

Reflexive discussion of uncertainty, using pedigree assessment.

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Reflexive discussion of uncertainty.

1. ROLE OF SCIENTIFIC UNCERTAINTY IN POLICY DEBATES AND CONTROVERSIES.
2. A PROPOSAL FOR A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT : DISCUSSION OF UNCERTAINTY AS STARTING POINT FOR MORE FRUITFUL NEGOTIATION AND DELIBERATION.
3. RECENT EVOLUTIONS IN THE FRAMEWORKS FOR REGULATION : THE NEED FOR REFLEXIVE APPROACHES TOWARDS UNCERTAINTY



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ROLE OF SCIENTIFIC UNCERTAINTY IN POLICY DEBATES AND CONTROVERSIES.

Case study : analysis of a controversy on potential health effects from waste incineration.

1. 'political' problem referred to science.
2. insight in the dynamics of controversy : science seems to make the controversy worse.
3. reflexivity : 'the issue was dealt with in an inadequate way'



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ROLE OF SCIENTIFIC UNCERTAINTY IN POLICY DEBATES AND CONTROVERSIES.

Dynamics of controversy : three inter-related factors :

- factual 'complexity' of the problem leading to 'radical' uncertainty (ignorance, indeterminacy)
- plural framings of the problem, in science (disciplines) and in the socio-political arena (diverse interests, perspectives and value frameworks)
- institutional arrangement : 'science speaks truth to power'

Reflexivity

"the deadlock has fundamental roots and is related to our established thinking, the categories, the concepts and the models that are used."



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A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT

Can a discussion on scientific uncertainty challenge established thinking and be useful as starting point for more fruitful negotiation ?

- ☐ Use of 'pedigree of knowledge' : structuring a discussion to increase insight in the crucial aspects of the production process of scientific knowledge
- ☐ Discussion organized in an interactive way



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A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT

PEDIGREE OF KNOWLEDGE :

- ❑ Emerged in the context of **N-U-S-A-P** notation and discussion system for uncertainty in policy supporting knowledge (Funtowicz and Ravetz)
- ❑ NUSAP :
 - ✓ Numeral – Unit – Spread – Assessment – Pedigree
 - ✓ **Different** sorts of uncertainty
 - ✓ Promotes a critical reflection on the **quality** ('fitness for purpose') of knowledge



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A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT

PEDIGREE OF KNOWLEDGE :

- ❑ Assesses the production process of scientific information
- ❑ Addresses and explores 'ignorance' and 'indeterminacy'
- ❑ Assessment through use of a pedigree **matrix** (phases and modes)
- ❑ **Innovative** use of pedigree : interactive; involvement of stakeholders; discussing relation between uncertainty and framing, leading to reflexivity.



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A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT

Using *pedigree* in an interactive approach aiming at reflexivity :

why and how ?

- ❑ Pedigree : focus on **uncertainty**
- ❑ Relating uncertainty to **problem framing** :
 - ✓ Pedigree addresses the inseparability of the formal (cognitive) and informal (social) aspects of knowledge development
 - ✓ Adaptation of the pedigree scheme :
 - Pedigree phase(s) related to **framing**



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Using *pedigree* in an interactive approach aiming at reflexivity :

why and how ?

- ❑ Intention to experimenting with roles :
 - ✓ **Extension** of the 'assessing community'
 - Emphasis on other roles.
 - Introduction of different perspectives.
 - Scientific experts in another role
 - ✓ **Protocol** for interactive pedigree discussion
 - 'Reasoned debate'



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A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT

Using *pedigree* in an interactive approach aiming at reflexivity :
why and how ?

- ❑ Interesting features in view of use in **interactive** processes :
 - ✓ Extension of existing notation practices
 - ✓ Coherent, simple
 - ✓ Flexible
 - ✓ Self explanatory power and visual attractiveness



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A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT *AN 'EXPERIMENT'*

- ❑ Workshop for assessing an EPIDEMIOLOGICAL study that had been used in an environmental health risk controversy
- ❑ Development of PEDIGREE scheme : **PROBLEM FRAMING PHASE**
- ❑ Development of pedigree scheme : **MODES** referring to how the **PROCESS** to deal with each phase was run
- ❑ The **PROTOCOL** for discussion :
 - shaped as a **REASONED DEBATE**
 - for each phase : two critical aspects discussed
 - role of different participants
 - role of session leader



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A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT – AN ‘EXPERIMENT’

The pedigree scheme for assessing an epidemiological study.

	Problem framing	Data – definitions	Data – Collection	Analysis	(extended) Review
4	Negotiation	Negotiation	Task force	established	Extended
3	Scientific	Science	Direct	Discussion	External
2	Compromise	Pragmatic	Bureaucratic	Competition	Independent
1	Inertia	Symbolic	Indirect	Embryonic	Internal
0	Controversy	Unknown	Fiat	No info	none

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A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT – AN ‘EXPERIMENT’
PROTOCOL FOR DISCUSSION



Reflexive discussion of uncertainty.

A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT *AN 'EXPERIMENT'*

RESULTS

❑ DISCUSSION THEMES

- Epidemiological and socio-political framings 'did not match'
- Adequate use of epidemiology ? Disciplinary fix and intra-disciplinary controversy.
- A scientific and/or a political problem ?
- The 'political sensitivity' of research methods.
- The issue of agency. Who assures quality and how ?



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A REFLEXIVE APPROACH, USING PEDIGREE ASSESSMENT *AN 'EXPERIMENT'*

RESULTS

☐ **PROCESS :**

- centrality of issues of framing in the discussion
- raising awareness of complexity
- starting point for learning

☐ **SCORING (1-2 , 1-2 , 2 , 2-3 , 0)**



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REFLECTIONS/CONCLUSIONS

☐ Potential :

- possible to 'use' the discussion of uncertainty to initiate **reflexive learning** (more adequate image of policy related knowledge)
- judged useful by most participants in this respect

☐ Important consideration : **when** to use this ? when is it relevant, necessary ?



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THE NEED FOR REFLEXIVE APPROACHES TOWARDS UNCERTAINTY

TO COUNTER UNREFLEXIVE EVOLUTIONS IN DEALING WITH UNCERTAINTY IN THE FRAME OF REGULATION.

US : phenomenon of 'manufacturing uncertainty' + institutional developments (f.i. Data Quality Act)

❑ uncertainty is a strategic resource in adversarial approaches towards regulation

❑ mainstream suggestions for solving this problem : neglect the importance of the cultural-institutional premises

- 'science speaks truth to power'
- 'we have to be certain before we can act'



Reflexive discussion of uncertainty.

THE NEED FOR REFLEXIVE APPROACHES TOWARDS UNCERTAINTY

TO COUNTER UNREFLEXIVE EVOLUTIONS IN DEALING WITH UNCERTAINTY IN THE FRAME OF REGULATION.

EU : recognition of need for change in science-policy relations (White paper on governance + EC Communication on the **Precautionary Principle**), BUT :

- ❑ open-ended process of change : interpretation and implementation are important
- ❑ some interpretations :
 - only recognition of quantifiable uncertainty
 - unambiguous 'level of uncertainty' expected from science

