4th Nordic Climate Change Adaptation, 29-31 Aug 2016, Bergen, Norway

Side event C: RCN Samkul Network meeting: Understanding cultural conditions of climate change adaptation (UC4A)

UC_4A

Understanding Cultural Conditions for Climate Change Adaptation

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Universiteit Utrecht

COÖPERATIEVE UNIVERSITEIT AMERSFOORT

#nordadapt16

The Research Council of Norway

SAMKUL
Programme on the Cultural Conditions Underlying Social Change

work programme 2011–2020

Societal development is today characterised by global trends and large-scale technological, demographic and cultural change. **To better equip society to meet major societal challenges and the opportunities** arising from them, an expanded knowledge base is needed: A broad interpretation, **understanding and explanation of the cultural conditions, or rather cultural prerequisites, underlying societal development**. This will generate important new insight and supplement the economic-instrumental and technical-natural science knowledge bases which today are largely considered to be the valid foundations for decision-making in society.

The complex challenges to society and the needs for knowledge should be addressed through inter- and multidisciplinary cooperation between humanities scholars, social scientists and researchers from other subject areas. The SAMKUL programme will **promote research relating to groups with the power to influence the direction in which society moves**. The programme also seeks to **strengthen communication and dissemination across academic boundaries and sectors**.

The thematic priority areas of the SAMKUL programme focus on the **interaction between people and their surroundings**. The relationship between people/society and the naturally and socially created environments give rise to research questions and challenges which humanities researchers in particular – in new constellations – can draw on to expand our understanding of societal development and social change, and thus also of the basis on which we act in the world.

The Research Council of Norway

SAMKUL Primary objective

SAMKUL seeks to generate research-based knowledge about the cultural prerequisites underlying the formation of society taking place today and societal development in the future. It will strengthen and expand the knowledge base in order to improve society's ability to meet the major challenges of today and tomorrow. It will promote and develop:

- long-term, basic research of high quality in the programme's thematic priority areas of research;
- **research that expands the traditional objects of study;**
- **research that applies new perspectives with regard to inter- and multidisciplinarity, theoretical framework and empirical methods;**
- **research that is internationally oriented and comparative in nature;**
- **research that promotes long-term knowledge building for decision-making in society;**
- research that speaks to groups with the power to influence the direction in which society moves;
- **arenas and meeting places for communication and cooperation among researchers and between researchers and users**

UC4A

Our object of study:

Institutional cultures of dealing with **deep scientific uncertainty** in climate change adaptation

Main cases:

- Climate proofing cultural heritage and ancient city centers
- Climate proofing sea food production

UC4A Goals

(a) assemble an '**extended peer community**' of international researchers and practitioners; to

(b) design a consolidated and agreed upon project consortium with **two proposals for larger funding**, one in EU Horizon2020 societal challenge 7 and one in the NFR KLIMAFORSK program, relative to

(c) critical research on the institutional culture associated with the science-policy/science-society interface, specific to

(d) adaptation and long term planning challenges for climate change in various sector, such as urban environment and sea food production.

Consortium

Core partners

- University of Bergen
- Utrecht University
- University of Leeds
- Coöperatieve Universiteit Amersfoort

+ many extended partners

1 + 10 + 9 measures/options

4 + 0 (+5) (+8) (+2) governance + participation

3 − 8 knowledge

2 cultures

CHANGE

CLIMATE

GOVNANCE

LANDSCAPES

OVERALL FRAMING: CULT. HERITAGE IN CHANGING "SCAPES"

WPs IDEAS

- SCIENCE-POLICY INTERFACE
- CASE STUDIES — ANCHORING IN A SITE / SITE
- RELATIONAL MAPPING OF CLIMATE & CULTURE VULNERABILITIES OF | CHANGES ENVIRONMT NATURAL HAZARDS ...

TOURISM?

