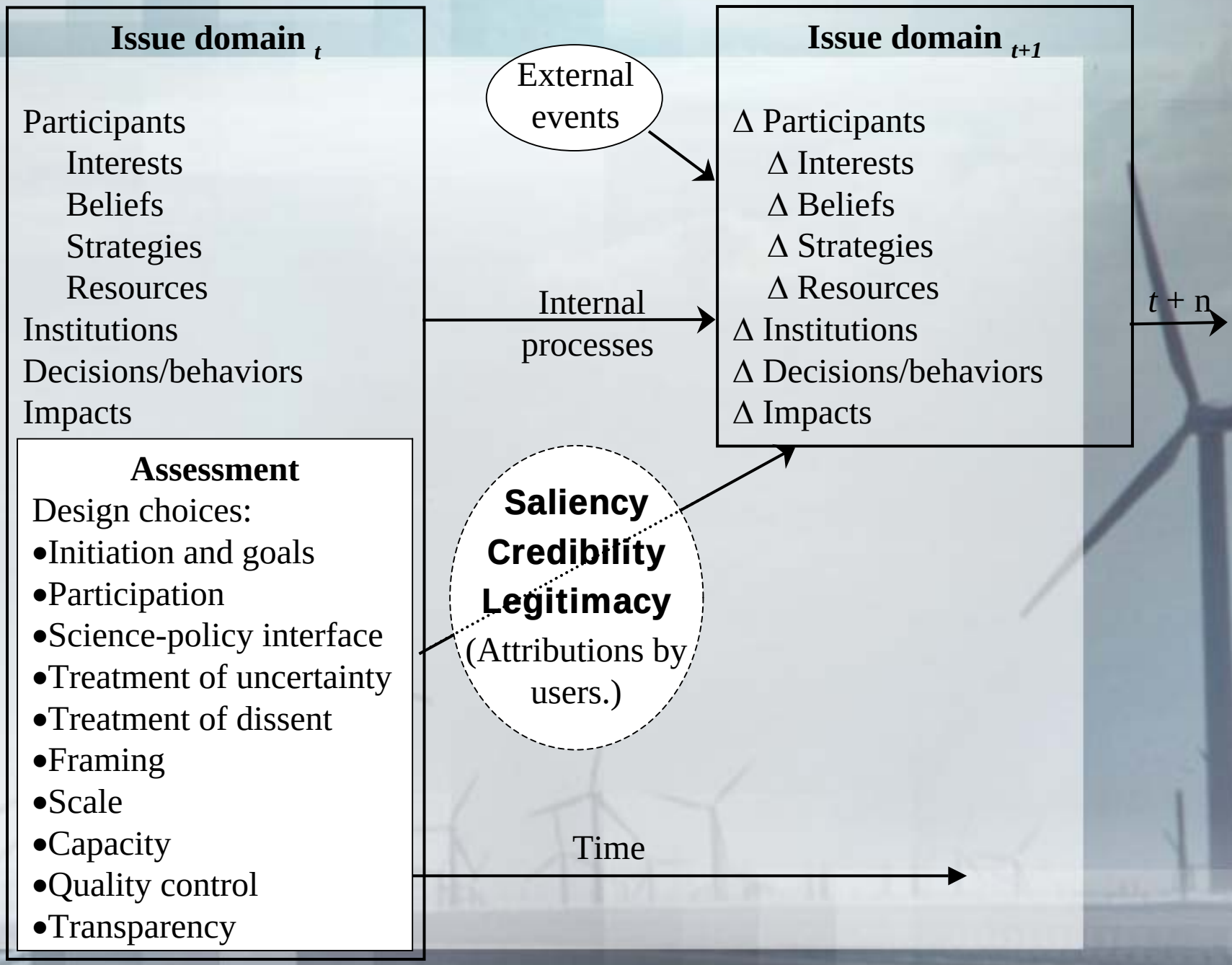
- **What is an "assessment"?**
- ***Environmental assessment* refers to the entire social process by which expert knowledge related to a policy problem is organized, evaluated, integrated, and presented to inform decisionmaking.**
  - Not **the report**
  - **Not (usually) original research, except in the integration**
  - **Not an Environmental Impact Statement (EIS)**

Cases Studied

- **Five year analysis of influence of global environmental assessments on policy**
  - **Global assessments: climate change; biodiversity; ozone**
  - **Water management in US Great Plains**
  - **Coastal zone mgmt in Hawai'i and Maine**
  - **ENSO forecasts and farmers in Zimbabwe**
  - **Fisheries management in North Atlantic**
  - **Air pollution issues in Europe and US**

What do environmental assessments change?