PRACTICAL SOLUTIONS FOR INTANGIBLE HERITAGE

MUSEUMS
PRACTIONERS
ENGAGE LOCAL GUARDIANS

INTRXN W/UNESCO FOR PRACTICAL KNOWL. APPLICATION & RELEVANCE

RELATIONSHIP BTWN TANGIBLE & INTANGIBLE

iterations + critical reflection

1. CLIMATE-PROOFING
2. "INST." CULT. DEEP UNCERTAINTY
3. CLIMATE SERVICES (FOR CULT. HERITAGE MGMT) — LIVING? — THOMAS & STEFAN
4. MULTI-LEVEL GOVERNANCE (UTRECHT UAB-MARIO) — SCALE ANALYSIS
5. CITIZEN SCIENCE — TRAD. KNOWL.
6. CO-PRODUCTION — TRADITIONAL KNOWL. (w/OTHER FIELDS (UU-HENKS SUT-KJETIL) AGENCIES GUARDIANS)
7. NARRATIVES & CRITICAL REFLECTION OF CULT. HERITAGE / VISUALIZATIONS — RASMUS' PROJ. (UNESCO PARADOXES — HIERARCHIES; TSUNAMI SIGNS; CHWA SOUVENIR SHOPS)
8. KNOWL QUALITY ASSMT (DECISION-MAKING)
9. SMART COMBINATIONS OF ADAP. & MITIGATION FOR CLIM-PROOFING
10. LOCAL IMPACTS OF GREEN & BLUE INFRASTRUCTURE IN OLD CITY CENTERS

CULTURAL HERITAGE

IDENTITIES / INTANGIBLE
- INDIVIDUAL + COLLECTIVE
- WAYS OF LIFE — ESKIMOS FISHERS FARMERS
- SOCIAL FUNCTION OF PLACES / URBAN ARCHITECTURE

TANGIBLE
- BUILDINGS
- PLACES

CHANGING GUARDIANS?

FUTURE MONUMENTS OF CLIMATE CHANGE?

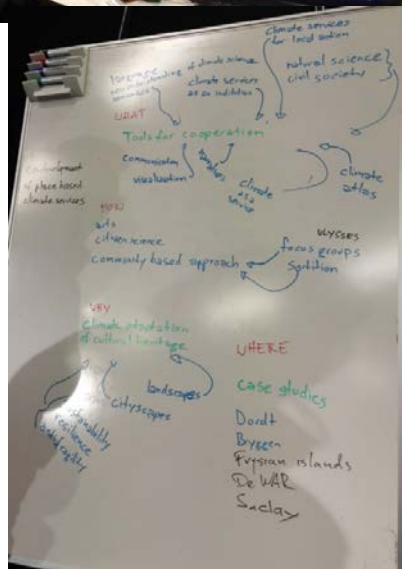
LESSONS LEARNED/UNLEARNED

PARTNERS IN LOCAL GOVERNMENT

International workshop 18 /19 April 2016,

Hosted at the industrial cultural heritage site De WAR / Cooperative University of Amersfoort

20 participants from 7 countries: Norway / Germany / Netherlands / UK / France / India / Italy



Key questions

What are the **institutional cultures and practices** of dealing with uncertainty at the science- governance interview?

What are their **strengths and weaknesses** *vis a vis* the challenges of climate adaptation under deep uncertainty?

How can institutional cultures be improved to **better fit the challenges** posed by climate adaptation under **deep uncertainty**?

Science Speaks to Power

The Role of Experts in Policy Making

David Collingridge
and
Colin Reeve

1986

St Martin's Press, New York.

Contents

1. Science and Policy-An Unhappy Marriage
2. Myths of Science
3. Realities of Science
4. The Over-critical Model
5. Lead-The Technical Debate
6. Lead-Myths of Policymaking
7. Lead-Realities of Policymaking
8. IQ in America-The Over-critical Model
9. IQ in Britain-The Under-critical Model
10. Smoking and Lung Cancer
11. Conclusions

(Collingridge and Reeve, 1986)

http://www.andreasaltelli.eu/file/repository/Science_Speaks_to_Power.pdf

Societal expectations of science

- Science Yields the Truth
- Experts can be Expected to Agree
- Science is One
- The Principle of Irrelevance (of the way of use)
- Policy can be Based on Science

(Collingridge and Reeve, 1986)

http://www.andreasaltelli.eu/file/repository/Science_Speaks_to_Power.pdf

Realities of Science

- Science does not Yield the Truth
- Experts can be Expected to Disagree
- Science is Many
- The Principle of Relevance (of the way of use)
- Policy cannot be Based on Science

(Collingridge and Reeve, 1986)

http://www.andreasaltelli.eu/file/repository/Science_Speaks_to_Power.pdf

Over-critical model

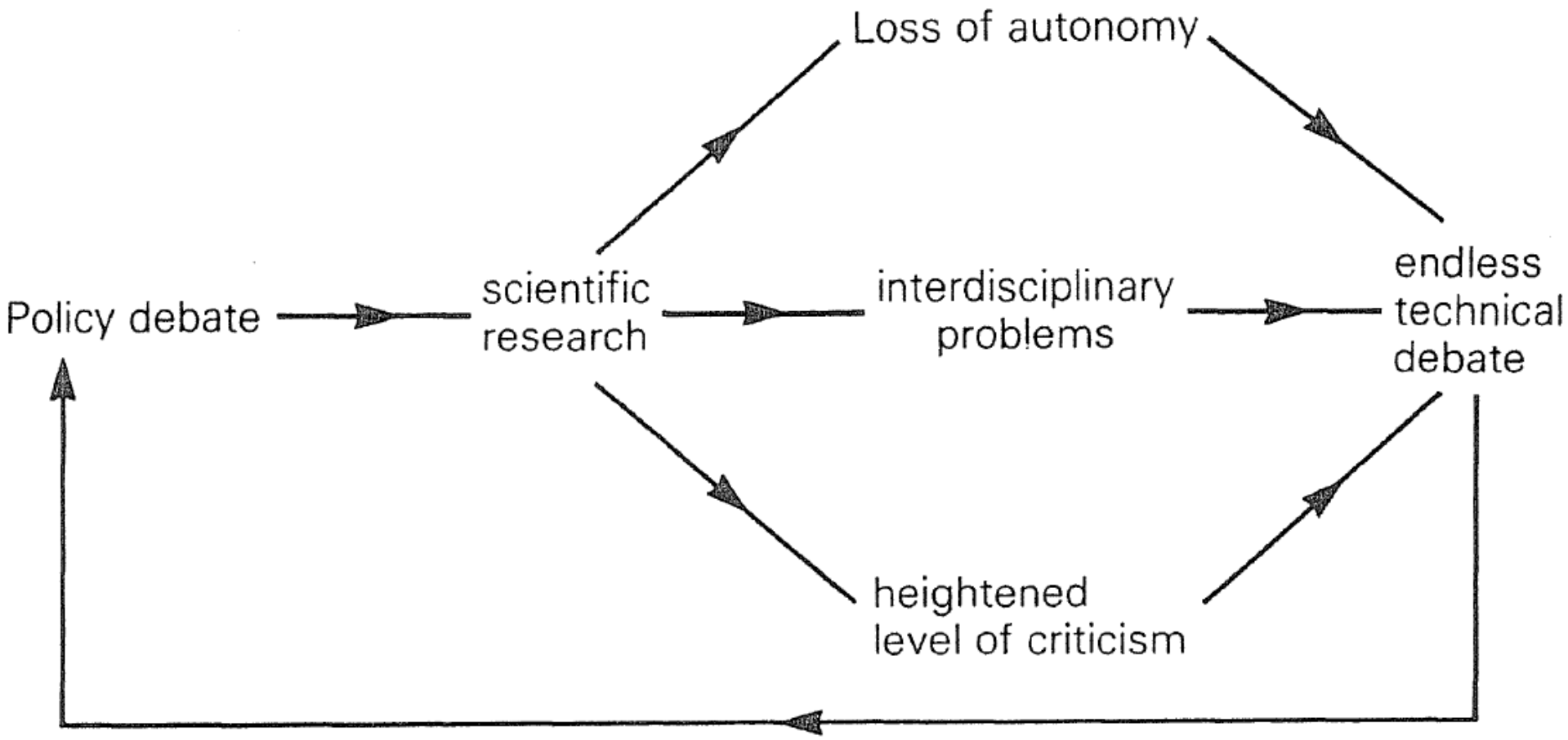


Figure 1 *The Over-critical Model*

(Collingridge and Reeve, 1986)