- The “issue domain”
- Actors, institutions, behaviors, and impacts associated with global and regional environmental risks.
- Allows us to focus on not just on policy outcomes but also upon a much richer set of factors that earlier studies have suggested may affect long-term issue development.
- Can be usefully linked to earlier useful concepts in the study of environmental policy
  - Agenda setting and Issue-attention cycles
  - Advocacy coalitions and networks
  - Learning


Issue domain t
Participants
Interests
Beliefs
Strategies
Resources
Institutions
Decisions/behaviors
Impacts
Assessment
Design choices:
•Initiation and goals
•Participation
•Science-policy interface
•Treatment of uncertainty
•Treatment of dissent
•Framing
•Scale
•Capacity
•Quality control
•Transparency
External events
Internal processes
Saliency
Credibility
Legitimacy
(Attributions by users.)
Time
Issue domain t+1
Δ Participants
Δ Interests
Δ Beliefs
Δ Strategies
Δ Resources
Δ Institutions
Δ Decisions/behaviors
Δ Impacts
t + n

Influence Requires…

- **Salience**
- **Credibility**
- **Legitimacy**
- **These are *attributions* - multiple audiences each have their own individual views of these for a given assessment – they are not attributes of the assessment itself**

What tends to make an environmental assessment effective?

- **A focus on Salience, Credibility and Legitimacy**

- **Salience – *Does the assessment address questions relevant to decisionmakers?***
  - **The user must be aware of the assessment**
  - **The user must deem the assessment to be relevant to current policy or behavioral decisions**
- **Credibility – *Is the assessment scientifically supported?***
  - **The user must be convinced that the facts and causal beliefs promoted in the assessment correspond to those that the user would have arrived at had they conducted the assessment.**

SCL continued

- **Legitimacy – *Were various stakeholder interests taken into account fairly during the assessment process?***
  - **The user must believe the process was fair**
  - **The user must be satisfied that their interests were taken into account in the process**

Key Findings

- **Influential science is the exception not the rule and influence is usually indirect**
- **Multiple audiences using different criteria**
- **Salience, credibility, and legitimacy**
  - **Trade-offs**
  - **Assessment design decisions matter**
- **Information not always used "strategically" to pursue immediate self-interest of producer**

Lessons for Environmental Scientists

- **Involve stakeholders in science, e.g., fishermen, loggers, farmers, biz-people**
- **Integrate science, governance, management**
- **Create linked but distributed systems of research, governance & management**
- **Science is “co-production” of knowledge by experts and users**

Conclusions

- **Science can be influential, but only under demanding conditions**
- **Science's influence depends on salience and legitimacy, not just credibility**
- **Doing policy relevant science requires doing policy relevant science - *not* doing science and hoping its policy relevant**

More to read!

- **Assessments of Regional and Global Environmental Risks: Designing Processes for the Effective Use of Science in Decisionmaking. A. Farrell and J. Jager, eds. (Washington, DC: Resources for the Future, 2005)**

- **Global Environmental Assessments: Information and Influence. R. Mitchell, et. al. (Cambridge, MA: MIT Press, 2005)**

- **Earthly Politics: Local and Global in Environmental Governance. Sheila Jasanoff and Marybeth Long Martello, eds. (Cambridge, MA: MIT Press, 2004)**

ANNEX SLIDES

Influence Requires Salience

- **Salience: relevance of information for an actor's decision choices (both macro-policy and micro-individual decisions)**
- **Timing important, not too early or too late relative to decisions being made**
- **Right scale & scope, not too narrow or too broad**
- **Options considered must be "viable"**

Influence Requires Credibility

- Must be “worth believing”
- Judged by proxy
  - Participants: expertise & trustworthiness
  - Process rules: methods & funding
- Even “truth” may be rejected if proposed by those, or in ways, that “can’t be trusted”