http://www.andreasaltelli.eu/file/repository/Science_Speaks_to_Power.pdf

The under-critical model

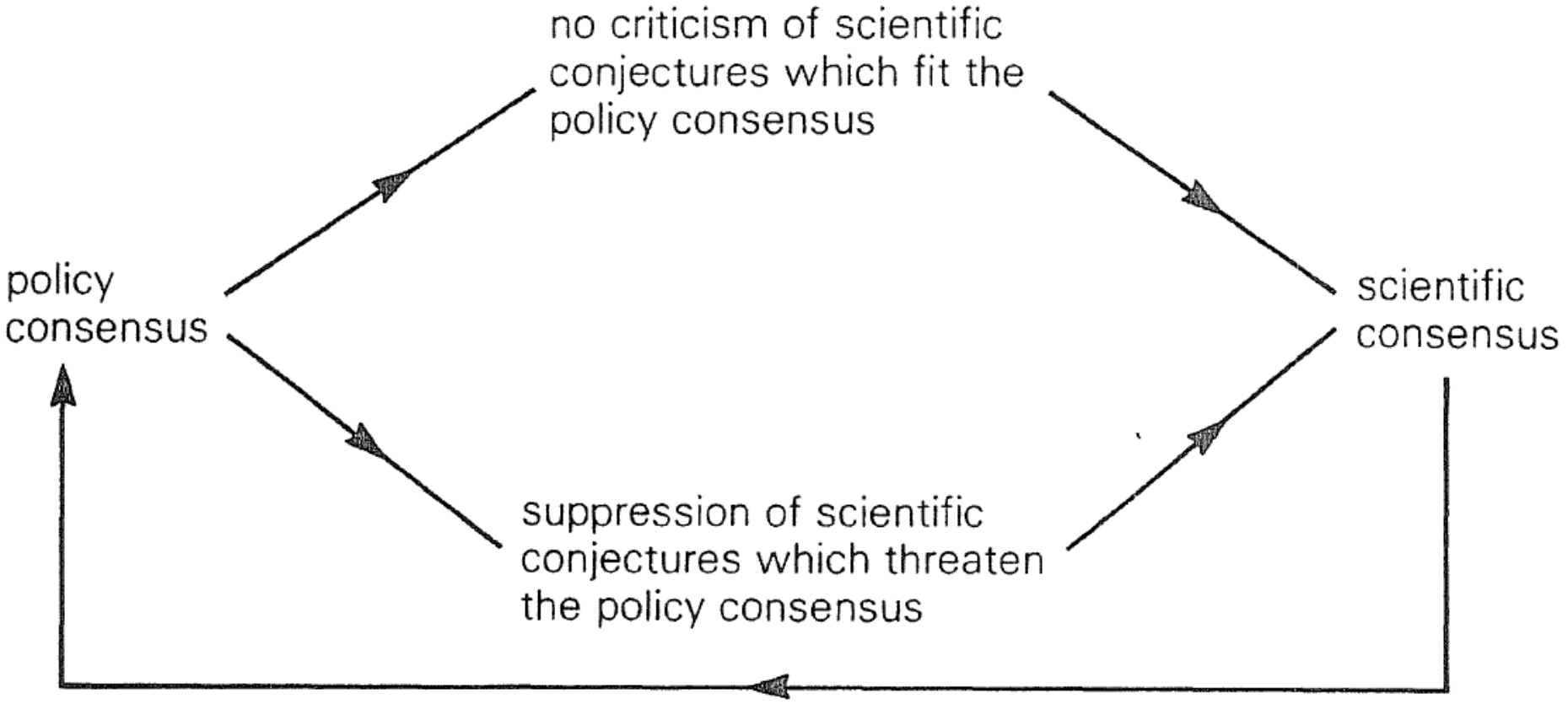


Figure 2 *The Under-critical Model*

(Collingridge and Reeve, 1986)

http://www.andreasaltelli.eu/file/repository/Science_Speaks_to_Power.pdf

Institutional cultures in dealing with uncertainty

Models of Science and Policy

‘Modern’ model: Perfection and perfectibility

Facts determine correct policy

The true entails the good

No limits to progress of control over environment

No limits to material & moral progress

Technocratic view

Science informs policy by producing ***objective***, ***valid*** and ***reliable*** knowledge:

“*Speaking truth to power*”

Funtowicz 2006, Funtowicz & Stand 2007

limitations of modern model

Objective, valid and reliable, but...

- is information really objective? [values, interests]
- is it valid? [assumptions, models, scenarios]
- is it reliable? [uncertainty, ignorance]

Modern model assumes that:

Uncertainty can be eliminated or controlled

Only one correct system description

as if system and problem are not complex

Responses to limitations of Modern Model

Denial

Accommodations

Rethinking

Rescuing Modern Model from uncertainty:

The Precautionary Model

Imperfection in science:

> *"lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" (Rio Declaration 1992)*

EU: proportionality

> not PP but extended cost-benefit analysis

Normative principle still in terms of quantitative science and modern rationality (CBA)

What if we can not know what kind of surprises a new technology may lead to

A practical problem:

Protecting a strategic fresh-water resource

5 scientists addressed same question:

"which parts of this area are most vulnerable to nitrate pollution and need to be protected?"

(Refsgaard, Van der Sluijs et al, 2006)

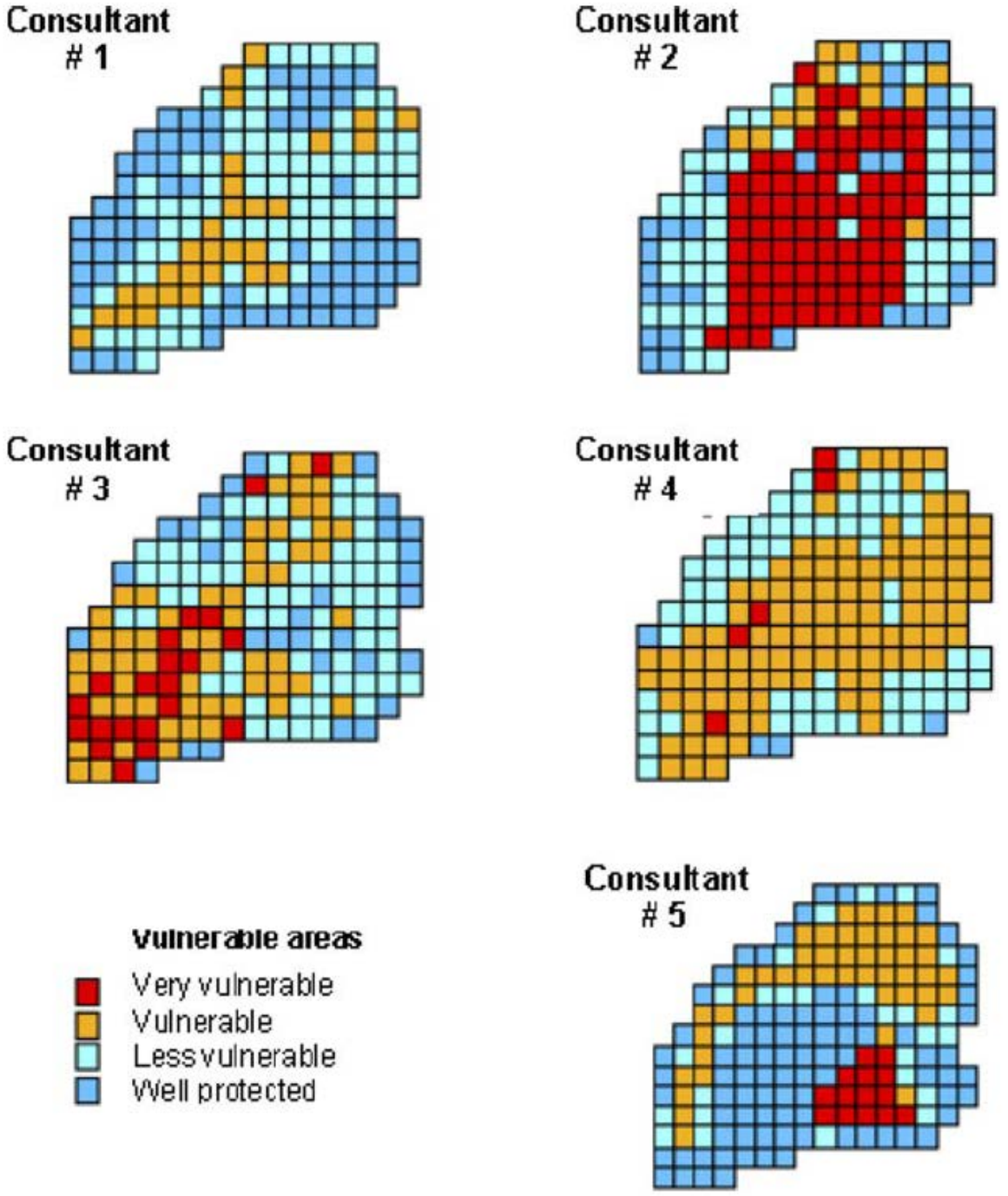


Fig. 1. Model predictions on aquifer vulnerability towards nitrate pollution for a 175 km^2 area west of Copenhagen [11].