Influence Requires Legitimacy

- **Process must treat concerns and values of those affected (stakeholders) fairly and with respect**
- **Judged based on:**
  - **Participants: were those with "my" views included?**
  - **Process: were my concerns and values inputs to process and given fair hearing?**

Tradeoffs Among Salience, Credibility, and Legitimacy

- Across attributions
- Across audiences
- "Best" scientists may provide credibility but not salience and legitimacy
- Representativeness aids legitimacy and salience but may reduce credibility
- Success requires balancing attributions

Stakeholder Participation Matters

- **Increases salience by getting questions right**
- **Can increase credibility if increases access to new data and information**
- **Increases legitimacy by respecting stakeholder perspectives**

Assessment Process Matters

- **Large stakeholder participation early on to increase salience and credibility**
- **Smaller stakeholder participation during assessment to maintain credibility and avoid influence on recommendations**
- **Larger stakeholder involvement in framing of outputs to make accessible to users**

Initiation and Goals

"The Many Meanings of Effectiveness"

- Change the issue domain, or delay such change
- Obtain research funding
- Affect beliefs, especially by accumulating new evidence or analysis
- Identify new R&D priorities
- Identify interests and agendas
- Identify and evaluate options for action
- Legitimize policy preference (has public purpose, not just private)
- Demonstrate competence/leadership to enhance personal or institutional prestige and credibility
- Increase the awareness outside the issue domain/recruitment
- Change the framing and perceptions of issues

Participation

- Choices often balance between credibility and legitimacy
- Participation takes many forms
  - Substantive
  - Nominal
  - As an input
  - Sitting and listening
- Other process design choices help determine the form (and cost) of participation that is needed
  - Example: TAP Quality Control rules lowered the cost of participation
- Capacity is a key factor
  - Technical
  - Financial

Science-Policy Interface

- **Do scientists and decisionmakers interact directly? How?**
- **Consensus status is an important determinant**
  - **Less scientific consensus on key hypotheses $\Rightarrow$ less interaction**
- **Built-in flexibility to change the science-policy interface over time is desirable**
  - **Make potential continuation or iteration a possibility from the start**
  - **Embed the assessment into an institution or process with an indefinite lifetime**
  - **This institution may be a "boundary organization" that is accountable to both science and politics**

Dissent

- How to come to agreements on contentious issues?
- Multiple approaches
  - Consensus (i.e., unanimity or least-common-denominator)
  - Voting
  - Minority reports
  - Reframing to avoid dissent (e.g. scenarios)

- Dependable Dynamism
  - "The ability for an assessment/decisionmaking process to put off or modify scientific conclusions later, with confidence that they indeed will be addressed later." (Eckley-Selin)
  - An important feature of some very successful assessment processes (e.g., Montreal Protocol and LRTAP)

Uncertainty

- Multiple approaches
  - Ignore uncertainty
  - Scenarios
  - Expert elicitation
  - Sensitivity analysis
  - Stochastic modeling
- Integrated Assessments of climate change in the 1990s showed how important uncertainty is.
- Consensus-based assessments tend to avoid dealing with low-probability events
  - Example: West Antarctic Ice Sheet (WAIS) collapse in climate change assessments (Patt)

More is not always better

- **Example: transparency**
  - **The ability of participants *and* observers to observe the assessment processes and understand:**
    - **How and why choices were made,**
    - **Where the data comes from,**
    - **Specific methods for analyzing the data,**
    - **And so forth.**
- **Usually more transparency is better**
  - **Climate impact assessments (Long-Martello and Iles)**

Fatal Flaws for Environmental Assessments

- Lack of scientific credibility
  - Inadequate quality control
  - Apparent discrepancy between Executive Summary and body
  - Unresolved disputes about what counts as evidence
- Failure to be salient
  - Assume questions of most interest to the scientific community are those that decision makers are (or should be) most interested in.
  - Adopt a “one size fits all” approach rather than tailoring assessment to intended users
  - Deliver the assessment too late*
- Inadequate legitimacy
  - Excluding (or just forgetting) relevant stakeholders