Rescuing the modern model from indeterminacy

The Framing Model

In absence of conclusive facts, science is one of many inputs in policy, functioning as ***evidence*** in the discourse.

Conflicting certainties, multitude of **alternative framings defendable**

Rescue: **Dialogue**, participation, inter-subjective knowledge, consensus formation, robustness, upstream engagement

Works if framing problem is one of bias and bounded rationality ("blinkers")

Retains the modern **ideal of certain scientific knowledge**

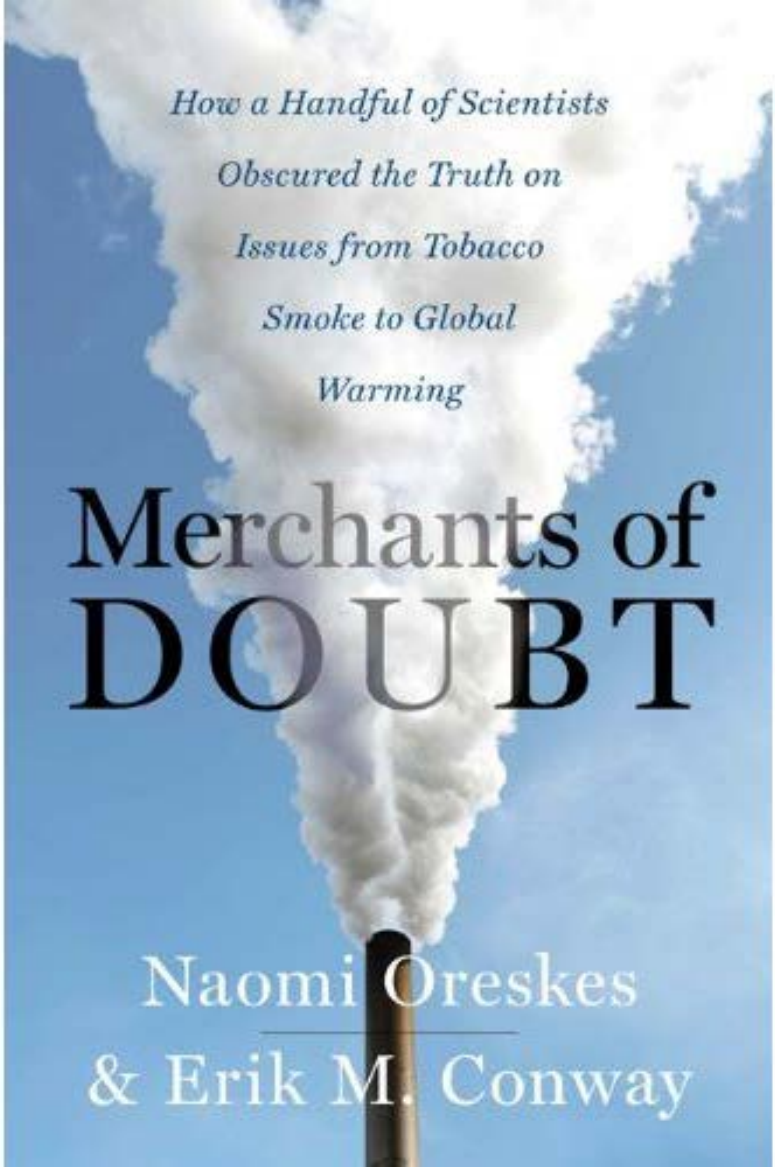
But... it is a matter of necessary choices, not of unnecessary biases.

Industry groups are fighting government regulation by fomenting scientific uncertainty

DOUBT Is Their Product

By David Michaels
Photographs by Mindy Jones

Few scientific challenges are more complex than understanding the health risks of a chemical or drug. Investigators cannot feed toxic compounds to people to see what doses cause cancer. Instead laboratory researchers rely on animal tests, and vinyl chloride, chromium, benzene, benzidine, nickel, and a long list of other toxic chemicals and medications. What is more, Congress and the administration of President George W. Bush have encouraged such tactics by making it easier for private groups to challenge government-funded research. Al-



- Fabrication (and politicisation) of uncertainty

The example of the US Data quality act and of the OMB "Peer Review and Information Quality" which

"seemed designed to maximize the ability of corporate interests to manufacture and magnify scientific uncertainty".

Bias

Unintentional bias

Overconfidence

Representativeness

Anchoring

Bounded rationality

Availability / lamp posting

Implicit assumptions

Motivational bias

Strategic research behaviour

Interests with regard to outcome of analysis

http://www.nusap.net/modules.php?op=modload&name=NS-Glossary&file=index&letter=B

Some of the strategies used

- Selective funding of research addressing favourable questions;
- Keeping important (but unwelcome) aspects outside the scope of research;
- Making (favourable) assumptions & underpinning these rhetorically, not factual;
- Deliberately faulty experimental design to obtain desired results;
- Intentional misapplication of statistics;
- Hiding unwelcome uncertainties / magnifying welcome uncertainties;
- Improper generalization;
- Removal of unwelcome results, ignoring unwelcome knowledge;
- Prohibition of disclosure of outcomes or prolongued embargo (IPR);
- Tampering of data from literature, observation or experiment;
- Knowingly wrong or biased representation of others' findings;
- Fabrication of data /fraud;
- Drawing of intentionally false conclusions / firmer than justified;
- Promote wrong interpretations by the media;
- Disobligue colleagues in order to influence the scientific and societal debate;
- Feigning of expertise (acquisition, media, hearings);
- Spin doctor techniques against unwelcome knowledge;
- Ghost writing;
- Pal review (nepotism);

Rescuing the modern model from conflict of interests

Model of science/policy **demarcation**

Acknowledges expert disagreement and bias, but diagnoses and prescription differ from framing model

Framing: make values explicit; demarcation: **values = politics**, **facts = science**, keep separated!

Ensure that political accountability is not shifted to scientist, keep **science objective and value free**

Call for independent studies, **sound science**, strict separation of risk assessment and risk management

But... Complexity, Indeterminacy, fundamental impossibility of value free science

Counterweight

Codes of conduct *(=if power balance remains unchanged this is “end of pipe!”)*

Multi-disciplinary broad expert panels

Include minority views in scientific advice (Health Council)

Organise systematic scrutiny and critical reflection (KQA)

Investigative journalism

Extended Peer Review: Blogosphere

Contra-expertise / Science shops

Community Based Auditing

Crowd financing of contra-research

Critical Discourse Analysis

Audits

Revision of research funding required:
More independent funding, increase academic freedom!

Categories of Deceitful Tactics and Abuse of the Scientific Process

source: P.H. Gleick, Pacific Institute, 2007
http://www.pacinst.org/publications/testimony/Gleick_Senate_Commerce_2-7-07.pdf

Appeal to Emotion (appeal to ridicule, fear etc)

Personal ("Ad Hominem") Attacks

Mischaracterizations of an Argument

Inappropriate Generalization

Misuse of Facts (inadequate sample)

Misuse of Uncertainty

False Authority

Hidden Value Judgments (ideologies)

Scientific Misconduct (fabrication etc.)

Science Policy Misconduct (Packing Advisory Boards, selective funding)

modifications in response to problems of modern model

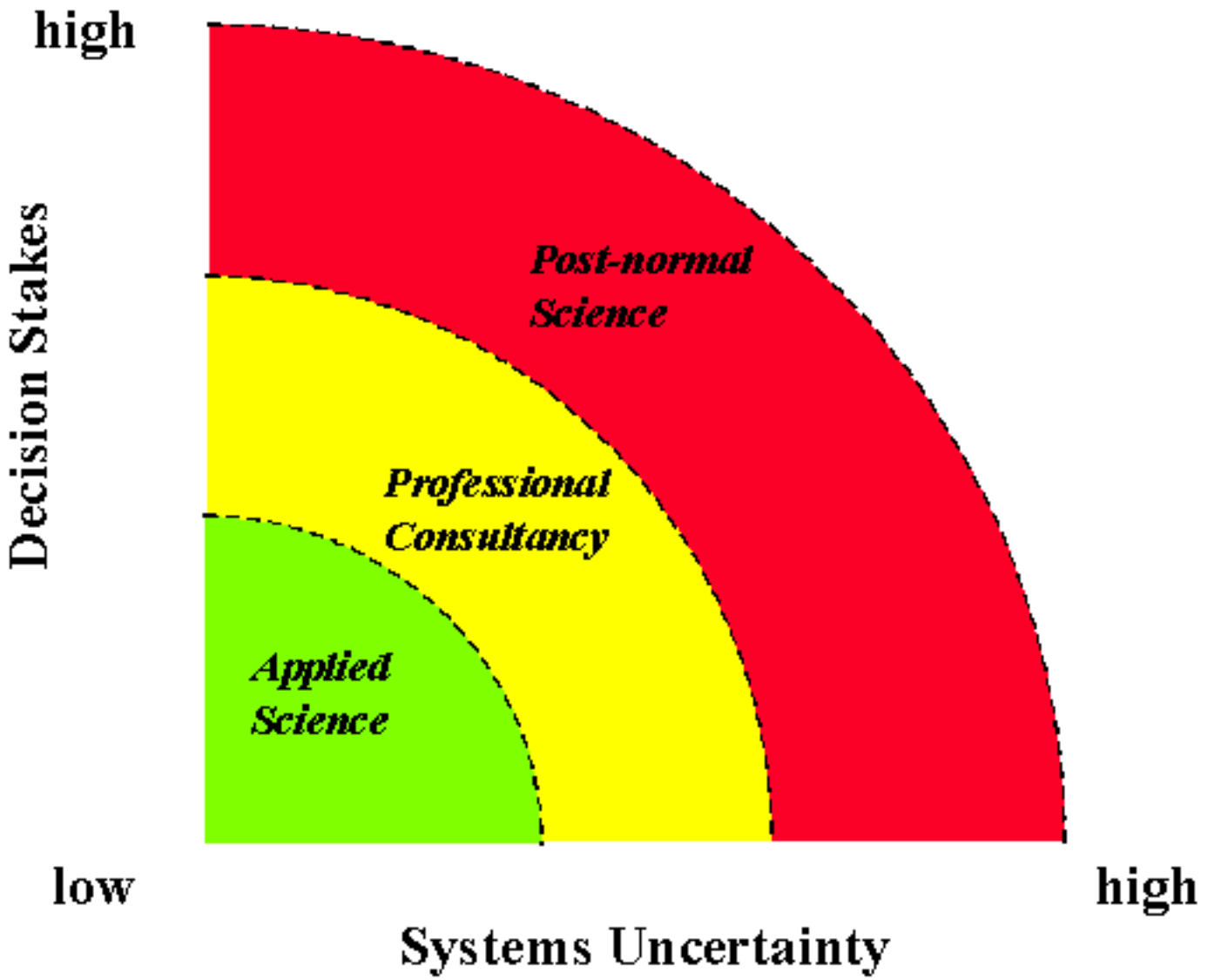
- Imperfection
  - Policy modified by extended cost benefit which is sold as precaution
- Indeterminacy
  - Problems (co-)framed by multiple disciplines and stakeholders [boundary work type I]
- Conflicts of interest
  - Protect science from political pressures and interests: demarcation [boundary work type II]

In case of complex problems, all modifications of modern models fail because:

Truth cannot be known and is thus not a substantial aspect of the issue

*"... good scientific work has a product, which should ... correspond to Nature as closely as possible... But **the working judgements on the product are of its quality, and not of its logical truth**."*

(Funtowicz and Ravetz 1990, p. 30)


high
Decision Stakes
Post-normal Science
Professional Consultancy
Applied Science
low
high
Systems Uncertainty

The alternative model: PNS

Extended participation:

working deliberatively within imperfections

Science is only one part of relevant **evidence**

Critical dialogue on strength and relevance of evidence

Interpretation of evidence and attribution of policy meaning to knowledge is democratized

Tools for Knowledge Quality Assessment empower all stakeholders to engage in this deliberative process

Elements of Post Normal Science

Appropriate management of uncertainty quality and value-ladenness

Plurality of commitments and perspectives

Internal extension of peer community *(involvement of other disciplines)*

External extension of peer community *(involvement of stakeholders in environmental assessment & quality control)*

THE RIGHTFUL PLACE OF SCIENCE:

SCIENCE ON THE VERGE

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